PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY Complainant, v. CSX TRANSPORTATION, INC. Defendant.	))))))))))))	Docket No. NOR 42142

OPENING EVIDENCE OF COMPLAINANT

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ACRONYMS

The following acronyms are used:

AAR	Association of American Railroads
AEI	Automatic Equipment Identifier
AEO	2015 Annual Energy Outlook Update Forecast
AII-LF	All-Inclusive Less Fuel Index, published by AAR
AMTO	Assistant Manager of Train Operations
ATC	Average Total Cost
ATF	Across-the-Fence
BNSF	BNSF Railway Company
BRC	Belt Railway Company of Chicago
CAPM	Capital Asset Pricing Model
CERR	Consumers Energy Railroad
CMM	Coal Marketing Module
CMP	Constrained Market Pricing
CN	Canadian National Railway
COC	Cost of Capital
COD	Cost of Debt
COE	Cost of Equity
CP	Canadian Pacific Railway
CSXIT	CSX Intermodal Terminals, Inc.
CSXT	Defendant CSX Transportation, Inc.
CTC	Centralized Traffic Control
CWR	Continuous Welded Rail
DCF	Discounted Cash Flow
DOT	Department of Transportation
DP	Distributed Power Configuration
DTL	Direct To Locomotive
EIA	Energy Information Administration
EPA	Environmental Protection Agency
ERM	Environmental Resources Management
FAS-PAS	Fail-Safe Audible Signal—Power Activated Switch
FED	Failed/Dragging Equipment Detector
FRA	Federal Railroad Administration
GAAP	Generally Accepted Accounting Principles
GTM	Gross Ton-Mile
GWR	Gross Weight on Rail
HDF	On-Highway Diesel Fuel Index
IHB	Indiana Harbor Belt Railroad
MERC	Midwest Energy Resources Company
MGT	Million Gross Tons

MISO	Mid-Continent Independent System Operator
MLO	Manager of Locomotive Operations
MMM	Maximum Markup Methodology
MOW	Maintenance of Way
MRP	Market Risk Premium
MSDCF	Multi-Stage Discounted Cash Flow
MSRR	Michigan Shore Railroad
MTO	Manager of Train Operations
NS	Norfolk Southern Railway Company
PPI	Producer Price Index
PRB	Powder River Basin
PTC	Positive Train Control
RCAF-A	Rail Cost Adjustment Factor, adjusted for productivity
RCAF-U	Rail Cost Adjustment Factor, unadjusted for productivity
ROI	Return On Net Investment
ROW	Right of Way
R/VC	Revenue-to-Variable Cost
RSIA	Rail Safety and Improvement Act of 2008
RTC	Rail Traffic Controller Model
S&P	Standard & Poor's
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
STEO	Short-Term Energy Outlook
T&E	Train & Engine
UP	Union Pacific Railroad Company
URCS	Uniform Railroad Costing System
WCTL	Western Coal Traffic League

CASE GLOSSARY

The following short form case citations are used:

AEPCO 2002	*Ariz. Elec. Power Coop., Inc. v. BNSF Ry. & Union Pacific R.R.*, Docket No. 42058 (STB served Aug. 20, 2002)
AEPCO 2011	*Ariz. Elec. Power Coop., Inc. v. BNSF Ry. & Union Pacific R.R.*, STB Docket No. 42113 (STB served Nov. 22, 2011)
AEP Texas	*AEP Tex. N. Co. v. BNSF Ry.*, Docket No. 41191 (Sub-No. 1) (STB served Sept. 10, 2007)
APS	*Ariz. Pub. Serv. Co. and Pacificorp. v. The Atchison, Topeka & Santa Fe Ry.*, 2 S.T.B. 367 (1997)
Cargill	*Cargill, Inc. v. BNSF Railway*, STB Docket No. 42120 (STB served Aug. 12, 2013)
Coal Rate Guidelines or *Guidelines*	*Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520 (1985), *aff'd sub nom. Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987)
Coal Trading	*Coal Trading Corp. v. The Baltimore & Ohio R.R.*, 6 I.C.C.2d 361 (1990)
CP&L	*Carolina Power & Light Co. v. Norfolk S. Ry.,* 7 S.T.B. 235 (2003)
Duke/CSXT	*Duke Energy Corp. v. CSX Transp. Inc.,* 7 S.T.B. 402 (2004)
Duke/NS	*Duke Energy Corp. v. Norfolk S. Ry.,* 7 S.T.B. 89 (2003)
DuPont	*E.I. DuPont De Numours and Co. v. Norfolk S. Ry.*, Docket No. 42125 (STB served March 24, 2014, updated Oct. 3, 2014)
Ex Parte 664	*Petition of the Western Coal Traffic League to Institute a Rulemaking Proceeding to Abolish the Use of the Multi-Stage Discounted Cash Flow Model In Determining the Railroad Industry's Cost of Equity Capital*, Ex Parte No. 664 (Sub-No. 2) (pending)

Ex Parte 715	*Rate Regulation Reforms*, Ex Parte No. 715 (STB served July 18, 2013)
Ex Parte 722	*Railroad Revenue Adequacy*, Ex Parte No. 722 (pending)
FMC	*FMC Wyo. Corp. v. Union Pac. R.R.,* 4 S.T.B. 699 (2000)
IPA	*Intermountain Power Agency v. Union Pac. R.R.*, STB Docket No. 42136 (Complaint filed May 30, 2012)
KCP&L	*Kansas City Power & Light Co. v. Union Pac. R.R.,* STB Docket No. 42095 (STB served May 19, 2008)
Major Issues	*Major Issues in Rail Rate Cases*, Ex Parte No. 657 (Sub-No. 1) (STB served Oct. 30, 2006)
M&G Polymers	*M&G Polymers USA, LLC v. CSX Transp., Inc.*, NOR 42123 (STB served Sept. 27, 2012, updated Dec. 7, 2012)
Nevada Power II	*Bituminous Coal - Hiawatha, Utah to Moapa, Nevada,* 10 I.C.C.2d 259 (1994)
OG&E	*Oklahoma Gas & Electric Co. v. Union Pac. R.R.,* Docket No. 42111 (STB served July 24, 2009)
Otter Tail	*Otter Tail Power Co. v. BNSF Ry.,* Docket No. 42071 (STB served Jan. 27, 2006)
Seminole	*Seminole Electric Coop., Inc. v. CSX Transp., Inc.,* STB Docket No. 42210 (Complaint filed Oct. 3, 2006)
Sunbelt	*Sunbelt Chlor Alkali Partnership v. Norfolk S. Ry.*, Docket No. 42130 (STB served June 20, 2014)
TMPA	*Texas Mun. Power Agency v. Burlington N. and Santa Fe Ry.,* 6 S.T.B. 573 (2003)
TPI	*Total Petrochemicals & Refining USA, Inc. v. CSX Transp., Inc.*, Docket No. 42121 (Complaint filed May 3, 2010)
WFA I	*Western Fuels Ass'n, Inc. & Basin Electric Power Coop. v. BNSF Ry.,* STB Docket No. 42088 (STB served Sept. 10, 2007)

WFA II	*Western Fuels Ass'n, Inc. & Basin Electric Power Coop. v. BNSF Ry.,* Docket No. 42088 (STB served Feb. 18, 2009)
WPL	*Wisconsin Power & Light Co. v. Union Pac. R.R.,* 5 S.T.B. 955 (2001)
WTU	*West Tex. Utils. Co. v. Burlington N. R.R.,* 1 S.T.B. 638 (1996), *aff'd sub nom. Burlington N. R.R. v. STB*, 114 F.3d 206 (D.C. Cir. 1997)
Xcel I	*Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington N. & Santa Fe Ry.,* 7 S.T.B. 589 (2004)
Xcel II	*Public Serv. Co. of Colorado d/b/a Xcel Energy v. Burlington N. & Santa Fe Ry.,* Docket No. 42057 (STB served Jan. 19, 2005)

Part I – Counsel's
Argument

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY Complainant, v. CSX TRANSPORTATION, INC. Defendant.	)	Docket No. NOR 42142

PART I

COUNSEL'S ARGUMENT AND SUMMARY OF THE EVIDENCE

This is the Opening Evidence of Complainant, Consumers Energy Company ("Consumers"). In this proceeding, Consumers challenges the reasonableness of the common carrier rates established by Defendant, CSX Transportation, Inc. ("CSXT"), for application to the transportation of coal in unit trains comprised of Consumers-supplied railcars to Consumers' J.H. Campbell Generating Station from CSXT's interchange with BNSF[1] near Cicero, IL, in the vicinity of Chicago.

[1] The coal destined for Campbell that is the subject of the challenged rates originates on the lines of BNSF Railway Co. in the Powder River Basin region of Wyoming. The coal is transported by BNSF from the origin mines to the CSXT interchange under a separate contract that Consumers entered into with BNSF pursuant to 49 U.S.C. §10709. {

The challenged rates were established in Amendment 1 to CSXT's common carrier Tariff CSXT-13952. *See* Consumers' Original Complaint, Exhibit A. As of the Third Quarter of 2015, the rate established by CSXT for coal transportation to Campbell from the Chicago interchange with BNSF was $14.95 per ton.[2] Amendment 1 to CSXT-13952 also provides that the rates to Campbell are subject to the application of CSXT's fuel surcharge pursuant to its Fuel Surcharge Publication 8662, and to adjustment (but not below the January 1, 2015 rate level) on the first day of each calendar quarter starting April 1, 2015, based on 100% of the quarterly change in the Association of American Railroads' All-Inclusive Index, Less Fuel ("AII-LF").[3]

As described in further detail *infra*, Tariff CSXT-13952 was established in response to Consumers' request, pursuant to 49 U.S.C. §11101 and 49 C.F.R. Part 1300, for common carrier rates and service terms to apply to

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[2] As Consumers explained in its Complaint, CSXT-13952 also establishes common carrier rates applicable to (a) coal shipments from Eastern CSXT Origin Rate Districts, in addition to the Chicago interchange; and (b) coal shipments to destinations other than the Campbell Station. While Consumers does not concede that the rates established by CSXT for service from these other origins and/or to these other destinations are fair or reasonable, those rates are not under challenge in this proceeding.

[3] As originally established, CSXT-13952 provided that quarterly rate adjustments would be based on changes in the "Rail Cost Adjustment Factor-All Inclusive Less Fuel," which Consumers did not recognize as an established, published index. In response to a discovery request, however, CSXT clarified that it was the same index as the AII-LF.

Campbell coal transportation commencing January 1, 2015. Prior to that date, CSXT coal deliveries from the Chicago area to Campbell were governed by a series of rail transportation contracts between Consumers and CSXT, the most recent of which was denominated as Contract CSXT-C-84720. Consumers' request for common carrier rates was necessitated by its inability to negotiate a new or extended contract with CSXT on reasonable terms, in advance of CSXT-C-84720's December 31, 2014 expiration date. At the time that contract expired, the applicable rate {

}[4] The common carrier rate established in CSXT-13952 for application to the same service as of January 1, 2015 was $14.95 per ton (also subject to a fuel surcharge), an overnight base rate increase of { }.

Herein, Consumers presents its Opening Evidence in support of the following relief: (1) a ruling by the Board that CSXT possesses market dominance over the coal transportation to which the challenged CSXT-13952 rate applies, within the meaning of 49 U.S.C. §10707; (2) a Board determination that the challenged CSXT rate exceeds a reasonable level based on the *Coal Rate Guidelines*'[5] Stand-Alone Cost (SAC) Constraint, and therefore violates 49 U.S.C.

[4] *See* { }.

[5] *Coal Rate Guidelines – Nationwide,* 1 I.C.C. 2d 520 (1985), *aff'd. sub nom., Consol. Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987).

§10701(d)(1); (3) a Board determination that CSXT is "revenue adequate" as defined by 49 U.S.C. §10704(a)(2), for purposes of application of the Revenue Adequacy Constraint in the Board's *Guidelines;* (4) a Board determination that the rate increase that CSXT imposed on Consumers' Campbell coal traffic effective January 1, 2015 was unreasonable under the *Guidelines*' Revenue Adequacy Constraint, and therefore violates 49 U.S.C. §10701(d)(1); (5) the prescription by the Board of lawful maximum rates for coal transportation from the BNSF interchange with CSXT near Chicago to Campbell for each of the years 2015 through 2024, at the lower of the maximum rates indicated by application of the SAC Constraint and the Revenue Adequacy Constraint, pursuant to 49 U.S.C. §§ 10704 (a)(1) and 11701(a); and (6) an award by the Board of reparations payable by CSXT to Consumers for all charges collected under CSXT-13952 in excess of the maximum rates prescribed by the Board, between January 1, 2015 and the date of CSXT's compliance with the Board's prescription order, together with interest calculated in accordance with the standard adopted by the Board in *Ex Parte No. 715.*[6]

As of the Third Quarter of 2015, the maximum rate which the evidence demonstrates the Board should prescribe for coal delivery service to Campbell – and which clearly illustrates the degree of monopoly pricing that CSXT has imposed on Consumers and its ratepayers – is $10.08 per ton.

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[6] *Rate Regulation Reforms*, Ex Parte No. 715 (STB served July 18, 2013).

A. BACKGROUND FACTS[7]

1. <u>The J.H. Campbell Generating Station</u>

Campbell currently is comprised of three (3) coal-fired generating units, with a combined output of 1,455 megawatts. Campbell Units 1 and 2 first came on-line in 1962 and 1967, respectively. Campbell Unit 3 – the largest of the three (3) generators – began commercial operation in 1980. The units at Campbell generally consume between 4.8 million and 6 million tons of coal annually, depending upon regional power demand. Prior to 1990, the Campbell Station relied almost exclusively on coal from origins in the Eastern United States. However, since the early 2000s, Units 1 and 3 have run on western coal sourced in the Powder River Basin region of Wyoming, while Unit 2 uses a blend of eastern and western coal.

The Campbell Station is located at West Olive, MI, near Lake Michigan. All coal-fired power plants require access to substantial supplies of water, for the generation of steam to run their turbines and make electricity, for cooling, and for the discharge of treated effluents that are by-products of the generation process. Campbell's site was selected to meet these requirements. From the start of commercial operations, however, all coal consumed at Campbell

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[7] The Background Facts set forth in this Part I-A are verified by Brian D. Gallaway, Consumers' Executive Director of Fossil Fuel Supply, based on first-hand knowledge and a review of Consumers' business records. Mr. Gallaway's qualifications and experience are detailed in Part V.

has been delivered by rail; the plant lacks the facilities and infrastructure needed to receive the millions of tons of coal that it requires annually by any other means.

Campbell is operated as a "baseload" generating station, meaning that subject to periodic planned or forced outages for maintenance or repairs, all three (3) units are run on a continuous basis in response to ratepayer demand and determinations made by the Mid-Continent Independent System Operator (MISO), which governs power distribution within Consumers' region. This status is expected to continue into the future, and at least through December 31, 2024. Likewise, Consumers' ability to provide reliable and affordable electric service to its residential and commercial customers depends on stable economic and operational conditions at Campbell.

2. <u>The Karn-Weadock and B.C. Cobb Generating Stations</u>

While CSXT's exorbitant rates for coal transportation to Campbell are the direct focus of this proceeding, certain facts regarding two (2) other generating facilities operated by Consumers are relevant to issues raised by Consumers' Complaint in this case.

The Karn-Weadock complex is located at Saginaw Bay, on the eastern side of Michigan. Four (4) of the six (6) units at the facility – which is rated at 2,101 total megawatts – burn western coal in blends with coal from eastern sources. With its site protected from Lake Huron by the boundaries of Saginaw Bay, Karn-Weadock was constructed to include the infrastructure necessary to access lake vessel transportation for a portion of its coal requirements, on a seasonal basis. Karn-Weadock also has access to competitive line-haul rail service from coal origins and rail interchanges, both from CSXT and from the Canadian National Railway (CN), in conjunction with short line railroads that actually serve the plant. Until the end of 2014, CSXT transported western coal bound for Karn-Weadock under Contract CSXT-C-84720, in unit trains from the same BNSF interchange near Chicago that is used for shipments to Campbell. However, the CSXT route from the interchange to Karn-Weadock is over 400 miles in length – more than twice the distance from the same interchange to Campbell.

Weadock Units 7 and 8 were placed into service in 1955 and 1958, respectively, and no longer can be operated economically in compliance with modern environmental laws and regulations. Pursuant to a consent decree negotiated by Consumers with the U.S. Environmental Protection Agency and the Department of Justice in settlement of litigation,[8] Weadock Units 7 and 8 are scheduled to permanently cease operations on April 16, 2016.

Consumers' B.C. Cobb Station is a 320-megawatt facility located near Muskegon, MI. Like Karn-Weadock – and unlike Campbell – Cobb also has access to lake vessel transportation for its coal requirements, which at approximately 1 million tons per year are modest relative to Campbell's needs. The two (2) generating units at Cobb entered service in 1956 and 1957, and

[8] Consent Decree filed September 16, 2014 in the U.S. District Court for the Eastern District of Michigan in Civil Action No. 14-13580, *United States of America v. Consumers Energy Company* (*see* Exhibit I-2).

historically burned a mix of eastern and (more recently) western coal. Like Weadock Units 7 and 8, however, the Cobb units cannot continue to operate under current environmental restrictions, and also will be retired in April 2016 under the same negotiated consent decree.

3. Coal Transportation to Campbell Through 2014

At least since the commencement of western coal use at Campbell in the 1990s, Consumers' coal supplies for the plant were transported by rail under a series of contracts with CSXT, pursuant to 49 U.S.C. §10709 and its predecessor statute. Typically, these contracts would cover not only movements of large volumes of western coal from origin carrier interchanges near Chicago – a service which only CSXT could provide – but also smaller amounts of eastern coal bound for Campbell, and shipments of both eastern and western coal to the Karn-Weadock complex[9] and eastern coal to the Whiting Generating Station, another relatively small, rail-served plant operated by Consumers that is located about ten (10) miles south of Monroe, MI.[10]

The rates negotiated by Consumers with CSXT for coal moving to Karn-Weadock reflected the *bona fide* competitive transportation options that Consumers has for that facility, which include seasonal lake vessel service and year-round access to rail service from CN. For shipments to the sole-served

[9] As noted *supra*, western coal moving to Karn-Weadock was transported through the same Chicago area interchange as Consumers' Campbell coal traffic.

[10] Modest volumes of western coal also are transported to Whiting by CN.

Campbell Station, however, the rates established by CSXT generally were benchmarked to the carrier's perception of the outcome of maximum rate litigation before the Board. {

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As the evidence discussed in Part II shows, this case is a true example of a captive shipper driven to rate litigation before the Board as a last and only resort. Over many years Consumers has considered, studied and analyzed whether practical options were available to create effective competition for CSXT coal service to Campbell, so that rates to that plant could be constrained by the market forces that have impacted CSXT rates to Karn-Weadock, rather than simply CSXT's perception of what it might be able to justify before the Board. These included exploration of the feasibility of constructing facilities that could enable Campbell to receive coal transported by water, and/or by a railroad other than CSXT. However, the outcomes of these efforts always led to the same conclusion: there are no operationally and economically feasible transportation options for Campbell that could act as effective, competitive constraints on CSXT's pricing on its service to the station.

The last contract between Consumers and CSXT covering western coal shipments from the Chicago area interchange to Campbell was CSXT-C-84720, which was effective from {

[11] *See* { }

}

4. This Proceeding

Between 2010 and 2014, significant changes in the legal, regulatory and commercial environments in which Consumers must operate combined to put compelling pressure on Consumers to reduce the delivered cost of coal at Campbell. Federal and state environmental protection rules and policies, shifts in energy demand within MISO, and competing fuel prices all combined to force Consumers' hand in controlling generation costs. At the time that Consumers sought to open negotiations with CSXT over a new contract for coal transportation starting January 1, 2015, CSXT's rates for coal deliveries to Campbell amounted to {

} Consumers highlighted all of these factors as discussions with CSXT began, along with its mandated goal of bringing the cost of Campbell coal deliveries down to a more reasonable level.

Despite efforts expended over a period of almost eighteen (18) months, Consumers and CSXT were not able to reach agreement on a new contract, and held very different views on what should be considered a reasonable

[12] {

}

rate for CSXT coal transportation service from the BNSF interchange near Chicago to the Campbell Station. The lack of a new agreement for service to Campbell also meant that no new contract was reached for coal transportation to Karn-Weadock. Unlike Campbell, however, Karn-Weadock has access to more than one rail carrier, and so Consumers proceeded to negotiate an agreement with CN for post-2014 coal deliveries to that station.

As Consumers explained in its Complaint, the lack of a new contract for Campbell coal transportation necessitated a request to CSXT for the establishment of rates and terms for common carrier service, effective January 1, 2015. Consumers also requested common carrier rates for service from the Chicago area interchange to Karn-Weadock, {

} CSXT responded with Tariff CSXT-13952, which took the {

} for service to Campbell and *increased* it to $14.95 per ton,[13] a hike of some { } Additionally, and significantly, CSXT responded to Consumers' shift of the Karn-Weadock coal traffic to CN by setting the same $14.95 per ton base rate for any shipments from the Chicago interchange that might be made to that destination as

[13] *See* Exhibit A to Consumers' Original Complaint. The established tariff rates also were made subject to a fuel surcharge and to quarterly adjustments based on changes in the AII-LF.

well, an increase of almost {   } in the rate that had applied under Contract-C-84720.[14]

In its Original Complaint submitted on January 13, 2015, Consumers challenged the reasonableness of the Campbell rates established under Tariff CSXT-13952, under the Stand-Alone Cost Constraint of the *Coal Rate Guidelines*. The Complaint also independently challenged the increase in rates imposed by Tariff CSXT-13952 over the levels paid by Consumers on December 31, 2014, under the *Guidelines'* Revenue Adequacy Constraint. Following the service of its Answer, CSXT filed a Motion on March 24, 2015, seeking dismissal of Consumers' revenue adequacy claim. That Motion was denied by the Board on June 15, 2015.

By Order entered on April 10, 2015, the Board established a procedural schedule to govern this case. That schedule subsequently was modified by an Order served on September 10, 2015. Also, on July 15, 2015, the Board issued a decision prescribing a format for the presentation of evidence on the issues of market dominance and SAC. Consumers' Opening Evidence is submitted in the prescribed format and in accordance with the modified schedule.

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[14] *Id.*

B. THE BOARD HAS JURISDICTION OVER THE CHALLENGED RATES

Under the governing statute, "[i]f the Board determines, under section 10707 of this title, that a rail carrier has market dominance over the transportation to which a particular rate applies, the rate established by such carrier for such transportation must be reasonable." 49 U.S.C. §10701(d)(i). Market dominance, in turn, is defined as "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. §10707(a). Further, the Board cannot find "an absence of effective competition" unless the challenged rate exceeds 180% of the variable cost of providing the service in question. 49 U.S.C. §10701(d)(1)(A).

In this case, "the transportation to which [the challenged] rate applies" is the rail transportation of coal in unit trains from the CSXT-BNSF interchange near Cicero, IL, in the vicinity of Chicago, to Consumers' Campbell Station. The evidence presented herein by Consumers unequivocally establishes that CSXT possesses market dominance over Consumers' traffic, and that the Board has jurisdiction to set the maximum rate that CSXT can charge for its service.

1. <u>The Challenged Rates Exceed the Jurisdictional Threshold</u>

Consumers' Opening Evidence on the issue of the variable costs for the subject service is detailed in Part II-A, and is sponsored by witness Timothy D. Crowley, Vice President of L.E. Peabody & Associates, Inc. As shown in Part II-

A, since becoming effective on January 1, 2015, the rates established under CSXT-13952 for coal transportation from the BNSF interchange to Campbell have exceeded 180% of the variable cost of service by substantial margins. Over the first three (3) quarters of 2015, the relevant RVC ratios have ranged between 517% and 525%. *See* Tables II-A-1 through A-3. In its Answer to Consumers' Complaint in this proceeding, CSXT admitted that the challenged rates exceed the jurisdictional threshold.[15]

Variable costs for the Campbell coal movements were developed using CSXT's 2014 URCS[16] unit costs as developed by Consumers' experts, with the results indexed through the Third Quarter of 2015 using established, Board-approved procedures. Under the policy adopted in *Major Issues*, variable costs are calculated using unadjusted system average URCS Phase III costs, based upon nine (9) specific operating characteristics: (1) the railroad; (2) loaded miles; (3) shipment type (originated and terminated, originated and delivered, received and delivered, or received and terminated); (4) cars per train; (5) tons per car; (6) commodity; (7) type of movement (single car, multiple car or unit train); (8) car ownership; and (9) car type. *See KCP&L* at 6. The only adjustments to system average costs that are permitted are those specified in *Review of the General*

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[15] *See* CSX Transportation, Inc.'s Answer to Original Complaint, Feb. 2, 2015 at 5, ¶14.

[16] Uniform Rail Costing System, as prescribed in *Adoption of the Uniform Railroad Costing System As a General Purpose Costing System for All Regulatory Costing Purposes*, 5 I.C.C. 2d 894, 899 (1989).

Purpose Costing System, 2 S.T.B. 659 (1997). The variable costs presented here by Consumers were calculated consistent with these policies and procedures.

In accordance with the Board's procedural rules, counsel for Consumers and CSXT conferred in an effort to reach agreement on a stipulation covering the nine (9) URCS inputs. As the parties reported to the Board on July 15, 2015, they managed to agree on eight (8) of the inputs, leaving only one (1) – loaded miles – in dispute between them. As explained in detail in Part II-A, Consumers bases its loaded miles figure on the weighted average of the actual distances that CSXT transports Consumers' loaded coal trains over the two (2) routes that the carrier uses from the BNSF interchange to Campbell, as reported in the train movement data produced by CSXT in discovery. Consumers' approach is squarely consistent with the Board's mandate in *Major Issues,* at 58-59, [17] and represents the better evidence of record.

Using 2014 URCS data indexed to 3Q15 wage and price levels, variable costs for the CSXT movement to Campbell equal $2.87 per ton, resulting in a RVC ratio of 521% for the challenged rate as in effect at the same time. *See* Table II-A-3, *infra.* The quantitative threshold in 49 U.S.C. §10707(d)(1)(A) plainly is met in this case.

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[17] *See also KCP&L* at 6-8.

2. There Is No Direct Competition for CSXT Rail Service to Campbell

The governing statute defines market dominance as "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. §10707(d)(1)(A). In making determinations under this statute, it is well-settled that the Board only considers evidence of direct transportation competition between the origin(s) and destination(s) to which the challenged rates apply. *See, e.g., Market Dominance Determinations – Product and Geographic Competition*, STB Ex Parte No. 627 (STB served April 3, 2001); *Minn. Power, Inc. v. Duluth, Missabe & Iron Range Ry.*, 4 S.T.B. 64, 66-67 (1999); *E.I. DuPont De Nemours & Co. v. CSX Transp., Inc.*, STB NOR 42100 (STB served June 30, 2008) at 5 ("it is the Board's well-settled policy not to consider evidence related to possible product or geographic competition."). In this case, therefore, the sole focus of the qualitative market dominance analysis should be on whether Consumers currently[18] has feasible alternatives to CSXT rail service for the movement of coal from the Chicago area interchange with BNSF to Campbell.

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[18] The inquiry looks to whether competitive alternatives exist during the "period covered by the complaint," which in this case is the time from and after January 1, 2015. *Consol. Papers Co. v. Chic. & N. W. Transp. Co.*, 1990 WL 288063 at *1 n.3 (1990).

The law also is clear that to be "effective," any alleged competitive alternative must be feasible and practical,[19] *and* must be shown to represent an actual, reasonable constraint on the defendant railroad's rates. *Ariz. Pub. Serv. Co. v. United States*, 742 F. 2d 664, 650-51 (D.C. Cir. 1984). *See also W. Tex. Utils. Co. v. Burlington N.R.R.*, 1 S.T.B. 638, 645 (1996), *aff'd. sub nom., Burlington Northern R.R. v. STB*, 114 F.3d 206 (D.C. Cir. 1997); *Metro. Edison Co. v. Conrail,* 5 I.C.C. 2d 385, 410 (1989). As the Board re-affirmed just last year, "[e]ven where feasible transportation alternatives are shown to exist, those alternatives may not provide 'effective competition.'" *E.I. DuPont De Nemours & Co. v. Norfolk S. Ry. Co.*, STB NOR 42125 (STB served March 24, 2014) at 5.

Consumers demonstrates in Part II-B that there are no feasible, practical competitive alternatives to CSXT for the transportation of millions of tons of coal from the Chicago area to Campbell. Motor carriage can be dismissed summarily, based on the length of haul (approximately 170 miles) and the annual volumes involved. As the Board's predecessor has held, moving even 1,000,000 tons of coal – which is less than 25% of Campbell's annual requirements – to a utility plant by truck is "simply impractical," and cannot constitute an effective competitive alternative. *Metro. Edison Co.*, 5 I.C.C. 2d at 413. *See also Ariz. Pub. Serv. Co., Et Al. v. Atchison, T. & S.F. Ry. Co.*, 2 S.T.B. 367, 374-375 (1997). Likewise, there are no railroads other than CSXT that can serve both the

[19] *See, e.g., Westinghouse Electric Corp. v. Alton & S. R.R.,* ICC Docket No. 38188 (ICC served Feb. 9, 1988); *Gen. Elec. Co. v. Baltimore & Ohio R.R.,* ICC Docket No. 38125 (ICC served Oct. 22, 1984) at 2.

BNSF interchange and the Campbell Station. Norfolk Southern Railway (NS) has lines from the Chicago area to Grand Rapids, MI, and in 2007 Consumers conducted a study[20] of the possibility of constructing approximately 35 miles of new trackage from Grand Rapids to Campbell to access the NS lines. As discussed in Part II-B, however, estimated costs of construction at the time approached { }, and the project involved building crossings over miles of wetlands and navigable bodies of water such as the Grand River, which carried environmental impact mitigation measures and costs that were considered prohibitive. *See* II-13. Moreover, NS never provided a rate quotation from Chicago to Grand Rapids that could be used in a detailed analysis. As the Board has held previously, the lack of any "assurance of rate reductions sufficient to reduce [ ] overall costs" precludes consideration of such a "build-in" as a potential, effective alternative. *Tex. Mun. Power Agency v. BNSF Ry. Co.*, 6 S.T.B. 573, 584 (2003).

In 2007 and again in 2014, Consumers commissioned studies of the possibility of transporting BNSF-originated coal from the KCBX Terminal near Chicago[21] by lake vessel, either directly to Campbell or hypothetically to

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[20] This review updated a preliminary examination of the question that was conducted in 1998, which found that further consideration was not justified at the time. *See* II-13-14.

[21] The contract between BNSF and Consumers that applies to the origin portion of the Campbell movement – which also covers western coal moving to the vessel-served Karn-Weadock and Cobb facilities – {

}

Consumers' Cobb facility for furtherance to Campbell via the Michigan Shore Railroad (MSRR), a regional carrier that leases trackage from CSXT between Muskegon, MI and West Olive, MI. Because Campbell lacks the facilities needed to receive, unload and store vessel-delivered coal, and MSRR lacks rail connections either with the Cobb Station or the Campbell unloading track, the studies included examinations of permitting requirements, environmental impact assessments, capital construction and maintenance costs, and myriad other issues besides vessel and rail service availability and estimated costs.

Part II-B details the parameters of these studies and Consumers' determination, based on their results, that vessel transportation of coal to Campbell (whether directly or in combination with other modes) was not practically or economically feasible, a conclusion affirmed herein by the independent analysis performed by Consumers' expert, Dr. Ralph W. Barbaro.[22] Under the most optimistic set of assumptions (which actually omitted several key cost components), Consumers calculated delivered coal costs of up to {

} both

exclusive of the substantial capital investments in infrastructure that would be needed, and the full cost of environmental impact mitigation. They still compared very unfavorably with a delivered cost of { } for CSXT service to Campbell, as of December 2014. *See* Part II-16-18. When the necessary capital expenditures

[22] Dr. Barbaro's Report, *Assessment of the Feasibility of Shipping PRB Coal to the J.H. Campbell Power Plant Using Lake Vessels*, October 29, 2015, appears as Exhibit II-B-1.

were considered, the studied "alternatives" were shown to be even less viable. *Id.* at 26-29.

Even assuming *arguendo* that the permitting and cost hurdles were surmountable, however, vessel transportation of coal from Chicago cannot constitute an effective, competitive alternative because the KCBX Terminal lacks the capacity to handle Consumers' Campbell coal volumes, and does not have the capability to store substantial volumes of coal, which would be essential for Consumers due to the seasonality of vessel transportation on the Great Lakes. *See* Part II-16-18. Likewise, a vessel movement to Cobb for transload to the MSRR would be practicably precluded by current plans for future use of the Cobb facilities following closure of the generation station in 2016, which are incompatible with handling millions of tons of coal each year, and by the extensive commercial relationship between CSXT, the owner/lessor of the trackage over which the MSRR operates, and Genesee & Wyoming Railroad, the MSRR's corporate parent. *Id.* at 26-29.

CSXT faces no effective direct competition for the transportation service to which the rates under challenge in this proceeding apply.

3. Even If It Was Relevant, CSXT <u>Faces No Effective Indirect Competition</u>

In its March 14, 2014 decision in the *DuPont* litigation, the Board clearly and unequivocally held that the proper focus of the qualitative market dominance inquiry is limited to consideration of direct competition; *i.e.,* whether effective intermodal or intramodal competition exists for the defendant's service between the same origin(s) and destination(s) as those to which the challenged tariff rates apply. The Board stated:

> The DMIR decisions correctly held that whole-route alternatives fall outside the agency's traditional definition of direct competition as set forth in various prior Board decisions. Market Dominance III clearly and unambiguously concluded that the Board's market dominance inquiry is now limited to considering alternatives that directly compete with the 'transportation to which [the challenged] rate applies.' Since 1976, the agency has consistently defined direct competition as alternatives offered by other carriers or modes involving the provision of 'transportation services available for moving a particular commodity from…the origin area named in the tariff to…the named destination area.' Mkt. Dominance I, 353 I.C.C. at 907… Because whole-route alternatives fall outside the definition of direct competition (adopted in prior Board decisions), and because the Board's market dominance inquiry is now limited to direct competition only, the DMIR decisions correctly applied our current market dominance guidelines to exclude the consideration of such alternatives form our qualitative market dominance analysis.

E.I. DuPont DeNemours & Co. v. Norfolk S. Ry. Co. at 16 (footnote omitted) (referencing the Board's previous decisions in *Minn. Power, Inc.,* 4 S.T.B. at 66-67 and *Minn. Power Inc. v. Duluth, Missabe & Iron Range Ry.*, 4 S.T.B. 288, 292 n.13 (1999)). Under the *DuPont* and *Minnesota Power* precedents, the only qualitative market dominance evidence that is relevant to this case is that which addresses whether CSXT faces effective competition from other carriers or modes for coal transportation from the Chicago-area interchange with BNSF to the

Campbell Station. As summarized briefly *supra* and demonstrated in detail in Part II-B, such competition does not exist.

Despite the clear precedent to the contrary, Consumers anticipates that CSXT may argue for consideration of hypothetical indirect competition in this case. This is indicated by CSXT's discovery requests, which sought documents related to Consumers' potential use of terminal services at the Midwest Energy Resources Company (MERC) dock at Superior, Wisconsin,[23] and CSXT's April 2, 2015 Motion to Compel, which sought a Board order directing Consumers to produce the requested data. Moreover, Consumers is cognizant of the Board's often-stated rule that complainants in rail rate proceedings must "put forth their best and most complete case on opening,"[24] or risk being foreclosed from addressing arguments raised by defendants in their reply presentations during the rebuttal phase. *M&G Polymers* at 9, *citing Xcel Energy v. BNSF Ry.*, STB NOR 42057 (STB served April 4, 2003) at 2, and *Duke Energy Corp. v. Norfolk S. Ry.*, 7 S.T.B. 89, 101 (2003). Solely because Consumers expects CSXT to argue that "effective" indirect competition could exist for the Campbell coal traffic, and to protect its rights to respond to any such unmeritorious claims, Consumers includes

[23] *See* CSXT's First Set of Requests for Admission, Interrogatories & Requests for Production of Documents at 21-22 (attached as Exhibit 2 to CSXT's April 2, 2015 Motion to Compel).

[24] *M&G Polymers USA, LLC v. CSX Transp., Inc.*, STB NOR 42123 (STB served Sept. 27, 2012, updated Dec. 7, 2012) at 9.

in Part II-B a demonstration that there are no indirect or geographic competitive options that constrain CSXT's pricing at Campbell.[25]

Supported by Dr. Barbaro's expert analysis, Consumers demonstrates that the use of vessel transportation from the MERC dock, either solely or in tandem with other transport modes, does not represent a feasible alternative for a number of reasons, including the seasonality of vessel service on the Great Lakes; the lack of available vessel and coal storage capacity; and myriad environmental and other permitting obstacles to construction of the extensive facilities that would be essential to the use of these "options," none of which presently exist. *See* Part II-33-42. Even if one assumed away *all* of the barriers to operational feasibility, Consumers' evidence shows that when all of the associated capital and operating costs are converted to rates per ton, the indirect "options" do not represent economically feasible, competitive alternatives to CSXT. As calculated by Dr. Barbaro, the comparative transportation costs for CSXT, on the one hand, and the lowest cost alternative for each of the hypotheticals are as follows:

[25] Consumers emphasizes that its clear position in this case is that evidence of hypothetical, indirect transportation competition is irrelevant. By presenting evidence that disproves the existence of any effective indirect or geographic competition, Consumers is not conceding the relevance of such potential competition or inviting CSXT or the Board to imply otherwise. *Compare M&G Polymers* at 9.

Alternative	Transportation Cost Per Ton
CSXT[26]	$14.95
{ }	${ }
{ }	${ }
{ }	${ }

See Table II-B-2-B. Furthermore, when the foregoing "options" are compared to CSXT's variable cost of service for purposes of applying the Board's "limit price" test,[27] the results also clearly confirm that the alleged, indirect "options" do not represent effective competition. *See* Table II-B-2-C.

4. **CSXT's Campbell Rates Have Not Been Constrained by Competition**

Consistent with the lack of any feasible transportation alternatives, the record of CSXT pricing on coal delivery service to Campbell belies any notion that there is actual or threatened competition sufficient to deter CSXT from charging Consumers monopoly rates. *E.I. DuPont DeNemours & Co. v. Norfolk S. Ry. Co.* at 6; *W. Tex. Utils. Co.,* 1 S.T.B. at 645. To the contrary, as summarized in Part II-B, the record that does exist indicates that intervention by the Board

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[26] Tariff CSXT-13952 Chicago-Campbell rate as of January 1, 2015.

[27] *Total Petrochemicals & Refining USA, Inc. v. CSX Transp., Inc.,* STB NOR 42121 (STB served May 31, 2013) at 16-29.

represents the only limiting force on CSXT's pricing aspirations. *See* Part II-51-53 and { }.

Two of the more glaring – and undeniable – facts regarding the rates to Campbell that confirm CSXT's market dominance are their relationship to the rates charged by CSXT for service to the competitively-served Karn-Weadock complex, and CSXT's response to the failure of the parties' contract negotiations at the end of 2014. First, while the distance from the BNSF interchange to Karn-Weadock is more than twice that to Campbell, { } more per mile to transport coal to Campbell, obviously because that facility is served exclusively by CSXT. Second, when the parties' most recent contract negotiations ended unsuccessfully and Consumers was forced to request common carrier service, CSXT promptly increased the then-current Campbell rate by { } from December 31, 2014 to January 1, 2015.[28] Plainly, CSXT does not actually perceive its Campbell service to be subject to effective competition.

[28] As noted *supra*, CSXT established the same $14.95 per ton tariff rate for 2015 service from Chicago to Karn-Weadock – an increase of { } over 2014 levels – after Consumers entered into a contract with CN as the primary future arrangement for handling that traffic. This retaliatory move is indicative of the kind of rate response that Consumers would expect at Campbell, were it to ever be able to divert a portion of the volume to another transporter while being forced to continue to rely on CSXT for the remainder. *See* Part II-17.

C. THE CHALLENGED RATES ARE UNREASONABLE AND UNLAWFUL UNDER THE STAND-ALONE COST CONSTRAINT

The *Coal Rate Guidelines'* SAC Constraint is intended to embody the principle that a captive shipper's rate should not be higher than what a least-cost, optionally efficient transportation provider participating in a contestable market, unaffected by barriers to entry or exit, would charge for the subject service.[29] As the Board explained in *TMPA*:

> A SAC analysis seeks to determine the lowest cost at which a hypothetical, optionally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization...To begin the analysis, the complainant hypothesizes a stand-alone railroad (SARR) that could serve a selected traffic group if the rail industry were free of barriers to entry or exit.

TMPA, 6 S.T.B. at 586. A complainant invoking the SAC Constraint is entitled to identify the group of traffic – in addition to the traffic to which the challenged rate applies – to be served by the hypothetical SARR, and design a transportation system "specifically tailored" to service the group efficiently and at the lowest cost, taking into account the system-wide investments, facilities and operating assets required to meet the needs of the traffic group. *E.I. DuPont DeNemours & Co. v. Norfolk S. Ry. Co.* at 32; *WFA/Basin I* at 8; *FMC*, 4 S.T.B. at 721.

Applying the methodological elements of the SAC Constraint as they currently are interpreted by the Board, Consumers has determined the SAC

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[29] *E.I. DuPont DeNemours & Co. v. Norfolk S. Ry. Co., supra* at 31.

for the PRB coal movements from the Chicago area to the Campbell Station to which Tariff CSXT-13952 applies, for each year of the 10-year DCF period from January 1, 2015 through December 31, 2024. The maximum lawful rates for coal transportation to Campbell as shown by that analysis are set out in Part III-H. This application of the SAC Constraint demonstrates that the rates established by CSXT under the subject Tariff substantially exceed maximum reasonable levels.

The basic building blocks of the evidentiary presentation under the *Coal Rate Guidelines*' SAC Constraint are: (1) identification of the traffic group to be served by the SARR and the traffic volumes and revenues that would be generated by that group; (2) design of the configuration, infrastructure and operating plan for the SARR, based upon the service needs of the traffic group; (3) determination of the construction and operating costs for the SARR system; and (4) application of appropriate economic forecasting, depreciation and related methodologies for use in executing the Board-prescribed DCF Model. Each of these components is addressed in detail in Part III of this Opening Evidence, by reference to the hypothetical SARR which Consumers has designated as the Consumers Energy Railroad, or "CERR."

1. <u>The CERR Traffic Group</u>

The CERR is a smaller, simpler and more modest (from a scope perspective) SARR than the systems that have been presented to the Board in most of its more recent cases under the *Guidelines*. Approximately 40.9% of the CERR's base year ton-miles are comprised of Consumers' Campbell coal traffic, which also is by far the most dominant traffic moving over about 64% of the overall CERR system. That system is comprised of 168.65 route-miles of constructed trackage, and 73.83 miles of lines over which the CERR would operate via trackage rights. A schematic of the CERR system is shown in Exhibit III-A-I.

The CERR traffic group was designed using CSXT traffic, revenue and car/train event data covering a 15-month period ending with the First Quarter of 2015.[30] In addition to the Campbell coal traffic, 41.8% of the CERR's base year ton-miles are comprised of carload traffic (including other coal traffic) that is handled by the CERR solely in unit train or trainload service. The balance of the CERR traffic (about 17.3% of 2014 base year ton-miles) is comprised of intermodal container shipments, which also are handled in trainloads while they are on the CERR. The overall CERR base year volume breakdown is as follows:

Base Year (2015) CERR Traffic

Campbell Coal (Issue Traffic):	42,072 Units
Other Carload Traffic:	306,896 Units
Intermodal Container Traffic:	454,383 Units
Total:	803,350 Units

Issue coal volumes for the CERR are determined based on Consumers' internal forecast for Campbell and Consumers' other generating

[30] The analytical parameters used by Consumers to develop the CERR are consistent with those approved by the Board in prior cases. *See, e.g., WFA/Basin I* at 10-11; *TMPA*, 6 S.T.B. at 589.

stations, which was prepared in the ordinary course of business.[31] This forecast – which also is used to develop non-issue Eastern coal volumes transported over the CERR to Campbell – includes volume projections that extend through December 31, 2024, the end of the DCF period.

General freight, non-issue/non-Consumers coal, and intermodal traffic volumes all were determined in a similar fashion. Traffic volumes for 1Q2015 are based on actual CSXT data produced in discovery. Volumes for 2Q2015[32] are based on actual 1Q2015 volumes adjusted based on the change in CSXT systemwide traffic volumes as reported in its quarterly SEC filings for each traffic type (*i.e.*, coal, merchandise and intermodal). CERR traffic volumes for 3Q2015 and 4Q2015 were based on actual 3Q2014 and 4Q2014 traffic data, updated using systemwide volume changes reported in CSXT's annual SEC filings (also by traffic type). For the period 2016-2019, CERR merchandise and intermodal volumes are forecasted based on CSXT's internal forecasts, which were produced in discovery. For the period 2020-2024, which is beyond the limits of the CSXT forecasts, traffic projections are based on a compounded annual

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[31] *See* III-A-5-6.

[32] By stipulation of the parties, data production during the discovery process ended with documents and materials prepared on or before March 31, 2015.

growth rate (CAGR) developed using the 2015-2019 actual CSXT data that was made available to Consumers.[33]

The "peak year" (2024) volumes for the CERR are shown in Table III-A-1.

2. Stand-Alone Revenues

Consistent with the Board's directions in *General Procedures for Presenting Evidence in Stand-Alone Rate Cases,*[34] base year revenues are calculated separately for each of the two (2) types of movements handled by the CERR: traffic that CSXT currently interchanges with other railroads; and "cross-over" traffic; *i.e.*, traffic that the CERR handles before or after a new interchange with the residual CSXT.

CERR revenues attributable to the issue Campbell coal traffic, which the CERR handles from the BNSF interchange near Cicero, IL to the Station in the same manner as CSXT does today, are equal to the revenues earned by CSXT on that traffic,[35] and are determined according to the terms of Tariff CSXT-13952.

The balance of the CERR's base year traffic is cross-over traffic, which the Board repeatedly has confirmed is a simplifying tool that is essential to

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[33] A similar CAGR-based approach was approved by the Board in *E.I. DuPont DeNemours & Co. v. Norfolk S. Ry. Co.* at 261.

[34] STB Ex Parte No. 347 (Sub-No.3) (STB served March 12, 2001).

[35] *See FMC*, 4 S.T.B. at 725.

making the SAC Constraint a viable and workable regulatory methodology.[36] Because cross-over traffic necessarily implies a new, hypothetical interchange between (in this case) the CERR and CSXT, a formula is needed to divide the attributable real world revenues between the two (2) carriers. In *Rate Regulation Reforms*, the Board adopted a variant of the Average Total Cost (ATC) methodology for use in allocating revenues on cross-over traffic in cases brought under the SAC Constraint. *Id.* at 27-34. Consumers applies this ATC methodology to allocate cross-over traffic revenues to the CERR. A detailed description of Consumers' execution of the ATC formula is set forth in Part III-A-3-c.

Future revenues for the CERR are projected using methods endorsed by the Board in previous cases, based on data produced by CSXT in discovery and/or recognized public information sources.

The issue traffic is governed by the terms of Tariff CSXT-13952, which specifies quarterly adjustments based on changes in the AII-LF, subject to a floor set at the January 1, 2015 base rate of $14.95 per ton. Future revenues from the Campbell coal traffic are calculated using IHS Economics' published forecast of quarterly changes in the AII-LF through 4Q2024.[37]

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[36] *See, e.g., Pub. Serv. Co. of Colo. v. Burlington N. & Santa Fe Ry.*, 7 S.T.B. 589, 603 (2004); *Duke Energy Corp. v. CSX Transp., Inc.,* 7 S.T.B. 402, 422-24 (2004); *TMPA*, 6 S.T.B. at 605. *See also Rate Regulation Reforms* at 25.

[37] The same methodology is applied to calculate future revenues from non-issue Eastern coal traffic moving to Campbell that also is subject to Tariff CSXT-13952.

For non-issue traffic (including intermodal traffic) that moves under contracts to which CSXT is a party, projected CERR revenues are based on the adjustment provisions of the contracts, and established published forecasts of changes in specific indices, such as the IHS Economics' forecast for the RCAF variations and the AII-LF. Revenues from traffic subject to common carrier pricing authorities that contain rate adjustment provisions are projected in the same manner.

For traffic under contracts that expire prior to 2020 and/or traffic not moving under pricing authorities that specify rate adjustments, CERR revenues through 2019 are based on CSXT's internal carload and container forecasts that were produced in discovery. For the period 2020-2024, revenues for each year are determined by adjusting the prior year's revenues by the CAGR developed using the CSXT data for 2015-2019. *See* Exhibit III-A-6.

The issue traffic moving under Tariff CSXT-13952, as well as a good deal of the other traffic handled by the CERR, are subject to CSXT fuel surcharges, including the mileage-based surcharge described in Fuel Surcharge Publication 8662 (which specifically applies to the Campbell and other Consumers' coal traffic), and the percentage-of-rate surcharge described in CSX Intermodal Service Directory 1. Consistent with established precedent for determining projected SARR revenues generally,[38] Consumers calculates CERR

[38] *Sunbelt* at 6; *AEPCO 2011* at 27-28, *WFA/Basin I* at 9; *W. Tex. Utils.*, 1 S.T.B. at 674-676.

fuel surcharge revenues over the DCF period by applying the terms of each fuel surcharge publication, as appropriate to the traffic in question, and forecasting future charges using respected published forecasts of CSXT's chosen surcharge benchmarks; *e.g.,* the EIA's forecast of expected changes in highway diesel fuel (HDF) prices. *See* Part III-A-25-29, *infra.* As discussed therein and illustrated in Exhibit-III-A-7, the unusual circumstances that led the Board to depart from this established approach in the *DuPont* and *Sunbelt* litigations are not present in this case.

3. <u>The CERR System</u>

The CERR system configuration and operating plan are described in detail in Parts III-A, III-B and III-C. As shown therein, the CERR replicates a portion of CSXT's existing system between a point near 22nd Street in Chicago, IL and the Campbell Station near West Olive, MI, consisting of 160.52 route miles that would be constructed and operated by the CERR,[39] and 73.83 route-miles over which the CERR would operate via trackage rights (as CSXT does today). However, the CERR replicates only a sliver of the rail facilities in the Chicago area, and its operations are limited to unit trains (which comprise about half of all trains handled), intact intermodal trains moving to and from CSX Intermodal's 59th Street intermodal yard, and merchandise trains that are blocked and classified

[39] The CERR-constructed route miles do not include 8.13 miles of the Belt Railway of Chicago (BRC) track that CERR has a 25% investment in (the equivalent of CSXT's current ownership). The associated costs are accounted for in Part III-F.

off the CERR system and are handled by the CERR intact and without any incidental switching.

The CERR has one (1) yard – the Barr Yard near Blue-Island, IL – and no branch lines. From 22nd Street, the CERR proceeds to 59th Street, where CSX Intermodal's (CSXIT) yard is adjacent, then to 75th Street, where there is an interlocking with NS and Chicago's commuter rail line (Metra), and onto the CERR's Barr Subdivision. Also at 75th Street, some CERR traffic (including much of the issue traffic) moves east over the Belt Railway of Chicago (BRC), which the CERR uses as a 25% owner (just as CSXT does today), to a connection with NS at Rock Island Junction. From there, the CERR exercises trackage rights over NS to reach Pine Jct. or Porter, IN.

Once on its Barr Subdivision, the CERR turns east into its Barr Yard, then on to Curtis, IN via Pine Jct. CERR trains headed for Michigan use trackage rights over NS (which CSXT has today) from Curtis to Porter, IN, from which the CERR proceeds north to Holland, MI and on to West Olive, where a turnout leads to the track serving the Campbell Station. *See* Exhibit III-A-I.

The CERR interchanges traffic with BNSF and the Union Pacific Railroad (UP) at 22nd Street and 71st Street, and with the Indiana Harbor Belt Railroad (IHB) at Blue Island, IL. The CERR also interchanges with the residual CSXT at Blue Island, Dolton, IL, Curtis, IN and Holland (Waverly), MI. Details of the interchanges and the traffic involved with each are provided in III-C-15-25 and Consumers' electronic workpapers.

The CERR configuration includes one reroute which is internal to the CERR and does not require the residual CSXT to alter its operations. Traffic moving on intermodal trains to and from the 59th Street CSXIT terminal is routed by the CERR via Barr Yard between 75th Street and Dolton. While some of the real world CSXT trains follow this route, most move via BRC/UP trackage rights to Dolton. Consistent with governing reroute principles, Consumers demonstrates both that the operations conducted by the residual CSXT are no different in the internal reroute scenario from those conducted in the real world, and that the transit times for the traffic in question are no slower.[40] The reroute, therefore, is a legitimate operational choice for the CERR. *See Duke/NS*, 7 S.T.B. at 112; *Coal Rate Guidelines*, 1 I.C.C. 2d at 543-544.

4. <u>The CERR Operating Plan and Expenses</u>

a. <u>Operating Plan</u>

The CERR's operating plan is discussed in detail in Part III.C. It is designed to enable the CERR to handle its peak year traffic volumes, and the associated trains moving over its system, efficiently and in satisfaction of all relevant customer service requirements. As noted *supra*, all trains are handled as unit trains or intact trainsloads for the entirety of their time on the CERR, whether in interchange service with third party carriers such as BNSF or UP, or in

[40] *See* e-workpaper "5.1 Transit Times Comparison Hist vs. RTC.xlsx" tab "Train Transit Summary WORK."

overhead service between on-SARR and off-SARR junctions with the residual CSXT.

As described in Part III.C, with the exception of PRB coal traffic destined for Campbell, all traffic on the CERR are cross-over movements handled through six (6) interchange points (22nd Street, 71st Street, Blue Island, IL, Dolton, IL, Curtis, IN and Holland, MI) and a single yard (the Barr Yard). The CERR is not required to make-up or break apart trains, or engage in any intermediate switching; all trains move entirely intact between points on the system.

The operating plan contemplates the CERR's acquisition of a single type of road locomotive: the modern ES44-AC, which is in wide use on Class I systems and is amply suited to the handling of the CERR's coal and other traffic. The CERR also will operate SD40 switch locomotives in its Barr Yard. The CERR's maximum train speed – 40 m.p.h. – is consistent with that in place on the portions of CSXT's system that are being replicated, and its signals and communications system (including the use of Centralized Traffic Control where warranted) are consistent with its traffic and operating parameters. In addition to Barr Yard, the CERR is equipped with adequate sidings, interlockings, connecting tracks and facilities, and its operating plan includes staffing consistent with its needs. Since all movements on the CERR can be handled in a single crew shift (its longest trip is less than 175 miles between 22nd street and the Campbell Station), the railroad does not need any crew change points. Moreover, because the CERR is a Class II railroad that does not transport passengers or toxic-byinhalation commodities, it is not required to install and maintain a Positive Train Central system, though its locomotives will have PTC interoperability since they often operate in run-through service over Class I lines that are required to be PTC-equipped.

A SARR's operating plan must be demonstrated to meet the transportation service requirements of all shippers whose traffic it would handle. *AEPCO 2011* at 28. Consistent with Board precedent and the requirements of the July 15, 2015 procedural directives in this case, Consumers' experts verified the ability of the CERR's system and operating plan to serve the selected traffic group efficiently by conducting a simulation of CERR's operations during its peak traffic week during the DCF Period (March 24-March 30, 2024) using the Rail Traffic Controller ("RTC") Model. The modeling exercise and the inputs used are described in detail in Part III-C-2-d. The average transit times for CERR trains produced by the RTC Model were compared with CSXT's average real world times for the corresponding trains during the peak week of the Base Year, and the results of the exercise confirm that the CERR's operating plan is adequate for and well-suited to the traffic group, and yields transit times for the various categories of traffic that are equal to or lower than CSXT's corresponding real world transit times.[41] The Board's verification requirements clearly are satisfied.

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[41] *See* e-workpaper "5.1 Transit Times Comparison Hist vs RTC.xlsx" tab "Train Transit Summary WORK."

b. **Operating Expenses**

The operating costs for the CERR are described in detail in Part III-D. A summary of these annual operating expenses is set forth in Table III-D-1. The operating expenses reflect the CERR's small size and location, locomotive, railcar and other equipment needs, operating plan, personnel requirements (both operating and non-operating, including general and administrative personnel), maintenance-of-way plan, and costs for loss and damage, ad valorem taxes, insurance, and startup and training. The CERR's first-year operating expenses equal $54.26 million (including startup and training).

In general, the CERR's personnel and equipment needs reflect its facilities and operations in its peak traffic year during the 10-year DCF period (January 1 through December 31, 2024). These needs were determined by Consumers' expert rail operations, engineering, information technology and MOW witnesses, and reflect the concept of an efficient, non-unionized SARR that is a Class II railroad. They also take into account the CERR's limited geographic scope and the peak year traffic volumes moving over the various parts of the CERR system. Consumers' experts Messrs. Brian Despard and Lee Meadows developed unit costs for application to the CERR's annual service units using actual cost data produced by CSXT in discovery where possible, and actual costs incurred by other railroads (where known) for comparable functions and services, along with information provided by Consumers' operating, engineering and information technology experts.

Consumers' development of the CERR's operating expenses is consistent with prior Board decisions under the *Coal Rate Guidelines*, including in particular its decisions in the *WFA/Basin* and *AEPCO 2011* cases. As described in Part III.G, the CERR's operating costs were adjusted forward over the 10-year DCF period based on IHS Economics' forecasts of changes in the RCAF-A and the RCAF-U, which were combined using the phase-in approach approved by the Board in *Major Issues*.

5. <u>Road Property Investment</u>

Part III-F describes and documents in extensive detail the design and planned construction of the CERR, which are carried out in accordance with governing standards of the American Railway Engineering and Maintenance-of-Way Association for track, roadbed, bridge, culvert and other requirements, and consistent with Board findings in previous cases under the SAC Constraint. *See, e.g., WFA/Basin I* at 77-133. Specific grading and other design characteristics were derived from data produced by CSXT during discovery, an analysis of extensive data available from the Michigan Department of Transportation regarding rail projects in the state, as well as direct observations and evaluations conducted by Consumers' rail engineering experts of the geography, terrain, topography and general conditions of the entire CERR route from 22nd Street in Chicago to the Campbell lead track. Design parameters for such elements as roadbed width, side slope measurements and other features are based on parameters approved by the Board in prior cases. *See, e.g., AEP Texas* at 79-80;

Public Service of Colo., 7 S.T.B. at 671-673; *TMPA*, 6 S.T.B. at 700-708; *Duke Energy Corp. v. CSX Transp. Inc.*, 7 S.T.B. 402, 476 (2004).

The evidence submitted in Part III-F and accompanying exhibits and workpapers documents Consumers' calculations of material and construction costs, including design, engineering and contingencies. Total construction costs for the route-miles that comprise the CERR system, including associated land acquisition costs, are $547.1 million, or approximately $3.35 million per route-mile. *See* Table III-F-I.

Also consistent with Board precedent, Consumers projects a 30-month time period for design and construction of the CERR – from July 2012 to December 2014. This estimate reasonably employs the principles of unconstrained resources and simultaneous construction, where possible, of different segments of the CERR system that spring from the entry-barrier free principle that is among the core components of CMP. *See, e.g., Carolina Power & Light Co. v. Norfolk Southern Ry.,* 7 S.T.B. 235, 244 (2003); *W. Tex. Utils.*, 1 S.T.B. at 668-669; *Coal Rate Guidelines*, 1 I.C.C.2d at 529.

The same principles apply with respect to such items as utility protection, road detours, environmental regulations compliance, and other features. Where records or data produced in discovery do not show any expenditures by CSXT or its predecessors when these facilities first were installed, the related costs have been excluded from construction costs for the CERR as well. *See AEP Texas* at 85; *Public Service of Colo.*, 7 S.T.B. at 681; *Duke/CSXT*, 7 S.T.B. at 484. However, where there is evidence that CSXT or one of its predecessors incurred the expense – or the age of the facility or line segment indicates that such an expenditure was likely – Consumers includes the appropriate cost in its analysis. *See* Part III-F-44-45, 47-49.

As detailed in Part III-F-1, the CERR requires a total of 1,834.48 acres of land, including the portion of the BRC that is included in the CERR system,[42] based upon average rights-of-way widths of 100 feet in rural areas and 75 feet in the environs of Chicago and in larger towns. The real estate requirements for the CERR yards, buildings, service roads and other auxiliary facilities described in Parts III-C and III-F also are accounted for. Real estate costs are based on appraisals conducted or supervised by Consumers' real estate expert, Stuart Smith, using the methodology described in Part III-F-6-9. Consistent with the governing principle of barrier-free entry, no assemblage factors are incorporated in the CERR's real estate costs, as there is no evidence that CSXT or its predecessors were burdened by assemblage when they acquired the rights-of-way and related land for the rail lines replicated by the CERR. *See W. Tex. Utils.*, 1 S.T.B. at 670-671.

6. <u>Application of the DCF Model</u>

Part III-G sets out the DCF methodology applied by Consumers to calculate SAC and the maximum SAC Constraint rates that result from

[42] The CERR assumes a 25% investment share in the BRC, consistent with CSXT's ownership.

Consumers' analysis. Consumers' DCF approach is consistent with that adopted in *Coal Rate Guidelines*, as modified in 2006 in *Major Issues*, and as applied in *AEP Texas*, *WFA/Basin I* and *II* and *AEPCO 2011*. Consumers' DCF includes the following elements:

a. Debt and equity costs for the CERR over its construction period (July 2012 to December 2014) are based on the Board's annual cost of capital determinations. *See AEPCO 2011* at 135-137.[43]

b. The inflation indices used are those compiled by the AAR that are appropriate to various road property components of the CERR (Part III-G-2), and the "hybrid" RCAFU/RCAFA approach to indexing the CERR's operating expenses adopted in *Major Issues* is employed.

c. Federal and state taxes are determined consistent with coal rate case precedent, taking account of the effects of federal economic stimulus legislation. *See* Part III-G-3; Part III-H-1-f.

d. Economic depreciation is used to determine the value of the CERR's assets at the end of the DCF period. *See* III-G-4 and Exhibit III-H-1.

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[43] As discussed in Part G at III-G-7-11, Consumers employs a debt structure for the CERR of the type actually utilized in the railroad industry, rather than the "home mortgage" approach used in most previous cases under the SAC Constraint. While the Board declined to accept this methodology (which uses fixed, interest-only coupon payments) in *Sunbelt* and *DuPont*, Consumers shows that the Board's stated reasons in those cases do not apply in this case, as the methodology used by Consumers mirrors that used by CSXT and other Class I railroads, which already has been "vetted" by the financial community, and full repayment of any "principal" is guaranteed through the CERR capital carrying charge in Consumers' execution of the DCF model.

e. A "time-based" capital recovery period is used, consistent with *Duke/NS* and *TMPA*.

f. The distribution of total excess stand-alone revenues over stand-alone costs in each year of the DCF Model – and, therefore, the measure of annual rate relief to which Consumers is entitled under the SAC Constraint – is performed using the Maximum Markup Methodology adopted by the Board in *Major Issues* and applied, *e.g.,* in *AEPCO 2011*, with variable costs forecast in accordance with the Board's *OG&E* procedures. *See* Part III-H-2.

As set forth in Table III-H-2, the maximum rates allowed by the SAC Constraint for CSXT coal service to the Campbell Station in each year of the DCF Period, expressed as RVC ratios, are as follows:

Year	RVC Ratio
2015	351.4%
2016	406.7%
2017	304.2%
2018	319.0%
2019	321.1%
2020	293.3%
2021	284.7%
2022	264.6%
2023	266.3%
2024	239.6%

D. CSXT IS REVENUE ADEQUATE UNDER THE *GUIDELINES*, AND ITS JANUARY 1, 2015 RATE INCREASE WAS UNLAWFUL

Wholly independent of the unreasonableness of the challenged tariff rates under a proper application of the SAC Constraint, the rate increase that CSXT imposed on Consumers' Campbell coal traffic effective January 1, 2015, following the expiration of Contract CSXT-C-84720, was unreasonable and unlawful under the *Guidelines*' Revenue Adequacy Constraint. In Part IV, Consumers demonstrates that CSXT has been "revenue adequate" within the meaning of 49 U.S.C. §10704(a) and the *Guidelines* at least since 2010, and reasonably can be expected to remain so for the foreseeable future. Because CSXT was revenue adequate prior to January 1, 2015, application of the Revenue Adequacy Constraint as previously construed by the Board prohibited CSXT from increasing the rate to Campbell that was in effect at the end of 2014.

1. **Revenue Adequacy Under the *Guidelines***

When it outlined and then adopted the principles of CMP as the core of the *Coal Rate Guidelines*, the Board's predecessor singled out revenue adequacy as a threshold limitation on the ability of a railroad to exploit its market power over the class of shippers that the *Guidelines* were promulgated to protect:

> [T]he logical *first constraint* on a carrier's pricing is that its rates not be designed to earn greater revenues than needed to achieve and maintain this 'revenue adequacy' level. In other words, captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of the differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs.

Coal Rate Guidelines, 1 I.C.C. 2d at 535-536 (emphasis supplied). The ICC explained that revenue adequacy represents "a reasonable level of profitability" for a financially sound railroad, that "fairly rewards the rail company's investors and assures shippers that the carrier will be able to meet their service needs for the long term." *Id.*, 1 I.C.C. 2d at 535. In a regulated setting – where a challenged rate exceeds 180% of the variable cost of service and the railroad enjoys qualitative market dominance – the ICC ruled that a revenue adequate carrier was not entitled to extract any differentially higher revenues from its captive customers, a holding that the Board reiterated some 20 years later in *Major Issues*, at 21 (the maximum rate methodology is designed to allow a railroad to "engage in enough differential pricing to earn adequate demand-based revenues, but no more." *Id.* at 21).

ICC and Board precedents construing and implementing the Revenue Adequacy Constraint have developed three (3) key principles that have particular application to this case.

First, in assessing whether a defendant railroad is revenue adequate under the *Guidelines*, it is necessary to look beyond the results of the Board's annual "snapshot" determinations made pursuant to 49 U.S.C. §10704(a)(3) and the *Ex Parte No. 552* decision series, and consider "any other competent and prohibitive evidence relative to the carrier's revenue adequacy" that may be submitted in an individual case with respect to a specific railroad. *Bituminous Coal – Hiawatha, UT to Moapa, NV*, 6 I.C.C.2d 1.7 n.24 (1989).[44] As the Board's predecessor explained three (3) years after the *Guidelines* were adopted:

[44] The Board referenced this principle and precedent in its June 15, 2015 Decision in this case, denying CSXT's motion to dismiss Consumers' revenue adequacy claim.

> In rate reasonableness proceedings under [then] §10701(a), we will continue to accept all competent and probative evidence relative to the carrier's revenue adequacy that may be submitted by the various parties. Such evidence may include any financial data which these parties see fit to present. On the basis of the record developed, we will determine the sufficiency of revenues on a case-by-case basis for the particular railroad or railroads involved.

Railroad Revenue Adequacy – 1987 Determination, 4 I.C.C. 2d 731, 734 (1988).

Second, if a carrier whose rates are subject to the Board's jurisdiction is revenue adequate prior to imposing a new rate increase on a captive shipper, the increase is unreasonable and unlawful under 49 U.S.C. §10701(d)(1), and must be cancelled. *CF Indus., Inc. v. Koch Pipeline Co., L.P.*, 4 S.T.B. 637, 664 (2000), *aff'd sub nom., CF Indus., Inc. v. S.T.B.*, 255 F.3d 816, 828 (D.C. Cir. 2001). As the Board held there, in applying the same Revenue Adequacy Constraint prescribed in the *Guidelines*, even if the carrier believes that its proposed rate increase is justified under another component of CMP, if its revenues are adequate under 49 U.S.C. §10704(a) then the rate increase is precluded unless the carrier can prove, "with particularity: (1) a need for higher revenues; (2) the harm it would suffer if it could not collect them; and (3) why [the complaining shipper] should provide them…". *Id.*, 4 S.T.B. at 661, *citing Coal Rate Guidelines*, 1 I.C.C. 2d at 536 n.36.

Third, in a case (such as this one) where the complaining captive shipper advances claims under the Revenue Adequacy Constraint *and* another CMP rate constraint, the maximum lawful rate for the shipper's traffic should be set at the lowest rate shown by the evidence, subject to the Board's jurisdictional threshold. The Board's predecessor emphasized the inter-related nature of the three main CMP constraints in the *Guidelines*:

> Although we have described the constraints in CMP separately, they are necessarily interrelated [fn]. They represent different means of approaching the same basic issue, *i.e.*, the extent of unattributable costs to be covered through differential pricing and the portion that can be charged to the shipper involved.

Id., 1 I.C.C. 2d at 547 (footnote omitted). Logically, it follows that a complainant can advance its rate challenge under one constraint or several, in the same proceeding:

> Thus, the various constraints contained in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonably high, *i.e.*, set at a level greater than necessary to collect the portion of unattributable costs that can properly be charged to that shipper. If we determine that a rate has been set at an unreasonably high level, we will take whatever action is appropriate, based upon the nature and extent of the violation shown, to afford relief to the complaining shipper and to promote proper pricing by the carrier.

Id., 1 I.C.C. 2d at 548. *See also Consol. Rail Corp.*, 812 F.2d at 1451. Subsequently, in several decisions rendered in the years following the Third Circuit's affirmance of the *Guidelines* where complainants (or defendants) advanced claims under more than one CMP constraint, both the ICC and the Board awarded rate relief based upon the CMP component that produced results most favorable to the shipper. *See CF Indus.*, 4 S.T.B. at 656-662; *Ark. Power & Light Co. v. Burlington N. R.R., Et Al.*, 3 I.C.C. 2d 757, 782-783 (1987).

As the evidence presented in Part IV demonstrates, application of these principles compels the conclusion that CSXT's January 1, 2015 rate increase on Consumers' Campbell coal traffic was unreasonable and unlawful, independent of the SAC Constraint results summarized in Part III.

2. <u>CSXT Is Revenue Adequate Under the *Guidelines*</u>

The evidence presented by Consumers in Part IV and supported by the expert analysis of Dr. John Hennigan, former Director of the ICC's Office of Economics, shows that a wide variety of financial indicators confirm that CSXT has met the standards of 49 U.S.C. §10704(a)(2) at least since 2010, and confidently can be expected to maintain that status well into the future.

Addressing first the Board's current, annual "snapshot" test, which measures a railroad's return on investment (ROI) to the Board's calculation of an industry average cost of capital (COC), Consumers shows that even *before* correcting the flaws in the COC calculation exposed by the Western Coal Traffic League (WCTL) in the ongoing *Ex Parte No. 664 (Sub-No.2)* proceeding,[45] the measure by which CSXT's ROI "missed" the COC mark from 2010 through 2014 was within a statistical margin of error. *See* IV-3-4. As Consumers and Dr.

[45] *Petition of the Western Coal Traffic League to Institute a Rulemaking Proceeding to Abolish the Use of the Multi-Stage Discounted Cash Flow Model In Determining the Railroad Industry's Cost of Equity Capital*, Ex Parte No. 664 (Sub-No. 2), Opening Comments filed Sept. 5, 2014 and Reply Comments filed Nov. 4, 2014.

Hennigan demonstrate, the most that can be concluded from application of the Board's current "snapshot" test is that CSXT's returns approximately meet the average industry COC (as the Board currently measures it) over the past five (5) years; *i.e.*, that CSXT has been "approximately" revenue adequate at least over time. *Id.* at 4. However, when "other competent and probative evidence" is considered, it is demonstrably clear that CSXT should be considered revenue adequate for purposes of the *Guidelines*. Specifically:

- If the Board's COC methodology is reformed in the manner shown by WCTL in *Ex Parte No. 664 (Sub-No.2)* to be more consistent with the analytical tools actually employed by the financial and investment communities, CSXT's ROI over the 2010-2014 time period exceeded the industry COC by an average of 324 basis points.[46] *See* Table IV-2.

- { }

- Publicly available CSXT financial data shows that over the 2010-2014 period the carrier generated revenues more than adequate to cover "total operating expenses, including depreciation and obsolescence," and still yield

[46] { }

profits that supported a 41% increase in earnings per share and a 124.5% increase in stock appreciation during a period when the S&P 500 Index grew by 47.32%. This meets the first elements of the Section 10704(a)(2) revenue adequacy test. See Id. IV-13-15 and Table IV-7.

- Similar public data shows that CSXT's 2010-2014 revenues (i) supported an annual average of $2.248 billion in capital outlays at the same time that CSXT was spending over $4 billion to repurchase its own stock; (ii) allowed the repayment of an average of $500 million in debt while maintaining an investment grade credit rating; (iii) relieved CSXT of any need to raise capital in the equity markets; and (iv) yielded an increase in earnings per share that was more than four (4) times the contemporaneous increase in the RCAF-U, and almost ten (10) times the increase in the RCAF-A, which is a more accurate measure of actual inflation. *See* IV-16-22. These results meet each of the revenue adequacy criteria set out in 49 U.S.C. §10704(a)(2)(A).

- The final statutory criterion (in Section 10704(a)(2)(B)) refers to a carrier's ability to "attract and retain capital in amounts adequate to provide a sound transportation system in the United States." CSXT has not needed to raise outside equity capital in more than 20 years, and actually has invested billions of dollars in stock repurchase plans even while paying off debt (and maintaining a sound credit rating) and devoting some 19% of its revenues to capital expenditures. CSXT's parent company's Chairman labeled the carrier's capex program investments "astounding," and the United States Senate's Committee on

Commerce, Science and Transportation echoed the broader railroad industry's success in this regard. *See* IV-24. CSXT has not faced, and does not face, any difficulty in attracting adequate capital.

- Consideration of CSXT's financial health as reflected in multiple ratios commonly used by analysts and previously relied upon by the Board's predecessor[47] further confirm CSXT's revenue adequacy. Specifically, (i) CSXT's market-to-book ratio from 2010 through 2014 consistently has been two (2) or three (3) times the 1.0 threshold of investor confidence: (ii) CSXT's debt-to-capital ratio shows both that the carrier's overall level of debt is conservative, and that earnings and cash flow exceed debt service by comfortable margins; (iii) CSXT's 2010-2014 annual operating ratios all were below 72%, and the ratio dropped further to 66.8% in the second quarter of 2015, confirming the carrier's financial soundness; (iv) CSXT's five-year average return on equity is over 19%, which is substantially higher than even the inflated railroad industry cost of equity that the Board currently uses in its COC calculations;
(v) CSXT's cash flow return on shareholder's equity has averaged 35% over the 2010-2014 time period, reflecting both the enviable measure of cash available for corporate purposes and the investment value that CSXT represents to current and prospective shareholders; and (vi) CSXT's dividend payout ratio (or yield)

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[47] *See Adequacy of R.R. Revenue (1978 Determination),* 362 I.C.C. 199, 257 (1979). *See also Standards for R.R. Adequacy*, 364 I.C.C. 803, 824 (Commissioner Clapp, concurring in part and dissenting in part) and 835 (Commissioner Gilliam, concurring).

averaged 1.2% over the same period, casting CSXT as a preferred investment relative to equities generally. *See* IV-25-34.

- In *Wisconsin Power & Light Company v. Union Pac. R.R.*,[48] the Board affirmed that "[w]e presume efficient capital markets recognize and reflect all of the risks faced by railroads…". 5 S.T.B. at 984. As Consumers shows, three (3) of the most established and respected analysts of these markets – ValueLine, Standard & Poor's and Morningstar – all affirm CSXT's financial health, long-term viability and desirability as an investment. *See* IV-35-43. ValueLine gives CSXT above average investment safety ratings and forecasts future share price increases of up to 85%. Morningstar assesses that CSXT's ROI exceeds its actual COC, and that it is "highly likely" to continue doing so for the next ten (10) years. S&P ranks CSXT as a better investment prospect than 91% of all companies for which S&P reports are available. These expert firms are unanimous in their assessment that CSXT earns qualitatively adequate revenues and carries little or no risk of a capital shortfall.

In its June 11, 2015 Decision rejecting CSXT's motion to dismiss Consumers' claim under the Revenue Adequacy Constraint on the basis of the agency's annual "snapshot" ratings, the Board affirmed that "other competent and probative evidence relative to the carrier's revenue adequacy may be submitted in individual rate reasonableness proceedings" to support such a claim. Decision

[48] 5 S.T.B. 995 (2001).

served June 11, 2015 at 2. In Part IV and in Dr. Hennigan's Report, Consumers has presented a trove of probative evidence demonstrating that CSXT has been revenue adequate within the meaning of 49 U.S.C. §10704(a)(2) and the *Guidelines* for the past several years,[49] that it is expected to remain so for many years into the future, and that as a result, Consumers is entitled to rate relief under the Revenue Adequacy Constraint.

3. CSXT's January 1, 2015 Campbell Rate Increase Was Unlawful

The rate paid by Consumers for CSXT coal transportation from the BNSF interchange to Campbell in December 2014 was {

}[50] Since CSXT possesses market dominance over Consumers' Campbell traffic and was revenue adequate under the *Guidelines* as of the end of 2014, governing precedent precluded CSXT from increasing the

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[49] Consistent with the *Guidelines*' ruling that revenue adequacy must be measured "over time" (1 I.C.C. 2d at 536), and the Board's prior approach to the subject in *Simplified Standards for Rail Rate Cases*, STB Ex Parte No. 646 (Sub-No.1) (STB served September 5, 2007) at 20, and *Rate Guidelines – Non-Coal Proceedings*, 1 S.T.B. 1004, 1032-1033 (1996), Consumers has presented evidence of CSXT's revenue adequacy over a 4-5 year period. This aligns with the *Guidelines*' observations that revenue adequacy determinations should account for business cycles, and that railroads should not be forced to "continually adjust" rates in order to match overall revenues with the break-even point of revenue adequacy. *See* 1 I.C.C. 2d at 536.

[50] *See* { }

Campbell rate on January 1, 2015. *CF Indus.*, 4 S.T.B. at 663-664. Therefore, the rate increase that CSXT in fact did impose as of that date under Tariff CSXT-13952 was unlawful, and should be ordered cancelled.

As the Board has acknowledged[51] and CSXT is likely to note, *CF Industries* addressed the reasonableness of certain pipeline transportation rates that are subject to the Board's jurisdiction, not railroad rates. However, that factual distinction makes no substantive difference insofar as the proper application of the Revenue Adequacy Constraint in this case is concerned. In *CF Industries*, the Board openly acknowledged that it was applying a standard for maximum *railroad* rates in a pipeline context, and quoted from the *Coal Rate Guidelines* in summarizing the core principle behind the Revenue Adequacy Constraint:

> [The] revenue adequacy standard represents a reasonable level of profitability for a healthy carrier. It fairly rewards the [carrier's] investors and assures shippers that the carrier will be able to meet their service needs for the long term. Carriers do not need greater revenues than this standard permits, and we believe that, in a regulated setting, they are not entitled to any higher revenues. Therefore, the logical first constraint on a carrier's pricing is that its rates not be designed to earn greater revenues than needed to achieve and maintain this 'revenue adequacy' level.

4 S.T.B. at 656, *quoting* 1 I.C.C. 2d at 535-536. The Board then moved to set the practical remedy:

> Accordingly, we will apply the revenue adequacy constraint here. *Under that constraint,* if we find that Koch's revenues are adequate without the challenged

[51] *See, e.g.,* Decision served June 11, 2015 at 2.

> rate increases, then those rate increases are unreasonable.

4 S.T.B. at 657 (emphasis supplied).

Consumers acknowledges that but for the further rate reductions that are required by application of the SAC Constraint in this case, CSXT would have been permitted to adjust the pre-2015 Campbell rate by the quarterly change in the RCAF-A, or seek to justify a different adjustment in the Campbell rate under the narrow conditions described in the *Guidelines*[52] and referenced in *CF Industries* (4 S.T.B. at 661). Both exceptions are consistent with Consumers' expressed positions in *Ex Parte No. 722*.[53] However, the RCAF-A declined by 3.6% between the Fourth Quarter of 2014 and the First Quarter of 2015, and CSXT made no evidentiary proffer of any kind, either to Consumers or to the Board, when it established the challenged rates in Tariff CSXT-13952, so neither of the exceptions applies here.

In addressing the Revenue Adequacy Constraint in its *Guidelines* decision, the Board's predecessor cautioned that it should not be applied to "freeze a carrier's rates artificially," such that a revenue adequate carrier might be unable to respond to changes in traffic patterns or economic conditions as necessary to maintain an overall status of revenue adequacy. *See* 1 I.C.C. 2d at 536. Enforcement of the Constraint in this case to prohibit increases in the December

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[52] 1 I.C.C.2d at 536 n.36.

[53] *Railroad Revenue Adequacy*, EP 722, Comments of Allied Shippers, Sept. 5, 2014 at 32-33.

2014 Campbell rate, beyond actual inflation, does not give rise to any legitimate concern in that regard. As shown in Table II A-1 in Part II, *infra*, CSXT's variable cost for the Campbell movement as of the First Quarter of 2015 was $2.85 per ton, which when measured against the December 2014 rate of { } (including the CSXT fuel surcharge) produces an RVC ratio of { }. For contrast, CSXT's most recent Revenue Shortfall Allocation Methodology (RSAM) percentage – the average RVC ratio that would guarantee CSXT adequate revenues (as currently defined by the Board) if applied only to its captive traffic – is 269%.[54] For the Third Quarter of 2015, CSXT's variable costs were $2.87 per ton,[55] producing an RVC ratio for the December 2014 rate of { }, still much higher than the RSAM level. The fact that the Revenue Adequacy Constraint as applied in this case still leaves CSXT with a substantial rate and revenue premium from Consumers' Campbell traffic over the systemwide revenue adequacy level for captive traffic generally, ensures that CSXT's rate would not be held an "artificially" low level.

CSXT's January 1, 2015 rate increase on Consumers' Campbell coal traffic was unreasonable and unlawful under the Revenue Adequacy Constraint, and should be ordered cancelled.

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[54] *Simplified Standards for Rail Rate Cases – 2013 RSAM & R/VC>180 Calculations*, Ex Parte No. 689 (Sub-No.6) (STB served Sept. 3, 2015) at 4.

[55] *See* Table II A-3, *infra*.

4. The Maximum Reasonable Rate for Each Year Through 2024 Should Be the Lower of the SAC Rate or the Revenue Adequacy Constraint Rate

The Board made clear in the *Guidelines* that rail rates on captive traffic could be challenged under more than one CMP constraint:

> Thus, the various constraints contained in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonably high, *i.e.*, set at a level greater than necessary to collect the portion of unattributable costs that can properly be charged to that shipper. If we determine that a rate has been set at an unreasonably high level, we will take whatever action is appropriate, based upon the nature and extent of the violation shown, to afford relief to the complaining shipper and to promote proper pricing by the carrier.

Id., 1 I.C.C. 2d at 548. The Board and its predecessor applied this rule in a number of cases where complainants asserted claims under multiple constraints, including SAC and Revenue Adequacy. Not only did the agency evaluate the evidence separately under each constraint,[56] but it held consistently that where application of one CMP component resulted in greater rate relief for the shipper than the other(s), the maximum rate(s) should be set based on that component.

For example, in *Arkansas Power & Light Co.*, *supra*, claims were brought under all three (3) main CMP constraints. After considering the record evidence under each, the ICC found that the complaining shipper had not shown the challenged rates to be unreasonable under either the Revenue Adequacy or Management Efficiency Constraints. However, the agency did rule that the

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[56] *See, e.g., Bituminous Coal,* 6 I.C.C. 2d at 6-17.

challenged rates exceeded the maximum levels indicated by the SAC Constraint, and proceeded to prescribe relief on that basis. *See* 3 I.C.C. 2d at 782-783. Several years later, the Board followed the same approach to a different outcome in *CF Industries*, ruling that the captive shipper complainant had demonstrated entitlement to relief under the Revenue Adequacy Constraint, notwithstanding the defendant's showing that the challenged rates were lower than SAC. *See* 4 S.T.B. at 656-657. In response to the defendant carrier's petition for judicial review, the D.C. Circuit affirmed:

> In this case, CF and Farmland elected to rely on the revenue adequacy constraint. Holding that revenue adequacy and SAC provide 'alternative methodologies for examining the reasonableness of a carrier's rates,' and that 'complainants may use any methodology that is consistent with CMP,' Final Order at 7, the Board employed the revenue adequacy approach and found Koch's 1996 rate increases unnecessary to ensure adequate revenues, *id.* at 27. In so doing, the STB rejected the relevance of Koch's SAC evidence, which purportedly would have justified the company's rate increases. *Id.* at 22.
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> * * *
>
> In sum, the Board's determination that Koch could not charge rates higher than those permitted by the revenue adequacy constraint, and therefore that Koch's SAC evidence was not relevant even if it would have yielded a different result, was a reasonable reading of the agency's rate guidelines and is not subject to reversal by this court.

CF Industries, Inc. v. Surface Transp. Bd., 255 F.3d at 827-828.

In this case, Consumers' evidence shows that for 2015 the maximum rates under the SAC Constraint are significantly lower than the maximum under the Revenue Adequacy Constraint (*i.e.*, { } per ton).[57] However, to protect Consumers' rights to complete rate relief under CMP, the Board should order that CSXT charge no more for coal delivery service to Campbell in each year of the DCF period – that is, 2015 through 2024 – than the lower of the applicable SAC rate or the Revenue Adequacy rate for such year, both subject to the jurisdictional floor of 180% of variable costs. This relief is consistent both with the authorities reviewed above, and with more recent Board precedent wherein maximum rates were prescribed each year at the greater of the SAC level or the jurisdictional threshold.[58] *See W. Tex. Utils. Co. v. Burlington. N. & Santa Fe Ry.*, 6 S.T.B., 919, 922 (2003); *TMPA*, 6 S.T.B. at 608; *FMC*, 4 S.T.B. at 851.

E. RATE RELIEF AND DAMAGES

Based upon the evidence presented herein, the Board should find that CSXT possesses market dominance over the transportation of coal from the BSNF interchange designated in Tariff CSXT-13952 to Campbell, in accordance with 49 U.S.C. §10707. The Board further should find that the rates set forth in Tariff CSXT-13952, as applied to Consumers' Campbell coal traffic, exceed maximum reasonable levels as determined under the SAC Constraint and the

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[57] *See* Part III-H, Table III-H-4.

[58] That the maximum Revenue Adequacy Constraint rate would be calculated quarterly into the future over the 10-year prescription period likewise is consistent with established Board precedent. *See, e.g., KCP&L* at 9 ("The parties should therefore calculate the rate floor for later periods in a manner consistent with the procedures and findings contained in this decision.").

Revenue Adequacy Constraint of the *Coal Rate Guidelines*, and therefore are unlawful under 49 U.S.C. §10701(d).

1. **Prescription of Maximum Rates**

In accordance with the provisions of 49 U.S.C. §10704(a), Consumers is entitled to a Board order prescribing the maximum rates that lawfully may be charged by CSXT to transport coal to Campbell. The maximum rate should be the lower of the SAC rate and the Revenue Adequacy rate, subject to the 180% RVC jurisdictional threshold. For the first three (3) quarters of 2015, the maximum rates[59] per ton are as follows:

Quarter	SAC Maximum[60]	Rev. Adequacy Maximum[61]	Maximum Rate
1Q15	$10.02	{ }	$10.02
2Q15	$10.16	{ }	$10.16
3Q15	$10.09	{ }	$10.09

[59] *See* Table III-H-3.

[60] As noted in Part II (II-3 n.5), while 95% of Consumers' Campbell coal traffic moves in gondola-type railcars, 5% of the shipments move in hopper cars, and the parties have stipulated to a methodology to calculate variable costs for each car type. The SAC and maximum rates shown here are for shipments in gondola-type cars. Maximum rates for both car types are set out in Table III-H-3.

[61] As published by the Board, the changes in RCAF-A index values for 1Q20156 through 4Q2015 were (3.6%), (7.2%), (5.9%) and 3.7%, respectively. *See Quarterly Rail Cost Adjustment Factor*, Ex Parte No. 290 (Sub-No.8), (STB served December 17, 2014, March 20, 2015, June 18, 2015 and September 18, 2015). Over the full year, the RCAF-A experienced a net decline of 13%, so there is no change in the maximum Revenue Adequacy rate. In future quarters, the Revenue Adequacy rate would remain unchanged until and only to the extent that future increases in the RCAF-A fully offset the 13% net 2015 decline, as the same may be augmented by future declines in that index.

The corresponding maximum reasonable rates under the SAC Constraint (expressed as RVC ratios) for the remainder of the DCF period are set forth below. As noted *supra*, maximum rates over the same period under both the SAC Constraint and the Revenue Adequacy Constraint – and, thus, the maximum rates to be prescribed for application to Consumers' Campbell coal traffic – must be determined quarterly following the Board's publication of the RCAF-A for the subject quarter, starting with the First Quarter of 2016.

Year	Maximum SAC RVC Ratio[62]
2016	406.7%
2017	304.2%
2018	319.0%
2019	321.1%
2020	293.3%
2021	284.7%
2022	264.6%
2023	266.3%
2024	239.6%

2. Award of Damages

Since January 1, 2015, Consumers has paid CSXT freight charges for coal transportation service to Campbell at tariff rates significantly higher than the maximum lawful rates summarized in the previous table. Pursuant to 49 U.S.C. §11704(b), upon the conclusion of this proceeding Consumers will be entitled to an award of damages in the principal amount of the difference between the charges that it actually paid from January 1, 2015 through the date of CSXT's compliance with the Board's prescription order, and recalculated charges for the

[62] *See* Exhibit III-H-2.

same period based on the applicable maximum rates, together with interest from the first date of payment of the unlawful charges calculated using the U.S. Prime Rate as published in the *Wall Street Journal*.[63]

[63] *See Rail Regulation Reforms* at 34-35 and Appendix A.

Respectfully submitted,

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Dated: November 2, 2015

CERTIFICATE OF SERVICE

I hereby certify that this 2nd day of November, 2015, I have caused copies of the Opening Evidence of Complainant Consumers Energy Company to be served by hand upon counsel for Defendant CSX Transportation, Inc. as follows:

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Part II – Market Dominance

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY	)	
Complainant,	)	
v.	)	**Docket No. NOR 42142**
CSX TRANSPORTATION, INC.	)	
Defendant.	)	

PART II

MARKET DOMINANCE

The Board has jurisdiction to adjudicate the reasonableness of CSXT's rates for service to Campbell under Tariff CSXT-13952 because CSXT has market dominance over coal transportation from the BNSF interchange near Chicago, Illinois to Campbell. Market dominance is defined as "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. § 10707(a). The test for market dominance includes both a quantitative and qualitative assessment of the issue movement. As the evidence below demonstrates, CSXT has market dominance because the challenged rate is more than 520% of the unadjusted system average variable cost of the issue service, and there are no transportation alternatives that effectively constrain CSXT's pricing on Consumers' Campbell traffic.

II. A. QUANTITATIVE EVIDENCE

To satisfy the quantitative component of the market dominance assessment, the revenues produced by the rail movement at issue must be at least 180% of the variable cost of providing the service. 49 U.S.C. § 10707(d)(1). The jurisdictional threshold of 180% has been met and is not at issue in this case. CSXT "does not dispute that the variable costs of the challenged movement as currently calculated using the Uniform Railroad Costing System ("URCS") and the challenged rate appear to produce a revenue-to-variable cost ratio in excess of the 180% jurisdictional threshold."[1] However, as discussed below, the parties were unable to reach agreement as to one of the inputs used in calculating variable costs.

Pursuant to the Board's current rules, the challenged Tariff CSXT-13952 Chicago-Campbell rate is compared to CSXT's variable costs calculated on an unadjusted system average basis using the Board's URCS Phase III movement costing program,[2] based on the following nine (9) traffic and operating parameters: (1) the railroad; (2) number of loaded miles; (3) shipment type; (4) number of cars per shipment; (5) freight car type; (6) car ownership; (7) net tons per car (weight); (8) commodity code; and (9) movement type.[3] As set out below, Consumers has

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[1] CSXT's Answer to Original Complaint at 5 ¶ 14.

[2] *See* 49 U.S.C. § 10707(d)(1)(B); *Major Issues in Rail Rate Cases*, EP 657 (Sub-No.1), (STB served Oct. 30, 2006) at 60 ("*Major Issues*").

[3] *See Major Issues* at 52; *Kan. City Power & Light Co. v. Union Pac. R.R.*, NOR 42095 (STB served May 19, 2008) at 6.

calculated the variable costs and revenue to variable cost ratios (RVC) in accordance with these requirements.[4]

1. Traffic and Operating Characteristics

As noted in Part I, *supra*, pursuant to the governing Procedural Order, Consumers and CSXT conferred and were able to agree on eight (8) of the nine (9) standard traffic and operating inputs for the URCS Phase III program. The stipulated inputs are as follows:

1) Railroad: CSXT
2) Loaded Miles: Parties do not agree
3) Shipment Type: Receive and Terminate
4) Cars Per Shipment: 129.5
5) Car Type: Gondola and Equipped Hopper[5]
6) Owner: Private
7) Net Tons Per Car: 120.8
8) Commodity (Full STCC): Coal (1121290)
9) Movement Type: Unit Train

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[4] Consumers' variable cost calculations and the other evidence presented in Part II-A are sponsored by Timothy D. Crowley, Vice President of L.E. Peabody & Associates, Inc., whose qualifications are included in Part V.

[5] By stipulation of the parties, 95% of shipments during the study period moved in gondola-type cars, and 5% moved in hoppers. To reflect this, two (2) URCS calculations are performed using identical inputs other than car type, and the results are weighted 95% and 5%, respectively, to arrive at the variable cost per ton. *See* e-workpaper "Consumers "Data Summary," Column (7) and Column (9) line 19 and "42142 Consumers v CSXT 2015_07_15 Joint Submission of Operating Characteristics 238825.pdf," p.2.

The single input on which the parties were not able to agree was loaded miles. Consumers' position, which is reflected in the variable cost calculations shown in Tables II A-1-3, below, is that "loaded miles" should be based on the actual number of miles that CSXT handles Consumers' loaded coal trains from the BNSF interchange to the Campbell Station.[6] Train movement records produced by CSXT in discovery show that during 2014, loaded trains bound for Campbell were handled by CSXT via two (2) routes: the "Belt Route" and the "Barr Yard" route.[7] This is confirmed in CSXT's responses to Consumers' Interrogatory Nos. 3 and 4: "[l]oaded and empty Campbell trains each are regularly transported over two separate routes… the Belt Route and the Barr Yard Route."[8] According to the CSXT train movment data from 1Q2014 to 1Q2015, the Belt Route was used for 85.8% of the trains, and the Barr Yard route for 14.2%.[9] The loaded miles via the Belt Route, including the Campbell Station lead track, are 163.7 miles,[10] and the loaded miles via the Barr Route, including

[6] The loaded miles for variable cost calculations should include the lead tracks serving the Campbell Station (Campbell is not equipped with a loop track). *See Major Issues* at 52, n. 166.

[7] *See* e-workpaper "Consumers Issue Traffic Train Event Loaded Route Miles.xlsm," tab "Route 12."

[8] *See* e-workpaper "Consumers INT 3&4 Response (CSX-CNSMR-C-19328 to 19336).pdf."

[9] *See* e-workpaper "Consumers Issue Traffic Train Event Loaded Route Miles.xlsm," tab "All Routes Summary," cell K4 and cell K5.

[10] *See* e-workpaper "Consumers Issue Miles.xlsx," tab "Miles for Variable Cost," Column (6) Line 10.

the Campbell lead, are 165.6 miles.[11] Weighting the mileages based on the 85.8%/14.2% distribution yields an average of 164.0 loaded miles,[12] which is the figure used by Consumers in its variable cost calculations.

On information and belief, CSXT did not agree with Consumers' approach because trains moving in the empty direction back to the BNSF interchange from Campbell frequently are handled by CSXT for a few more miles than in the loaded direction. Consumers understands CSXT's position to be that the variable cost calculations under URCS should be based on mileages adjusted to include the empty movement miles. However, this position was squarely rejected by the Board in *Major Issues*, where the agency adopted unadjusted system-average URCS as the sole standard for variable costs. Responding to arguments raised at the time by BNSF and Union Pacific Railroad, the Board held:

> [C]arriers propose that the Board allow parties to submit the actual number of total miles or empty miles. URCS calculates round-trip miles for train-load shipments by doubling loaded miles, but this presumes that the number of loaded miles, which are inputted by the user, is the same as empty miles. Carriers note that this is often not the case, as carriers may use a longer route for empty trains returning to the origin so as to increase efficiency, service to the shipper, and operational fluidity. Carriers argue that actual empty miles are easily ascertainable, readily agreed upon by the parties, and could be included in URCS Phase III.

[11] *See* e-workpaper "Consumers Issue Miles.xlsx," tab "Miles for variable Cost," Column (6) Line 21.

[12] *See* e-workpaper "Consumers Issue Miles.xlsx" tab "Miles for Variable Cost," Column (6) Line 23.

> While we recognize the carriers' desire to have the URCS calculation reflect more accurately the actual cost of moving the issue traffic, we find that such piecemeal adjustments would tend to bias the results in favor of the railroads. As discussed above, selective replacement of system-average statistics – which tend to benefit the railroads – without allowing for counterbalancing adjustments that benefit shippers – which often require information not maintained in sufficient detail or at all by the railroads – may bias the entire analysis, rendering the modified URCS output unreliable. Shippers note this potential for unfairness and bias in their reply.

Major Issues at 58 (footnotes omitted). The foregoing makes clear that an adjustment to reflect empty miles is prohibited under current rules, which mandate reliance "solely on the unadjusted variable cost figures generated by URCS, using the nine moment-specific factors inputted into Phase III of URCS. . . ." *KCP&L* at 7.

2. Variable Costs

Tables II-A-1 through II-A-3 show the calculations of variable costs for the issue movement from the CSXT-BNSF interchange to Campbell, based on CSXT's 2014 URCS unit costs developed by Consumers' experts, indexed to First, Second, and Third Quarter 2015 wage and price levels using the Board's established updating procedures.[13] Variable costs are computed on a system average basis, with no adjustments other than those set forth in *Review of the*

[13] CSXT's 2014 unit costs are detailed in e-workpaper "Consumers Opening VC_JT.xlsx." The indexing methodology used is the "*OG&E* procedure" prescribed in *Oklahoma Gas & Electric Co. v. Union Pacific Railroad Co.*, STB NOR 42111 (STB served July 24, 2009 and October 26, 2009).

General Purpose Costing System and endorsed in *Major Issues*. *See also KCP&L* at 7-8. At Third Quarter 2015 levels, the relevant variable cost for the transportation to which the challenged rate ($14.95 per ton)[14] applies is $2.87 per ton,[15] and the RVC ratio produced by that rate is 521%.[16] This obviously and substantially exceeds the jurisdictional threshold.

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[14] *See* e-workpaper "Consumers Opening VC_JT_xlsx," tab "3Q15" Column (4) Line 16.

[15] *See* e-workpaper "Consumers Opening VC_JT.xlsx." tab "3Q15" Column (4) Line 12.

[16] *See* e-workpaper "Consumers Opening VC_JT.xlsx." tab "3Q15" Column (4) Line 17.

Table II-A-1
CSXT Variable Costs and Jurisdictional Threshold
For Handling Coal From The BNSF Interchange at Cicero, IL
To The J.H. Campbell Station – 1Q2015

	Movement Parameters	Gondola	Hopper	Weighted Avg.[17]
	(1)	(2)	(3)	(4)
1.	Railroad	CSXT	CSXT	CSXT
2.	Miles	164.0	164.0	164.0
3.	Shipment Type	Receive & Terminate	Receive & Terminate	Receive & Terminate
4.	Cars per train	129.5	129.5	129.5
5.	Car Type	Gondola-Plain	Open Top Hopper-Special Service	Weighted Average
6.	Car Ownership	Private	Private	Private
7.	Tons per Car	120.8	120.8	120.8
8.	Commodity	Coal	Coal	Coal
9.	Movement Type	Unit Train	Unit Train	Unit Train
Variable Costs Per Ton				
10.	Phase III Cost Base Year 2014[18]	$3.05	$3.01	$3.04
11.	Index from 2014 to 1Q15	0.9367	0.9367	0.9367
12.	Phase III Cost 1Q15[19]	$2.85	$2.82	$2.85
13.	Jurisdictional Threshold[20]	$5.13	$5.08	$5.13
Rate to Variable Cost				
14.	CSXT Base Rate[21]	$14.95	$14.95	$14.95
15.	Estimated CSXT Fuel Surcharge[22]	$0.00	$0.00	$0.00
16.	Rate[23]	$14.95	$14.95	$14.95
17.	Rate to Variable Cost Ratio	525%	530%	525%

[17] Variable Cost (Line 10) is calculated using the weighted average variable cost from Columns (2) and (3) based on the percent distribution of gondolas and hoppers utilized by Consumers Energy during the 2Q14-1Q15 time period (95.1% gondola vs. 4.9% hopper).

[18] 2014 CSXT URCS costs per e-workpaper "Consumers Opening VC_JT.xlsx," tab "1Q15" Line 10.

[19] Line 10 x Line 11.

[20] Line 12 x 1.80.

[21] CSXT rate in Tariff CSXT-13952, effective January 1, 2015.

[22] Fuel surcharge ("FSC") based on CSXT Fuel Surcharge Publication 8662, with a strike price of $3.75 per gallon. The average 1Q15 On-Highway Diesel Fuel ("HDF") price is $3.36 per gallon, therefore no fuel surcharge is applicable in this time period.

[23] Line 14 + Line 15.

Table II-A-2
CSXT Variable Costs and Jurisdictional Threshold
For Handling Coal From The BNSF Interchange at Cicero, IL
To The J.H. Campbell Station – 2Q2015

	Movement Parameters (1)	Gondola (2)	Hopper (3)	Weighted Avg.[24] (4)
1.	Railroad	CSXT	CSXT	CSXT
2.	Miles	164.0	164.0	164.0
3.	Shipment Type	Receive & Terminate	Receive & Terminate	Receive & Terminate
4.	Cars per train	129.5	129.5	129.5
5.	Car Type	Gondola-Plain	Open Top Hopper-Special Service	Weighted Average
6.	Car Ownership	Private	Private	Private
7.	Tons per Car	120.8	120.8	120.8
8.	Commodity	Coal	Coal	Coal
9.	Movement Type	Unit Train	Unit Train	Unit Train
Variable Costs Per Ton				
10.	Phase III Cost Base Year 2014[25]	$3.05	$3.01	$3.04
11.	Index from 2014 to 2Q15	0.9486	0.9486	0.9486
12.	Phase III Cost 2Q15[26]	$2.89	$2.86	$2.89
13.	Jurisdictional Threshold[27]	$5.20	$5.15	$5.20
Rate to Variable Cost				
14.	CSXT Base Rate[28]	$14.95	$14.95	$14.95
15.	Estimated CSXT Fuel Surcharge[29]	$0.00	$0.00	$0.00
16.	Rate[30]	$14.95	$14.95	$14.95
17.	Rate to Variable Cost Ratio	517%	523%	517%

[24] Variable Cost (Line 10) is calculated using the weighted average variable cost from Columns (2) and (3) based on the percent distribution of gondolas and hoppers utilized by Consumers Energy during the 2Q14-1Q15 time period (95.1% gondola vs. 4.9% hopper).

[25] 2014 CSXT URCS costs per e-workpaper "Consumers Opening VC_JT.xlsx," tab "2Q15" Line 10.

[26] Line 10 x Line 11.

[27] Line 12 x 1.80.

[28] CSXT rate in Tariff CSXT-13952, effective April 1, 2015.

[29] Fuel surcharge ("FSC") based on CSXT Fuel Surcharge Publication 8662, with a strike price of $3.75 per gallon. The average 2Q15 On-Highway Diesel Fuel ("HDF") price is $2.85 per gallon, therefore no fuel surcharge is applicable in this time period.

[30] Line 14 + Line 15.

Table II-A-3
CSXT Variable Costs and Jurisdictional Threshold
For Handling Coal From The BNSF Interchange at Cicero, IL
To The J.H. Campbell Station – 3Q2015

Movement Parameters	Gondola	Hopper	Weighted Avg.[31]
(1)	(2)	(3)	(4)
1. Railroad	CSXT	CSXT	CSXT
2. Miles	164.0	164.0	164.0
3. Shipment Type	Receive & Terminate	Receive & Terminate	Receive & Terminate
4. Cars per train	129.5	129.5	129.5
5. Car Type	Gondola-Plain	Open Top Hopper-Special Service	Weighted Average
6. Car Ownership	Private	Private	Private
7. Tons per Car	120.8	120.8	120.8
8. Commodity	Coal	Coal	Coal
9. Movement Type	Unit Train	Unit Train	Unit Train
Variable Costs Per Ton			
10. Phase III Cost Base Year 2014[32]	$3.05	$3.01	$3.04
11. Index from 2014 to 3Q15	0.9430	0.9430	0.9430
12. Phase III Cost 3Q15[33]	$2.87	$2.84	$2.87
13. Jurisdictional Threshold[34]	$5.17	$5.11	$5.17
Rate to Variable Cost			
14. CSXT Base Rate[35]	$14.95	$14.95	$14.95
15. Estimated CSXT Fuel Surcharge[36]	$0.00	$0.00	$0.00
16. Rate[37]	$14.95	$14.95	$14.95
17. Rate to Variable Cost Ratio	521%	526%	521%

[31] Variable Cost (Line 10) is calculated using the weighted average variable cost from Columns (2) and (3) based on the percent distribution of gondolas and hoppers utilized by Consumers Energy during the 2Q14-1Q15 time period (95.1% gondola vs. 4.9% hopper).

[32] 2014 CSXT URCS costs per e-workpaper "Consumers Opening VC_JT.xlsx," tab "3Q15" Line 10.

[33] Line 10 x Line 11.

[34] Line 12 x 1.80.

[35] CSXT rate in Tariff CSXT-13952, effective July 1, 2015.

[36] Fuel surcharge ("FSC") based on CSXT Fuel Surcharge Publication 8662, with a strike price of $3.75 per gallon. The average 3Q15 On-Highway Diesel Fuel ("HDF") price is $2.85 per gallon, therefore no fuel surcharge is applicable in this time period.

[37] Line 14 + Line 15.

II. B. QUALITATIVE MARKET DOMINANCE

As shown in Part I, under the law and governing precedent, the only form of potential transportation competition that is relevant for purposes of the market dominance determination in this case is direct competition; *i.e.*, whether Consumers has feasible and effective alternatives to CSXT service for coal transportation from the BNSF interchange near Chicago to the Campbell Station.[38] In this Part II-B, Consumers demonstrates that in spite of several investigations that it undertook at various times in an effort to identify an effective option, no feasible, direct competitive alternatives to CSXT service are available. It also is shown herein that even if one expands the inquiry to include indirect or "geographic" competition, which Board precedents preclude, it is clear that no competitive alternative exists that effectively constrains CSXT's pricing.[39]

1. <u>No Direct Competition Constrains CSXT Pricing</u>

In evaluating potential transportation competition, it is necessary to consider not only whether a hypothetical alternative is physically feasible, but whether it actually constrains the defendant railroad's pricing. This qualitative assessment requires a determination "whether 'there are any alternatives sufficiently competitive (alone or in combination) to bring market discipline to [a

[38] *See E.I. DuPont De Nemours & Co. v. Norfolk S. Ry. Co.*, at 16-17; *Minnesota Power,* 4 S.T.B. at 66 and 299 n.13.

[39] The statements and evidence presented in Part II-B are sponsored by Consumers' Executive Director of Fossil Fuel Supply, Brian D. Gallaway, and Consumers' expert witness, Ralph W. Barbaro, Ph.D., PE of Energy Research Company LLC, whose qualifications are included in Part V.

railroad's] pricing.'" *W. Tex. Utils. Co.,* 1 S.T.B. at 645 (quoting *Metro. Edison Co.,* 5 I.C.C. 2d at 410). This is because "[e]ven where feasible transportation alternatives are shown to exist, those alternatives may not provide 'effective competition.'" *E.I. Dupont De Nemours & Co. v. Norfolk S. Ry. Co.* at 17 (citing *Mkt. Dominance Determinations & Consideration of Prod. Competition,* 365 I.C.C. 118, 129 (1981) ("Effective competition for a firm providing a good or service means that there must be pressures on that firm to perform up to standards and at reasonable prices, or lose desirable business."), *aff'd sub nom. W. Coal Traffic League v. United States*, 719 F.2d 772 (5th Cir. 1983) (en banc)). As the Board recently observed, "at some point even a monopolist could price its services so high that plainly unrealistic transportation alternatives will eventually serve to constrain rates." *See E.I. Dupont De Nemours & Co. v. Norfolk S. Ry. Co.* at 17 (citing *Ariz. Pub. Serv. Co.,* 742 F.2d at 651). The relevant time period for purposes of assessing whether a complainant shipper's traffic is subject to market dominance is the "period covered by the complaint," [40] which in this case is the period beginning January 1, 2015.[41]

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[40] *Consol. Papers, Inc.*, 7 I.C.C. 2d at 347; *see also* 7 I.C.C. 2d at 345 ("[R]easonably direct independent alternative routes were not available after 1980. Moreover, collective ratemaking remained in force on these movements through 1980. Therefore, we conclude that these two movements were not subject to intramodal competition during the complaint period."). *Cf. Union Pac. R.R. v. I.C.C.*, 867 F.2d 646, 650 (D.C. Cir. 1989) ("Section 10701a(b)(1) speaks in the present tense.").

[41] *See* Complaint at 2.

CSXT has been the exclusive delivery carrier for western coal moving to Campbell since shipments of Powder River Basin coal to the Station began. While Consumers has studied hypothetical potential alternatives, most recently in 2014, all of those considered either are operationally infeasible, or would entail new capital expenditures and operating costs that render them economically non-viable.

a. <u>A Rail Alternative Does Not Exist</u>

CSXT is the only rail carrier that serves both the BNSF interchange near Chicago and the Campbell Station. NS has rail lines that would allow an interchange with BNSF near Chicago, and that extend to Grand Rapids, MI, approximately 35 rail miles from Campbell. To access the Station and bypass CSXT, however, a new rail line would have to be constructed between those points. Consumers evaluated this scenario in 1998 and again in 2007,[42] but on each occasion found that there were disqualifying obstacles.

The 1998 study estimated a construction cost of {

} for a project that would take three to five years to complete.[43] When Consumers revisited the matter again in 2007, the "preferred alignments"

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[42] {

}

[43] {

}

serving Campbell were estimated to cost { }[44] These alignments also presented significant permitting challenges, requiring track to cross miles of wetlands and traverse named and navigable water bodies, including the Grand River.[45] The myriad cost, permitting, and other feasibility issues raised by the 2007 study were further complicated by the lack of any reliable estimate of the rates that NS would charge for service between the Chicago-area interchange and Grand Rapids (or the Campbell Station), assuming that NS would operate over the new line if it could be built.[46] In the *TMPA* case, the Board considered a 13.5 mile "build out" scenario that did not include a rate quotation from the erstwhile competitor among the relevant data.[47] The Board noted that "[w]ith no assurance of rate reductions sufficient to reduce its overall transportation cost," the shipper there – like Consumers here – did not pursue the "option" further.[48] The Board then held that "we cannot conclude that the build-out option is financially feasible

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[44] { }

[45] { }

[46] { }

[47] *See TMPA,* 6 S.T.B. at 582-84.

[48] *Id.* at 584.

or provides sufficient competitive pressure to effectively discipline BNSF's rate."[49] The same conclusion applies here.

b. Motor Carriage is Not a Viable Option

Neither { }[50] nor the coal unloading facilities at the Campbell Station accommodate the use of trucks to deliver coal from the Chicago area to the Station, and the road distance between the two (2) is more than 150 miles. The prospect that Consumers could consider moving even 25% of Campbell's annual coal requirements (1,200,000-1,500,000 tons) over-the-road from Chicago to West Olive, MI is wholly unrealistic, as evidenced by the Board's numerous previous holdings that motor carriage cannot represent effective competition for rail service in the transportation of significant volumes of utility coal over more than a very short distance. *See, e.g.*, *W. Tex. Utils.*, 1 S.T.B. at 652 (rejecting the prospect of 3,000,000 tons per year moving over 35 miles as an effective alternative); *Ariz. Pub. Serv. Co.*, 2 S.T.B. at 374-76 (a 115-mile motor carrier movement did not represent effective competition for the rail transportation of 2,500,000 tons per year); *Metro. Edison Co.*, 5 I.C.C. 2d at 413 (a 200-mile truck movement of 1,000,000 tons per year was "simply impractical."). While Consumers investigated a number of

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[49] *Id.*

[50] {

}

hypothetical "options" over the years, as discussed in this Subpart, it never studied the concept of trucking Campbell's coal requirements from Chicago to the Station.

c. There is No Direct Vessel Competition for CSXT Coal Deliveries to Campbell

As noted in Part I, a coal-fired power plant's need for access to a significant water source led to the Campbell Plant being sited near Lake Michigan, and Consumers' contract {

}[51] Faced with captivity to CSXT for coal deliveries to Campbell, these facts prompted Consumers on two (2) occasions to study whether it could be physically and economically feasible to create an alternative to CSXT using vessel shipments from the KCBX Terminal to Campbell. As detailed below, however, none of these "options" offers an effective, competitive threat to CSXT's monopoly.

i. KCBX and Campbell Lack Essential Coal Storage Capacity

It is a fact of life on Lake Michigan that vessel transportation becomes impossible during winter months, when the lake typically freezes. Consumers cannot count on reliable lake shipments between December and the

[51] *See* I-5, 17.

following March,[52] a fact confirmed by Consumers' own experience shipping vessel coal to the Cobb Station,[53] and wind and wave conditions cause "an average berth downtime of 10% or more" during the rest of the year.[54] Together, these facts mean that hypothetical vessel shipments from KCBX would not be available for 3-4 months out of each year. However, {

} Based on annual Campbell coal requirements of 4.8 to 6.0 million tons, the seasonal limits on Lake Michigan vessel traffic would mean that in order to avoid reliance on CSXT, Consumers would have to store between 1.2 and 1.5 million tons of coal at KCBX every year.[56]

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[52] {

}

[53] *See* { }

[54] { }

[55] *See* { }

[56] If Consumers was required to continue to rely on CSXT for 25% of Campbell's requirements, the effective transportation cost of any "alternative" for the remaining 75% would rise dramatically. As noted in Part I, when Consumers awarded its Karn-Weadock coal traffic to CN instead of CSXT in 2014, CSXT retaliated by increasing its rate on that traffic by nearly 55%. It is quite reasonable to assume that CSXT would do the same – or worse – to the Campbell rates for any tonnage that Consumers continued to ship via direct rail, given CSXT's incentive to replace its "lost profits," and its absolute control over that portion of Consumers' baseload fuel requirements.

As Consumers' expert witness Dr. Ralph Barbaro explains, such storage capacity simply does not exist. Not only is KCBX's current storage capacity already committed, but as of June 2016 it is expected that *no* ground storage will be available, due to environmental restrictions and other mandates.[57] Additionally, as Dr. Barbaro shows, the same seasonal limitations would require Consumers {

} However, increasing storage at Campbell may not be an option, and at the very least would require a significant new capital investment. New Environmental Protection Agency Steam Electric Effluent Guidelines[59] already have required Consumers to re-design its coal pile, and the existing inventory space is bordered by buildings and other fixed barriers.[60] Assuming that it even would be possible physically to create additional storage at Campbell, considering the engineering and permitting costs associated with designing a new system to

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[57] *See* Dr. Ralph W. Barbaro, *Assessment of the Feasibility of Shipping PRB Coal to the J.H. Campbell Power Plant Using Lake Vessels* (October 29, 2015) ("Barbaro Report") at 21-25.

[58] *Id.* at 32-36.

[59] *See* Prop. Envtl. Prot. Agency Reg., *Effluent Limitations Guidelines & Standards for the Steam Elec. Power Generating Point Source Category,* 78 Fed. Reg. 34432-34543 (June 7, 2013); EPA, *Proposed Effluent Guidelines for the Steam Elec. Power Generating Category*, http://water.epa.gov/scitech/wastetech/guide/steam-electric/proposed.cfm (last visited Sept. 3, 2015).

[60] *See* Barbaro Report at 35-36.

meet the regulatory requirements, Dr. Barbaro estimates that the capacity expansion would carry a capital cost of approximately $75 million.[61]

The lack of essential coal storage capacity at either KCBX or Campbell precludes any direct vessel "option" from presenting effective competition for CSXT rail service. As discussed further below, however, this is not the only barrier to a direct vessel alternative.

ii. A 2007 Study Showed No Feasible Direct Vessel Alternative for Campbell

In 2007, Consumers commissioned Environmental Resources Management (ERM) to perform a preliminary analysis of "proposed coal vessel delivery options" to the Campbell facility.[62] ERM looked at four (4) hypothetical alternatives involving vessel transportation from KCBX.[63] {

}[64] ERM did not conduct a detailed evaluation of whether multiple-barge tows moving across Lake Michigan even would be physically feasible, given seasonal and weather conditions. However, a follow-up review of this issue proved unnecessary, due to intervening developments. Specifically, subsequent to

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[61] *See* Barbaro Report at 36.

[62] *See* {

}

[63] ERM did not consider the lack of essential storage capacity, discussed *supra*.

[64] *See* Figure II-B-1-A, *infra*.

Consumers' receipt of ERM's report the EPA proposed revisions to regulations promulgated under Section 316(b) of the Clean Water Act (33 U.S.C. §1326, *et seq.*) affecting existing facilities.[65] Ultimately codified in 40 C.F.R. Parts 122 and 125, these rules were assessed by Consumers as requiring significant modifications to the inlet cooling channel connected to Pigeon Lake, which serves Units 1 and 2 of the Campbell facility. These modifications were incompatible with the installation of a coal barge unloading dock (even assuming one otherwise would be physically and economically feasible), which led Consumers to discontinue any further consideration of ERM's hypothetical barge "options."

The fourth scenario addressed by ERM involved the transportation of coal by lake vessel to a new, direct unloading pier that would have to be constructed approximately 3,500 feet from shore in the middle of Lake Michigan, perpendicular to the property where the Campbell Station is located.[66] As discussed further *infra*, this so-called "Option D" would have been the largest structure sited in Lake Michigan since 1906, decades before the enactment of the Clean Water Act ("CWA"), and according to ERM it {

[65] *See generally* WP Report at 45, e-workpaper "CONSUMERS-001096."

[66] {

}

[67] *Id.*

} for the pier and dock structures alone.[68] Given the extraordinary capital cost and the serious doubts about whether the myriad federal and state permits and approvals that would be needed for a project of such magnitude ever could be obtained, Consumers did not give further consideration to "Option D" at the time.

iii. More Recent Studies Show That There Are No Effective Direct Vessel Options for Campbell

As the price paid by Consumers for its captivity to CSXT at Campbell continued to rise, the matter of possible vessel options from Chicago to the Station was revisited. In 2014, Consumers retained two (2) new consultants – WorleyParsons Resources & Energy ("WorleyParsons") and the Spicer Group ("Spicer") – to study hypothetical alternatives to CSXT rail service based on lake vessel transportation. Two (2) of the examined hypothetical scenarios that could fit within a liberal definition of "direct competition" were (1) coal transportation by self-propelled and self-unloading vessels from KCBX to a new unloading point and facility in Pigeon Lake, south of the Campbell Plant; and (2) transportation via the same type vessels to Consumers' Cobb Station, for unloading and transfer to a short line railroad – the Michigan Shore Railroad (MSRR) – and delivery to Campbell over new rail connections to be built at Cobb and Campbell.[69] Upon

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[68] *Id.*

[69] WorleyParsons and Spicer also studied Option D, but Consumers only evaluated this option using the Midwest Energy Resources Company ("MERC") dock in Superior WI, because the Lake Michigan pier optimally would be

consideration of the consultants' work, Consumers determined that neither alternative represented a feasible and effective competitive alternative to CSXT, a conclusion that is confirmed by Dr. Barbaro's independent analysis in this proceeding.

(a) Vessel to Pigeon Lake

Both WorleyParsons and Spicer {

} Nevertheless, both reports identified numerous permitting and approval issues that also could act as complete barriers to construction of the necessary unloading facilities in Pigeon Lake, and each estimated capital and operating costs which – though incomplete – still showed that the "option" would not present an effective competitive threat to CSXT.

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configured for the largest Class I vessels, and only MERC can accommodate a Class I vessel. Option D, along with the other hypothetical, indirect alternatives that relied on transportation from MERC, is discussed further, *infra*.

[70] {

}

Pigeon Lake is an established recreational and pleasure boat site, and there are numerous private homes and docks along its shores. As Figure II-B-1-A below shows, every time that a coal vessel would enter Pigeon Lake, essentially all recreational boating traffic seeking access to Lake Michigan would be obstructed.

{

} {

[71] { }

[72] {

} would mean a loaded vessel calling and blocking access every 30-36 hours, followed by the empty vessel continuing to block the lake during egress.[74]

{

} Additionally, Consumers' consultants estimated {

}

Especially considering the unfavorable public light in which any proposed project to sustain or enhance the combustion of coal has been viewed in recent years, the virtual "taking" of Pigeon Lake that would result from its use as a coal vessel delivery stage for Campbell would be opposed vehemently by neighboring landowners, environmental groups, Native American tribes, and other adversely affected constituencies. It therefore is likely that in addition to the

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}

[73] 75% of 365 days.

[74] At 4,800,000 tons per year, 178 vessel loads would be required, while 222 loads would be needed at 6,000,000 tons. If smaller vessels were used, the frequency of vessel calls would increase.

[75] { }

[76] { }

[77] { }

permitting challenges and costs associated with mitigation, Consumers would face significant legal campaigns against this option.[78] Consumers' consultants {

} without specifically quantifying each one for purposes of their cost estimates, though WorleyParsons concluded that a protracted legal battle may entail {

} and could { }[80]

Other adverse environmental impacts also confirmed the infeasibility of this "option." A preliminary assessment prepared in 2014 determined that {

}

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[78] *Inter alia*, affected neighboring property owners could file Fifth Amendment property takings claims. The beach erosion caused by dredging and the construction of the existing Port Sheldon pier in the 1980s resulted in civil suits and a settlement that requires beach nourishment. *See* 1989 Settlement, e-workpapers 1989 Settlement. Additionally, "Tribal interests will likely voice objection to this Option" because "evidence suggests an ancient Native American burial ground is beneath the ash pile." WP Report at 49, e-workpaper "CONSUMERS-001100."

[79] {

}

[80] { }

[81] {

}

Another issue concerned the construction of 1,600 foot extensions to the jetties that currently frame the entrance to Lake Michigan, which would be needed in order to provide a channel for coal vessel entry into Pigeon Lake.[82] Historic shoreline records indicate that the existing jetties have resulted in certain areas having accelerated rates of accretion or erosion, because jetties effectively block the transport of the sediment parallel to the shore. A U.S. Army Corps of Engineers study from 1991 noted that there was a zone of higher erosion 3,000 to 9,000 feet south of the existing jetties that appeared to be related to their original construction in 1962.[83] In other words, even after erosion rates returned to normal, the changes to the shoreline still were visible decades later.

WorleyParsons and Spicer provided capital cost estimates of { } respectively, for the KCBX-Pigeon Lake alternative, *before* consideration of the estimated cost of protracted litigation and environmental impact mitigation.[84] The consultants also supplied incomplete estimates of operating expenses for vessels, transloading, etc., which Consumers then incorporated into its own evaluation model for comparison to the 2014 cost of

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[82] { }

[83] Mark Hansen & Steven G. Underwood, *Coastal Response to the Port Sheldon Jetties at Pigeon Lake, Mich.*, U.S. Army Corps of Eng'rs Report AD-A239815 (July, 1991), e-workpaper "CONSUMERS-007624."

[84] { }

Campbell coal deliveries via CSXT.[85] Even with the understated and missing costs, {

} *before* any consideration of the amortization of the necessary capital costs.[87]

Consumers' companion analysis of those capital costs further confirmed the conclusion that the "option" did not represent an effective competitive alternative to CSXT. Specifically, the vessel alternative offered a maximum potential return on investment of {

} that Consumers' financial models require in order to justify major capital investments.[89] In other words, construction of the facilities needed to access the direct vessel alternative (assuming that all permits could be obtained *and* the preclusive lack of coal

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[85] Among the cost components omitted by the consultants was {

}

[86] Consumers' internal evaluations of various hypothetical transportation alternatives compared costs on a delivered basis, which includes the mine-mouth cost of the coal itself. However, the same coal prices and Btu heating values were used for each "option" from the same coal origins, so coal commodity costs are a constant value in comparing the cost of CSXT rail service to any individual alternative.

[87] {

}

[88] {

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[89] {

}

storage capacity could be ignored) could not be approved, due to the lack of economic benefit to Consumers' ratepayers.

(b) Vessel to Cobb and Rail

Since the Cobb Station was designed for and has received coal shipments by lake vessel for many years, as part of its effort to seek out any viable and effective alternatives to CSXT for deliveries to Campbell, Consumers asked WorleyParsons to evaluate whether Cobb could be used as a vessel unloading point, through which coal then could be delivered to Campbell by another carrier. WorleyParsons identified one such hypothetical direct "option": a vessel move from KCBX to Cobb, followed by rail delivery via the MSRR, which currently operates between Muskegon, near the Cobb Station, and points south of West Olive, which is near Campbell. WorleyParsons estimated {

} for additional rail trackage that would be required in the vicinities of both Cobb and Campbell to facilitate rail shipments, and for needed upgrades to the track over which MSRR already operates, and provided estimates of some of the operating expenses that the vessel-rail movement would entail.[90] Significantly, however, WorleyParsons did not {

}

[90] {

}

WorleyParsons' analysis also relied on two (2) key assumptions that at the very least are questionable, and present serious concerns over the physical viability of the vessel-rail alternative, even before any consideration of likely costs.

First, WorleyParsons assumed that because Cobb has received and stored vessel coal in the past, Consumers could continue to use the facilities for those purposes for Campbell in the future. However, it has been publicly known since 2011 that the Cobb Station is slated for closure,[91] and pursuant to the terms of the consent decree with the EPA referenced in Part I, *supra*, it will cease burning coal by April of 2016. In anticipation of the closure, Consumers has been engaged for some time in extensive discussions with state and regional economic development authorities over the future use of the Cobb dock and site. In response to proposals endorsed by some of the same constituencies that strongly supported the closure of Cobb's coal-fired generators, Consumers has agreed to cooperate with plans to convert the Cobb docks for use as part of an expansion of Port Muskegon, with facilities for container handling, storage, transfer and drayage.[92] This planned conversion and subsequent use would preclude the use of Cobb to

[91] *Consumers Energy Announces Cancellation of Proposed New Coal Plant, Continued Substantial Investments in Major Coal Units, Anticipated Suspension of Operation of Smaller Units in 2015* (Dec. 2, 2011) (News Release), https://www.consumersenergy.com/News.aspx?id=5167&year=2011.

[92] *See* Rockford Berge, *Muskegon Area First Feasibility Study*, e-workpaper "CONSUMERS-007942." *See generally* Consumers, *Decommissioning Program Update* (Apr. 1, 2015), e-workpapers "CONSUMERS-008086-CONSUMERS-008130."

transload millions of tons of coal for Campbell,[93] and while Consumers {

} that likely would doom any efforts to secure the permits needed to expand coal handling capacity and construct new private rail trackage to connect to the dock.

Second, WorleyParsons assumed {

} However, the MSRR does not own the tracks over which it operates; it *leases* them from CSXT, and {

} Thus, not only would Consumers { } of the capital costs,[96] the MSRR would have little incentive to control those costs {

[93] It also should be noted in this regard that annual vessel coal volumes delivered to Cobb historically averaged about 1,000,000 tons, which is less than 25% of the *minimum* volume required for Campbell.

[94] { }

[95] { }

[96] { }

} Finally, the MSRR is a subsidiary of Genessee & Wyoming Inc., which controls a large number of shortline and regional railroads that interchange traffic with CSXT and depend on CSXT for major portions of their revenue streams.[98] The MSRR did not provide a rate and service proposal for WorleyParsons' use in its evaluation,[99] and it is not unreasonable to expect either that it would decline to cooperate in challenging a monopoly held by one of its parent's major commercial partners, or only would do so at rates well in excess of the costs assumed by WorleyParsons.

Even ignoring the foregoing disqualifying considerations, Consumers' internal assessment of the direct vessel-rail "option" studied by WorleyParsons pointed to the conclusion that it did not represent an effective, competitive alternative worthy of pursuit. Exclusive of capital costs, Consumers

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[97] {

}

[98] *See* Barbaro Report at 105-112.

[99] *See* *TMPA*, 6 S.T.B. at 584.

calculated total delivered costs of up to {

} higher

than the comparable costs based on the charges assessed by CSXT for rail service prior to the commencement of this case.[100] The companion evaluation of capital costs showed an internal rate of return of { } obviously reflecting the lack of any economic benefit that could justify the investment.

iv. Dr. Barbaro's Analysis Confirms Consumers' Conclusions that Direct Vessel Competition is Not Feasible

Dr. Barbaro's analysis of hypothetical transportation alternatives to CSXT for coal service to Campbell from the Chicago area confirms that when all applicable costs are taken into account, (including several that were not quantified by ERM, WorleyParsons or Spicer),[102] neither of the direct vessel transportation "options" that Consumers has investigated over the past ten (10) years presents an effective, competitive alternative to the transportation to which the challenged rate applies. While Dr. Barbaro calculated the per ton infrastructure capital recovery costs for each hypothetical alternative, his full analysis does not include an independent calculation of all transportation costs from KCBX, because Dr.

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[100] { }

[101] { }

[102] The costs not accounted for by ERM, WorleyParsons and Spicer that Dr. Barbaro quantified include significant items such as legal fees and the cost of additional onsite storage. *See* Barbaro Report at 67.

Barbaro determined that KCBX could not be a viable option for Consumers due to its inability to store coal after June 2016.[103]

Table II-B-1-A below includes the transportation costs as estimated by Consumers, which were informed by the WorleyParsons and Spicer studies and thus did not include all applicable costs themselves,[104] with the capital recovery costs calculated by Dr. Barbaro.[105] The costs of the vessel alternatives via KCBX either directly to Campbell[106] or to Cobb for transload to rail are {

} than the $14.95 per ton January 2015 rate under Tariff CSXT-13952, which as shown in Part II-A is well over 500% of CSXT's variable costs.

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[103] *See* Barbaro Report at 21-25.

[104] {

}

[105] { }

[106] The calculations likewise ignore the preclusive effect of a lack of essential storage capacity at KCBX.

{

}

[107] *See* {

}

CSXT faces no effective, direct transportation competition for the delivery of coal from the BNSF interchange to Campbell.

2. <u>No Indirect Competition Exists to Constrain CSXT's Pricing</u>

As the legal authorities summarized in Part I make clear, potential "indirect competition," that is, hypothetical transportation from an originating point other than that to which the challenged CSXT Tariff rates apply, is wholly irrelevant to the determination of market dominance. *E.I. DuPont De Nemours & Co. v. Norfolk S. Ry. Co.; Minnesota Power, Inc.*; I-15-16, 19-20. As Consumers also noted, however, CSXT's statements and actions during the discovery process suggest that the carrier may challenge this rule, and argue for consideration of the possibility that Consumers might move coal to Campbell via lake vessels from the MERC dock in Superior, WI, some 400 miles from Chicago (*see* I-20, *supra*). For these reasons, and specifically subject to the reservation of rights set forth in Part I, therefore, Consumers herein addresses the question whether indirect competition exists that effectively could constrain CSXT's rates. These hypothetical scenarios include: (a) delivery by vessel from MERC to a pier in Lake Michigan; (b) delivery from MERC to a dock in Pigeon Lake; and (c) delivery by vessel from MERC to Cobb for furtherance to Campbell by rail, or possibly truck. The evidence clearly shows that none of these are viable options.

a. Vessel Delivery to a Pier in Lake Michigan is Not a Feasible Option

In 2007, and again in 2014, Consumers studied what previously was referred to as "Option D:" coal delivery by vessel to the Campbell plant with offshore unloading using a 3500-foot pier constructed in Lake Michigan. Consumers concluded that it was not a viable alternative because (i) it depends on coal storage capacity at Campbell that does not exist; (ii) it depends on vessel capacity that may not exist; (iii) it requires construction of an unprecedented unloading facility that may not be permittable; and (iv) its estimated costs make it uneconomic.

i. Insufficient Storage at Campbell

In theory, Option D could allow for {

} Option D would require storage capacity at Campbell that would take a major capital commitment to create, assuming that a lack of available space and the EPA runoff rules referenced *supra* did not preclude it altogether.

As discussed *supra*, the winters restrict vessel deliveries at ports all along the Great Lakes. For three months or longer during each year, vessel shipments from MERC cannot be counted on. Therefore, it would be necessary

[108] *See* { }

[109] *See* { }

for { } to be stored at MERC during the winter months to accommodate {

} MERC has the capacity to store approximately 5 million tons of coal, but it also has about a dozen customers that require storage, so there is a threshold question whether it would allocate up to { } of its capacity to one new customer.[110] Setting aside the issue of storage at MERC, however, the need for a { } would frustrate the operational feasibility of this MERC vessel "option," just as it did the KCBX-Pigeon Lake scenario discussed *supra*. Campbell currently has { } of onsite storage capacity, which is adequate in light of the year-round service currently provided by CSXT. Were Consumers to consider {

} The existing inventory space is bordered by several fixed structures, and EPA's recent runoff rules limit Consumers' onsite storage capabilities, both of which are inconsistent with an expansion {

[110] *See* Barbaro Report at 40; Midwest Energy Res. Co., *Servs. Provided*, http://www.midwestenergy.com/services.php (last visited Sept. 2, 2015), e-workpaper "MERC Services Provided."

} Even if those constraints did not apply, or if Consumers could proceed at a reasonable regulatory compliance cost, Consumers would incur an estimated capital cost of $75 million to expand Campbell's physical storage capacity,[112] a cost that was not considered by WorleyParsons or Spicer.

ii. Insufficient Vessel Capacity

In addition to a lack of storage capacity, public records show that there likely are not enough vessels to accommodate a shift of Campbell traffic from rail to vessel. The federal Jones Act (46 U.S.C. § 883) mandates the use of U.S. flag vessels for service between U.S. shore points, and the utilization rate of the Great Lakes U.S. flagged fleet was 87% on a tonnage basis in 2013,[113] the most recent year for which complete data is available. The fleet would be unable to accommodate even a substantial portion of Campbell's annual requirements, because the larger Class I ships already are fully utilized, with only the smaller Class II and III ships having available capacity.[114] However, to optimize the Option D scenario—and attempt to limit the threats to permitting—Class I vessels are needed to move the required volumes with the minimum number of pier calls.

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[111] {

}

[112] *See* Barbaro Report at 36.

[113] *See id.* at 44.

[114] *See id.*

A Class I vessel can handle 6.0 million annual tons with approximately 86 round trips,[115] while a Class II vessel with a carrying capacity of 27,000 tons would be required to make over 222 round trips. Table II-B-2-A below summarizes the U.S. flag fleet utilization rate in 2013.[116] The lack of Class I vessel capacity represents a major obstacle to the feasibility of the Lake Michigan pier "option."

Table II B-2-A: U.S. Flag Great Lake Dry-Bulk Fleet - May to October 2013 Utilization

Available U.S. Flag Dry-Bulk Vessels					May-Oct 2013 Utilization				Available Capacity	
Class	COE Vessel Class	Vessel Length (ft)	Vessels In Class	Capacity (gross tons)	Vessels In Service	Unit Utilization	Gross Tons in Service	Tonnage Utilization	Gross Tons	% Available
I	X	950-1099	13	1,035,776	13	100%	1,035,776	100%	0	0%
II	IX	850-949	1	49,168	1	100%	49,168	100%	0	0%
II	XIII	731-849	13	441,672	10	77%	348,992	79%	92,680	21%
II	XII	700-730	9	294,813	7	78%	234,109	79%	60,704	21%
II	VI	650-699	5	148,848	2	40%	51,856	35%	96,992	65%
III	V	600-649	8	193,292	7	88%	171,004	89%	22,288	12%
III	II	400-499	2	16,750	1	50%	5,750	34%	11,000	66%
Total			51		41	80%	1,896,655	87%	283,664	13%

iii. Construction of a 3,500 foot Pier into Lake Michigan Likely Would Not Survive Public Opposition

A further disqualifying factor as regards the Lake Michigan pier alternative for Campbell is the nature of the pier itself. A 3,500 foot pier constructed into Lake Michigan would be a visual monstrosity, both in length and

[115] This calculation assumes that Class I vessels have a gross carrying capacity of 70,000 tons. This is a conservative estimate, because ships coming from MERC must meet the draft limits of 26 to 28 feet at the locks connecting Lakes Superior and Huron, and therefore have approximately a 25 percent net reduction in operating capacity. *See* Barbaro Report at 43. The shipping records for Cobb indicate that the Class I vessel delivery totals frequently range from approximately 59,000 to 65,000 tons per vessel, which would increase the number of round trips to transport 6.0 million tons by 8-19 percent. *See* e-workpapers CONSUMERS-000016-CONSUMERS-000025.

[116] *Id.* at 43-44.

in height, as it would need to have {

} In fact, the only structure of a similar size impacting Lake Michigan is the Navy Pier in Chicago, which was constructed in 1906, extends only 3,000 feet into the lake, and is a tourist attraction with a ferris wheel, not an industrial facility.[119]

Given the anticipated noise and lights from vessel operations, any applications for permits to construct a Lake Michigan pier would generate a massive force of local opposition.[120] If limited to Class I vessels, {

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117 { }

118 { }

119 *See* A View on Cities, *Navy Pier*, http://www.aviewoncities.com/chicago/navypier.htm (last visited July 27, 2015) (Navy Pier confirmed as approximately 3,000 feet using Google Earth).

120 { }

121 { }

}

Permits for construction and operation would need to be obtained from both USACE and the MDEQ.[122] These agencies are required to consider public comments, which would entail additional delay and drive up costs, and the Army Corps of Engineers specifically must consider whether to even evaluate the project in light of the fact that its purpose – delivering coal to Campbell – already is served by an existing scheme that has no impact on navigable waterways. *See* 40 C.F.R. Part 230.10. Construction would involve extensive modification of the shoreline, and significant public opposition is virtually guaranteed for a {

} Environmental groups that could be expected to mount challenges include the Sierra Club- Beyond Coal Michigan; Clean Wisconsin; Western Michigan Environmental Action Council; Environment Michigan; Upper Peninsula Environmental Coalition; Alliance for the Great Lakes; National Wildlife Federation- Great Lakes Regional Center; and the Michigan Wildlife Conservancy. In 2007, ERM found that {

[122] { }

[123] { }

} In addition to opposition from environmental groups during the permitting process, specific legal actions against "Option D" that were not accounted for by the consultants could include Native American claims pursuant to a 1836 Treaty with the United States and the State of Michigan's 2000 Court Decree; and takings claims by neighboring properties due to shoreline erosion and visual obstructions.

(a) **Native American Claims**

In opposition to any work or development in or around Lake Michigan, the Chippewa and Ottawa tribes will be able to claim that the development threatens their 1836 treaty rights to subsistence fishing; and that the development will deprive them of fish that they are permitted to harvest pursuant to a 2000 Consent Decree with the State of Michigan.[127]

In a treaty with the U.S. ratified in 1836, the Chippewa and Ottawa tribes ceded territory north of the Grand River, but maintained their rights to

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[124] *See* {
}

[125] { }

[126] {
}

[127] *United States v. Michigan*, No. 2:73 CV 26, 87 (W.D. Mich. Aug. 8, 2000) ("2000 Consent Decree") (Map 7), *available at* http://www.michigan.gov/documents/dnr/consent_decree_2000_197687_7.pdf.

subsistence hunting and fishing. The territory ceded as part of the 1836 treaty and the corresponding waters are approximately 10 miles north of the Campbell Station and Pigeon Lake, and the 2000 Consent Decree allocates harvest shares of fisheries to the tribes from statistical district MM-7 and management unit WFM-08, which are adjacent to both. The tribes have been allotted a 10% share of the harvest limit for trout within MM-7 and 55-100% of the whitefish harvest limit within WFM-08.[128] The tribes' allotments are based in part on the number of fish swimming in the waters offshore from Campbell – where the "Option D" pier would be constructed. The destruction of fish habitat near the treaty-ceded waters is likely to impact the tribes' harvest shares allotted under the 2000 Consent

[128] The 2000 Consent Decree defines a "[s]tatistical district" to be "a geographical unit as described in Great Lakes Fishery Commission Special Publication Number 2." 2000 Consent Decree at 3. "District MM-7 is bounded on the north by MM-6, on the west by the Michigan-Wisconsin boundary, *and on the south by a line true west from the entrance of Holland harbor at Lake Macatawa* to an intersection with the interstate boundary." Stanford H. Smith, Howard J. Buettner & Ralph Hile, *Fishery Statistical Dists. of the Great Lakes*, Great Lakes Fishery Comm'n, 14 (Sept. 1961) (Technical Report No. 2), *available at* http://www.glfc.org/pubs/TechReports/Tr02.pdf (emphasis added) (downloaded on Mar. 19, 2015 from the Great Lakes Fishery Commission website, http://www.glfc.org/pubs/pub.htm). Likewise, the boundary for the whitefish management area includes the waters in front of the Campbell plant: "Management unit WFM-08 is the Lake Michigan whitefish zone that extends from Montague *south past Port Sheldon*." D.C. Caroffino & S.J. Lenart, *Technical Fisheries Comm. Admin. Report 2014: Status of Lake Trout & Lake Whitefish Populations in the 1836 Treaty-Ceded Waters of Lakes Superior, Huron, & Mich., with Recommended Yield & Effort Levels for 2014*, 13, 15 (2014), http://www.michigan.gov/documents/dnr/2014StatusStocksReport_ 465244_7.pdf (emphasis added). It is also noted that the Pigeon Lake is one of the "distinguishing features relevant to lake whitefish biology" within the WFM-08 management unit. *Id.* at 13.

Decree, which could prompt extensive and costly litigation, or result in denial of the necessary permits.[129]

(b) Takings Claims by Neighboring Landowners

There is extensive privately-owned land along the Lake Michigan shore that would be impacted negatively by the "Option D" pier, obstructing views and causing property losses due to an increase in erosion rates.[130] Consumers was compelled to settle lawsuits with neighboring property owners who brought takings claims in 1985 as a result of the construction of the existing jetties leading to Pigeon Lake.[131] Similar claims could be expected from the same or other

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[129] Tribal fishing rights have derailed the proposed construction of a dock for a coal terminal at the Port of Morrow in Oregon. The Oregon Department of State Lands ("DSL") on August 18, 2014 denied a removal-fill permit application for the "dock, walkway, conveyor and associated upland facilities" for the proposed coal terminal, finding "that the preponderance of the evidence demonstrates that there is a small but important long-standing fishery at the project site, which is itself a social, economic and other benefit to the public." *See* Or. DSL, Findings & Order Application No. 49123-RF (Aug. 18, 2014), http://www.oregon.gov/dsl/PERMITS/docs/cit_findings.pdf. With state authorization uncertain, the USACE subsequently stopped its review of the project, stating "it doesn't make sense to devote resources to a project that may not happen." *See* Nigel, Duara, *Corps Halts Review of Or. Coal Export Terminal*, Associated Press (Sept. 15, 2014, 6:30 PM), http://www.salon.com/ 2014/09/15/corps_halts_review_of_ oregon_coal_export_terminal/. As of May 2015, the tentative hearing date for the case to be heard by the administrative law judge was set for February 1-10, 2016. *See* Or. DLS, *Fact Sheet Coyote Island Project (Port of Morrow) Removal-Fill Permit Application No. APP0049123* (Revised May 6, 2015), http://www.oregon.gov/dsl/permits/docs/fact _sheet_coyote_island_terminal.pdf.

[130] WP Report at 37, e-workpaper "CONSUMERS-001088" ("Pier piles will alter littoral currents changing localize[d] erosion patterns of shoreline").

[131] *See* e-workpaper "1985 Settlement."

landowners whose property was placed at risk by the pier and vessel operation. WorleyParsons noted in its report that the visual obstruction may result in a claim, and that {

}

iv. Consumers Determined that Vessel Delivery to a <u>Pier in Lake Michigan is Not Economically Feasible</u>

Using cost estimates provided by the Spicer Group and WorleyParsons, supplemented by its own vessel data, and assuming that the project would not be stopped entirely at the permit stage by one or more of the obstacles discussed above, Consumers evaluated whether the expected transportation costs for vessel deliveries using "Option D," in comparison to CSXT's rates would result in savings adequate to justify the capital costs for the alternative. Consumers estimated the transportation costs of bringing coal from the Southern PRB – its historic western coal source – to the MERC terminal and then to the pier in Lake Michigan.[133] {

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[132] { }

[133] *See* {

}

} When capital recovery costs were factored in, Consumers determined that the project's expected rate of return {

} which clearly showed that the Lake Michigan pier "option" was not viable economically.[136]

b. Vessel Delivery of Coal from MERC to Pigeon Lake is Not an Effective Competitive Alternative

The same Campbell storage capacity problems, seasonal limitations, and serious permitting obstacles that would impact construction of a vessel unloading facility in Pigeon Lake to receive coal shipments from the KCBX Terminal, as discussed *supra*, would apply to the hypothetical transportation of coal in mid-size vessels to the same facility from the MERC dock. *See*, *e.g.,* II-16-17, II-21-24, *supra.* Because of even higher estimated transportation costs, however, the indirect MERC-Pigeon Lake "option" compared even less favorably to CSXT rail service. From the Southern PRB mines used as coal sources for

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[134] *See* {

}

[135] {

}

[136] *See* {

}

Campbell, Consumers' analysis showed total delivered costs ranging {

} *before* consideration of the necessary capital investment.[137] When capital costs were taken into account, the anticipated rate of return ranged {

} clearly establishing that the MERC - Pigeon Lake "option" likewise did not represent an effective competitive alternative to CSXT.

c. Vessel Transportation from MERC to Cobb for Rail Delivery to Campbell is Not a Viable Alternative

Except for the loading terminal storage issue, this scenario suffers from the same operational and other practical defects as the hypothetical movement from KCBX through Cobb discussed *supra.* That is, the existing economic development plans for Cobb following its decommissioning, and the unlikelihood that MSRR could or would be a competitive participant in a vessel-rail movement that diverts traffic from its parent's commercial partner on reasonable terms, all point to a non-viable "option" from a practical perspective. *See* II-25-29, *supra.*

Assuming that the operational obstacles somehow could be overcome, this alternative is not economically feasible largely for the same

[137] *See* {

}

[138] *See* {

}

reasons as the KCBX scenario. As discussed *supra,* delivery of coal to Cobb still comes with significant capital costs, because while Cobb was designed to accommodate vessel deliveries, there would need to be significant infrastructure expansions at the facility in order to handle the higher Campbell volumes and transfer the coal to rail.[139] Likewise, substantial additional capital would have to be invested (by Consumers) to upgrade the existing MSRR lines and add new connecting trackage at Campbell. Relying on the WorleyParson report, and its own experience in estimating the capital, operating,[140] permitting and engineering/contingencies costs, Consumers evaluated whether the total costs for the MERC-Cobb "option" in comparison to the 2014 CSXT contract rates would result in savings adequate to justify the necessary investment. For this alternative, Consumers estimated the transportation costs of bringing coal from the MERC terminal to the Cobb Plant and then by rail to Campbell.[141] To generate the transportation cost estimates, Consumers used costs as provided by the {

} in addition to the terminal fees and

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[139] {

}

[140] *See* {

}

[141] *See* {

}

vessel costs actually paid by Consumers for shipments to the Cobb facility.[142] The analysis showed that for the coal used at Campbell, delivered coal costs {

} *before* any consideration of return on investment. Not surprisingly, Consumers calculated a rate of return of { } for the MERC-Cobb-Rail "option," confirming its economic infeasibility.[143]

d. Motor Carriage from Cobb to Campbell

Neither ERM in 2007 nor WorleyParsons and Spicer in 2014 examined whether substituting motor carriage from Cobb to Campbell for MSRR rail service could change the operational and/or economic dynamics of a multi-modal move from either KCBX or MERC as an effective alternative to CSXT. The reason for this was that Consumers already had considered this possibility and rejected it as offering a meaningful option.

In 1996, Consumers sponsored a consultant's analysis which found that logistical constraints and environmental impact issues related to the movement of heavy coal trucks between Muskegon and West Olive, MI would limit available volumes {

} requirements for Campbell, and would be of no

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[142] *See* { }

[143] *Id.*

[144] *See* {

}

practical use to Consumers in attempting to constrain CSXT's pricing. The Board, too, has categorically rejected arguments that such insignificant partial diversions constitute effective competition. *See Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry.,* Docket No. 38088S, 1987 WL 100209, at *7 n.14 (I.C.C. decided Apr. 15, 1987) (truck movements accounting for 9.5% of the total volume between points covered by the complaint did not represent effective competition).

CSXT's own internal evaluation of a hypothetical truck movement of coal from Cobb to Campbell – which Consumers only learned of through discovery in this proceeding – confirms the inability of motor carriage to compete with CSXT rail service. {

[145] The state of Michigan has significant seasonal weight restrictions, sometimes known as frost laws, during the months of March, April, and May in each year, severely limiting vehicle weights on highways. Mich. Comp. Laws Ann. § 257.722. These seasonal weight restrictions lower axle-loading limits and reduce maximum travel speeds for certain vehicles. Even if the restrictions would not completely bar Consumers from utilizing the roads while the frost laws are in effect, they would limit the amount of coal carried in each truck, thereby further increasing both the number of trucks required and the total cost of transportation.

[146] {

}

} In *West Texas Utilities*, the Board found that a truck movement requiring 200 shipments each day was not feasible. *See* 1 S.T.B. at 652.

e. Dr. Barbaro's Expert Analysis Confirms the Absence of Effective Indirect Competition

As with the hypothetical, direct transportation "options" investigated by Consumers, Dr. Barbaro's comprehensive expert analysis confirms Consumers' own internal conclusions that vessel or vessel-rail transportation from the MERC dock without participation by CSXT does not offer a practical, economically feasible alternative to the rail service subject to the challenged rates. Taking all associated costs into account – including {

} per ton higher than the January 1, 2015 CSXT Tariff rate of $14.95.[147] Table II B-2-B, below, summarizes Dr. Barbaro's findings.

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[147] { }

{

[148] {   }

}

3. Application of the Limit Price Test Also Confirms the Absence of Effective Competition

Using the cost estimates generated by Dr. Barbaro, the revenue to variable cost ratios for all of the hypothetical "options" studied are far greater than 500%. At Third Quarter 2015 levels, the relevant CSXT variable cost is $2.87 per ton. With the lowest estimated transportation cost at {

} The Board recently held that an alleged transportation alternative priced at more than 500% of the defendant's variable cost of service would not represent effective competition:

> [I]f that same alternative serves only to prevent the railroad from charging rates above 500% of variable costs, then it is equally clear to us that the marketplace is not placing sufficient discipline on the carrier's behavior and that Congress would have intended for the Board to investigate the reasonableness of those rates.

M&G Polymers USA, LLC v. CSX Transp., Inc., NOR 42123 (STB served Dec. 7, 2012) at 4.

The Board made the quoted finding in the course of applying its "Limit Price Test," which objectively assesses the effectiveness of an alleged transportation alternative by reference to the relationship between the RVC ratio of the alternative's cost to the defendant's variable cost, and the defendant's

RSAM percentage.[149] In Table II B-2-C, below, the estimated cost of each "option" was compared to CSXT's variable cost for transporting coal to Campbell. The resulting ratios then were compared to CSXT's RSAM 4-year average from 2010-2013, which is 269%.[150] As shown below in Table II B-2-C, none of the alternatives come close to constraining CSXT's pricing for the issue movement.[151]

Table II B-2-C : Application of Limit Price Test

Option	**Cost/Ton**	**CSXT Var. Cost**	**RVC%**	**RSAM%**
1. { }	${ }*	$2.87	{ }%	269%
2. { }	${ }*	$2.87	{ }%	269%
3. { }	${ }**	$2.87	{ }%	269%
4. { }	${ }**	$2.87	{ }%	269%
{ }	${ }**	$2.87	{ }%	269%
6. { }	${ }**	$2.87	{ }%	269%

* Source: Table II B-1-A. Costs are the averages of minimum and maximum estimated costs.
** Source: Table II B-2-B. Cost for MERC-Pigeon Lake is the lower of the alternatives for each vessel Class (*i.e.,* West Berth).

[149] *See E.I. DuPont De Nemours & Co. v. Norfolk S. Ry. Co.* at 20-21; *M&G Polymers USA, LLC*, at 3-4.

[150] *See Simplified Standards for Rail Rate Cases* at 4.

[151] *See E.I. DuPont De Nemours & Co. v. Norfolk S. Ry. Co.* at 20-21 ("If this ratio of the limit price over variable costs (i.e., the "limit price R/VC ratio") exceeds [railroad's] . . . RSAM figure, it will result in a preliminary conclusion that the alternative cannot exert competitive pressure sufficient to constrain rates effectively.") (Internal citation omitted).

4. History Shows that Potential Competition Does Not Effectively Constrain CSXT Pricing for the Issue Movement

The record shows that during the course of contract negotiations over the years that CSXT has transported western coal to Campbell, {

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152 {

}

} This and other CSXT records confirm the absence of a legitimate rate response to any mention of Consumers' investigation of hypothetical transportation options.

The pricing history on service to Campbell, as compared to Consumers' competitively-served Karn-Weadock facility, also illustrates how the rates to Campbell are not constrained by competition. {

} As Table II B-2-D below illustrates, the rate per ton-mile has been appreciably higher at Campbell for a decade at least, and has continued to rise at a faster pace than at Karn-Weadock:[155]

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[153] {

}

[154] {

}

[155] { }

}

The pricing history at Campbell paints a clear picture of a classic, captive generating facility.

Part III-A – Stand-Alone
Traffic Group

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY	)	
Complainant,	)	
v.	)	**Docket No. NOR 42142**
CSX TRANSPORTATION, INC.	)	
Defendant.	)	

PART III

STAND-ALONE COST

III. A. STAND-ALONE TRAFFIC GROUP

Consumers has determined the maximum reasonable and lawful rates for CSXT coal service from the Chicago area to Campbell under the *Coal Rate Guidelines'* SAC Constraint.[1] As described in Part III-B, the CERR has been designed to replicate a portion of the existing CSXT system between a point near 22nd Street in Chicago, IL and the Campbell Station near West Olive, MI, consisting of 160.52[2] route-miles that would be constructed and operated by the CERR, and 73.83 miles over which the CERR would operate pursuant to trackage

[1] As detailed in Part IV, Consumers also has evaluated the lawfulness of the challenged rates under the Revenue Adequacy Constraint.

[2] The 160.52 route miles does not include 8.13 route miles of BRC track that the CERR is investing in based on 25 percent of the current cost to construct the existing facilities. The 25 percent figure is equivalent to CSXT's current ownership interest in the BRC. These costs are accounted for in Part III-F. The CERR does not operate the BRC track.

rights (as CSXT does today).[3] The CERR system operates in the states of Illinois, Indiana and Michigan. A schematic description of the system is set out in Exhibit III-A-1.

1. CERR Traffic Group

The CERR is dramatically smaller in size, simpler in layout and more modest in scope than the hypothetical stand-alone systems that the Board has considered in several of the more recent cases presented under the SAC Constraint. The most dominant single component of the CERR traffic group is Consumers' Campbell coal traffic, especially over the route between Porter, IN and the Campbell Station that comprises 64% of the overall CERR system.[4] As shown in Exhibit III-A-2, for the first year of the 10-year DCF period (2015), coal moving from the BNSF interchange to Campbell represents 43.0% of the total ton-miles for the CERR.[5]

The CERR traffic group was determined using CSXT traffic, revenue, train event and car event data for the 15-month period ending in 1Q2015, all of which were produced by CSXT in response to Consumers' discovery requests. Through an analysis of this data, the commodities and shipment types –

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[3] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary."

[4] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary." The calculation is made by summing cells P12 through P14 and dividing by cell P31.

[5] *See* e-workpaper "Summary of CERR Traffic Volumes and Revenues.xlsx," tab "Summary_TM," footnote 4.

including origins and ultimate destinations – that would move over the CERR for at least part of their journey were identified.[6] A summary of the 2015 CERR traffic group appears in Exhibit III-A-2.

As noted, approximately 43.0% of the 2015 ton-miles handled by the CERR are comprised of the issue traffic.[7] Another 42.2% is other carload traffic, including non-issue coal, which generally moves in unit train or trainload service over the CERR. Some of this traffic is coal from CSXT-served Eastern sources that moves to Campbell. The rates on this traffic also are governed by Tariff CSXT-13452, but are not the subjects of Consumers' Original Complaint in this proceeding. The issue traffic destined for Campbell is received by the CERR from BNSF at Cicero, IL and transported to Campbell Station, just as CSXT provides the service today. Other CERR coal shipments are handled as cross-over traffic between points on the CERR lines after interchange from an originating carrier

[6] The general approach to CERR traffic identification followed by Consumers was consistent with those used with Board approval in previous cases, such as *AEPCO 2011* and *WFA/Basin*. However, there is little internal coordination between data retained by CSXT in the ordinary course of business and the data inputs usually relied on by litigants and the Board in performing SAC analyses, and some of the data produced was acknowledged by CSXT to be incomplete or unreliable for various purposes. For example, CSXT advised Consumers that its car event data does not include certain key information about a given movement of traffic, and may not accurately depict a shipment's routing. CSXT stated that its train event data was a superior source for much of this information. *See* e-workpaper "CSXT 7-1-2015 Traffic Letter.pdf." Where CSXT data limitations presented particular challenges to Consumers in the preparation of its evidence, they are described in this Part and in Part III.C.

[7] *See* e-workpaper "Summary of CERR Traffic Volumes and Revenues.xlsx," tab "Summary_TM," footnote 4.

and for interchange to another railroad (including CSXT) for eventual delivery to a generating station, vessel terminal or river dock. Exhibit III-A-3 summarizes all of the coal handled by the CERR, together with the 2015 volumes attributable to each. As shown in Exhibit III-A-3, over 75% of the coal handled by the CERR is moving to power stations.

The CERR also moves intermodal trains in unit train or trainload service. Approximately 14.8% of the 2015 ton-miles is comprised of container shipments, which move intact as trainloads for the distance that they travel on the CERR.[8] A total of 454,383 units of intermodal container traffic moves over the CERR in the first year of the 10-year DCF period (2015). Exhibit III-A-4 provides a detailed description of the CERR's intermodal movements. The CERR's general freight movements also are detailed in Exhibit III-A-5.

One group of CERR traffic follows a different route in the SAC analysis than it does in the real world between two on-SARR locations. This reroute is internal to the SARR, and does not require the residual CSXT to alter its operations for the off-SARR portion of the cross-over movement. Specifically, intermodal traffic moving in dedicated trains to and from the 59th Street intermodal terminal—which is served by the CERR—are routed via Barr Yard between 75th Street and Dolton Jct. Although some real-world trains follow the CERR route for

[8] *See* e-workpaper "Summary of CERR Traffic Volumes and Revenues.xlsx," tab "Summary_TM," footnote 4.

this portion of the shipment, many move via BRC/UP trackage rights between 75th Street and Dolton.

As discussed in Part II.A, in 2014 CSXT handled PRB coal shipments to the Campbell Station via two (2) routes: the "Belt Route" via BRC and NS trackage between 75th Street (Chicago) and Porter, IN, and the "Barr Yard" route via CSXT's Barr Yard in Chicago (and via NS trackage between Pine Jct. and Porter). As between the two (2), the Belt Route was used by CSXT about 86% of the time. *See* II-4, *supra*. The CERR system includes both routes, and the CERR handles the issue traffic over each in roughly the same respective percentages that CSXT records show was the case in 2014. No re-routing issues are raised with respect to the Campbell traffic.

2. Volumes (Historical and Projected)

A detailed schedule showing all projected carload volumes (including coal and general freight or merchandise traffic) for the CERR for each year of the DCF period is provided in e-workpaper "CERR Car Traffic Forecast.xlsx." A similarly detailed schedule of all projected intermodal traffic volumes for the CERR for each year is shown in e-workpaper "CERR Container Traffic Forecast.xlsx."

a. Consumers Coal Traffic

As noted *supra*, approximately 43.0% of the traffic ton-miles handled by the CERR is destined for Campbell. Issue coal volumes for the CERR are based on Consumers' internal forecast,[9] which was provided to CSXT in discovery. This forecast reflects information regarding Consumers' coal supply arrangements and its best estimates with respect to future coal sources and volumes by coal origin on an annual basis. The forecast covers the period from January 1, 2015 through December 31, 2024; *i.e.*, the DCF period applicable to this case. The same forecast is used for non-issue Eastern coal transported by the CERR to Campbell.

b. <u>General Freight and Non-Issue Coal Traffic</u>

General freight volumes and non-issue coal volumes for the CERR in 2015 through 2024 were calculated by adjusting the 2014 and 1Q2015 volumes produced by CSXT in discovery.[10] Specifically, the CERR carload traffic volume for 1Q2015 is based on actual CSXT traffic data. The forecasted CERR carload traffic volume for 2Q2015 is based on actual 1Q2015 CERR carload traffic volume forecasted to 2Q2015 levels based on the change in CSXT system-wide coal and merchandise traffic volumes as reported in quarterly SEC filings. The forecasted CERR carload traffic volume for the 3Q2015 and 4Q2015 time periods is based on actual 3Q2014 and 4Q2014 CSXT traffic data forecasted to 3Q2015 and 4Q2015 levels based on the change in CSXT system-wide traffic volumes as

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[9] *See* e-workpapers "CONSUMERS-002900^HIGHLY CONFIDENTIAL^2015_0+12_MISOONLY_2045.REP" and "CONSUMERS-002901^HIGHLY CONFIDENTIAL^mQd15M_0+12_systemsystem_adj3.pri."

[10] *See* e-workpaper "CERR Car Traffic Forecast.xlsx."

reported in annual SEC filings. The aggregation of this actual and forecasted data produces the 2015 CERR carload traffic volume.

The CERR carload traffic volume for the 2016-2024 time period is based upon two distinct methodologies. First, for the period from 2016-2019, the CERR carload traffic volume is forecasted based on the CSXT internal volume forecast provided in discovery. Second, for the period 2020-2024, the CERR carload traffic volume is forecasted based on the compound annual growth rate ("CAGR") developed utilizing the five (5) years of available CSXT internal volume forecast data for 2015 through 2019.

As shown in Exhibit III-A-3, almost all of the CERR's coal traffic is destined to locations around the Northeast and Midwest, with over 90% destined for Michigan alone.

c. **Intermodal Traffic**

Intermodal freight volumes for the CERR in 2015 through 2024 were calculated by adjusting the 2014 and 1Q2015 volumes produced by CSXT in discovery.[11] Specifically, the CERR container traffic volume for 1Q2015 is based on actual CSXT traffic data. The forecasted CERR container traffic volume for 2Q2015 is based on actual 1Q2015 CERR container traffic volume forecasted to 2Q2015 levels based on the change in CSXT system-wide intermodal traffic volumes as reported in quarterly SEC filings. The forecasted CERR carload

[11] *See* e-workpaper "CERR Container Traffic Forecast.xlsx."

traffic volume for the 3Q2015 and 4Q2015 time periods is based on actual 3Q2014 and 4Q2014 CSXT traffic data forecasted to 3Q2015 and 4Q2015 levels based on the change in CSXT system-wide intermodal traffic volumes as reported in annual SEC filings. The aggregation of this actual and forecasted data produces the 2015 CERR container traffic volume.

The CERR container traffic volume for the 2016-2024 time period is based upon two distinct methodologies. First, for the period 2016-2019, the CERR container traffic volume is forecasted based on the CSXT internal volume forecast provided in discovery. Second, for the period 2020-2024, the CERR container traffic volume is forecasted based on the CAGR developed utilizing the five (5) years of available CSXT internal volume forecast data for 2015 through 2019.

d. <u>Peak Year Traffic</u>

The peak traffic year for the CERR will be the final full year analyzed using the DCF Model; *i.e.*, January 1 – December 31, 2024. Taking into account all adjustments to the base year volumes for the various categories of traffic described in this Subpart and the accompanying workpapers, the CERR's peak year traffic is as follows:

TABLE III-A-1
SUMMARY OF CERR PEAK-YEAR TRAFFIC – 2024

Train Type	Carloads/ Containers	Tons	Percent of Col (2) Total
(1)	(2)	(3)	(4)
1. Issue Coal	48,083	5,770,000	11%
2. Carload	346,775	35,524,905	67%
3. Container	822,433	11,902,096	22%
4. Total	1,217,291	53,197,001	100%

Source: "Summary of CERR Traffic Volumes and Revenues.xlsx."

3. Revenues (Historical and Projected)

The Board's 2001 decision in *General Procedures* directed that evidence of stand-alone system revenues be grouped under four (4) specific headings: (a) single-line; (b) divisions – existing interchanges; (c) divisions – cross-over traffic (*i.e.,* new interchanges with the residual CSXT); and (d) other. Consumers' presentation in this Part III-A-3 is organized accordingly.

a. Single-Line

The term "single-line" refers to traffic that a stand-alone system handles entirely from origin to destination, replicating the service offered by the defendant. Since all of the CERR traffic is received from or delivered to other railroads, including the issue Consumers traffic, the CERR does not handle any single-line traffic.

b. Divisions – Existing Interchanges

The category of "Divisions – Existing Interchanges" refers to traffic that CSXT currently interchanges with other railroads (*i.e.*, BNSF, UP and others), and that the CERR will interchange at the same location. The CERR includes one movement, Consumers' Campbell coal traffic, that involves the movement of traffic from the same interchange that CSXT uses to the same destination that CSXT serves.

Consistent with Board precedent,[12] the CERR's revenue or revenue division earned on traffic interchanged with other carriers when the CERR completely replaces CSXT equals the revenues earned by CSXT from that same traffic. Since the issue Consumers coal traffic is the only CERR traffic moving within this category, its revenues are calculated based on the rates and fuel surcharge established in Tariff CSXT-13952,[13] adjusted as described *infra*.

c. Divisions – Cross-Over Traffic

Cross-over traffic refers to traffic that the CERR interchanges with the residual CSXT at one or more new, hypothetical interchange points. All non-issue CERR traffic moves as cross-over traffic. As noted in Part I, the inclusion of cross-over traffic in the design of a SARR is a long-established and judicially-affirmed simplification convention that is essential to making the SAC Constraint

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[12] *See*, *e.g.*, *FMC*, 4 S.T.B. at 725.

[13] *See* Original Complaint, Exhibit A.

a workable and accessible regulatory remedy for many captive rail shippers. In the case of the CERR, cross-over traffic represents approximately 46 million tons of traffic handled in 2015, or 57% of the CERR's first year revenue ton-miles.[14]

Because cross-over traffic does not involve the replication of both interchanges actually made by CSXT in the real world, a division of attributable revenues between the CERR and CSXT must be developed methodologically. In *Ex Parte 715,* the Board adopted a variant of the Average Total Cost ("ATC") methodology for use in cases brought subsequent to that decision.[15] Under ATC as adopted in *Ex Parte 715*, total revenues from each segment of a cross-over movement (that is, the share of the movement handled by the SARR and the share handled by the residual defendant) are allocated in proportion to the average total cost of the on-SARR segment compared to the off-SARR segment, subject to a failsafe: if the revenue allocation to either the on-SARR or the off-SARR segment is insufficient to cover the variable cost of service for that segment as calculated under URCS, the revenue allocation is increased to equal 100% of the variable costs for the segment not covering its variable cost.[16]

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[14] *See* e-workpaper "Summary of CERR Traffic Volumes and Revenues.xlsx," tabs "Summary_TM" and "Summary_Tons."

[15] *Rate Regulation Reforms* at 28-34.

[16] *Ex Parte 715* at 30. If the total revenue from the full movement is less than total variable costs under URCS, then revenue is allocated to the on-SARR and off-SARR segments to maintain the existing RVC ratio on each segment. *Id.*, n.90.

Consumers has applied ATC as described in *Ex Parte 715* in allocating cross-over traffic revenue between the CERR and the residual CSXT. Using CSXT's 2014 URCS variable and fixed costs, and the density and miles of each segment, Consumers calculated CSXT's average total cost per segment for movements in 2014, the last full calendar year of traffic and density data provided by CSXT. The development of the variable and fixed cost components are discussed below.

i. <u>Variable Costs</u>

Variable costs were calculated for both the CERR segment ("on-SARR") and the residual CSXT segment ("off-SARR") of each cross-over movement in the CERR traffic group based on 2014 statistics, the most current full calendar year of data made available by CSXT. The Board historically has released its URCS costing models for a particular year approximately 11 to 12 months after the close of the year. For example, documentation on the Board's website shows the 2009, 2010 and 2011 URCS models were released in November of the following year.[17] Because the STB has not yet released its 2014 CSXT URCS, Consumers developed the CSXT 2014 URCS variable costs using an URCS model based upon the STB's programs and procedures.

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[17] *See* http://www.stb.dot.gov/stb/docs/URCS/2009/ 2009%20URCS%20PHASE%20III%20DATA%20 SUBSTITUTIONS.pdf, http://www.stb.dot.gov/stb/docs/URCS/2010/2010%20URCS%20PHASE%20III% 20DATA%20 SUBSTITUTIONS.pdf, and http://www.stb.dot.gov/stb/docs/ URCS/2011/ 2011%20URCS% 20PHASE%20III%20DATA%20 SUBSTITUTIONS.pdf

Consumers used this model to develop the URCS Phase III variable costs for both the on-SARR and off-SARR segments. Variable costs for both the on-SARR and off-SARR segments of the movement were developed using the nine (9) URCS Phase III inputs identified in *Major Issues* (a tenth input, intermodal plan code, was developed for container and trailer traffic), and were extracted from a combination of waybill and car event data (and related information) provided in discovery. Each input value, and its derivation, is discussed below.

(1) **Railroad** – Consistent with STB precedent, Consumers used the 2014 CSXT URCS Phase III model to develop variable costs for the on-SARR and off-SARR segments of the movement.[18]

(2) **Commodity Code** – Consumers identified each shipment's 2-digit Standard Transportation Commodity Code ("STCC") from waybill data provided in discovery. Where the waybill data did not identify a STCC for a particular movement, a proxy STCC 46, "All Other Mixed Shipments" was used.

(3) **Railcar Ownership** – Railcar ownership was developed from waybill and equipment data provided in discovery. Where a railcar's ownership information was not included in CSXT's equipment data, Consumers assumed a shipper supplied railcar.

[18] *See Major Issues* at 26.

This is a logical assumption, as CSXT should know whether it provided one of its own railcars for a movement.

(4) **Railcar Type** -- Railcar type was developed from waybill and equipment data provided in discovery. Where a railcar's AAR car type was not included in the CSXT equipment data, a railcar type of "17," or "All Other Freight Cars" was used as a proxy if the shipment was a carload shipment, and railcar type "11," or "Intermodal Flat Car" was used for all proxy intermodal movements.

(5) **Shipment Size** – The number of units per shipment was identified from the car and container waybill data provided in discovery.

(6) **Shipment Type** – The shipment type was based on the number of units per shipment included in the waybill data provided in discovery, and followed standard STB variable costing procedures. Shipments with five (5) units or less were costed as single carload shipments. Shipments with six (6) to forty-nine (49) units were costs as multi carload shipments, and movements with more than fifty (50) carloads were costed as trainload shipments.

(7) **Movement Type** – Movement type (or whether the railroad originated or received, and delivered or terminated a shipment)

was developed from waybill and car event data produced in discovery. Specifically, for the residual CSXT segments of the movement, CSXT was assumed to originate and/or terminate the movement if the CSXT waybill data indicated the movement originated or terminated on the CSXT system.[19]

For the on-SARR segment of the movement, Consumers used the same movement type category as the CSXT movement where the CERR replaced the CSXT at the origin and destination interchange locations. Where the CERR received the shipment from or delivered the shipment to CSXT as part of a cross-over movement, Consumers assigned a movement type of received and delivered, respectively. Consumers also removed the interchange costs from the URCS variable costs when CERR received and/or delivered a shipment to the CSXT, consistent with Board precedent.[20]

[19] The waybill data provided in discovery included a field named "ULT_ORIGIN_ON_NET_IND," and "ULT_DEST_ON_NET_IND," which indicated whether the movement originated or terminated on the CSXT system, respectively. In those instances where CSXT's data indicated the on- or off-CSXT location was "Unknown," the shipment was assumed to originate or terminate off-line. *See* e-workpaper "2014 - 1Q 2015 Car And Container Waybills.xlsx," tab "2014 Carload," columns (BK) and (BL), and tab "2014 Container," columns (BN) and (BO).

[20] *See AEP Texas 2007* at 13.

(8) **<u>Movement Miles</u>** – Consumers developed mileage statistics from waybill, car event data and CSXT density data provided in discovery. For the on-SARR segment of the railcar movement, Consumers developed the miles railcars moved over the CERR based upon the railcars' on- and off-SARR location and the specific route of movement over the CERR.[21] Consumers used this methodology because CSXT stated in discovery that its car event data, the usual source for calculating movement specific mileage, was inaccurate for movements in and around the Chicago Terminal area.[22] As indicated by CSXT, the railroad's car event data shows traffic moving over line segments and subdivisions that were not used in the actual route of movement. Because of CSXT's acknowledgement that its car event data may not be accurate, Consumers calculated on-SARR movement miles based upon the actual route of movement followed by the train as indicated in CSXT's train movement data, which CSXT stated was more accurate than its car event data in the Chicago Terminal area. Residual CSXT (e.g. off-SARR) miles were

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[21] *See* e-workpaper "2014 Fixed Costs For ATC (Final).xlsx," tab "On-SARR Miles and Fixed Cost."

[22] *See* July 1, 2015 letter from Mathew J. Warren to Kelvin J. Dowd at pages 2 and 3. A copy of this letter is included as e-workpaper at "CSXT 7-1-2015 Traffic Letter.pdf."

developed by summing the car-miles over the off-SARR routes identified in the car event data. Consumers took this approach because of the great diversity of locations that CERR traffic moved to or from on the residual CSXT system, and the inability to manually calculate the off-SARR miles for each movement.[23] Where railcar event data was not available for the shipment or the car event data did not provide mileage statistics, proxy miles were developed from similar traffic. Specifically, where railcar/containers/trailers moved under the same waybill as other railcar/containers/trailers, the average miles for the other units moving on the same waybill were used. If the shipment did not move on the same waybill as other movements, proxy miles were developed based on the average miles for other railcar/ containers/trailers moving between the same CSXT origin and CSXT destination as indicated on the railcar's waybill. Finally, if use of the CSXT origin and CSXT destination did not produce a feasible mileage proxy, proxy miles were developed based on the shipment's ultimate origin and ultimate destination as indicated in the waybill data.

[23] CSXT waybill data shows traffic moving as far as Florida and Quebec on the residual CSXT system.

(9) **<u>Tons Per Shipment</u>** – Consumers developed tonnage statistics from waybill data provided in discovery. For both the CSXT and CERR movements in railcars, average tons per car were extracted from the car waybill data. Where tonnage data was not included in the waybill data, proxy tons were developed from similar movements. Where railcars moved under the same waybill as other railcars, the average tons per car for the other railcars moving on the same waybill were used. If the shipment did not move on the same waybill as other movements, proxy tons were developed based on the average tons per car for other railcars moving between the same CSXT origin and CSXT destination as indicated on the railcar's waybill. Finally, if use of the CSXT origin and CSXT destination did not produce a feasible tonnage estimate, proxy tons were developed based on the shipment's ultimate origin and ultimate destination as indicated in the shipment's waybill data.

Tonnage for intermodal movements was developed by summing the gross tonnage for each container or trailer included in the intermodal waybill shipment data and moving on the same railcar. Such a combination is consistent because in costing intermodal movements, it is the cost per railcar that is being developed in the URCS model. The resultant cost is then divided by the CSXT average number of units on the railcar to develop the variable cost per unit. Therefore, the sum of the gross tons of the units on a railcar equals the railcar's lading tons. Consumers did not need to develop proxy tons for intermodal traffic since intermodal waybill data listed valid weight statistics in all cases.

(10) **Intermodal Plan** – Consumers also developed the intermodal plan for container shipments to go along with the standard nine (9) URCS inputs. Consumers developed its intermodal plan code from CSXT plan code information included in the container waybill data.

ii. Fixed Costs

The fixed cost component of ATC requires the development of the following metrics for both the on-SARR and the off-SARR portion of each movement: 1) route density, and 2) fixed costs per route mile. Each metric is discussed below.

(1) **Route Density** – The route densities for each movement included in the CERR traffic group, both on-SARR and off-SARR, were developed using density data produced in discovery. CSXT initially provided gross tonnage density statistics that CSXT stated it developed in the normal course of its business; however, in a latter data production, CSXT indicated that use of the gross tonnage data could lead to overstatements of gross tonnages on individual segments, because the tons may reflect traffic that traverses only a small portion of the segment and not the full segment, especially around terminal areas.[24] CSXT stated that given the alleged limitations of the gross tonnage density data, it performed its own special study to develop net tonnage statistics for each segment. Since CSXT represented that its special study produced more accurate results than its normal course of business density data, Consumers relied upon CXST's study for density statistics.

(2) **Fixed Cost Per Route Mile** – Consumers calculated the CSXT fixed cost per route mile by subtracting CSXT's 2014 total system variable costs from CSXT's 2014 total costs as developed in URCS. Specifically, Consumers developed average fixed cost per route mile for track which CSXT owns, and for track which CSXT operates over via trackage rights.[25]

Consumers calculated fixed cost per route mile for CSXT owned track by first calculating the "above the rail" and "below

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[24] *See* the June 12, 2015 letter from Hanna M. Chouest to Kelvin J. Dowd included as e-workpaper "June 12, 2015 Discovery Production.pdf." at pages 1 and 2.

[25] *See* e-workpaper "2014 Fixed Costs For ATC (Final).xlsx," tab "CSXT 2014 Fixed Costs," cells N52 and N53.

the wheel" fixed cost from CSXT's 2014 URCS variable costs.[26] Next, Consumers divided the fixed costs by the total CSXT route miles to develop the average fixed cost per mile. In prior cases, system route miles were developed from Schedule 700 data included in the defendant railroad's Annual Report Form R-1. However, in this proceeding Consumers found that the route miles included in CSXT's net ton density data were significantly different than the route miles reported in CSXT's 2014 Annual Report.[27] Since CSXT's net tonnage statistics were developed based on the miles included in the net density table, Consumers used the route miles included in the CSXT density data to develop the fixed cost per mile, to maintain a consistent cost basis.

Consumers also developed different route mileage statistics depending upon whether it was used to develop "above the rail" or "below the wheel" fixed cost per mile. Specifically, "below the wheel" costs were divided by the miles of CSXT owned track to develop a cost consistent with CSXT's fixed cost of track

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[26] *Id.*

[27] CSXT's density data indicates 21,852 operating route miles while CSXT's Schedule 700 shows 20,763 operating route miles. *See* e-workpaper "2014 Fixed Costs For ATC (Final).xlsx," tab "CSXT 2014 Fixed Costs," cell G63.

ownership. "Above the rail" fixed costs were divided by total CSXT miles operated to develop a cost consistent with the fixed cost of CSXT train and overhead operations.

Consumers developed the average fixed cost of operating over CSXT owned track by adding together the "above the rail" and "below the wheel" fixed cost per mile. Consumers used the "above the rail" fixed cost per mile on segments where CSXT operates via trackage rights. In this way, Consumers ensured that CSXT's fixed costs of operation were covered, but not the cost associated with track ownership on segments owned by others.

(3) **Fixed Cost Per Unit** – Consumers developed the fixed cost per unit using the following process. First, Consumers developed the average fixed cost per route mile for the on-SARR and off-SARR segments of each movement by calculating the average fixed cost per net ton for each line segment included in CSXT density data.[28] Consumers began this process by classifying each line segment as either CSXT owned or CSXT operated based on data provided in discovery and publicly available sources. Next, Consumers multiplied the route miles for each segment as indicated in the CSXT density data by the appropriate fixed cost

[28] *See* e-workpaper "2014 Fixed Costs For ATC (Final).xlsx," tab "2014_Density."

per route mile to develop each segment's total allocated fixed costs. Consumers then divided the segment's allocated fixed costs by the net tons operating on the segment to develop an average fixed cost per ton for each segment.

Second, to calculate the average fixed costs per ton for the on-SARR segment of the movement, Consumers calculated the total fixed cost per ton for each on- and off-SARR combination for traffic moving in the CERR traffic group. In prior cases, on-SARR fixed costs were calculated using car event data to identify and calculate the fixed cost per ton over the SARR portion of the movement. However, as explained above, CSXT indicated that its railcar event records in and around the Chicago Terminal do not necessarily reflect a railcar's actual route of movement. To ensure that the fixed costs per ton reflected the actual movement of railcars over CSXT lines within the Chicago Terminal area, Consumers was required to develop on-SARR fixed cost per ton outside the railcar event data. It did this by identifying the density line segments along each on- and off-SARR combination used by traffic in the CERR traffic group, and developing the total fixed cost per ton for each route by summing the fixed cost per ton along the identified CSXT density segments.[29]

Third, Consumers used 2014 CSXT car event provided in discovery to identify the off-SARR line segments that each unit traversed. Consumers then summed the average fixed cost per ton for each off-SARR line segment on which the unit operated to develop a total off-SARR fixed cost per ton for each movement. As with the off-SARR mileage calculations, where CSXT railcar event data did not allow the calculation of an off-SARR fixed cost per ton, proxy fixed costs were used.

Fourth, the on-SARR and off-SARR fixed cost per ton for each movement were multiplied by the movement's tons to develop the total on- and off-SARR fixed cost per movement. Once calculated for the 2014 base year, the CERR revenue division for each cross-over movement is maintained during each year of the DCF period, regardless of the year in which the movement over the CERR begins or terminates.[30] A complete summary and flowchart of Consumers' ATC process is included

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[29] *See* e-workpaper "2014 Fixed Costs For ATC (Final).xlsx," tab "On-SARR Miles and Fixed Cost," cells F7 to F36.

[30] *See AEP Texas* (STB served Nov. 8, 2006) at 3.

in Opening e-workpaper "Consumers Opening ATC Flowchart.ppt."

d. Projected Revenues

The procedures used to project CERR revenues over the DCF period through December 31, 2024 are tailored to each particular category of traffic, as described below, and rely on the most specific and accurate data made available by CSXT in discovery, and/or public sources approved by and relied upon by the Board in previous cases. *See* e-workpapers "CERR Carload Traffic Forecast.xlsx" and "CERR Container Traffic Forecast.xlsx."

i. Revenues from Issue Traffic and Non-Issue Coal Traffic to Campbell

The base revenue forecasts for the issue coal traffic (PRB coal from the BNSF interchange to Campbell) and for non-issue coal traffic that also moves to Campbell from CSXT-served Eastern sources, both are based on the terms of Tariff CSXT-13952, which specifies quarterly rate adjustments based on 100% of the change in the AII-LF, subject to the proviso that rates may not fall below their January 1, 2015 levels. Projected changes in the AII-LF are based on the most recent forecasts published by IHS Economics.[31]

Additionally, because the coal traffic subject to CSXT-13952 also is subject to the fuel surcharge established in CSXT Publication 8662, Consumers calculated fuel surcharge revenues for this traffic. Surcharges were calculated

[31] *See* e-workpaper "rcaf201510.pdf."

based on EIA's HDF forecasts as included in its October 8, 2015 Short Term Energy Outlook,[32] ("STEO") and its April 14, 2015 Annual Energy Outlook ("AEO"), and the specific terms of Publication 8662.[33] Consumers' fuel surcharge calculations are detailed in e-workpaper "CERR_TRAFFIC_CONTRACTS_RATEADJ_FSC.xlsx."

ii. Revenues from General Freight and Non-Issue Coal Traffic

For non-issue traffic and non-Consumers coal traffic that moves under contract with CSXT, Consumers projects revenues for the CERR based on the rate adjustment mechanism(s) in the contract(s), and established, published forecasts of future changes in specific indices, such as the IHS Economics forecasts of changes in the various RCAF indices and/or the AII-LF. Revenues for non-contract traffic likewise are projected based on the terms of the applicable common carriage pricing authority.

For non-issue contracts that expire between 2015 and 2020, and for movements not subject to contracts or specific pricing authorities, revenues are adjusted through 2019 based on the forecasted change in revenue per unit from the CSXT internal carload or container forecasts produced in discovery. For the period January 1, 2020 through December 31, 2024, CERR revenues from non-

[32] The EIA STEO includes forecasts one to two years into the future and is updated on a monthly basis.

[33] *See AEPCO 2011* at 27-28.

issue, non-contract (or expired contract) traffic are calculated by adjusting the prior year revenue per unit by the CAGR developed utilizing the five (5) years of available CSXT forecast data for 2015 through 2019. Consumers' revenue projections for this traffic are detailed in Exhibit III-A-6.

iii. Revenues from Intermodal Traffic

Projected CERR revenues from intermodal traffic over the 2015-2024 time period were determined in the same manner as those from non-issue coal traffic, discussed above. Consumers' revenue projections for this traffic are detailed in Exhibit III-A-6.

iv. Fuel Surcharge Revenue

The coal and general freight traffic in the CERR traffic group that moves in common carriage on CSXT – including (as noted above) the issue traffic – is subject to CSXT's mileage-based fuel surcharge program as described in CSXT Fuel Surcharge Publication 8662. Through this Publication, CSXT imposes a car-mile based fuel surcharge on each carload of traffic based on the price of On-Highway Diesel Fuel ("HDF") as published by EIA two (2) calendar months prior to the month when a shipment takes place, whenever the HDF price exceeds $3.749 per gallon. For this traffic, Consumers calculates the CERR's fuel surcharge revenue using the same formula that CSXT applies on each carload, based on the on-SARR movement miles.

Pursuant to CSX Intermodal Service Directory 1, CSXT imposes a fuel surcharge on intermodal traffic subject to the Directory, calculated as a percentage of the transportation rate, based on HDF prices two (2) months prior to the shipment month. For this traffic as handled by the CERR, Consumers calculates the total fuel surcharge revenue for a movement using the CSXT formula, then allocates a share of the total revenue to the CERR using the revenue division percentage calculated under the ATC methodology for allocating cross-over traffic revenues.

For traffic handled by the CERR that moves under contract with CSXT during the base year, Consumers calculates fuel surcharge revenue in accordance with the terms of each contact, and allocates the revenue to CERR in the manner described above, depending upon the surcharge methodology.

Subsequent to the base year, for all traffic subject to an HDF-based surcharge Consumers applies the EIA forecast of HDF prices set forth in the most recent available editions of its STEO and Early Release AEO. Where a contract specifies a fuel surcharge based on West Texas Intermediate Crude Oil ("WTI") prices, Consumers uses the WTI price forecasts in the EIA STEO and AEO. Following contract expirations and through 2024, Consumers assumes that traffic would become subject to CSXT's HDF-based mileage or percent-of-rate surcharges, depending on the commodity. Consumers' approach – to determine fuel surcharge revenues for the CERR in the same manner that CSXT assesses them in the real world – is consistent with Board precedent both before and after the decision in *Major Issues*. *See, e.g. Sunbelt* at 6; *WFA/Basin 2007* at 9; *WTU*, 1 S.T.B. at 674-676. Consumers' assumption that CSXT's standard HDF-based fuel surcharges would apply post-contract likewise has been endorsed by the Board. *AEPCO 2011* at 27-28.

As discussed further in Part III-D, forecasted changes in operating costs for the CERR over the DCF period are calculated using the "hybrid" RCAFU/RCAFA methodology prescribed by the Board in *Major Issues*,[34] adjusted according to changes in the October 2015 IHS Economics forecasts for both indices. In *DuPont* and again in *Sunbelt*,[35] the Board expressed concern over observed, wide divergences in the trend line for EIA's HDF and WTI's forecasts, on the one hand, and IHS' forecast of future changes in the RCAF on the other, with the former growing at a significantly faster rate than the latter. The discrepancy was such that the Board departed from precedent calling for stand-alone revenues to be calculated on the same basis as the defendant's revenues in the real world,[36] and ruled that fuel surcharge revenues in those cases instead should be estimated using the same IHS RCAF forecasts as were used for the SARR's operating expenses.

In Consumers' case, there is no legitimate justification for an exception to the established rule that stand-alone revenues are projected based on the terms of the pricing authorities that apply to the stand-alone traffic group in the real world, while SARR operating expenses are projected based on IHS' forecasts

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[34] *Major Issues* at 42-47.

[35] *See DuPont,* at 264; *Sunbelt* at 177-178.

[36] *See, e.g.*, *AEPCO 2011* at 24-25.

of changes in the RCAFU/RCAFA.[37] As shown in Exhibit III-A-7, over the entire DCF period from the First Quarter of 2015 through the Fourth Quarter of 2024, IHS' projection of the change in the "hybrid" RCAFU/RCAFA index tracks EIA's forecast of changes in the HDF index very closely. Unlike in *DuPont* or *Sunbelt*, the adherence to precedent on the proper treatment of future CERR revenues and operating expenses in this case does not lead to fuel surcharge revenues escalating significantly faster than CERR fuel costs.

In that regard, however, it bears noting that the concept that a railroad's fuel surcharge revenues over a given time period may exceed – even substantially – the increases in its actual fuel costs, in neither novel nor even unusual. As the Board found in the *Cargill* litigation,[38] a railroad's reliance on the HDF "safe harbor" in designing its fuel surcharge well may lead to revenues outpacing costs. In the case of CSXT, for example, the carrier both established the "step functions" reflected in CSXT Fuel Surcharge Publication 8662, and set the surcharge "strike price" below which there would be no change in the overall transportation charge, regardless of how low the HDF – or CSXT's actual fuel costs per gallon – might fall. Given the railroad's control over the surcharge methodology and its rather obvious incentive to ensure that any error inures to its

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[37] *AEPCO 2011* at 24-25. *Compare WFA/Basin 2007* at 9 and *Major Issues* at 42-47.

[38] *Cargill, Inc. v. BNSF Ry.*, NOR 42120 (STB served Aug. 12, 2013) at 14; *see also Rail Fuel Surcharges (Safe Harbor)*, EP 661 (Sub-No. 2) (STB served May 14, 2014) at 2-3.

benefit, it is hardly surprising that if there is an actual discrepancy between CSXT fuel surcharge revenue for a given period and changes in CSXT's actual fuel costs, it would be the former that regularly outpaces the latter.

Part III-B – Stand-Alone Railroad System

III. B. STAND-ALONE RAILROAD SYSTEM

In this Part Consumers describes the CERR system's configuration and facilities including its route, track and yard facilities, and traffic control system.

The evidence in this Part is sponsored by Consumers' operating and engineering experts: John Orrison, Robert Holmstrom, and Harvey Stone. Mr. Orrison has over 39 years of experience in the railroad industry, including many years of experience in senior management positions with CSXT and BNSF, including Vice President – Network Planning for CSXT and Assistant Vice President – Service Design & Performance for BNSF. Mr. Orrison also served as Division Superintendent-Detroit Division General Manager; this Division included certain of the lines in Michigan and Indiana being replicated by the CERR. A further description of Mr. Orrison's qualifications is included in Part III-C (Operating Plan) and Part V (Witness Qualifications).

Mr. Holmstrom is thoroughly familiar with Chicago area railroad operations owing to his 42-year railroad career in the Chicago area. Indeed, Mr. Holmstrom spent his entire railroad career in Chicago working for CN and its predecessor railroads. Mr. Holmstrom was CN's most senior operations manager in the Chicago area, and he served as CN's representative to the Chicago Transportation Coordination Office. A further description of Mr. Holmstrom's qualifications is included in the Operating Plan (Part III-C) and Part V (Witness Qualifications).

Mr. Stone is a Professional Engineer with extensive experience in railroad construction and design. Complete details of his qualifications are included in Part V.

Introduction

The CERR is designed to serve the Consumers Energy unit coal train traffic that BNSF originates in the Wyoming Powder River Basin and that CSXT moves from an interchange with BNSF in Chicago, IL to Consumers' Campbell plant located at West Olive, MI.[1] The facilities necessary to serve the Consumers traffic and the cross-over traffic selected for the CERR are not complex in comparison to other stand-alone railroads or the railroad trackage in the Chicago area in general. Indeed, the CERR shares many characteristics with other smaller SARRs that the Board has reviewed before, including the *WFA/Basin* and *IPA* SARRs. For example, as discussed in Parts III-A and III-C, the traffic mix carried by the CERR is focused on: (i) unit trains, which make up approximately 50 percent of all trains handled by the SARR; (ii) intermodal traffic moving intact to and from the CSXIT 59th St. Intermodal terminal; and (iii) merchandise trains that are already blocked and classified off of the CERR system.

[1] The issue traffic uses two routes. The most common route used by the issue traffic is 71st St. (where the BNSF interchanges the loaded train)-Belt Railway segment-NS trackage rights to Porter-West Olive. The other route is 71st Street-Blue Island-Curtis-NS trackage rights to Porter-West Olive. *See* Exhibit III-A-1 for a visual representation of each route.

Similarly, the CERR replicates only a sliver of the Chicago area's rail facilities. Indeed, the CERR traverses only 27.34 constructed route miles in Chicago.[2] This limited scope, coupled with the train types that the CERR is handling, differentiates the CERR from the other railroads operating in Chicago, including the residual CSXT.

As explained by Messrs. Orrison and Holmstrom, the CERR is not a terminal railroad such as the Belt Railway Company of Chicago ("BRC") or the Indiana Harbor Belt ("IHB") that operates extensive networks in and around Chicago, including large classification yards such as Clearing Yard or the Blue Island Yard. Nor is the CERR akin to some of the Class I railroads that continue to operate significant yard facilities in the Chicago area, such as the UP's Proviso Yard (a hump yard facility), and which operate daily local jobs to serve local industries and operate to and from other carriers' yards.

Instead, the CERR operations focus on efficient throughput of interchange traffic through the Chicago corridor – a trend that is becoming common in Chicago area rail operations. Indeed, many carriers have moved their classification, train building and inspecting operations away from the Chicago area in order to facilitate the throughput of trains through Chicago. This trend also reflects the long-term trend toward longer unit trains and longer trains in general –

[2] The CERR also replicated 8.13 route miles of the BRC facilities used by the issue traffic. As CSXT owns a 25 percent share of the BRC, Consumers has accounted for 25 percent of the costs of the facilities utilized by the CERR's traffic.

trains which are too long to handle in some of the older facilities in Chicago and which would otherwise block crossings and disrupt other rail traffic. In other words, the CERR handles trains that traverse Chicago but do not otherwise dwell for long periods of time – nor do they require blocking, classification or extensive servicing.

While the CERR's operations are different from those of other carriers in the Chicago area, the CERR's configuration does not ignore the particular circumstances present over the route it uses in and near Chicago. For example, the CERR configuration takes account of: (i) at-grade interlockings with other carriers; (ii) the locations of road crossings; (iii) and the need to prevent blocking of such interlockings and crossings.

Given the nature of its operations, the facilities required by the CERR are relatively modest, even in Chicago, and minimal from Porter, IN to West Olive, MI where Consumers' coal trains make up over 95 percent of the trains carried over that segment.

1. Route and Mileage

The CERR's constructed route covers 168.65 route miles,[3] including 160.52 route miles[4] of track being constructed by the CERR, and 8.13 route miles[5]

[3] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R38.

[4] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R18.

of BRC track where the CERR is contributing 25% of the current estimated construction costs required to replicate the existing facilities as a one-fourth owner of that carrier.[6] The CERR operates via trackage rights or reciprocal agreement with other carriers over 73.83 route miles[7] (including the 8.13 miles of BRC track, where the CERR pays certain fees for its use).[8] The CERR traverses parts of Illinois, Indiana and Michigan. Exhibit III-A-1 is a map of the CERR's route.

a. Main Line

The CERR constructed main line facilities begin at 22nd Street in Chicago, IL. There, the CERR connects to BNSF's Chicago Subdivision and BNSF's Cicero Yard via the "hole in the fence" connecting track. The 22nd Street location also extends approximately one mile north to connect with Union Pacific at a point know as Ogden, which provides a means of connecting to UP's Proviso Yard, UP's Global 1 and 2 intermodal facilities, as well as CP's Bensenville Yard.

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[5] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R19.

[6] *See* CSXT 2014 R-1 Schedule 310, Line 3.

[7] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell P33.

[8] The primary trackage segment utilized by the issue traffic is the NS trackage rights segment from Rock Island Jct. to Porter. Likewise, the issue traffic, by reciprocal agreement, returns empty trains to BNSF's Cicero Yard. Details of the trackage rights fees are discussed in Part III-D-9.

From 22nd St., the CERR proceeds railroad east (geographically south) to CSXIT's 59th St. Intermodal facility.[9] The intermodal facility is located adjacent to the CERR's through tracks, which are used for other trains moving to and from the 22nd St. area. The CERR then proceeds east to 75th Street. At 75th St., the CERR track proceeds south across an interlocking with NS and Metra (the Chicago-area commuter train operating agency) to the CERR's Barr Subdivision. Alternatively, at 75th St., some traffic being handled by the CERR, including much of the issue traffic, proceeds to the east over the BRC to a connection point with NS at Rock Island Junction. From there, the CERR trains use NS trackage rights to reach Pine Jct. or Porter, IN, as explained below.

The CERR continues east from 75th St. to Blue Island, IL where it turns east into the CERR's Barr Yard and proceeds to Curtis, IN via Pine Jct., IN. CERR trains bound for Michigan utilize NS trackage rights from Curtis to Porter, IN. From Porter, the CERR travels generally northward to Holland, MI and then on to West Olive, MI, the location of Consumers' Campbell Plant.

b. <u>Branch Lines</u>

The CERR has no branch lines. However, the CERR trains utilize 8.13 miles of BRC track between 75th and Rock Island Junction.[10] As CSXT owns

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[9] For purposes of this description, Consumers is utilizing the convention of using the overall running direction of the train (east or west in this case) versus the actual direction as these change with some frequency.

[10] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R19.

a 25% interest in the BRC, the CERR is stepping into CSXT's shoes by providing 25% of the necessary investment, as well as required contributions to utilize this track.

In addition, the CERR includes an extended interchange track at Dolton, IL and 2.38 miles[11] of lead track required to reach the Campbell plant.

c. Interchange Points

The CERR interchanges traffic with other railroads and the residual CSXT as described in Table III-B-1 below:

Table III-B-1
CERR INTERCHANGE POINTS

Interchange Point	Railroad(s)	Description
22nd St./71st St. Area	BNSF	BNSF delivers trains to the CERR's 71st St. interchange tracks (including the mainline if necessary) via the "hole in the fence connection" at 22nd St. to the CERR. In the reverse direction, the CERR delivers trains to BNSF's Cicero Yard located 3.3 miles west of 22nd Street. CSXT and BNSF use the same procedure in the real world. In addition to traffic coming to and from Cicero, the CERR also delivers trains to BNSF's Corwith Yard located to the west of the CERR. The Corwith Yard is accessed via a turnout located just to the south of the "hole in the fence." This location is marked as MP 27.4 on Page 1 of Exhibit III-B-1.
Ogden Jct./71st St.	UP	UP delivers trains originating at Proviso or the Global 1 intermodal facility to the CERR's 71st St. interchange tracks via UP track and the CERR connection to UP. CSXT and UP use the same procedure in the real world. Trains bound for Proviso or Global 1 are delivered to those locations by CERR crews. The connection is also used for a few trains to move from CP's Bensenville Yard to 71st Street.
Blue Island, IL	IHB/CSXT	Trains bound to or from the Blue Island connection

[11] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R14.

Connection with the IHB		with the IHB and/or CSXT are interchanged on the CERR's Barr Yard interchange tracks located just to the east of the interlocking (these tracks are also used for train inspections if necessary).
Dolton, IL	CSXT	The CERR interchanges with the residual CSXT at Dolton. From Dolton and moving south, CSXT uses the UP's Villa Grove Subdivision under a joint ownership agreement. These trains include southbound traffic headed to Woodland Jct. where they return to the CSXT-owned Woodland Subdivision. In the northbound direction, trains interchanged from CSXT to the CERR at Dolton move west and north to 22nd St. and the 59th St. intermodal facility as well as east to Curtis, IN or Holland, MI. All trains moving to/from Dolton are interchanged on the CERR's interchange track located south of the CERR's east-west main line and south of the IHB lines that parallel the CERR's main line. However, trains coming north from UP's Villa Grove Subdivision and heading east to Curtis, IN over the CERR are interchanged on the CERR to the east of Dolton.
Curtis, IN		The CERR interchanges with the residual CSXT at Curtis. The traffic interchanged at this location includes eastbound and westbound traffic moving over the Barr Subdivision through Willow Creek, IN and on to points east. The CERR also interchanges traffic moving over the BRC and the NS trackage rights segment from Rock Island that moves via Willow Creek. The interchange occurs on CERR interchange tracks located to the west of the turnout connecting to the residual CSXT.
Holland, MI (Waverly)		The CERR interchanges trains with the residual CSXT at Holland, MI. The traffic interchanged at this location includes merchandise traffic moving to and from Grand Rapids, MI and several trains of Eastern coal bound for the Campbell plant which also move via Grand Rapids. The interchange occurs on CERR track located just to the south of the turnout connecting to the residual CSXT.

Details of the traffic interchanged and method of interchange at each location are discussed in Part III-C-1 below. The CERR track configuration at each interchange point is shown in Exhibit III-B-1. In addition, the CERR has traffic that it handles through the Calumet Park connection with the IHB. However, those trains move to and from the IHB's Blue Island Yard, and they do stop at Calumet Park. *See* Part III-C-1-vi for a description of this operation.

All interchange traffic with other carriers consists of intact trainloads. The coal traffic moves in unit trains with run-through locomotive power. The merchandise and intermodal traffic are also handled as intact shipments at each interchange point and the CERR also uses run-through power to aid in the swift interchange of such trains.

d. <u>Route Mileage</u>

The route mileages for the CERR's principal line segments are shown in Table III-B-1 below. Details are provided in e-workpaper "CERR Route Miles.xlsx." The CSXT operating timetables and track charts for all of the lines being replicated are contained in e-workpaper folder "III-B-1\Track Charts."

TABLE III-B-2 CERR LINE SEGMENTS AND ROUTE MILEAGE		
Segment	**CSXT Subdivision**	**Miles**
Main Lines		
22nd St/Ogden Jct. to Curtis	Blue Island/Barr	32.70
Porter to West Olive	Grand Rapids/ Fremont	122.20
Total Main Line Miles		
Other		
BRC (75th St. to Rock Island Jct.)	Connects to Blue Island Subdivision	8.13
Dolton Interchange Track	Villa Grove	3.24
Campbell Plant Lead Track		2.38
Trackage Rights or Reciprocal Agreement Operating Miles		
(NS) Rock Island Jct. to Curtis/Pine Jct.		12.50
(NS) Curtis/Pine Jct. to Porter, IN		12.60
(BNSF) 22nd St. to Cicero		3.30
(UP) Ogden Jct. to Proviso/Global 2		12.40
(BNSF) Brighton Park to Corwith		3.50
(IHB) Calumet Park to IHB Blue Island Yard		6.40
(UP) Ogden Jct. to Global 1		0.40
(UP/CP) Ogden Jct. to Bensenville		14.60
Total Route Miles		**234.35**
See e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary."		

The CERR lines between 22nd St. and Curtis, IN and between Porter, IN and West Olive, MI are newly constructed track. The BRC line between 75th St. and Rock Island, Jct. is jointly owned by CSXT and a number of other carriers, and CSXT therefore has rights to use the track. CSXT's share of the BRC is 25%. In order to account for the costs associated with the CERR's share of the BRC (assuming the CERR is stepping into CSXT's shoes), Consumers' expert road property witnesses determined the cost to build the existing infrastructure today (based on SAC principles), and then included 25% percent of those costs in the road property investment costs. *See* Part III-F for details on these costs. This procedure is consistent with the Board's decision covering similar facilities in the *DuPont* case.[12]

The CERR operates via trackage rights over the NS between Rock Island Jct. and Porter, IN. The CERR also operates via NS trackage rights between Curtis and Porter, IN (a portion of the Rock Island Jct. to Porter, IN segment). The track between Curtis and Porter is also utilized by the trains moving between Rock Island, Jct. and Porter, IN. The trackage rights segment is the only practical way to reach the Grand Rapids Subdivision – the line of track that extends from Porter, IN to Holland, MI, the route used by the issue traffic. Thus, just as in the real-world CSXT operations to West Olive, MI, the CERR uses the NS trackage rights segment where necessary.

2. Track Miles and Weight of Track

The CERR's track and yard configurations reflect the CERR's peak-year traffic volumes and flows, the trains that will move over the CERR system in the peak week of the peak traffic year, the CERR operating plan developed by Consumers' expert operating witnesses, Messrs. Orrison and Holmstrom, and a simulation of the CERR's peak-period operations executed by Consumers'

[12] *DuPont/NS* at 47-48.

witnesses Messrs. McLaughlin and Schuchmann using the Rail Traffic Controller ("RTC") model (as described in Part III-C below).

Exhibit III-B-1 contains detailed schematic track diagrams for the CERR system. Schematics of the CERR's Barr Yard are included as Exhibit III-B-1, p. 7. The CERR's track miles are shown in Table III-B-2 below. Details (including a breakdown of the track miles by type of track) are provided in e-workpaper "Route & Track Miles Summaries.xls."

TABLE III-B-3
CERR CONSTRUCTED TRACK MILES

	Miles
Main line track – Single first main track[1/]	168.65
– Other main track[2/]	41.38
Total main line track	210.03
Interchange Tracks	10.06
Setout tracks	2.00
Yard tracks[3/]	11.29
Total track miles	**233.38**

[1/] Single first main track miles equal total constructed route miles, including the lead track to the Consumers Plant and the Dolton Interchange track. This also includes 8.13 route miles of the BRC.
[2/] Equals total miles for constructed second main tracks/passing sidings, including the BRC segment.
[3/] Includes all tracks in the Barr Yard.

Source: e-workpaper "2015 Ballast & subballast Worksheet.xlsx," tab "Rail Type By Subdivision," column L.

a. Main Lines

The CERR's track configuration is shown in Exhibit III-B-1. The CERR's main lines are comprised primarily of single track, with some sections of second main track in the Chicago area between Blue Island and Curtis, as well as passing sidings in various locations as indicated in Exhibit III-B-1. The CERR has a total of 41.38 track miles of second main track and passing sidings. *See* Table III-B-2 above.

The CERR mainline track, including passing sidings, between 22nd St. and Curtis, IN is constructed of new 136-pound continuous welded rail ("CWR"). The CERR mainline track between Porter, IN and West Olive, MI is constructed of new 115-pound CWR.

All of the CERR's track and structures are designed to accommodate a gross weight on rail ("GWR") of 286,000 pounds per car. Due to speed limitations in most areas traversed by the CERR, the maximum track speed on the system is 40 MPH.

b. Branch Lines

The CERR has no branch lines.

c. Passing Sidings

The CERR's passing sidings are considered part of its main tracks and are shown in Exhibit III-B-1.

d. Other Tracks

Other tracks include yard tracks, interchange tracks, maintenance-of-way ("MOW") equipment storage tracks, and set-out tracks. *See* e-workpaper "2015 Ballast & subballast Worksheet.xlsx," tab "Rail Type By Subdivision," which details the track miles by type and quantity.

The CERR's set-out tracks are used primarily in conjunction with its Failed/Dragging Equipment Detectors ("FEDs"). The CERR has placed set-out tracks consistent with the need to handle such occurrences as the detectors may identify as detailed below.

The CERR system has a total of ten (10) FEDs. One FED is located just south of the 22nd St. interchange. This location is only a mile from the interchange tracks at 71st St. where loaded trains from UP and BNSF are interchanged to the CERR. The set-out track has been placed adjacent to the primary interchange track on the east side of the main track. One FED is located on either side of the Barr Yard. There is ample space to set-out bad-order cars in the yard, especially since 1,000 and 1,500 mile train inspections are conducted at this location. Finally, five FEDs are located on the Grand Rapids Subdivision. Each location on the Grand Rapids Subdivision includes set-out track on each side of the detector to minimize the need to back up a train. All of these set-out tracks are double-ended tracks, 860 feet in length between switches. This provides 600 feet in the clear to accommodate both the occasional bad-order car and the temporary storage of MOW equipment. *See* Exhibit III-B-1.

The CERR also has a 2,000-foot (in the clear) MOW equipment storage track, which is centrally located at the CERR's Barr Yard. This track is included in the yard track quantity for the Barr Yard. *See* Exhibit III-B-1, p. 7 and e-workpaper "2015 Ballast & subballast Worksheet.xlsx," tab "Rail Type By Subdivision," cell L38.

These tracks consist of new 115-pound CWR. The CERR has a total of 13.29 track miles for set-out, yard and MOW tracks. *See* e-workpaper "2015

Ballast & subballast Worksheet.xlsx," tab "Rail Type By Subdivision," columns Q and R.

3. Yards

a. Locations and Purpose

The Barr Yard is the CERR's only yard. The CERR conducts 1,000 and 1,500 mile inspections of certain trains at the Barr Yard for westbound trains destined to other carriers. DTL fueling is also performed at Barr Yard for some of these trains as required by the applicable run-through power agreement. The Barr Yard also serves as an interchange location for trains moving to and from the connection with the IHB located just to the west of the yard.

The Barr Yard houses the CERR's locomotive shop, an MOW crew facility, and a crew change holding area (it is not a home base location). *See* Exhibit III-B-1. The Barr Yard is located in the same general location as CSXT's existing Barr Yard.

b. Miles and Weight of Yard Track

The CERR's Barr Yard (including the 1.21 miles of MOW equipment storage and the locomotive shop tracks) contains a total of 11.29 miles of track. Details are shown in e-workpaper "Route & Track Miles Summaries.xls." As shown in Exhibit III-B-1, all yard tracks have new 115-pound CWR.

4. Other

a. Joint Facilities

The CERR trackage rights route miles include several joint facilities, as detailed in Table III-B- 1. The three key facilities are those used by the issue traffic. Specifically, the BRC facility, the NS facilities between Rock Island and Porter, and the BNSF facility between 22nd St. and Cicero. As explained above, the BRC facility is owned in part by the CERR and a number of railroads. This joint facility is the BRC track located between 75th St. and Rock Island Junction. This 8.13 mile segment permits the movement of CERR trains to and from Rock Island Jct., the connection point with NS.

The NS trackage rights segment between Rock Island Jct. and Porter is used by the issue traffic to reach the Grand Rapids Subdivision. In addition, Consumers trains that do not use the BRC facility move over the NS trackage rights segment, but only from Curtis to Porter. *See* Exhibit III-A-1 for a map of the various points.

The BNSF track between Cicero (a BNSF yard) and 22nd St. allows for empty trains to be returned by CERR crews to the BNSF's Cicero Yard.

The other joint facilities permit the CERR crews to move westbound trains to the various yards or Intermodal facilities indicated in Table III-B-1. In turn, those carriers generally deliver eastbound trains to the CERR's facilities at 22nd St. or Barr Yard. The CERR also handles eastbound trains directly from the

IHB's Blue Island Yard. Those trains connect to the CERR system at Calumet Park.

b. Signal/Communications System

The CERR's facilities in the Chicago area, including the portions of the Barr and Blue Island Subdivisions that the CERR is replicating, are equipped with a CTC traffic control system, with powered switches that are controlled by centralized dispatchers located at the railroad's headquarters at West Olive. The main line between Porter, IN and West Olive, MI is non-CTC "dark" territory. In non-CTC territory, train operations are controlled by track warrants issued by the dispatcher using radio communication. Mainline turnouts in non-CTC territory are hand-thrown. Interior yard switches and set-out/MOW equipment storage track switches are also hand-thrown.

Communications are conducted using a combined fiber option and microwave system. The microwave system includes six (6) towers located at roughly 20-mile intervals along the Grand Rapids Subdivision (which also covers the Freemont Subdivision). The fiber optic system serves as the backbone of the communications system for the CERR between 22nd St. and Curtis. Land mobile radio repeaters are also deployed as necessary. All locomotives, train and yard crewmen, dispatchers and field supervisory personnel, as well as hi-rail vehicles, are equipped with radios connected to the communications system. Certain employees are also equipped with CERR-supplied cellular telephones for emergency railroad use, as a back-up to the radios. *See* Part III-F-6 for details of the communications system.

The CERR is not equipped with PTC signaling equipment.[13] The CERR does not carry and TIH/PIH shipments and therefore does not require such a system.[14] Furthermore, the CERR is a Class II railroad, which railroads are exempt from the requirements for PTC.[15] Regardless, the CERR is contributing locomotives for use in run-through service with various carriers. Thus, to be conservative, Consumers has provided for the cost of equipping its locomotives with PTC capabilities. *See* Part III-F-6 for details of these costs.

c. Turnouts, FEDs and AEI Scanners

Turnout sizes are shown in Exhibit III-B-1. The individual turnout locations are based on the required operating speeds at the given locations as determined by Messrs. Orrison and Holmstrom as well as the RTC model.

The CERR has 10 FEDs, which include hot-bearing, dragging-equipment, cracked-wheel and wide/shifted load detection systems. The FED locations are shown in Exhibit III-B-1. As noted earlier, each FED is

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[13] The BRC will, if it does not already, have PTC installed over the 8.13 segment where the CERR is contributing 25% of the current estimated construction costs required to replicate the existing facilities as a one-fourth owner of that carrier. As such, Consumers has provided for wayside PTC costs for this segment only. *See* Part III-F-6 for details of those costs.

[14] *See* 49 U.S.C. § 20157(a)(1) (Implementation of positive train control systems); 49 C.F.R. § 236.1005 (Requirements for Positive Train Control systems).

[15] *See id. See also* 49 C.F.R. § 236.1006(b)(4) (Equipping locomotives operating in PTC territory).

accompanied by either one or two set-out tracks, depending on the location and traffic volume, except for the Barr Yard where no additional track has been added. Each set-out track is an 860-foot (0.16-mile) double-ended track to facilitate the set-out of bad-order cars from trains operating in either direction. These tracks are used primarily for temporary storage of bad-order cars detected by the FEDs, as well as for temporary storage of work equipment.

The CERR has six Automatic Equipment Identification ("AEI") scanner locations (with nine scanners to account for double track in certain locations), which are located at or near each of the locations where the CERR interchanges trains with other railroads or the residual CSXT, as well as one located near the Campbell plant. The scanners are shown in Exhibit III-B-1. The AEI scanners capture all train movements that occur on the CERR, including both local and interline movements.

Further details on the use of the track and other facilities are provided in Parts III-C and III-F below.

Part III-C – Operating Plan

III. C. STAND-ALONE RAILROAD OPERATING PLAN

The CERR's operating plan has been developed by Consumers' Witnesses John Orrison and Robert Holmstrom. The simulation and validation of the infrastructure and operating plan, as well as development of certain operating statistics, were performed by Consumers' Witnesses John McLaughlin and Walter Schuchmann of R.L. Banks & Associates. Base year and peak year train and traffic data, locomotive peaking factors, cars counts, and segment densities were developed by Mr. Daniel L. Fapp and Mr. Robert D. Mulholland of L.E. Peabody & Associates, Inc.

Mr. Orrison has over 39 years of experience in the railroad industry, including many years of experience in senior management positions with CSXT and BNSF. Mr. Orrison also holds a Masters of Business Administration from Harvard University, and he was also a White House Fellow where he served as a Special Assistant to the Vice President of the United States for the President's Council on International Competitiveness and Domestic Policy.

For CSXT, Mr. Orrison served, *inter alia*, as Vice President – Network Planning, Vice President – Service Design, General Manager Field Operations Development, and Division Superintendent – Detroit Division, where he oversaw the portion of the lines that the CERR is replicating between Porter and West Olive, as well as many other lines in Michigan, Ohio and Ontario, Canada. Mr. Orrison also served as CSXT's primary operating plan witness in the Conrail acquisition proceeding.[1]

As Vice President – Network Planning, Mr. Orrison directed the development of CSXT's strategic network plans, focusing particularly on the post-Conrail acquisition integration and modernization. During his time, he designed significant revisions to CSXT's core route affecting 30 percent of the network.

While serving as Vice President – Network Planning, Mr. Orrison was elected Co-Chairman of the AAR's Special Committee Chicago planning Group charged with analyzing and improving operations in Chicago. He was then appointed Chairman Corridor Development team, which identified and outlined plans for major Chicago corridors that were eventually integrated into the larger Chicago CREATE Program. Mr. Orrison was also involved in the establishment of the CTCO.

As Vice President – Service Design, Mr. Orrison developed and managed the CSXT train profiles, freight car blocks and freight car disposition rules. Principal elements of the Service Design Operations Research and Service Planning tools were developed during his tenure at CSXT are still in use today. Mr. Orrison, as the expert witness for CSXT's Operating Plan for the Acquisition of Conrail, outlined CSXT's Intermodal plans for routes between Chicago and

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[1] *CSX Corp. & CSX Transp., Inc., Norfolk S. Corp. and Norfolk S. Ry – Control & Operating Leases/Agreements – Conrail Inc. and Consolidated Rail Corp.*, STB FD No. 33388.

New York City, including the development of an intermodal facility at 59th Street in Chicago, IL, and also developed plans for new intermodal hubs between Chicago and New York City.

As Division Superintendent – Detroit Division, Mr. Orrison oversaw all of the transportation operations for CSXT routes in Michigan, Ohio and Ontario, Canada. As noted above, he was responsible for the CSXT line between Porter and West Olive, which the CERR replicates. He developed a prototype short haul intermodal train service between Chicago and Detroit, and he also increased train performance, yard operations and employee safety during his tenure. These improvements resulted in his Division being award the Best Improved Division for Safety.

Mr. Orrison held a number of other key position at CSXT, including Assistant Vice President – Operations Research, Assistant Vice President – Operations Development, Assistant Director – Service Quality & Control, Manager – Strategic Planning, and Assistant Terminal Train Master in Hamlet, NC.

Following his time with CSXT, Mr. Orrison worked for one of the largest intermodal shippers in the United States as Executive Vice President – Strategic Planning. From there, Mr. Orrison joined BNSF Railway, where he served as Assistant Vice President – Service Design & Performance. In that role, he directed BNSF's Merchandise Service Design & Performance Team. This team was responsible for the development of train plans for over 500 daily trains operating over BNSF's 32,000-mile network in 28 states and two provinces of Canada. He also directed the Velocity Program designed to improve car transit times and trains speeds. This program ultimately improved velocity by 30 percent over five years.

Mr. Orrison is currently a consultant to rail systems across the United States as well as other parts of the world. Currently, he is assisting the Massachusetts Bay Transit Authority and Commuter Rail system with a complete overhaul of many of its operations. He also served as Director of Operating Planning for the system. Additional details of Mr. Orrison's experience are included in Part V.

Mr. Holmstrom is an expert in Chicago-area railroad operations owing to his extensive knowledge gained through his 42 years of service in Chicago. Indeed, Mr. Holmstrom's entire railroad career was spent in Chicago. Mr. Holmstrom began his career in 1968 with the Grand Trunk Western as a yard and clerical assistant. In 1974, Mr. Holmstrom became the yard master for the CN's Elsdon Yard in Chicago. This position required management of all relevant yard operations and acting as a first line supervisor for those under him. In 1975, he was promoted to Trainmaster, a management position with CN. In 1984, Mr. Holmstrom became a certified locomotive engineer, and the next year he was promoted to Supervisor Locomotive Engineers. In that position he supervised approximately 200 locomotive engineers operating in Chicago and the six county areas surrounding the city.

In 1994, Mr. Holmstrom was promoted to Assistant Superintendent Operations for Chicago – the most senior level position in CN's Chicago-area staffing. Mr. Holmstrom was responsible for training all of the engineers and conductors on the rules and physical layouts of all the lines and rail yards where CN operated in Chicago. This position required an extensive and detailed understanding of all Chicago-area railroad operations.

Mr. Holmstrom's duties also extended beyond CN operations. Mr. Holmstrom was part of an inter-railroad team tasked with developing a single regional operating guide for Chicago. This group assembled the first edition of the Chicago Operating Rules Association guidebook. To develop this publication, Mr. Holmstrom reviewed and checked the accuracy of the rail operations descriptions and maps for the entire rail infrastructure within a 45-mile radius of Midway Airport.

In 1999, when CN acquired the Illinois Central, Mr. Holmstrom was selected by CN's Executive Vice President Operations to serve as CN's Superintendent-level representative to the CTCO. Mr. Holmstrom wore many hats at the CTCO. For example, he was involved in handling various complaints that came in the CTCO. He was part of the team that investigated root causes of traffic flow issues and which recommended various projects that became part of the CREATE project plans. He was also part of the eight-member team that directed and assisted with the RTC analysis of the Chicago-area operations, and these simulations were used to validate many of the infrastructure enhancement plans developed by the CTCO and CREATE. Mr. Holmstrom served in his position at the CTCO for ten years before retiring from the CN.

Consumers Witnesses McLaughlin, Schuchmann, Fapp and Mulholland have all submitted evidence in prior maximum reasonable rate proceedings and details of their qualifications are included in Part V.

1. **General Parameters**

The operating plan reflects a rail system extending between Ogden Jct./22nd St. in Chicago, IL and West Olive, MI, consisting of 160.52[2] constructed route miles and 215.92[3] constructed track miles (not including the BRC segment used by the CERR's trains). The CERR serves one local customer destination, Consumers' Campbell plant located at West Olive, MI. The CERR also serves CSXIT's 59th St. Intermodal facility, located adjacent to the CERR tracks and several miles south of the CERR's northern terminus at 22nd Street. The system has nine (9) interchange locations. The CERR has no branch lines. The CERR includes a 2.38-mile[4] lead track to reach the Consumers facility.

The CERR's peak traffic year is January 1, 2024 through December 31, 2024 (hereinafter "2024"), which is the final year in the 10-year DCF period. The CERR's traffic group consists of many commodities moving in unit train

[2] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R18.

[3] *See* e-workpaper "Ballast & subballast Worksheet - 2015," tab "Rail Type by Subdivision," cells L4:L38.

[4] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "Summary," cell R14.

service, including coal, crude oil, and ethanol, along with intermodal and merchandise traffic. The intermodal and merchandise traffic moves in pre-blocked, intact trains on the CERR. The details of the train consists and train handling are described below.

The CERR will transport the following total traffic volumes in 2024:

TABLE III-C-1
CERR 2024 TRAFFIC VOLUME

	Cars/Containers	**Millions of Tons**
Coal		
Interline Received[1]	48,809	5,852,000
Overhead[2]	66,233	7,379,078
Subtotal	115,042	13,231,078
Merchandise	279,816	25,878,839
Intermodal		
Interline Forwarded[4]	138,993	3,547,771
Interline Received[4]	142,635	4,145,352
Overhead[4]	540,805	15,332,995
Subtotal	822,433	23,026,117
Total[5]	1,217,291	62,136,034

[1] Source: e-workpaper "CERR Car Traffic Forecast.xlsx," tab "CP_Forecast," cells AA10 and AA14.
[2] Source: e-workpaper "CERR Car Traffic Forecast.xlsx," tab "CAR_Forecast," cells AT8424 and EB8419.
[3] Source: e-workpaper "CERR Car Traffic Forecast.xlsx," tab "CAR_Forecast," cells AT8425 and EB8420.
[4] Source: e-workpaper "CERR Peak Year Volumes By Type.xlsx," tab "Container," cells W5 to X7.
[5] Total may differ slightly from the sum of the individual items due to rounding.

In order to serve this traffic, the CERR operates a small stand-alone system that traverses only 27.34 route miles in Illinois, 27.24 route miles Indiana, and 105.94 route miles in Michigan (not including the BRC and trackage rights segments).[5] The CERR receives/delivers trains in interchange from/to BNSF, UP, BRC, IHB, and the residual CSXT. The issue traffic is received in interchange from the BNSF at 71st Street (through the 22nd St. connection point), and returned to BNSF's Cicero Yard in the same manner in the empty direction. The CERR also interchanges other unit trains, including coal and crude oil, with the BNSF, UP and the residual CSXT at other locations.

The CERR originates intermodal trains at CSXIT's 59th St. Intermodal terminal, but the trains are loaded and built by CSXIT. The CERR also interchanges intermodal trains bound for the 59th St. Intermodal terminal with the residual CSXT.

The CERR handles intermodal and merchandise trains interchanged with the BNSF, UP, BRC, IHB, and CSXT. These trains are all pre-blocked and handled intact over the CERR system. While many of these trains are handled as overhead service (*i.e.*, interchanging to or from another railroad), most intermodal trains are originated or terminated at the 59th St. Intermodal terminal, and certain trains originate or terminate at the CERR's Barr Yard where the trains are delivered or picked up intact by foreign carriers.

The CERR performs 1,000 and 1,500 mile inspections for certain unit and merchandise trains moving in the westbound direction, which are bound for interchange with UP or BNSF. The CERR also performs 1,500 mile

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[5] *See* e-workpaper "CERR Route Miles Opening.xlsx," tab "CERR Miles," cells AH330:AH332.

inspections of empty Consumers trains at West Olive. The inspection requirements are described below.

Fluidity of the CERR's operations and traffic flows benefit from regular coordination with the CERR's interchange partners. The CERR's Director of Operations Control participates in the CTCO's daily activities and conference calls. The CERR's dispatchers regularly communicate with other carriers' dispatchers, particularly the NS where the issue traffic utilizes trackage rights to move to and from the CERR's Grand Rapids Subdivision. Likewise, the CERR's Chief Engineer participates in long-range planning projects for the CERR and the CREATE program – although the CREATE program is largely planned, if currently unfunded.

a. Traffic Flow and Interchange Points

The CERR's 2015 traffic volume consists of 16.7 million tons of coal traffic, 12.5 million tons of intermodal traffic, and 23.3 million tons of other merchandise traffic.[6] More importantly for the CERR's operating plan, the CERR will handle over 10,250 trains. The base year[7] train volumes are as follows:

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[6] *See* e-workpapers "CERR Car Traffic Forecast.xlsx," worksheet "CAR_Forecast," cells DP8429 and DP8430 and "CERR Container Traffic Forecast.xlsx," tab "CONT_Forecast," cells DM40532 and DN40532.

[7] The base year covers the period January 1, 2014 through December 31, 2014. The first full year of CERR operations is based on this data provided by CSXT. The forecast of growth in such traffic and adjustments to reflect the issue traffic forecasts are described in Part III-A-3.

TABLE III-C-2 TRAIN COUNTS BY TRAIN TYPE (Base Year)	
Train Type	**Count of Train (Base Year)**
Unit Trains	5,113
Intermodal	3,593
Merchandise (including Automotive)	1,578
Total	10,284
See e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," columns B:C.	

The CERR's base year traffic flows between various on-SARR and off-SARR points are as follows:

TABLE III-C-3 TRAIN COUNTS BY CERR ON-SARR/OFF-SARR PAIRS (Base Year)		
On-SARR Location	**Off-SARR Location**	**Train Count**
22ND ST-71ST ST, IL	CURTIS, IN	1,683
22ND ST-71ST ST, IL	DOLTON, IL	59
22ND ST-71ST ST, IL	HOLLAND, MI	5
22ND ST-71ST ST, IL	WEST OLIVE, MI	302
BLUE ISL IHB CONN, IL	CURTIS, IN	75
BLUE ISL IHB CONN, IL	HOLLAND, MI	1
CALUMET PARK CP, IL	CURTIS, IN	401
CHICAGO 59TH ST, IL	CURTIS, IN	1,069
CHICAGO 59TH ST, IL	DOLTON, IL	568
CHICAGO, IL (Barr Yard)	CURTIS, IN	157
CURTIS, IN	22ND ST, IL	2,398
CURTIS, IN	BLUE ISL IHB CONN, IL	447
CURTIS, IN	CALUMET PARK CP, IL	82
CURTIS, IN	CHICAGO 59TH ST, IL	666
CURTIS, IN	CHICAGO, IL (Barr Yard)	127
CURTIS, IN	DOLTON, IL	196
DOLTON, IL	22ND ST, IL	101
DOLTON, IL	CHICAGO 59TH ST, IL	865
DOLTON, IL	CURTIS, IN	681
DOLTON, IL	HOLLAND, MI	1
HOLLAND, MI	22ND ST, IL	14
HOLLAND, MI	BLUE ISL IHB CONN, IL	1
HOLLAND, MI	CURTIS, IN	52
HOLLAND, MI	HOLLAND, MI (West Olive turn)	29
WEST OLIVE, MI	22ND ST, IL	304
Total		10,284
See e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," columns E:G.		

The base year trains per segment are shown in the table below:

TABLE III-C-4 TRAINS BY SEGMENT (Base Year)			
Segment	**Total Trains**	**Eastbound Trains**	**Westbound Trains**
22nd St. to 59th St. Intermodal Entrance	4,866	2,049	2,817
59th St. Intermodal Entrance to 75th St.	8,034	3,686	4,348
75th St. IHB Blue Island Connection	7,446	3,389	4,057
IHB Blue Island Connection to Barr Yard	7,970	3,465	4,505
Barr Yard to Dolton Jct.	8,254	3,622	4,632
Dolton Jct. to Calumet Park	7,539	3,677	3,862
Calumet Park to Pine Jct.	8,022	4,078	3,944
Pine Jct. to Curtis	8,610	4,375	4,235
Porter to Holland	680	309	371
Holland to West Olive	664	331	333
Dolton Interchange	2,471	1,309	1,162
See e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," columns M:P.			

The base year density per line segment is shown in Table III-C-5 below.

TABLE III-C-5 CERR BASE YEAR TRAFFIC DENSITY BY LINE SEGMENT (Base Year)	
Line Segment[1/]	**Density (millions of gross tons)**
22nd St. to 59th St. Intermodal Entrance	43.8
59th St. Intermodal Entrance to 75th St.	59.0
75th St. to IHB Blue Island Connection	52.2
IHB Blue Island Connection to Barr Yard	54.6
Barr Yard to Dolton Jct.	56.8
Dolton Jct. to Calumet Park	56.7
Calumet Park to Pine Jct.	59.2
Pine Jct. to Curtis	66.0
Porter to Holland	7.5
Holland to West Olive	7.8
Dolton Interchange	16.2
[1/] Tonnages shown are the total tonnages moving over any part of each line segment. *See* e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," columns R:S.	

The unit train traffic handled by the CERR consists of the following volume of trains by commodity:

TABLE III-C-6 UNIT TRAIN COUNT BY COMMODITY (Base Year)		
Commodity	**Train Type**	**Count of Trains**
Aggregate	Unit	34
Chemicals (Includes Pet Coke)	Unit	54
Coke	Unit	121
Crude Oil	Unit	1865
Customer Service Specials	Unit	1
DOE & Military trains	Unit	1
Ethanol	Unit	833
Ethanol & Miscellaneous	Unit	70
Extra Miscellaneous Unit Coal Trains	Unit	1
Grain Trains	Unit	112
Iron Ore	Unit	18
Metals	Unit	92
Mine-Run Shifters	Unit	6
Phosphate, Potash, Sulfur	Unit	130
Unit Coal Trains	Unit	1773
Other	Unit	2
Grand Total		5113

See e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," columns I:K.

Most of the 3,593 intermodal trains handled by the CERR in the base year originate or terminate at CSXIT's 59th St. Intermodal facility. This traffic is largely interchanged to and from the residual CSXT at Dolton and Curtis. Trains bound for the 59th St. Intermodal terminal are interchanged with the residual CSXT at Dolton and Curtis.

The CERR's merchandise traffic moves in intact trains between most points on the CERR. These trains carry a mix of commodities, including crude oil, chemicals, and agricultural products.

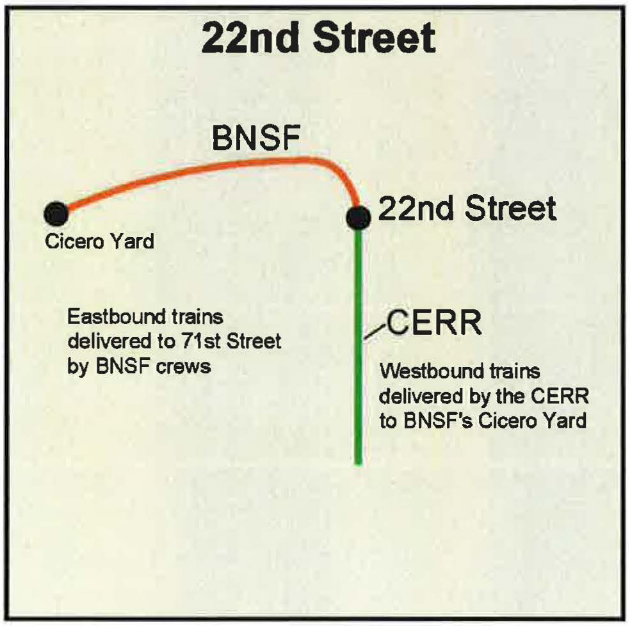
The CERR's operating plan accommodates the coal, unit train, intermodal and merchandise trains moving over various parts of the CERR system during the peak one-week period in the peak traffic year (March 24 through March 30, 2024).[8] The trains that the CERR will transport during the peak week and corresponding study period for the RTC Model simulation of its operations (described below) are shown in e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Peak Trains," columns BN:CH.

The operations at each interchange location on the CERR are discussed below. CERR trains operate eastbound and westbound (*i.e.*, railroad east and railroad west, even though the actual directions may also move north or south at various times). The western terminus of the railroad is 22nd St./Ogden Jct. and the eastern terminus is West Olive, MI. The interchange locations are addressed in geographical order beginning with the western (geographically northern and western) end of the CERR's system located in Chicago.

[8] The peak-week train frequencies were developed using the procedures described in Part III-C-2-b below.

i. **22nd Street Interchange/Connection with BNSF**

The CERR interchanges 3,906[9] trains (base year) with BNSF via the 22nd St. connection between the CERR and BNSF. The interchange/connection location is shown in the figure below:



The issue traffic is interchanged through this connection. Specifically, in the loaded direction, BNSF delivers Consumers' trains by utilizing the "hole in the fence" connecting track. The trains are then moved east to 71st St. where the BNSF crew exits the train and the CERR then moves it onward to West Olive, MI. In the empty direction, the CERR moves the train straight through 71st St. and west to 22nd Street. From there, the train exits the CERR via the "hole in the fence" and the CERR crew brings the empty train to BNSF's Cicero Yard,

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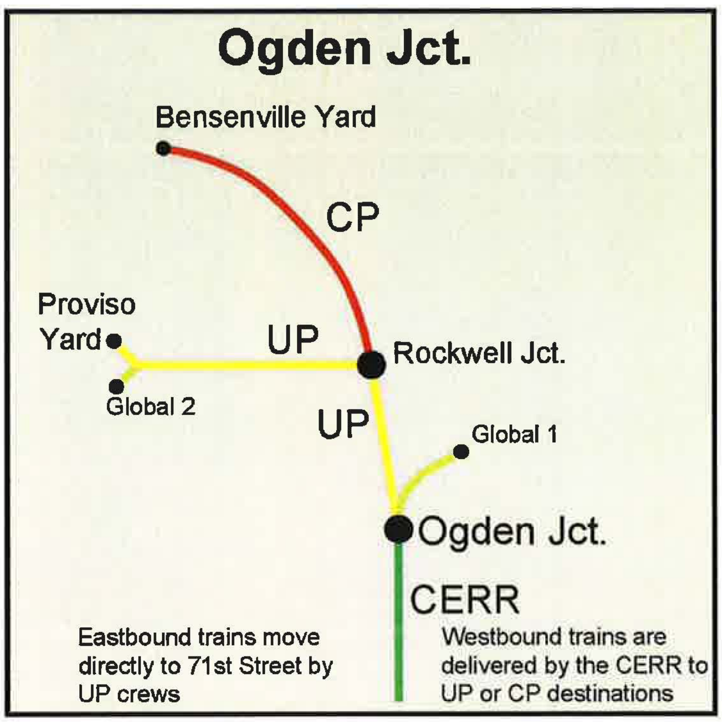
[9] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H40.

which is located approximately 3.3 miles to the west.[10] This process is identical to the procedure that CSXT and BNSF use in the real world.

Other traffic moving to and from the 22nd St. connection with BNSF are handled in the same manner by the CERR.

ii. Ogden Jct. Interchange (22nd St.) with UP

The CERR interchanges 582[11] trains (base year) with UP via the Ogden Jct. connection between the CERR and UP. The interchange location is shown in the figure below:



[10] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell D40.

[11] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H43.

Trains moving to the CERR from UP are delivered to 71st St. where the UP crew exits the train and the CERR then moves it onward. In the empty direction, the CERR moves the empty straight through 71st St. and west to Ogden Jct. From there, the train exits the CERR and the CERR crew brings the empty train to UP's Proviso Yard.[12] UP's Proviso Yard is located approximately 13 miles to the west.[13] This process is identical to the procedure that UP and CSXT use in the real world.

iii. Corwith Interchange with BNSF

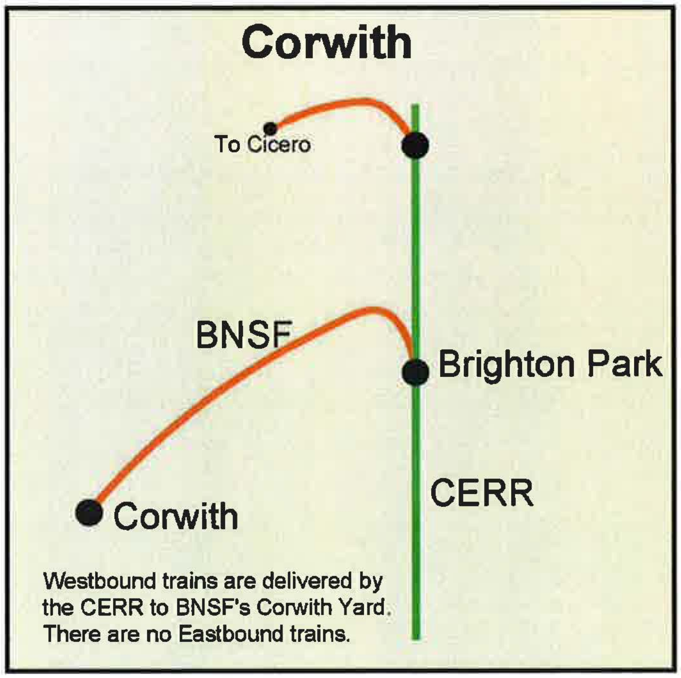
The CERR interchanges 377[14] trains (base year) with the BNSF via the turnout that allows the CERR to access BNSF's Corwith Yard by traversing approximately 3.5 miles of BNSF track to the west of the turnout.[15] The interchange location is shown in the figure below:

[12] Thirteen (13) of the 582 trains interchanged at Ogden Jct. originate/terminate at Bensenville or Global One/Two rather than Proviso. *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cells H37-39.

[13] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell D42.

[14] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H41.

[15] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell D50.



Trains moving to the BNSF from the CERR are delivered to the Corwith Yard by CERR crews. There are no movements from Corwith to the CERR. This process is identical to the procedure that BNSF and CSXT use in the real world.

iv. Blue Island/IHB Connection Interchange

The CERR interchanges 524[16] trains (base year) through the Blue Island Connection to the IHB. The interchange location is shown in the figure below.

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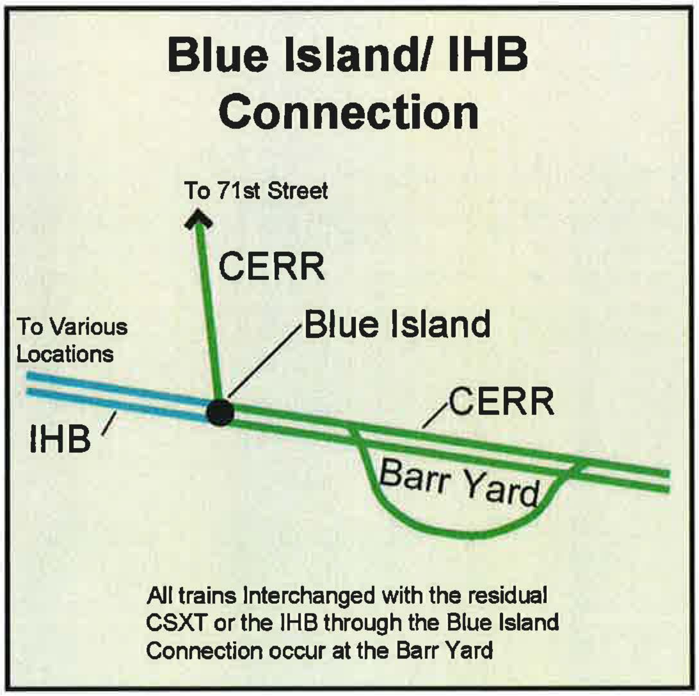
[16] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H48.



The CERR interchanges trains with the IHB, BRC and residual CSXT through this connection. For the IHB and BRC, trains moving via this connection are interchanged at Barr Yard. The CERR will also use the Barr Yard. There is, of course, no existing interchange with the residual CSXT. Consumers' operating experts determined that interchanges with the residual CSXT would also take place in the Barr Yard as this is consistent with other real world interchanges and it is the typical interchange procedure used in other stand-alone cases.

v. Dolton Jct. Interchange

The CERR interchanges 2,471[17] trains (base year) with the residual CSXT through the Dolton Jct. interchange. The interchange location is shown in the figure below.

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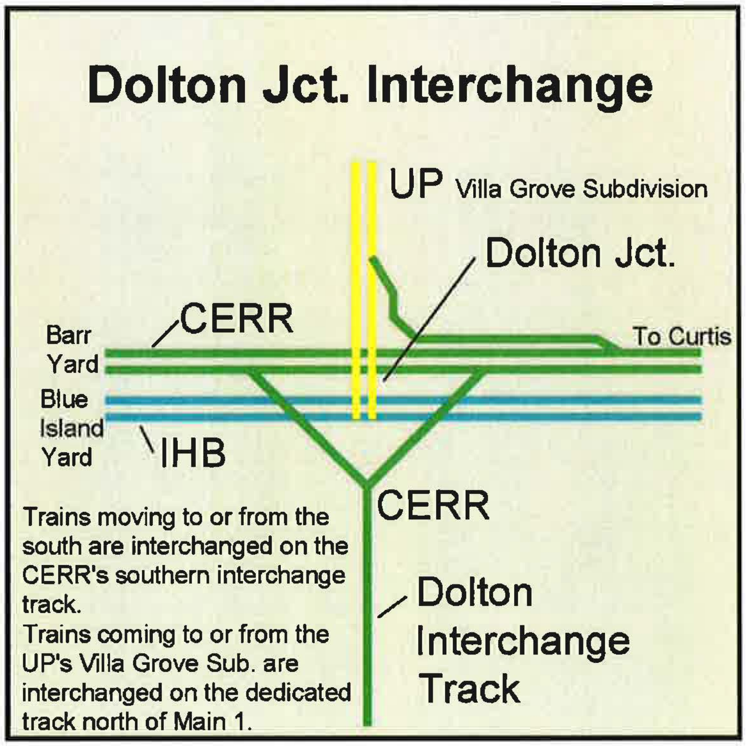
[17] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H50.



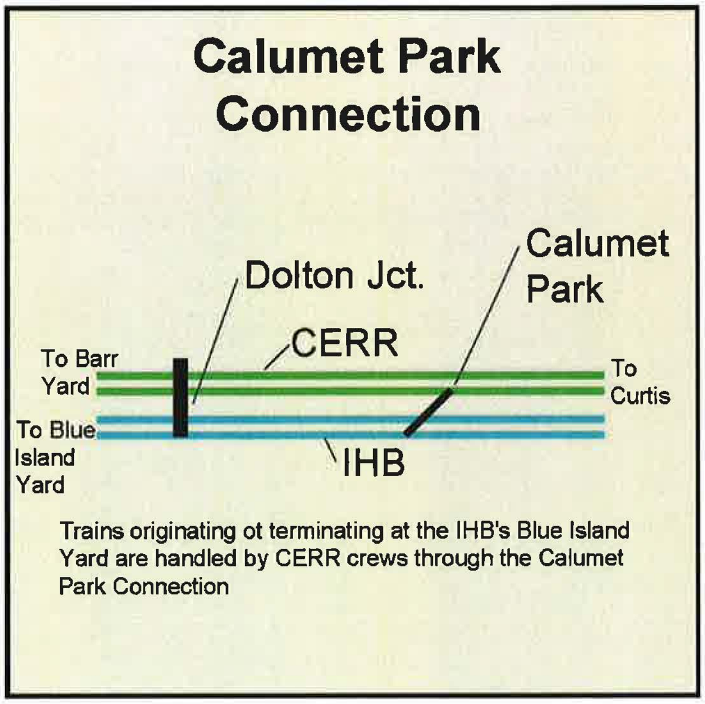
Trains that are moving to and from the south side of the CERR main track are interchanged on the track located south of the CERR mainline. The existing facilities between Dolton Jct. and Woodland Jct. are part of a double track joint facility dispatched and maintained by UPRR with costs split between CSXT and UP. However, as the CERR is not handling any of the UP traffic portion of this system, Consumers has treated this segment in the same manner that coal shippers typically treat the Joint Line in the Powder River Basin of Wyoming (*i.e.*, it has assumed away the other carrier). *See, e.g.*, *AEPCO 2002* at 7 (explaining how the shipper replaces one carrier, but can use other trackage rights arrangements). There, BNSF and UP jointly own approximately 100 miles of track that serve a cluster of mines, including the Black Thunder Mine and Antelope Mine. However, in stand-alone cases, the shipper builds the necessary facilities to handle the traffic and then the other railroad and the residual incumbent are assumed to exist in a "parallel world," except when accessing third-party track such as mine leads. *Id.* The CERR is doing the same here by assuming that the UP exists in a parallel world and by constructing only the facilities it requires.

Trains moving to and from UP's Villa Grove Subdivision on the north side of the CERR's main tracks are interchanged on a tangent track located east of Dolton Jct. and on the north side of the CERR's main tracks. The residual CSXT delivers to and receives trains from this track. The CSXT operates over the UP's Villa Grove Subdivision via trackage rights so stopping a train on that track might interfere with operations. Thus, Consumers' operating experts determined that the interchange location specified is preferable to other alternatives.

vi. <u>Calumet Park Connection/Interchange</u>

The CERR handles 483[18] trains (base year) through the Calumet Park connection. The connection location is shown in the figure below.

[18] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H45.



The Calumet Park connection is used to move trains to and from the IHB Blue Island Yard. The yard is located just to the south of the CERR's Barr Yard and the connection between the two railroads' tracks is located at Calumet Park, just as in the real world. For traffic accessing the connection, the CERR crews will start or terminate the train movement in the IHB yard. This is consistent with how CSXT handles these trains in the real world.

vii. Curtis Interchange

The CERR interchanges 8,034[19] trains (base year) with the residual CSXT through the Curtis interchange. The interchange location is shown in the figure below.

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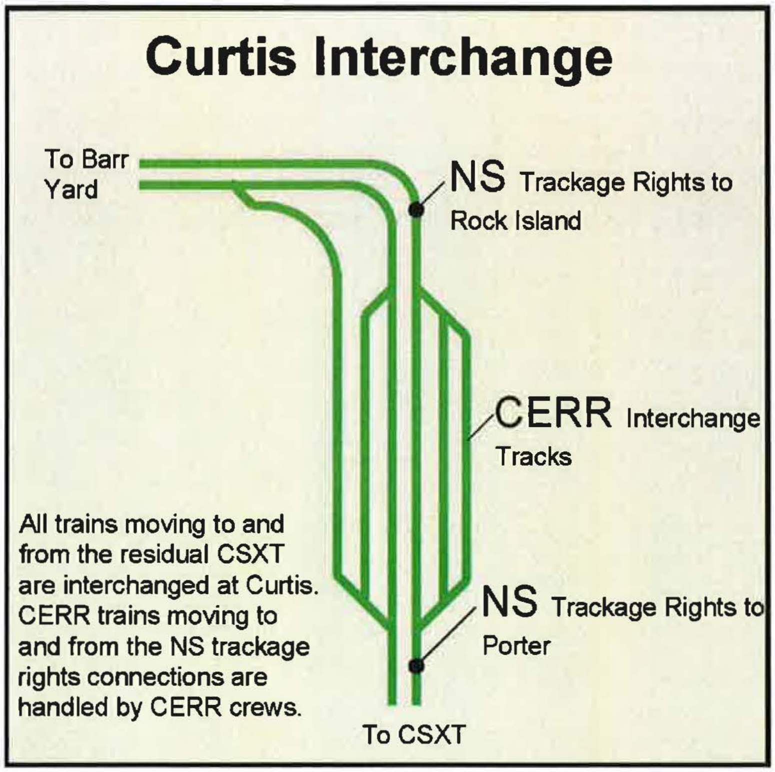
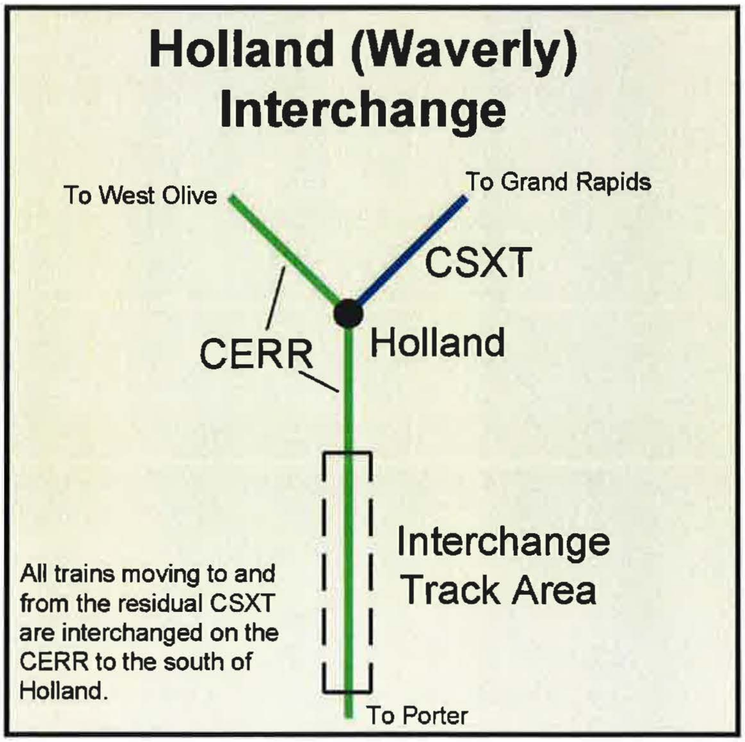
[19] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H52.



The Curtis interchange is used to move trains to and from the residual CSXT line that extends eastward to Willow Creek and eventually on to Ohio and CSXT's lines along the eastern seaboard. Given the significant volume of traffic interchanged at this location, the CERR includes four interchange tracks, in addition to the two mainline tracks. Three of the interchange tracks measure 1.7 miles in the clear. A few trains exceed the length of the first three interchange tracks, and these trains are interchanged on the fourth interchange track, which is 2.3 miles in the clear.

viii. Holland (Waverly) Interchange

The CERR interchanges 132[20] trains (base year) with the residual CSXT through the Holland interchange. The interchange location is shown in the figure below.



The Holland interchange is used to move several coal trains carrying Eastern coal bound for the Consumers plant.[21] A few other unit trains moving coal

[20] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H54. Note that this total represents the number of interchanges. There are 103 total trains interchanged at Holland, but 29 of them are unit coal trains moving eastern coal to Consumers' facility at West Olive in turn service, so those 29 trains are interchanged twice each at Holland. 103 + 29 = 132.

[21] Consumers considered rerouting its own Eastern coal traffic via Porter or another route. However, to be conservative and to simplify the operations of the CERR, Consumers elected to handle the Eastern coal traffic along the current route of movement.

and oil to eastern destinations and general merchandise trains bound to and from Toledo and Grand Rapids are also interchanged at Holland. Given the low volume of trains moving and to and from this point, all interchanges occur on the mainline.

For the coal trains bound for the Consumers plant, Consumers' operating experts determined that the easiest way to accommodate these trains is to use helper locomotives. Specifically, the trains enter the system heading west. Thus, the lead locomotives are faced away from West Olive which is east of the Holland Interchange. Rather than run the locomotives around, which would require additional track and time, the CERR's two helper locomotives will be positioned north of the interchange. Once the train passes through the turnout, the helpers will progress to the rear end of the train and connect. At that point, the helpers will become the headend locomotives which are helped, if necessary, by the two locomotives at the rear. In the empty direction, the helpers will act as the lead locomotives until the train passes the interchange turnout. At that point, the rear locomotives will become the headend units and the helper units will disconnect from the rear of the train. As there are only 29 such trains[22] in the base year, this procedure will only be used rarely and should not disturb normal

[22] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H56.

operations of the line. Two such trains are modeled in the peak week RTC simulation.[23]

ix. Barr Yard Interchange Anomalies

The CSXT train movement data indicates that a small selection (157 trains total in the base year)[24] of certain unit trains (coal, crude oil, grain, coke and ethanol), automotive trains, intermodal, and expedited merchandise trains show the CSXT start point as the Barr Yard in the base year. However, Mr. Orrison and Mr. Holmstrom determined, based on their review of the trains and the train profile data, that these trains did not originate at Barr Yard, and that they are in fact interchanged from other carriers, but for whatever reason the CSXT train data does not properly identify the historical operations of these trains. Specifically, there are no local trains originating cars to assemble a unit coal train in the Barr Yard. The same is true of crude oil trains. Indeed, it is anathema to the very purpose of unit train service to block, classify and build such trains in the first place – especially in the busy Chicago terminal. Likewise, premium intermodal trains are not built in Barr Yard. CSXIT builds and CSXT handles such trains at 59th St. or Bedford Park and there are no existing facilities at Barr Yard to lift containers, etc. The same is true of automotive service. The merchandise trains being handled {L090 and Q090} are likely expedited refrigerated trains that are

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[23] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Peak Trains," rows 142 (Train {   }) and 297 (Train {   }.)

[24] *See* e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," cell G17.

interchanged with UP, especially as the reverse direction trains { } move back to Proviso. Similar anomalies exist for 127 westbound trains[25] where the CSXT end point is Barr Yard.

b. Track and Yard Facilities

The CERR's track and yard facilities are described in Part III-B-2, and shown schematically in Exhibits III-B-1.

The CERR's main tracks are constructed to a standard that allows for maximum train speeds of 40 mph for all trains. The maximum train speeds reflect existing restrictions in the CSXT timetables. All tracks are being constructed to a standard that permits a maximum GWR of 286,000 pounds per car.

The CERR's Blue Island and Barr Subdivision main lines between Ogden Jct./22nd St. and Curtis are equipped with CTC and main-track power switches due to its relatively heavy traffic volume and use by intermodal trains. Conversely, CTC is not needed on the remainder of the railroad between Porter and West Olive due to the light volume of traffic. Indeed, the traffic density over this segment is less than eight million gross tons per year[26] and less than two[27] trains per day traverse the segment. Thus, Consumers' operating experts determined that this territory could be operated as dark territory.

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[25] *See* e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," cell G22.

[26] *See* e-workpaper "III-C Tables 2-6.xlsx," tab "Tables," range S17:S18.

[27] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cell H59.

As explained in Part III-B-3, the Barr Yard is the CERR's only yard. The Barr Yard is used to interchange trains moving to and from the IHB connection. The Barr Yard also serves as inspection and fueling point for westbound trains. The Barr Yard also houses the CERR's locomotive shop.

c. **Trains and Equipment**

i. **Train Sizes**

The CERR operates three primary train types: (i) unit trains, including unit coal trains; (ii) intermodal trains; and (iii) merchandise trains (automotive and scheduled carload traffic.) The train sizes reflect real-world train sizes as determined from the base year train data. As each train is handled intact over the CERR, the train sizes do not vary between intermediate points on the CERR and there is no intermediate switching, blocking or classification performed on any of the trains. CERR intermodal and merchandise trains have the same mix of traffic and equipment as the comparable CSXT trains that moved between the same points in the base year. Consumers' traffic selection experts specifically excluded: (i) any trains carrying TIH/PIH commodities; (ii) any non-intermodal trains where the CERR would have to build the train; and (iii) any trains where the CERR would have to classify or block some or all of the cars on the train (except for the anomalous trains noted at Barr Yard discussed above). Consumers also excluded all traffic that originates or terminates on the lines being replicated by the CERR, except for issue and non-issue coal destined to West Olive and intermodal traffic that originates or terminates at 59th Street Intermodal terminal.

Consumers did not specifically exclude traffic that originates, terminates or moves to nearby off-SARR locations on another train not handled by the CERR. Nor did Consumers remove a train completely if it carried a shipment that originated/terminated on the facilities replicated by the CERR on another train. Consumers removed the traffic if its ultimate origin/destination was a location on the CERR, not if the CSXT waybill origin/destination was on the CERR route. Consumers did this because CSXT's waybill data appears to use Barr Yard (BIC3 milepost) as a general reference for a Chicago interchange with other carriers, even though car and train event data show the actual interchange taking place in other parts of Chicago.

The CERR's operating plan assumes that the maximum train sizes for each unique train ID (defined by a 4-digit alphanumeric CSXT train symbol) will not exceed the 2014 historical maximum train size recorded in the provided event data during the 10-year DCF period. Growth of traffic that would require a given train to exceed the maximum train size, as set by the real world trains in the base year, is accounted for using a two-step process. First, growth shipments are added to base year trains if that symbol that can accommodate additional growth.[28]

[28] For merchandise train symbols moving traffic for which net growth was projected over the ten-year forecast period, Consumers assumed that the average peak year train size would increase to the base year maximum train size, unless the base year maximum train size exceeded 1.9 miles in length, where the peak year average train size would then be capped. For unit train symbols moving traffic for which net growth was projected over the ten-year forecast period, Consumers assumed that the average peak year train size would increase by the greater of ten cars or ten percent, unless that result exceeded the base year maximum, where the

Second, "growth" trains are added in the peak year as needed to accommodate additional growth.[29] As explained below in Part III-C-G, this intermediate growth does not require a revised blocking plan or redesigning of the train consists.

ii. Locomotives

The CERR requires a total of 12 locomotives to transport its trains moving in the first year of operations, including spares.[30] The CERR operates a single type of road locomotive: ES44-AC road locomotives. The CERR has one SD40 switch locomotive that operates in the Barr Yard. This locomotive aids, as necessary, in the removal of bad order cars identified in inspections that occur in the yard. The switch locomotive also provides for the movement of cars to and from the Barr Yard car shop area. The switch locomotive is also used for work train assignments as needed.

The CERR also operates two helper locomotives on the Grand Rapids Subdivision. These locomotives aid in the movement of the Consumers' coal trains up the grade at Saugatuck Hill. Helper service is required from MP CG

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peak year average would then be capped. *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Stats," column BO, where the procedures were implemented.

[29] Consumers added sufficient trains of its calculated average peak year train size to accommodate all projected traffic increases that could not be accommodated by trains of that symbol with excess capacity in the base year. *See* workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Stats," columns BO, BR, and BU where the procedures were implemented.

[30] *See* e-workpaper "CERR Operating Statistics Open.xlsx," tab "Summary," cell K41.

37.4 to CG 37.3. If convenient to the helper crews, the helper locomotives can continue on to the Consumers plant. However, after the helper service is no longer needed, the locomotives would be isolated and idling. The helper locomotives are provided by {

} Consumers Witnesses Orrison and Holmstrom personally observed BNSF-delivered helper locomotives at West Olive.

All of the CERR's interline trains move in run-through service. This means that the locomotives generally are not removed from a train by either railroad at the interchange point, but stay with the train. Run-through power is used routinely by all Class I railroads (including CSXT) for interline unit and other trainload movements. Run-through power is a regular feature of SAC cases. *See, e.g.*, *Xcel I* at 24.

Under the run-through concept, the number of locomotives that each railroad provides for a particular joint movement is allocated on the basis of the

[31] *See* e-workpaper "Consumers Trains Agreement.pdf."

amount of time the locomotives spend on each railroad as a percentage of total movement time, adjusted for any differences in locomotive horsepower (*i.e.*, horsepower hours). Each railroad provides the required number of locomotives, which are put into a pool for the specific movements in question. The CERR's road locomotive requirements take into account the need to equalize the locomotive power used in run-through service for interline trains, and an appropriate spare margin and peaking factor were applied as described below.

As modeled in the RTC simulation, all CERR trains have two locomotives. If trains received by the CERR in interchange have additional locomotives, the configuration is not changed when the trains enter the CERR system. To the extent such trains contain more than two locomotives, the horsepower equivalent in ES44-AC locomotives is assumed since CSXT's train movement records do not show the locomotive types that were actually on the Base Year trains. However, all locomotives over and above two are isolated with throttles in the idle position while on the CERR since no more than two locomotives are needed to move most of the CERR's trains.

The count of road locomotives for the peak year includes a spare margin and a peaking factor, consistent with prior STB decisions (*e.g.*, *Sunbelt* at 35). The spare margin and peaking factor for the ES44-AC locomotives were calculated as described below.

iii. Spare Margin

The locomotive hours spent on the CERR, { } were developed from the analysis of the CERR's operations using the RTC Model, as described in Part III-C-2-e below. The total number of locomotives required includes a spare margin of { } percent. This spare margin is based on information provided by CSXT in response to Consumers' discovery requests.[32] This spreadsheet { } Using this information, a locomotive spare margin was developed and applied separately for coal and other unit trains, merchandise, and intermodal trains. The calculation of the locomotive spare margin is shown in e-workpaper "Locomotive Utilization_Open.xlsx."

iv. Peaking Factor

Consumers' experts determined the CERR's peak locomotive requirements by applying the methodology approved by the Board in *Xcel II* and confirmed in *AEPCO 2011* at 32-33. In *Xcel II*, at 13, the Board indicated that the peaking factor is to be determined by dividing the average number of train starts per day in the peak week by the average number of train starts per day in the peak year. Applying this procedure, the CERR locomotive peaking factor equals 14.3 percent.[33]

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[32] *See* e-workpapers "Locomotive Utilization_Open.xlsx."

[33] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Stats," cell BW2.

d. Railcars

Car ownership for the CERR's traffic group was determined from the shipment data produced by CSXT in discovery. This data shows that most of the CERR's coal, other unit trains, and merchandise traffic moves in shipper-provided equipment and that over 70 percent of its intermodal traffic moves in shipper-provided containers and trailers. Table III-C-7 below summarizes the ownership of railcars and intermodal units for each traffic type.[34]

TABLE III-C-7
PERCENTAGE OF CAR OWNERSHIP BY TRAFFIC TYPE

Traffic Type	System	Foreign	Private
Coal	0.12%	0.43%	99.45%
Merchandise	7.71%	8.66%	83.63%
Containers & Trailers	20.17%	0.00%	79.83%
Intermodal Flats	29.11%	0.00%	70.89%
Multi-level Flats (Auto)	0.13%	11.08%	88.79%

The CERR system car requirements for all of the movements in its traffic group were developed from the base year traffic and the simulated transit-time output from the RTC Model. The resulting CERR car requirements were increased by a 5.0 percent spare margin[35] and the same peaking factor used for

[34] *See* e-workpaper "CERR Car Costs_Open.xlsx."

[35] The 5.0 percent spare margin is the same margin used by both parties (and accepted by the Board) in *AEPCO 2011*, which was based on a review of transportation contracts provided by UP and BNSF in discovery in that proceeding. *See* Opening Evidence of Complainant AEPCO, Narrative (Public Version) at III-C-15, *AEPCO 2011* (filed Jan. 25, 2010); Rebuttal Evidence of Complainant AEPCO, Narrative (Public Version) at III-C-16, *AEPCO 2011* (filed July 1, 2010). In addition, the 5.0 spare margin for shipper-provided cars was accepted by the Board in *WFA I* at 39 and *Otter Tail* at C-5, and was also based on

locomotives. A complete description of the development of car ownership costs for system, foreign and private cars is set forth in Part III-D-2 below.

2. <u>Service Efficiency and Capacity</u>

The CERR is designed to meet the transportation needs of the traffic that it is handling. *Sunbelt* at 12. Specifically, the CERR provides unit train, intermodal, and merchandise service using the same train configurations and routes that the CSXT uses in the real world. As the Board stated in *Sunbelt* at 12:

> [A SARR's] operating plan must be able to meet the transportation needs of the traffic to be served, [but] it need not match the existing practices of the defendant railroad, as the objective of the SAC test is to determine what it would cost to provide the service with optimal efficiency. The assumptions used in the SAC analysis, including the operating plan, nonetheless must be realistic, *i.e.*, consistent with the underlying realities of real-world transportation.

As described herein, the CERR's operating plan reflects real-world conditions in the territory that the CERR traverses, including Chicago. The CERR handles most of the trains it carriers in the exact same fashion as the real-world CSXT. However, the CERR has some modifications in track facilities and handling that address the specific issues of interchanging certain traffic with the residual CSXT as well as the fact that the CERR handles only about 54% of the

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the transportation contracts produced in discovery in those proceedings. This figure compares favorably with the 4.5 spare margin accepted by the Board in *Sunbelt* at 39.

line-haul trains that CSXT operates in this territory.[36] Despite these differences, the CERR still meets the needs of the traffic being served.

In recent SAC cases, complainants have compared average transit times of the SARR, as determined using the results of the peak period modeling performed with the RTC model, with the average transit time for the incumbent railroad to demonstrate that the SARR meets the needs of its shippers. Consumers has provided such evidence in this case as well, as described below.

Consumers' expert operating witnesses also used the RTC modeling process to validate the sufficiency of the CERR's infrastructure, including its interchange and yard inspection tracks. Specifically, the CERR's RTC modeling includes all necessary facilities at new and existing interchanges. In addition, the CERR's Barr Yard is used for 1,000 and 1,500 mile inspections. In order to determine if the number of inspection tracks are sufficient, all trains receiving such inspections dwell on the CERR's inspection track as necessary. The procedures used are described below.

a. Procedure Used to Determine the <u>CERR's Configuration and Capacity</u>

In order to develop the configuration of the CERR, Mr. Orrison and Mr. Holmstrom began by considering the infrastructure necessary to serve the

[36] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Stats," cell BW2. In addition, the CERR does not operate, nor does it need to operate, the thousands of yard trains CSXT operates in the Chicago vicinity, nor does it operate most of the local trains operating out of Grand Rapids (with the exception of 6 local trains per year serving Consumers' facility at West Olive).

issue traffic, including the dual routes through Chicago used by the issue traffic, as well as the trackage rights segments over the NS that the issue traffic also uses. From there, they reviewed the base year traffic flows over the CERR and then considered and analyzed the CERR's peak-year traffic volume and especially the peak week train count that occur during the 10-year DCF period. This study resulted in a basic configuration of the CERR that was then tested in the RTC Model.

The base year train lists were developed by Consumers' witness Mr. Mulholland from CSXT train and car event data, along with waybill data produced in discovery for the traffic included in the CERR's traffic group for the base year. In developing the peak train lists, Mr. Mulholland used the traffic forecast developed by witness Michael L. Lillis described in Part III-A-2 and the peak-year train development procedures described in part III-C-1-c-i. above.

The CERR's system (track configuration and other facilities including yards), and its operating plan, were developed by Consumers' Witnesses Mr. Orrison and Mr. Holmstrom to accommodate the CERR's seven-day peak traffic volume and train frequencies. Mr. Orrison and Mr. Holmstrom are, as explained above, very familiar with the rail lines being replicated by the CERR. However, in order to confirm and refresh their recollections of the specific lines being replicated, Mr. Orrison and Mr. Holmstrom conducted a two-day field trip in which they inspected the lines and facilities, including the operations at the Consumers plant and all of the operations on the CSXT lines that CERR will replicate. In addition, Mr. Orrison and Mr. Holmstrom reviewed the CSXT operating timetables and track charts for the lines being replicated,[37] as well as maps of various facilities, and CSXT's interrogatory responses describing the operation of the Consumers coal trains.

Mr. Orrison and Mr. Holmstrom then developed a preliminary track configuration for the CERR based on traffic flows, the CERR's operating plan, and the interchange facilities required. Mr. Orrison and Holmstrom followed the path of the existing CSXT lines being replicated, but the configuration differs owing primarily to the differences in traffic volumes that the CERR handles versus the real world CSXT operations.

The essential elements of the operating plan (described below), the main-track configuration, and the yard/interchange locations, as developed by Mr. Orrison and Mr. Holmstrom, were provided to Consumers Witnesses John McLaughlin and Walter Schuchmann for input into the RTC Model. Mr. McLaughlin and Mr. Schuchmann also inputted various physical characteristics for the lines in issue, which were obtained from CSXT track charts, operating timetables and other information produced by CSXT in discovery. These included train speed restrictions at various locations along with curve and grade (topography) data. The final steps were to populate the RTC Model with the

[37] The operating timetables and track charts for all of the lines being replicated as the well at the BRC line and the NS trackage rights segment are provided in Part III-B e-workpaper folder "III-B-1\Track Miles." However, the BRC and NS data was not specifically used in the RTC Modeling.

CERR's trains during the simulation period, which includes the peak volume week in the CERR's 10-year DCF existence. Consumers also included delays associated with foreign railroads (*i.e.*, crossing diamond delays) and input random outage events.

b. Developing Base Year and Peak Week Train Data

Before developing the peak week train data, it is necessary to develop base year traffic and train data. Unfortunately, this process continues to require significant data evaluation, analysis, and adjustment owing to the state of CSXT's traffic, train movement and car movement data. The issues that Consumers encountered in this process, and the methods used to resolve contradictory, anomalous, or missing data are discussed below.

i. Consumers' Reasonable Use of CSXT Provided Traffic Data to Develop Train Lists and Operating Evidence

Consumers developed its list of CERR trains from CSXT's traffic data (waybill, shipment, car event, and train event data collectively) and other materials provided in discovery. Consumers has included a step-by-step technical outline of its procedures in its III-C-1 workpapers.[38] Consumers' process was informed in part by information provided to it by CSXT in a July 1, 2015

[38] *See* e-workpaper "Consumers Train List Development - Technical Document.docx."

discovery letter from CSXT's counsel to Consumers' counsel.[39] That July 1 letter includes several caveats regarding the historical traffic data CSXT provided in this case. Specifically, CSXT identified several important areas where specific deficiencies exist within its provided databases, including certain situations in which its provided data sets contain conflicting information, and areas where one set of data generally contains more reliable information than others:

- "in some cases the routes identified in the car event data do not perfectly correspond to the actual path of the traffic."
- "car event data… must make routing assumptions where multiple routes exist between routing locations."
- "car event data… shows all of Consumers' cars using either the Barr Yard Route or another route on the Elsdon Subdivision, when in reality many Consumers trains travel on the Belt Route (and none travel on the Elsdon Subdivision.)"
- "reliable information about the routing of [] trains [] is available in the train sheet data." [pp. 2-3.]

Consumers has accepted CSXT's qualifying statements at face value and constructed train lists accordingly. While CSXT did provide some useful information regarding the overall strengths, weaknesses, and limitations of its provided databases in its July 1 letter, CSXT often provided very limited information regarding other data collection issues inherent in its various data sets. To the extent those issues caused difficulties in Consumers' process, they are discussed below.

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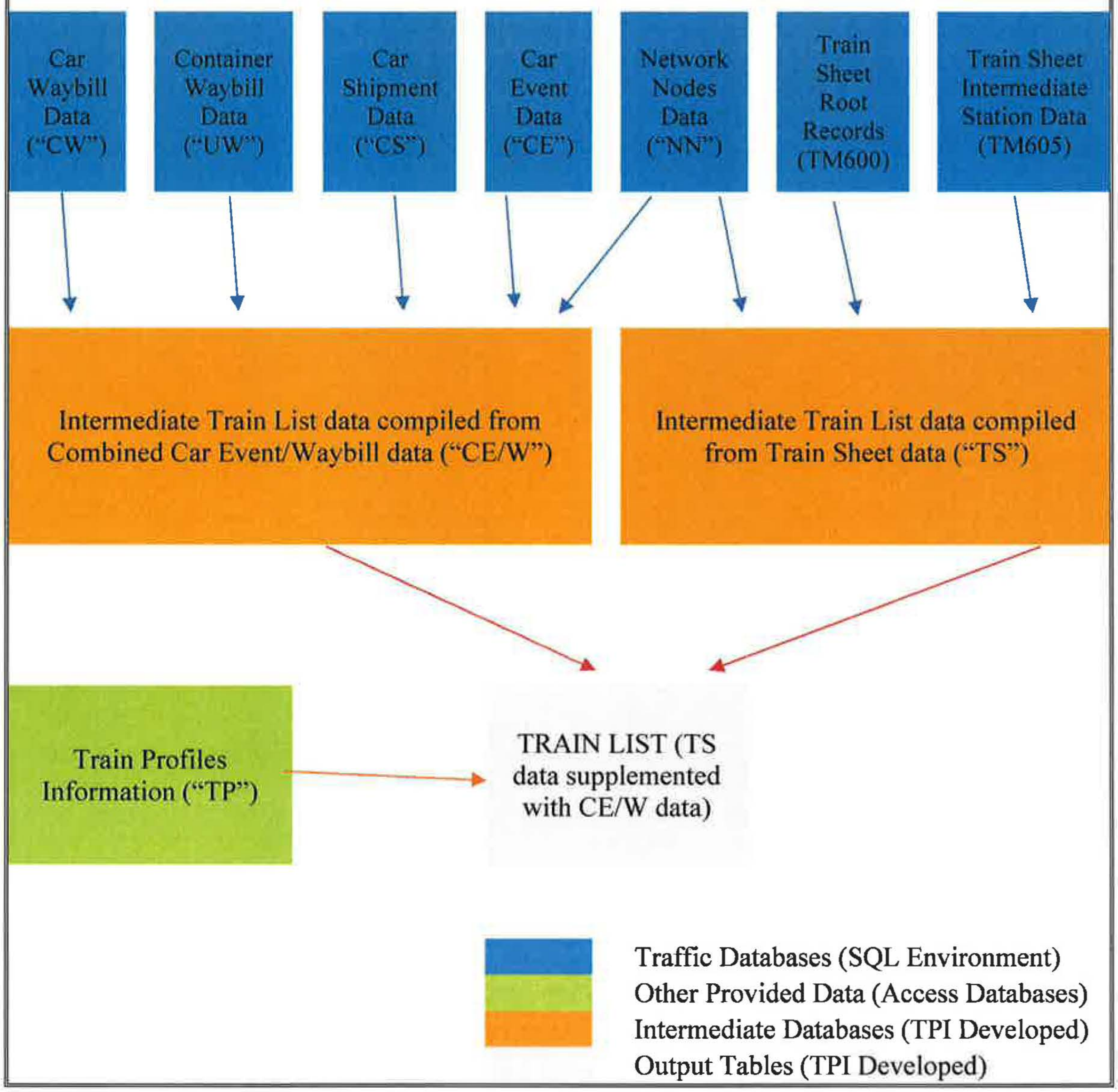
[39] A copy of the letter is included as e-workpaper "CSXT 7-1-2015 Discovery Production Cover Letter.pdf."

Consumers principally relied on the following seven (7) CSXT databases to develop its train lists: (1) Car Waybill data; (2) Container Waybill data; (3) Car Shipment data; (4) Car Event data; (5) Network Nodes data; (6) Train Sheet Root Records data; and (7) Train Sheet Intermediate Station data. Consumers also relied on the Train Profile Information[40] provided by CSXT to evaluate and validate its results.

Figure III-C-1 below shows a high-level overview of the databases and general processes Consumers used to develop its train lists.

[40] Consumers used the Train Profile Information data to evaluate its results, but during this evaluation it became clear that the Train Profile Information database provided by CSXT is incomplete. The provided Train Profile data does not include profile information for all of the trains moving over the CSXT system in the study period. Review of the Train Profiles data also revealed that – at least for the Chicago terminal area – it is common for trains to follow routes that differ from the planned route included in the Profiles data.

FIGURE III-C-1
CONSUMERS TRAIN LIST DEVELOPMENT PROCESS



The procedures Consumers used to analyze and develop train lists from the various CSXT databases are described below under the following topical headings:

1. Train List Overview
2. Analysis of Combined Waybill, Car Shipment and Car Event Data
3. Analysis of Train Sheet Data
4. Compiled Train List
5. Final Adjustments
6. Trains Carrying Consumers' Issue Traffic

(a) **Train List Overview**

The CERR base year train list includes 10,278 road trains[41] and six (6) local trains serving Consumers' facility at West Olive, for a total of 10,284 base year trains. The data provided by CSXT made it necessary for Consumers to use a two-pronged approach to develop and compile complete train lists that capture the full route and consist information for each train moving CERR traffic.

Consistent with CSXT's disclosures that (1) "routes identified in the car event data do not perfectly correspond to the actual path of traffic," (2) car event data "necessarily must make routing assumptions where multiple routes exist between reporting locations," and (3) "reliable information" about train routing "is available in the train sheet data,"[42] the primary source for the routing data for CERR unit and line-haul merchandise trains was the Train Sheet data. Consist data for CERR trains was developed from a combination of train sheet data, car event data, and waybill data.

As shown in Figure III-C-1 above, Consumers separately analyzed the two groups of databases: (1) Train Sheet data, and (2) Car Event/Waybill data,

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[41] Unit, intermodal, automotive, and carload merchandise trains.

[42] *See* e-workpaper "CSXT 7-1-2015 Discovery Production Cover Letter.pdf," at 2-3.

to develop preliminary train list inputs from each data set, and then compiled them into a master train list. For unit and line-haul merchandise trains, Consumers included trains in its master train list even when the train was only shown to move over the SARR system in the train event data. This ensured that the CERR provided complete round-trip service for unit and merchandise traffic because the CSXT car event data sometimes contains erroneous data for empty movements and sometimes is devoid of empty movement data for some shipments and segments. Trains that were only shown to move over the SARR system in the car event data were excluded from the CERR train list consistent with CSXT's disclosure that car event routing data is unreliable. Traffic was only included in the CERR traffic base it if could be identified as having moved on a train that was included in the final group of 10,284 base year trains. As such, Consumers has ensured that the CERR provides train operations for all shipments included in its traffic group.

(b) Analysis of Combined Waybill, Car Shipment and Car Event Data

Consumers first compiled CSXT car event and waybill data into a database containing a data record for each train on which each individual CSXT carload moved (The "SarrAllShTrn" database). Specifically, Consumers processed all of the car events for every loaded and empty shipment (defined by shipment key[43]) that was included in CSXT's event data to identify: (1) all unique trains upon which each individual car moved, and (2) the specific locations where each car was placed on[44] and removed from[45] each of the trains on which it moved from CSXT origin to CSXT destination.[46] To the extent that Consumers encountered data deficiencies that required complex programming solutions to overcome in developing the "SarrAllShTrn" database, relevant examples are discussed below.[47]

Identifying each train on which each carload moved between origin and destination was not always straightforward. Unique trains can be identified by combining two data fields in the CSXT traffic database: TRAIN_ID and TRAIN_SUFFIX. TRAIN_ID is a 4-digit alphanumeric code that identifies a train that operates in a particular service. For example, TRAIN_IDs "N903" and "N910" are the two TRAIN_IDs for trains moving Wyoming coal from the BNSF interchange location in the Chicago area to Consumers' facility at West Olive. TRAIN_SUFFIX is an 8-digit numeric date field (*e.g.*, 20140601 indicates the train operated on June 1, 2014). When combined, they identify a unique train.

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[43] Each railcar moving over the CSXT system has a shipment key or series of shipment keys associated with it as it moves.

[44] First Node.

[45] Last Node.

[46] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at I.C.

[47] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" for a complete documentation of Consumers' programming.

For example, N903 20140601 would be a June 1, 2014 unit coal train moving Wyoming coal from Chicago to Consumers' plant.

CSXT's traffic and revenue database field definition file contains a cryptic description of the data contained in the TRAIN_SUFFIX field of its Car Event database. It reads: "Train Suffix: the calendar date of the train operation in 'YYYYMMDD' format, but not necessarily the date on which the train first moved."[48] For some trains of certain train types – most notably line-haul merchandise trains – the TRAIN_SUFFIX changes en route, despite the fact that the actual train on which the cars are moving does not change. Therefore, cars that are first placed on a train at its origin and run over the entire route to the train destination, often would have the TRAIN_SUFFIX change en route when the calendar date turns over. When this happens, the car event data indicates that the train arrived at its destination with a different suffix than the suffix the train was assigned when it left its origin. The cars will actually have been on the same train from origin to destination, but the car event data would appear to indicate that they moved on two separate trains. To accommodate this data nuance, Consumers associated all car event data records for a given SHIPMENT_KEY&TRAIN_ID

[48] *See* e-workpaper "Consumers Database Fields.xlsx," tab "Car_Events," cell B6.

combination with the first TRAIN_SUFFIX date included in the car event data for that shipment.[49]

The process of identifying the locations where each carload was placed on and removed from each of the unique trains on which it moved was also complicated by data issues. For some shipments, the first few events (and occasionally the last few events, or even events in the middle of a movement) in the provided Car Event database contains invalid data in the TRAIN_ID and/or TRAIN_SUFFIX data fields.[50] These are the two data fields that identify the specific train on which a car is moving at a given point in time along its route. Consumers addressed this issue through the application of logic loops that utilized the data contained in subsequent event records where the required data fields for car events were not reported.[51]

Even where car event data provided valid train information for all locations along a shipment's route, the data did not always reflect actual operations. As CSXT indicated in its July 1 letter:

> Car event data do not detail originating or terminating patrons, connecting carrier information, or specific customer services required.
>
> ***

[49] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at I.F.

[50] *See*, *e.g.*, e-workpaper "Data Issue - Waybills missing Car Events.xlsx," tab "Car Events," cells F58:G59.

[51] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at I.C.

[Car Event] data can be linked to the waybill and car shipment data.

See e-workpaper "CSXT 7-1-2015 Discovery Production Cover Letter.pdf," p. 2.

After Consumers compiled the initial "SarrAllShTrn" database identifying the locations where each individual CSXT carload was placed on or removed from each of the trains on which it moved according to the car event data, Consumers identified the first train and the last train upon which each carload (defined by shipment key) traveled between its CSXT origin and its CSXT destination. Consumers associated[52] the CSXT origin location milepost,[53] connecting carrier,[54] origin customer identification,[55] and origin line segment code[56] from the Waybill data with the first train upon which the car moved according to the Car Event data. Next, Consumers associated[57] the CSXT destination location milepost,[58] connecting carrier,[59] destination customer

[52] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at I.D.

[53] ON_NET_ORIG_MP.

[54] ON_JCT_ROAD_CITY.

[55] ORIGIN_IIDS.

[56] ORIGIN_LSC.

[57] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at I.E.

[58] ON_NET_DEST_MP.

[59] OFF_JCT_ROAD_CITY.

identification,[60] and destination line segment code[61] from the Waybill data with the last train upon which the car moved according to the car event data.

In most cases where the waybill origin/destination and car event origin/destination do not precisely match, the two locations are in the same proximity and the waybill data provides more granular and accurate location information. However, in many cases (particularly for empty shipments), car event data for individual shipments is completely missing for large portions of the carload movements. This is consistent with the following statement from CSXT:

Car event data contain information on empty carloads, but this data frequently changes because of updated orders. *See* e-workpaper "CSXT 7-1-2015 Discovery Production Cover Letter.pdf," p. 2.

As a result, the waybill origin/destination information and car event origin/destination information for these shipments are sometimes off by many states and hundreds or even thousands of miles.[62] Although the intermediate output for the affected empty carloads appears nonsensical in some cases, Consumers' use of the train event data to determine train routes keeps the missing

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[60] DESTINATION_IIDS.

[61] DESTINATION_LSC.

[62] *See* e-workpaper "Data Issue - Waybills missing Car Events.xlsx" contains examples of this type of data problem. For example, at tab "Car Waybills" line 18 one can see shipment key { } associated with an empty car that moved from Bainbridge, IN to Wilmington, NC. However, at tab "Car Events" line 58, it is evident that the first reported station for that shipment key was at transportation milepost "CG 25," which is Holland, MI. This carload was not required to serve the CERR traffic group, but it exemplifies the type of data anomaly Consumers encountered.

event data from improperly diverting a train as a result of the gaps in the car event data.

After the "SarrAllShTrn" table was developed and vetted, Consumers compiled the car-specific train segments included in the "SarrAllShTrn" table into the "SarrAllConsist" table. The "SarrAllConsist" table contains a compilation of the shipment-specific "SarrAllShTrn" records into blocks of cars moving together on specific trains. For example, if the "SarrAllShTrn" table included records for 30 individual loaded cars and 20 individual empty cars that each moved from Chicago Clearing Yard to Toledo, Ohio on a given train at a given time, the "SarrAllConsist" database would contain one record showing those 50 cars moving together as a block on that train. For most non-unit trains, this resulted in the identification of several individual blocks of cars moving from point to point along the train route. A given merchandise train may contain several data records in the "SarrAllConsist" database, one for each block of cars moving on that train.

(c) Analysis of Train Sheet Data

Consumers developed routing data for all trains for the 2014 time period based on a combination of: (1) CSXT provided "Train Sheet Root Records" (TM600) data, which contain overview data for the segments that make up a train's full route, including train size, weight, and car count data; and (2) CSXT provided "Train Sheet Intermediate Station" (TM605) data (a/k/a "Train Event" data), which contain routing and mileage detail for intermediate stations along the segments that make up the train route. For a given train, CSXT provided from one to over a dozen TM600 data records, and for each TM600 data record, there may be several dozen TM605 records. Therefore, for most trains, hundreds of individual routing detail records were linked, aligned, analyzed, and verified to compile detailed train routing and SARR mileage data. The resulting database is called the "TrainsAllEvents" table.

Specifically, Consumers identified the TM605 Train Sheet Intermediate Station data records associated with each of the TM600 Train Sheet Root Records, aligned them, and sorted them by event order and time.[63] Next, Consumers manually analyzed the provided Network Nodes data table[64] to identify the station mileposts that are situated on the CERR network. Consumers compared the universe of mileposts included in the TM605 data, and determined that there were mileposts in that table that were not included or identified in the provided Network Nodes data. Consumers manually evaluated the mileposts, and expanded the provided Network Nodes data table to include all of the relevant mileposts included in the TM605 data with appropriate On-SARR flags.[65]

After the TM605 milepost data could be accurately categorized as On-SARR or Off-SARR, the On-SARR and Off-SARR locations for each CSXT

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[63] *See* e-workpaper "Consumers Train List Development - Technical Document.docx," at II.A.

[64] *See* e-workpaper "Consumers Route File_with Flagged Links 08152015.xlsx," tab "Nodes" (all stations).

[65] *See* e-workpaper "Consumers Route File_with Flagged Links 08152015.xlsx," tab "CERR Route" (subset including CERR stations only).

train were identified based on the sequenced events in the "TrainsAllEvents" table, and the miles were summed for all stations flagged as On-SARR.[66] Consumers then evaluated the updated "TrainsAllEvents" table for each CSXT train in the train event database and categorized the CSXT trains into three groups; trains traversing the CERR network,[67] trains touching but not traversing the CERR network,[68] and trains not touching the CERR network.[69]

The train miles developed using this process were found to be deficient for several reasons. First, train event data for non-CSXT (*i.e.*, trackage rights) segments were not included in the provided data. This caused underreporting of miles for all trains traversing trackage rights segments. Second, there were certain portions of track for which the train event data rarely or never included valid timestamps data.[70] This caused some events to be placed out of order in the compiled "TrainsAllEvents" table. In addition, the individual train sheet root records for certain segments of certain trains contained erroneous timestamps data. This caused entire segments of certain trains to be placed out of

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[66] *See* e-workpaper "Consumers Train List Development - Technical Document.docx," at II.C-D.

[67] *See* e-workpaper database "SarrBaseTrainsTriSum."

[68] *See* e-workpaper database "SarrBaseTrainsTriSumONE."

[69] *See* e-workpaper database "SarrBaseTrainsTriSumOFF."

[70] *See, e.g.*, e-workpaper "Data Issue - TrainsAllEvents For Specific Trains V15 20150831 PROVISO-DOLTON.xlsx," tab "TrainsAllEvents, columns G and I. As shown, all events at locations { } have null timestamp data (denoted by orange highlighting).

order.[71] Consumers accounted for this by manually reviewing individual trains with output data that appeared to contradict train profiles routing information and/or routing information for other trains sharing the Train ID of the train in question. Consumers manually corrected the erroneous routing information resulting from bad or missing timestamps data, and ultimately developed train mile data based on CSXT engineering mileposts, timetables, and track chart data.[72]

(d) Compiled Train List

Consumers used both its "TrainsAllEvents" compiled train movement database and its "SarrAllConsist" compiled car event/waybill database to develop train consist data for all trains it evaluated. The train sheet records

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[71] For instance, Train { } is a westbound priority merchandise train operated in conjunction with Union Pacific and interchanged at Proviso, IL. There were 33 unique editions of train profile { } that operated on CSXT during the base period. One instance of { } indicated that the end point for that train on the CSXT system was at Willard West, OH. Consumers investigated this instance of { } by querying the "TrainsAllEvents" database to list any train events attributable to train { }. Willard West, OH was listed as the final terminal because of the incorrect sequence of Train Sheets associated with this edition of { } as reported in the provided data. There were 170 train event records for this train, but 20 of them were listed out of logical sequence because a Train Sheet record had a bad timestamp. The resulting sequence of train data suggests that the train "jumped" to Willard West, OH from East Collinwood, OH along its route of movement. However, the 20 train events associated with that missing segment are listed out of sequence and included *at the end* of the 170 events for the train according to the timestamp data in the provided database. Manual evaluation of the train event data was required to discern the train's actual route. *See* e-workpaper "Data Issue 01 – Train Sheet Sequence.xlsx," tab "Item6," cells T152:U171 and T87:U88. These last 20 records should have been placed between rows 87 and 88. If that sequence was followed, the mileposts in column T would progress from { }.

[72] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," column E.

show the departing consist from the first station associated with each train sheet (*i.e.*, train segment). However, cars set out and picked up at intermediate locations along this train's route are not reported in the train sheet records. To account for this deficiency in the Train Sheet data, Consumers linked the TrainsAllEvents table to the SarrAllConsist table using the TRAIN_ID and TRAIN_SUFFIX data fields. Using the link it developed,[73] Consumers was able to pull location-specific en route pickup and setout (consist change) information developed from the Car Event and Waybill data into the TrainsAllEvents train routing database it created.[74]

Consumers also used the SarrAllConsist data table to validate and supplement the terminal and intermediate switching activities that were present in the Train Sheet Root Records data. For example, the Train Sheet Root Records data may have indicated that a train left 59th Street intermodal yard with 40 loaded cars. However, the SarrAllConsist data may have indicated that train left the yard with 42 loaded cars. To be conservative, Consumers accepted and used the greater of the two car counts in all cases where there was a conflict between the data sets. After individual stations' car counts were developed, the running train consist was

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[73] Consumers was required to develop this link using portions of several provided data fields because CSXT did not provide fields that could be used to directly link Car Event data with Train Sheet data.

[74] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at II.B.3-6.

developed by ticking down through the sequential train events and making consist changes at all stations where one was reported in the combined data sets.[75]

After the routing, blocking, pickups, setouts, and switching activities were developed for all trains based on a combination of Train Sheet, Car Event, and Waybill data, the SARR operations were evaluated to identify the trains that would be handled by the CERR. This was done in two phases. In order to qualify as a potential CERR train, the train was required to have reported two or more consecutive On-SARR stations. There were 39,680 trains that met this requirement in 2014.[76] After this initial screen was applied, Consumers removed 14,229 foreign trains, passenger trains, yard trains, and light engine moves.[77] Consumers then separated 736 local trains[78] from the remaining 25,451 trains, leaving 24,715 line-haul road trains.[79] Next, Consumers reviewed the routing data for the 24,715 potentially available line-haul road trains and divided them into three groups:

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[75] *See* e-workpaper "Consumers Train List Development - Technical Document.docx" at II.B.6.

[76] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab"aSARR_BASE_TRAINS_TRI_SUM_2014," cell AM39684.

[77] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," cell AM39690. These trains are also included in tab "Removed for Type" of the same e-workpaper.

[78] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," cell AM39689. These trains are also included at tab "Locals" of the same e-workpaper.

[79] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," cell AM39687.

- 18,712 trains were initially included because their operations were supportable based on the preliminary CERR operating plan. For example, this group includes trains moving Consumers' issue traffic, and other trains that are interchange received from BNSF and UP at 71st Street and move to Curtis and beyond.[80]

- 5,113 trains were excluded because their operations were inconsistent with the preliminary CERR operating plan. For example, this group includes trains that originate in CSXT's Barr Yard and move over CSXT for a very short distance before turning south at Dolton and moving over UP via trackage rights to points beyond Woodland Jct.[81]

- 890 trains were determined to require train-by-train evaluation because the collapsed routing data was not definitive enough to discern specific routing of individual trains. For example, this group includes trains that originate in BRC's Clearing Yard and move over either the BRC/NS trackage rights segments to Pine Jct./Curtis, or move over BRC/UP trackage rights to Dolton and then over CSXT track to Curtis, where they exit the CERR footprint.[82]

After this preliminary determination was made, Consumers conducted the train-by-train evaluations it determined were required in the prior step and determined that 637 of the 890 should be excluded[83] and 253 should be retained.[84] This resulted in a total of 5,750 trains excluded[85] in the Phase one analysis. The remaining 18,965 trains[86] moved on to phase two.

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[80] *See* e-workpaper "SARR Road train Route Evaluation.xlsx," tab "SarrRoute Evaluation," cell AN2.

[81] *See* e-workpaper "SARR Road train Route Evaluation.xlsx," tab "SarrRoute Evaluation," cell AN5.

[82] *See* e-workpaper "SARR Road train Route Evaluation.xlsx," tab "SarrRoute Evaluation," cell AN3.

[83] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," cell AO39686.

[84] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," at cell AO39684.

In phase two, Consumers evaluated the operations of the 18,965 line-haul road trains potentially available for inclusion. After review of the real-world consists and operations of the trains, Consumers elected to remove three additional groups of trains:

- 6,491 trains moving high-priority intermodal traffic in overhead service over the CERR network (primarily from Bedford Park) and that would require two hypothetical interchanges between CSXT and CERR that do not occur in the real world were excluded.[87] Although the CERR could include this traffic if it met the contractual service standards of the shipments moving on these trains, Consumers conservatively elected to remove it.[88]

- 2,123 carload merchandise trains that originate or terminate at CSXT's Barr Yard were excluded as being inconsistent with the CERR's operating plan, especially as many of these movements would move only a few miles.[89]

- 73 additional trains carrying { } were also excluded.[90]

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[85] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," at cell AN39686.

[86] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "aSARR_BASE_TRAINS_TRI_SUM_2014," at cell AN39684.

[87] Trains moving between Curtis and Calumet Park/Dolton/IHB Blue Island Connection.

[88] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Discretionary Removals," cell CY8694.

[89] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Discretionary Removals," cell CXY8694.

[90] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Discretionary Removals," cell CZ8696.

After the discretionary removal of these 8,687 trains,[91] the CERR line-haul road train list was finalized at 10,278 trains.[92]

In addition, Consumers evaluated the SarrAllConsist data for local trains to determine whether any local trains delivered coal from eastern mines to the Consumers facility at West Olive in the base year. Based on this review, Consumers determined that six (6) local trains operating out of Grand Rapids, MI provided trainload coal deliveries to the facility in the base year. These six local trains were added to the list.[93]

(e) **Final Adjustments**

(i) **On-SARR and Off-SARR Junctions**

A critical element of train list development was the manual adjustment to inconsistencies in geographic data found in CSXT traffic records.[94] Consumers examined patterns in the myriad of reported train origin, destination, On-SARR and Off-SARR junction combinations from the event data to determine plausible routing for specific trains. In addition, reporting locations proximate to

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[91] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Discretionary Removals," cell DA8696.

[92] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr UnitMerch Trains," cell CD1.

[93] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Locals," cell AP739; and "Local Shipments at West Olive by Train.xlsx."

[94] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Trn Miles," cells B34-D48.

CERR On/Off junctions were normalized to reflect the proximate On/Off transfer point. For example, CHATHAM CP is often reported as the final On-SARR location for trains actually leaving the SARR at the Blue Island IHB Connection.

In addition, for trains moving to BNSF's Cicero and Corwith Yards and to UP's Proviso Yard, Global One, Global Two, and CP's Bensenville Yard, the train event data reporting ends at the end of the CSXT-owned track. However, as CSXT crews operate the trains over the portions of those foreign road systems to these foreign yards, CERR will perform the same operations. Similarly, CERR crews will operate trains to and from the IHB's Blue Island yard over the IHB line between Blue Island Yard and Calumet Park. For purposes of developing operating statistics, the operating miles associated with the affected trains were adjusted upward to reflect the operations over the foreign road segments.[95] This means that in some cases, the actual interchange locations are not at the geographical end of the CERR-constructed track, but rather are in a BNSF, UP, IHB yard.

(ii) <u>Consist Data</u>

The consist data collected from the combined train and car events was often accurate, but there were exceptions. Consumers developed a series of

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[95] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Normalize On Off," columns B through J represent 1,350 unique combinations of the following fields: TRAIN_PROFILE_ID, OnSARRCity, OnSARRState, OffSARRCity, OffSARRState, OriginStationCity, OriginStationState, DestStationCity, and DestStationState.

tests to evaluate the reliability of the consist data and made adjustments in the few instances where they were required.[96] For example, if a unit coal train was reported to be carrying 120 loaded cars and 120 empty cars per the event data, Consumers adjusted the consist to reflect only 120 cars (loaded or empty depending on the direction of movement).

(iii) Loading and Unloading (Consumers Eastern Coal Trains)

For many unit trains and local trains serving coal mines and coal-fired power stations, the trains are tracked for a full cycle in the CSXT Train Sheet data. This means the loading and unloading activities occur in the middle of a given train sheet segment, and must be captured as consist changes rather than train origin and destination events. This specifically affects the trains moving coal from eastern mines to Consumers' facility at West Olive. Review of the data for the 23 unit trains and 6 local coal trains providing this service to Consumers in the base year revealed that the train event data did a poor job of capturing train activities over the short segment of track between Holland and West Olive. Several of the stations on this short segment consistently had null values in the timestamps field,[97] and were therefore difficult to correctly sequence to evaluate the trains. In addition, the route data captured in the train event database

[96] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr UnitMerch Trains," columns BA-CB.

[97] *See, e.g.*, "Data Issue - TrainsAllEvents For Specific Train V12 20150829_Consumers E Coal.xlsx," tab "TrainsAllEvents," cells G273:G292.

frequently conflicted with the route shown in the corresponding train profiles data, and the consist data reported in the train event data conflicted with actual operations (*e.g.*, some coal trains appeared to originate at Consumers' facility with loaded cars, while others appeared to deliver empty cars to the plant based on the train sheets).[98] Consumers reviewed the relevant car event data for the trains in question.[99] Based on this review and Consumers' first-hand knowledge of the operations at its facility, Consumers treated all 29 of the affected trains as trains operating in turn service out of Grand Rapids, with two interchanges at Holland.

(iv) <u>Trains Carrying Consumers' Issue Traffic</u>

The CERR network and train operations allow for the CERR to provide service to the issue traffic in the same manner that CSXT provides in the real world. Specifically, the issue traffic moves in the same trains over the same routes on the CERR as it does over the CSXT and the foreign roads (NS trackage rights segment and BRC connection) over which CSXT operates the issue trains.

c. <u>Peak Week Train List Final Development Process</u>

The CERR's trains moving during the peak-seven day period in the CERR's 10-year DCF life are based on the CSXT trains carrying traffic in the

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[98] *See*, *e.g.*, e-workpaper "Data Issue - TrainsAllEvents For Specific Train V12 20150829_Consumers E Coal.xlsx," tab "TrainsAllEvents," cells E285:J286. According to the train event data, this train left Grand Rapids with 0 loaded and 99 empty cars, moved to West Olive and returned to Grand Rapids with the same consist, then left Grand Rapids for eastern mines with the same consist.

[99] All 29 base year CERR trains for which the OnSARR and OffSARR locations both equal "HOLLAND, MI."

CERR's traffic group that moved during the peak week of the base year. The peak week was identified based on the peak volume of trains selected for inclusion in the CERR's traffic group. Specifically, Consumers identified 10,284[100] trains moving in the base year carrying traffic it wished to include in its SARR. This equates to 28.2 trains per day (10,284 ÷ 365). Consumers used the Train Suffix data included in the CSXT-provided event data to define the operating date for each of the 10,284 trains. Consumers then determined that based on a rolling 7-day train count, the busiest week of the year in terms of train operations was March 24-March 30, 2014. The SARR operated 240 trains during the peak week of the base year.[101] This equates to 34.3 trains per day (240 ÷ 7).

The peak week train list was developed by first identifying the 240 individual trains operating during the peak week of the base year. Next, Consumers identified 34 additional trains operating on the day immediately preceding the peak week of the base year (*i.e.*, the RTC model warm up period) and 13 additional trains operating on the day immediately after the peak week of the base year (*i.e.*, the RTC model cool down period).[102]

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[100] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "LineHaul Peak Calc," cells F2 and F3.

[101] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "LineHaul Peak Calc," cells K6 and K99.

[102] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "LineHaul Peak Calc," cells F92 and F100.

After Consumers identified the 287 base year peak period trains (240 + 34 + 13),[103] it adjusted the consist data for those trains[104] and added 34 growth trains[105] to account for the projected volume growth for the various SARR commodity groups using the procedures described in Section III-C-1-c-i above. Consumers modeled these 321 peak period trains (287 + 34) in its RTC modeling exercise.

The study period used in the RTC simulation covers a total of 9 days, from March 23 through March 31, 2024. A total of 321 trains were dispatched during this period, of which 252 were dispatched in the peak week and completed their runs by the end of the seven-day statistical period within the nine-day simulation period. These trains include 32 loaded coal trains, four empty coal trains, 84 other loaded and empty unit trains, 95 intermodal trains, and 37 merchandise trains. *See* "CERR Open Summary file.xlsx," tab "Pivot Run-time Train Counts." The trains modeled in the RTC study are shown in e-workpaper "RTC List.xlsx."

After populating the RTC Model with the study period trains, Messrs. McLaughlin and Schuchmann ran the trains through the RTC Model using

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[103] One-day warm-up and cool-down periods were selected because, on the basis of CSXT's train movement records, it was apparent that the time any train would normally spend on the CERR would be less than one full day.

[104] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Peak Trains," columns BY-CA.

[105] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Peak Trains," Range BN299:CG339.

the track/yard configuration and operating-plan inputs developed by Mr. Orrison and Mr. Holmstrom, as described in the next section below.

d. Operating Inputs to the RTC Model

The following elements of the CERR's operating plan for the CERR have been input into the RTC Model for purposes of simulating the CERR's peak-period operations, ensuring the sufficiency of the infrastructure, and developing train transit times:

TABLE III-C-8
RTC MODEL INPUTS AND DESCRIPTIONS

RTC Model Input	Description
Road Locomotives	Each train operates with two ES44-AC locomotives while on the CERR unless operational requirements differ as explained below.
Train Weight and Size	The forecasted actual size and trailing weight for each train carrying traffic in the CERR traffic group in the peak week is used. Growth trains replicate trains that moved in the base year with consist adjustments to accommodate growth.
Maximum Train Speeds	The maximum track speed on the CERR is 40 MPH.
Dwell time at on-SARR interchange points	Each train interchanged on-SARR will dwell for 30 minutes.
Dwell time for 1,000 and 1,500 mile train inspections and fueling.	Each train requiring such an inspection, as explained below, is allotted 1:45 for such service.
Helper service	30 minutes is allotted for connecting the helper locomotives. No time was allotted for disconnecting the helpers because CERR has assumed it will employ "Helper Link" technology so helpers can be cutoff "on-the-fly."

Time to depart 59th St. Intermodal facility.	30 minutes are allotted for the train crew to perform a set and release of the brakes and depart the terminal.
Dwell time at the Campbell plant	Average historical dwell time is 47 hours.
Time Allowed for Traversing Trackage Rights Segments	{ } from 75th St. (BRC) to Porter via the NS; { } from Porter to 75th St. (BRC) via the NS; { } from Curtis to Porter via the NS; { } from Porter to Curtis via the NS.
Time for foreign road delays	Crossing diamond delays were input in the RTC Model as described below.
Time for random outages	Random outages were input into the RTC Model as described below.
Crew change times	There are no crew changes required on the CERR.
Track inspection and program maintenance windows	As explained below, no separate time has been allotted for these activities.

These operating functions/inputs, and the times allotted for them, are explained in more detail in the following subsections.

i. <u>Road Locomotive Consists</u>

The locomotive consists and requirements for the CERR's trains are described in Part III-C-1-c-ii above. The RTC simulation shows that most of the trains can operate on the CERR system with two ES44-AC locomotives. To the extent trains interchanged with a foreign road or the residual CSXT have more than the horsepower-equivalent of two ES44-AC locomotives, the throttles on the extra locomotives are isolated in the idle position while operating on the CERR.

For purposes of the RTC simulation, each train received in interchange is assumed to have a number of ES44-AC road locomotives sufficient to equal the total horsepower on the train when received at the CERR on-junction or as required to move off-SARR segments. As mentioned, locomotives that are not needed to move these trains over the CERR are isolated (essentially shut down so that they are not contributing power for movement of the train) while they are on the CERR system.

ii. **Train Size and Weight**

The peak week trains in the RTC Model simulation are based on the average and maximum base year trains adjusted to accommodate peak year growth as described in Part III-C-1-c-i above. The maximum train size is 157 cars[106] and the maximum number of active locomotives on any CERR train is two. All growth trains (trains carrying additional tonnage that did not move in the base year) are limited to the average size and weight for the corresponding base year trains, adjusted to accommodate growth, and capped below the maximum observed train size in the base year historical data, with the locomotive consists sized to provide the appropriate total horsepower based on the use of ES44-AC locomotives.

iii. **Maximum Train Speeds**

The CERR's maximum track speed is 40 MPH. This maximum speed is based on timetable restrictions on the lines being replicated by the CERR. Thus, while it is legally permissible to move certain trains at greater speeds

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[106] *See* e-workpaper "CERR BASE YEAR TRAIN LIST DEVELOPMENT vF.xlsx," tab "Cerr Peak Trains," cell BY343.

depending on the FRA class of track, the CERR has not deviated from the existing freight train speed restrictions shown in the CSXT timetables.

Maximum train speeds are reduced below the 40 MPH limit where a speed restriction is required by CSXT's operating timetables, or when needed to operate through a turnout (for example, the CERR has #15 turnouts for the connections between the mainline and passing sidings; trains are limited to a maximum speed of 30 MPH when using these turnouts). These restrictions exist for safety reasons (such as to maintain a safe braking distance), to reduce track wear in curves and to follow AREMA Manual recommended practices for under-balanced super-elevation in curves. In addition, trains do not reach maximum authorized speed in some areas due to curves or other operating restrictions, as shown in CSXT's operating timetables. All of these restrictions and limitations have been incorporated into the RTC Model for application to the CERR's peak-period operations.[107]

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[107] Where trains were built in the RTC Model reflecting maximum speeds greater than the 40 mph track speed, the RTC Model follows the common railroad practice of applying the slower of the track speed or maximum train speed. Likewise, where track has been built in the RTC Model to allow 50 mph track speed for freight trains, the trains have been built with slower maximum trains speeds. These slower speeds govern train movement during the RTC Model simulation. The reason for the difference between the theoretical maximum train and track speeds and the actual speeds used in the RTC Model is that Consumers' experts entered the track and trains data into the RTC Model prior to the application of the speed restrictions. Similarly, the Consumers' experts entered the signal-controlled turnouts as #20 turnouts, but in the RTC Model these turnouts were operated at the maximum speed for #15 turnouts as specified in the configuration of the CERR. *See* Exhibit III-B-1.

iv. On-SARR Interchange Dwell Times

Mr. Orrison and Mr. Holmstrom have allotted 30 minutes of dwell time at each of the CERR's on-SARR interchange locations. All that is required for the interchange of run-through trains at each of these interchange locations is a change of crews, a brake set and release and a roll-by inspection. The 30-minute time allotment for these simple interchanges was accepted by CSXT in *TPI*, and by the Board in other cases.[108]

As explained above, for off-SARR interchanges (*i.e.*, trains moving to BNSF at Cicero and Corwith, trains moving to UP at Proviso, Global One and Two, and Bensenville, and trains moving to IHB at Blue Island), the CERR moves trains to those yards without stopping on the CERR's tracks. Thus, there is no on-SARR dwell time for these trains. However, for determining the off-SARR operating costs attributable to the CERR, Consumers operating witnesses and operating cost experts have included the additional costs associated with moving to these yards, including fuel and additional crew costs. These costs were determined based on the average miles from the CERR connection point to the particular yard. *See* e-workpapers "CERR Route Miles Opeing.xlsx" and "Base Unit Merch Trains v6_Statistics.xlsx," tab "2014 Full Base Year Unit Merch."

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[108] *See WFA II* at 17-18 (noting also the Board's approval of 30 minutes in *WFA I* at 17); Reply Evidence of CSXT, Narrative (Public Version) at III-C-194, *TPI* (filed July 21, 2014).

v. Dwell Times for 1,000 or 1,500 Mile Inspections

The CERR performs 1,000 or 1,500 mile inspections for certain westbound trains, the criteria and inspection procedures of which are described below in Part III-C-d-3-c. Mr. Orrison and Mr. Holmstrom have allotted 1 hour and 45 minutes for this process, which includes DTL locomotive fueling at specified fueling pads. The time allotted is conservative vis-à-vis similar inspections on other carriers. For example, Mr. Orrison, who is well-versed in such interchanges given his senior network planning and intermodal services design background, used as benchmark BNSF's times for such activities. Indeed, BNSF studied and revised its 1,500 mile inspection system at Belen, NM, a facility located on BNSF's transcon line and which is responsible for inspecting all of the intermodal trains moving to and from Los Angeles. At Belen, BNSF was able to reduce its 1,500-mile inspection times and refueling to approximately 20 minutes – the exact time would vary based on train length. Likewise, his direct experience with CSXT was that such inspections could be completed in one hour or less. However, to be conservative and to allow for possible bad-order set-out cars, Mr. Orrison directed that the RTC Model allow 1 hour and 45 minutes for such inspections at Barr Yard. For costing purposes, CERR Equipment Inspectors are used in this process. *See* Part III-D-3 for details on the Equipment Inspectors. This also affords ample opportunity to top off the locomotives before interchanging such trains back to UP, BNSF or another carrier. The staffing and procedures are discussed below in Part III-C-3-c.

vi. Helper Service

Helper service is provided in the loaded direction for the issue traffic on Sauggatuck Hill, which is located on the Grand Rapids Subdivision starting at MP CG 37.4 and continuing to MP 32.3. The helpers are generally stationed in the helper pocket track located at MP 39.25. According to Mr. Orrison and Mr. Holmstrom, such operations are generally performed in only a few minutes, but to be conservative they have allotted 30 minutes for connecting the helper locomotives. Indeed, the 30 minutes upon connection is ample time to hook on to the rear of the train and perform a brake test. Likewise, once the hill is crested, it is possible to simply disconnect the rear helpers using a standard Helper Engine Automated device while moving, which is the procedure used in the RTC Model. The helpers then return light back to the helper pocket track.

vii. Time to Depart the 59th St. Intermodal Facility

The 59th St. Intermodal facility is not modeled in the RTC Model because the facility is separately operated by CSXIT. However, CERR crews originate such trains before they enter the CERR and the RTC Model. Mr. Orrison and Mr. Holmstrom have allotted 30 minutes of crew time for this purpose. Thus, these crews are already on the clock when the train enters the RTC Model thereby ensuring that the proper crew statistics are collected. Moreover, this process ensures that the proper service time is calculated in the event of a crew timing out. Mr. Holmstrom indicates that this approach is very conservative because, in his experience, the road crews typically do not attach the power for such trains.

Instead, this is handled by a contractor who also performs the brake test. The road crew members usually just board the train, perform a set and release the brakes and then depart.

viii. Dwell Time at Campbell

The CERR directly serves and delivers coal trains to the Campbell plant – the CERR's only local customer. The average dwell time (excluding anomalous occurrences) at Campbell for coal trains that operated in the base year is 47.57 hours, as provided by records maintained in the ordinary course of business by Consumers. *See* e-workpaper "Campbell 2014 Dwell Times.xls," tab "Dwell Time Stats," cell I5. Mr. Orrison and Mr. Holmstrom visited the Consumers plant and studied the internal track configuration at the plant. The plant can easily hold four unit trains across its various tracks. In addition, the plant does not have a loop for unloading and the trains must be cut in order to run them through the dumper. Further, cars receive regular in-depth inspections at the on-site car shop. Consequently, this combination of circumstances creates relatively long dwell times versus a typical western coal burning plant. Mr. Holmstrom and Mr. Orrison observed, however, that the locomotives do not stay with the trains. Instead, the typical practice is to remove, fuel, and then place the locomotives on the next outbound empty train, thereby reducing locomotive requirements. Mr. Orrison and Mr. Holmstrom also observed that Consumers has its own locomotive power that it uses to unload trains and move cars onsite as necessary.

For RTC Modeling purposes the loaded and empty trains were not directly linked. Thus, the average dwell time was not specifically entered into the RTC Model. However, as only a few empty trains left the Campbell facility during the modeling period, Mr. McLaughlin and Mr. Schuchmann manually examined the dwell time at the Consumers plant. The RTC Model dwell time was 50.17 hours thereby conservatively exceeding the real world average dwell time. *See* e-workpaper "Dwell at West Olive.xlsx," tab "10-27 Manual Link Trains," cell H10.

ix. Time Allowed for Traversing Trackage Rights Segments

A majority of the issue traffic and some additional trains use the BRC facility between 75th St. and Rock Island Jct. and NS trackage rights from Rock Island to Porter (the connection to the Grand Rapids Subdivision). A smaller volume of the issue traffic used NS trackage rights from Curtis to Porter. Consumers' experts did not have access to the actual traffic or track data required to replicate the BRC or NS segments in the RTC Model. However, the transit time over these segments had to be accounted for in developing the RTC Model and related operating statistics. Thus, Consumers' RTC Modeling experts developed average transit times for the peak week trains in the RTC Model by reviewing similar data for the peak week in the base year developed Mr.

Mulholland.[109] Unfortunately, the train movement data for these segments are not broken down from 75th St. to Porter (and vice-versa) or Curtis to Porter (and vice-versa). Instead, the data covers transit times from 71st St. to Michigan City (about eight miles east/north of Porter) and Curtis to Michigan City. To account for the variations, Consumers' experts adjusted the times on a prorated basis (distance) to reflect the slightly shorter mileage and times over the trackage rights segment only. The details for the adjustment are shown in e-workpaper "5 Trackage Rights Transit Times – Peak Period Base Year Train Transit Time Summary 2015 10-09.xlsx," tab "Train Transit Summary WORK," cells F21, F26, F38 and F43.

x. <u>Time for Foreign Road Delays</u>

The CERR replicates the various crossing diamonds that exist on the real world CSXT line being replicated. The crossing diamonds on the CERR are as follows:

a. MP DC 28, Ash Street, CN
b. MP DC 27.4, Brighton Park, CN
c. MP DC. 22.5, 75th Street, NS/Metra/BRC
d. MP DC 10.7, Dolton Tower, UP
e. MP DC 6.0, Stateline, NS/IHB
f. MP DC 3.2, Republic, NS
g. MP DC 2.6, Calumet Tower, CN/IHB

Consumers requested that CSXT provide discovery that addressed delays from foreign roads to identify delays at such crossings. CSXT provided

[109] *See* e-workpaper "Peak Period Base Year Train List With TrainsAllEvents LE.xlsx," tab "Train Transit Summary."

responsive data, which included data on specific delays by date. Consumers' experts analyzed this data and included such delays corresponding to the peak week being analyzed in the RTC Model. Details of these delays are included in e-workpaper "Foreign Line Delays WORK.xlsx," tab "Peak Forgn Delays for RTC 54pct.," cells A5:T28.

Consumers' RTC model also accounts for potential foreign line delays associated with Metra commuter trains crossing the CERR's mainline at 75th Street, which delays did not appear to be recorded in the CSXT foreign line delay data. Consumers' experts reviewed the public timetable for Metra's SouthWest Service (SWS) and incorporated their understanding of train operations at the 75th St. crossing diamonds and BRC Belt Jct. interlocking to establish Metra "lockout" (a/k/a, "curfew") periods. These curfews occur twice each weekday, during the morning and evening rush-hours. During Metra curfews, CERR trains are not able to cross the 75th St. crossing diamonds or access the BRC trackage rights via BRC's Belt Jct., which is located slightly east of the 75th St. interlocking. The time periods during which these curfews were determined to be in effect are:

- CERR 75th St. crossing diamond: 6:20 AM – 8:16 AM and 5:11 – 7:09 PM; and
- BRC Belt Jct.: 6:00 – 9:00 AM and 4:15 – 6:30 PM.

The Metra curfews were implemented in RTC creating track permits on the links that are located on both sides of the two curfew locations.

Additionally, all 36 trains which appear in the current Metra SWS public timetable were built in RTC so the impact of Metra trains upon CERR operations outside of the curfew periods is included in the RTC simulation. A list of the Metra SWS trains that were built in RTC is in e-workpaper, "METRA Leaders & Seeds 10-21.xlsx." The Metra trains are excluded from the CERR operating statistics.

xi. Time for Random Outages

CSXT provided data of certain car, mechanical, engineering, crossing accident, and train accident delays in separate spreadsheets.[110] However, with one exception, a review of these spreadsheets indicated that no delays occurred to the trains the CERR models in the peak period. The exception, "Mechanical_and_Engineering_2012_to_2014.xlsx," appeared to contain certain events that might be applicable to the CERR's traffic (*e.g.*, signal indications and broken rails). However, the spreadsheet did not include any date or time stamps for the events, so there was no way to link the events directly to the CERR's peak period.

Given the circumstances with the CSXT data, Consumers turned to the Train Event data, which records certain delays at a train level. Consumers extracted the delay data associated with the specific trains modeled in the peak

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[110] "Car_Delay_2012_to_2014.xlsx," "Crossing Accidents.xlsx," "Locomotive_Delay_2012_to_2014.xlsx," "Mechanical_and_Engineering _2012_to_2014.xlsx," and "Train_Accident_Details_2012_to_2014." Consumers did not rely on these spreadsheets, and they were therefore excluded from the electronic workpapers.

period. Consumers' experts evaluated the data to determine which delays would apply to the CERR's trains regardless of the RTC modeling process. For example, delays for a train held short of a yard were not included because the RTC Model, based on the CERR's configuration, determines the fluidity of the CERR system and any such delays. Conversely, Consumers did include delays for unavoidable random delays such as a broken rail or an operational problem with a switch location.

The RTC Model reflects four operational outages and 13 track/signal outages. The list of outages is included as e-workpaper "Outages 10-21 FILTERED WORK," tab "peak_week_filtered JWM WORK," cells A4:AN21.

xii. Crew-Change Locations/Times

The CERR has no on-SARR crew change points. The trains that are handled are all moved from their on-SARR to off-SARR point using one crew. Details on the crew districts are discussed below in Part III-C-3-a.

xiii. Track Inspections and Maintenance Windows

Consistent with the SARR operating plans accepted by the Board in several previous cases (*e.g., WFA I* and *AEP Texas*), no time has been allocated for scheduled track inspections or maintenance windows for purposes of the RTC simulation.

FRA rules require weekly inspections for Class 3 track, which is the classification for the CERR's main tracks given the 40 MPH speed limit across the system. As described in Part III-D-4 (which addresses maintenance-of-way costs), the CERR's main lines are inspected once a week by the railroad's Assistant Roadmasters using hi-rail vehicles (pickup-type vehicles equipped with retractable flanged wheels so they can operate either on highways or on railroad tracks). These inspections of course have to be performed during the peak traffic (RTC simulation) period. However, they can be performed between train movements, and if necessary the hi-rail vehicle can follow a train on the same block with the dispatcher's approval. Accordingly, there is no need to allot separate time for FRA-prescribed track inspections in the RTC Model.

No program maintenance will be performed during the CERR's peak week traffic period. CSXT did not produce any data regarding program maintenance work during the peak week. However, Mr. Orrison and Mr. Holmstrom determined that it is highly unlikely that program work would occur during this period. Specifically, the RTC simulation period occurs late winter/early spring (late March), when no program maintenance would normally be scheduled. Program maintenance will be performed during other, less-busy periods when the weather is also better. Moreover, in Mr. Orrison's and Mr. Holmstrom's experience, program maintenance would usually be deferred until after any freeze-thaw cycle were complete. They also note that since the CERR is being designed and configured for its peak traffic week, there is ample time for normal track maintenance during non-peak periods, and track/facility repairs of an emergency nature are accounted for in the time allotted for random outages (described below). Finally, the train delay data examined by Consumers did not indicate that any program maintenance outage windows occurred during this period. Thus, there is no need to provide for separate track maintenance windows during the RTC simulation period.

e. Results of the RTC Model Simulation

After inputting the CERR's track and other relevant facilities, peak-period trains and operating parameters (including the random outages described above) into the RTC Model, the model was run to a successful conclusion. The RTC Model simulation demonstrates that the CERR's system configuration and operating plan are feasible, and that the CERR's operations in the peak period of the peak year meet its customers' requirements. For example, the average train transit times produced by the RTC simulation (including dwell time at interchange facilities and the Barr Yard, where applicable) have been compared with CSXT's average train transit times (including dwell times) for the CERR's traffic flows during the base year period equivalent to the CERR's peak week (March 24 through March 30, 2014). This comparison illustrates that all of the cross-over traffic transit times are superior to the CSXT historic transit time over the same route. This result is not surprising given that the CERR handles only 54 percent of the road locomotives that the CSXT handled during the base year. The CSXT and CERR transit-time comparisons for various on-SARR to off-SARR are included in e-workpaper "5.1 Transit Times Comparison Hist vs RTC.xlsx," tab "Train Transit Summary WORK."

A schematic diagram of the CERR's tracks as they appear in the RTC Model is included as Exhibit III-C-1. The electronic files containing the RTC Model runs, output and case files are included in Consumers' Part III-C e-workpaper folder "RTC."[111]

3. Other

a. Crew Districts

The crew districts and assignments reflect the CERR's ability, as a start-up railroad, to operate in a manner that is not constrained by prior mergers and/or union work rules that limit a Class I railroad's ability to maximize the efficiency of its crew assignments. This gives the CERR much more flexibility in scheduling crews and maximizing their use within the constraints of the federal "12-hour" (Hours of Service) law, as amended by the Rail Safety Improvement Act of 2008 ("RSIA").

The CERR crews operate as shown in Table III-C-9 below.

TABLE III-C-9
CERR CREW ASSIGNMENTS

Crew Type	Territory
Straightaway Crews	22nd St./71st St. to West Olive West Olive to 22nd St./71st St. 22nd St./71st St. to Holland Holland to 22nd St./71st St. Blue Island IHB Connection to Holland Holland to Blue Island IHB Connection Holland to Curtis Holland to Dolton Jct. Dolton Jct. to Holland

[111] In accordance with the Board's decision of July 15, 2015 in this case, a copy of the RTC Model that Messrs. McLaughlin and Schuchmann used (Version RTC 70N – Beta (64-bit) is included in e-workpaper folder "RTC."

Turn Crews (if possible)	22nd St. to Curtis 22nd St. to Dolton Jct. Blue Island IHB Connection to Curtis Calumet Park to Curtis Chicago 59th St. to Curtis Chicago 59th St. to Dolton Jct. Chicago (Barr Yard) to Curtis Curtis to 22nd St. Curtis to Blue Island IHB Connection Curtis to Calumet Park Curtis to Chicago 59th St. Curtis to Chicago (Barr Yard) Curtis to Dolton Jct. Dolton Jct. to 22nd St. Dolton Jct. to Chicago 59th St. Dolton Jct. to Curtis

The issue traffic straightaway crew assignments are consistent with CSXT's assignments in the real world. The movements to and from Holland are similar except the real world CSXT crews would generally stay with the train until reaching Grand Rapids, about 20 miles northeast of Holland. Mr. Orrison and Mr. Holmstrom determined that the Chicago-area transit times from the various O-D pairs listed above would permit turn crews where possible. As noted in Table III-C-3, the traffic flows to and from most of the major interchange locations, such as Curtis, are relatively similar in each direction thereby enabling turn service on a regular basis.

The home crew base locations are located at 71st Street and West Olive. Additional crew change holdover areas are provided at Curtis and Barr Yard. The Barr Yard facility also facilitates movements to and from Dolton Junction. The Barr Yard facility also houses the equipment inspectors and switch crews located at Barr Yard. The West Olive crew base serves as the home base for the helper crews.

The RTC simulation further confirms that the distance for each crew assignment can generally be covered by a single tour of duty including an allowance of 30 minutes for crew preparation. To the extent a crew's tour of duty expires under the Hours of Service law, it is taxied to the nearest home base or to the next terminal. The cost of the taxi service is included in the CERR's annual operating expenses as described in Part III-D.

b. Other Crew Assignments

The CERR has a switching crew located at Barr Yard. The crew aids in the setting out of bad order cars, the movement of such cars to the car shop if necessary, the inspection of trains and cars as necessary, and the movement of locomotives to and from the locomotive shop as needed. One person is on duty 24 hours a day for such services (12 hour shifts, 2 shifts per day). Each shift is 12 hours.

The CERR provides helper service for the issue traffic on the Grand Rapids Subdivision, as described above. One utility crew member is on duty 24 hours a day (12 hour shifts, 2 shifts per day) to provide the helper service. As there are typically only one to two loaded trains per day where the utility crew member must assist the issue traffic, the utility crew member has additional duties at West Olive. The utility crew member aids in the removal and fueling of the road and helper locomotives. The utility crew member serves as a backup to the car inspector when that person is on vacation. The utility crew member also assists with paperwork and keeping the crew change facility operating normally. Individual crew members work 12 hour shifts.

c. 1,000/1,500 Mile Inspections

The CERR performs 1,000 or 1,500-mile inspection on certain trains. The procedures and time for these activities are described below.

The CERR inspects empty Consumers unit trains at West Olive. The 1,500-mile inspection is performed prior to the release of the train to the CERR road crew. As the average train dwells for over 47 hours, there is ample time to perform any inspection and switch out any bad order cars. The inspection time is included in the average dwell time at the Campbell plant.

The CERR also performs 1,000 or 1,500-mile inspections at the Barr Yard. These inspections cover selected westbound trains, as the eastbound trains interchanged with BNSF, UP, IHB or residual CSXT should all have been inspected prior to interchange. Indeed, Mr. Orrison and Mr. Holmstrom note that the standard method for such interchanges in the Chicago area is that the western interchange carrier inspects eastbound trains, as is the case for Consumers' trains. In addition, the trains have been fueled prior to the interchange. Eastbound trains coming from the IHB or residual CSXT will have just been built or received in the BRC's Clearing Yard or the IHB's Blue Island yard. These trains are not serviced in Barr Yard in the real world either.

In the westbound direction, the roles are reversed and the Eastern carrier performs the necessary inspections and provides for a certain level of fuel in the locomotives. Again, this is how the Consumers' trains are handled as well. However, not all westbound trains will require inspection at Barr Yard before interchanging back to the UP or BNSF because many of these trains will already have been inspected and topped off prior to entering the CERR. Thus, Mr. Orrison and Mr. Holmstrom developed the following inspection plan that takes into consideration the customary approach used by the Chicago-area carrier as well the CSXT geographic start point as derived from the train movement records:

If the westbound CSXT train start location is no further from Barr Yard than the farthest start point in Ohio (West Ashtabula, 386.7 miles), then the 1,000 or 1,500-mile inspection should not need to be repeated when interchanging with the western carrier as it is common for interchanged trains to have traveled several hundred miles from their last inspection point before reaching an interchange point. Indeed, the Consumers trains regularly travel 170 miles or so before being interchanged back to BNSF. Likewise, it would be illogical to inspect a train at its origin and then re-inspect it in such a short distance.

For trains originating east of Ohio or from the south, such as Georgia, Virginia, or Alabama, Consumers' experts assumed that the westbound train would need to be inspected and fueled at Barr Yard before handing it off to the western carrier. In many cases, the mileages traveled are 700+ miles (but not quite 1,000 miles) before reaching Barr Yard. In theory, CSXT could be inspecting these trains somewhere near Chicago or they could be certified for 1,500 miles. However, because the CSXT train profile and train movement data were not sufficient to make such a specific determination, Mr. Orrison and Mr. Holmstrom conservatively assumed that the CERR would perform the inspection at Barr Yard.

Consumers' expert, Mr. Mulholland, reviewed the train profiles data for the CERR trains. Specifically, The Profiles2 table includes a field titled "WORK_INSPECTION" that contains "Inspection Flags" signifying that inspections are planned at certain locations on a given train's route. The "WORK_INSPECTION" field includes few flags for scheduled inspections in Illinois, and none whatsoever at Barr Yard (identified as "DD 2", "BIC 3", and "CHICAGO" in CSXT's Train Profile data).[112]

For trains where the end point is Barr Yard, Consumers' experts conservatively assumed that the CERR inspected the trains before handing them off to the unknown other carrier.[113]

For trains where the CSXT end point was Clearing Yard, Blue Island (IHB), Bensenville, Corwith or the 59th St. Intermodal Yard, Consumers' experts assumed that no inspection was necessary since the trains are likely to be broken up, reclassified, etc. at these locations.

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[112] *See* workpaper "Profiles2 IL Inspections.xlsx," tab "Sheet1."

[113] As explained in Part III-C-1-ix, there are 127 such anomalous trains in the base year.

As noted above, Mr. Orrison and Mr. Holmstrom allotted 1:45 minutes to conduct a 1,000 or 1,500-mile inspection of a train at the Barr Yard. In Mr. Orrison's experience, BNSF reduced inspections times in certain locations to 20 minutes, and CSXT performs such inspections in less than one hour. One source has pointed out that BNSF used to allot 45 minutes at its Argentine Yard for 1,000 mile inspections, but with the widespread adoption of 1,500-mile inspections, the transcon intermodal trains are now inspected only at Belen, NM enroute. *See* e-workpaper "BNSF Argentine Yard Inspection Times.pdf." Regardless, one hour and 45 minutes is conservative for an efficient inspection process.

The Barr Yard inspections are performed by two inspectors, each working on opposite sides of the train. These inspectors have access to golf carts for such inspections, but for shorter trains, the inspectors can walk. The inspection tracks have gravel roads alongside them to ease travel. If necessary, the switch crewman can assist in inspections. During the peak period modeled in the RTC Model, 47 trains required inspection at Barr Yard. In general, each shift of 12 hours is staffed by two inspectors as there is rarely more than one train requiring inspection at a time, even in the peak period. However, the CERR may require surge capacity. Therefore, the switch crew, the managers of train operations and assistant managers of train operations are all cross-trained to perform such inspections.

d. **<u>Rerouted Traffic</u>**

The CERR includes one class of internally rerouted traffic. Specifically, in the real world, certain intermodal trains originating at the 59th St. Intermodal facility travel south to 75th St. and then move east over the BRC to 80th St. where they enter the UP's Villa Grove Subdivision. From there, the trains move south to Dolton Jct. where they either continue south towards Woodland Jct. or move east toward Curtis. However, intermodal trains originating at the 59th St. Intermodal facility also travel to those same destinations using the facilities being replicated by the CERR, namely the Blue Island and Barr Subdivisions. Rather than use two routes, the CERR routes all of the intermodal trains originating at 59th St. over the CERR's Blue Island and Barr Subdivisions to reach Dolton or Curtis. Such an internal reroute is permissible as the trains are interchanged to the residual CSXT on the route of movement. *WFA/Basin II* at 11-12; *TMPA*, 6 S.T.B. at 594-595; *AEP Texas* at 10-11. Likewise, the RTC Model demonstrates that the internal reroute continues to meet the service requirements of the traffic. *See* e-workpaper "5.1 Transit Times Comparison Hist vs RTC.xlsx," tab "Train Transit Summary WORK."

e. **<u>Fueling of Locomotives</u>**

Fueling of locomotives takes place at two locations on the CERR: West Olive and Barr Yard. In each case, the fueling is done by truck at designated pads. The West Olive pads are on the grounds of the Campbell plant and the Barr Yard pads are located on the inspection tracks as indicated in Exhibit III-B-1, page

7. The fueling of locomotives for West Olive trains is done in accordance with the operational agreement between CSXT and BNSF,[114] which requires that CSXT return the empty Consumers unit trains with { },
presumably a sufficient amount of fuel to reach BNSF's next fueling location – most likely Galesburg, IL. Fueling of trains at Barr Yard is performed for all trains that are also inspected at Barr Yard.

The costs for such DTL fueling are discussed in Part III-D-1.

f. <u>Train Control and Communications</u>

i. <u>CTC/Communications System</u>

The facilities reflected in this operating plan include a CTC system covering the main line between 22nd St. and Curtis. The CTC system includes remotely controlled power switches for all main-track crossovers, between single main tracks and passing sidings, and between main tracks and yard or interchange track leads, with appropriately-spaced wayside signals. Trains can operate in either direction on any track covered by the CTC system, which provides maximum flexibility and capacity. CTC is also provided for the BRC lines where the CERR is assuming 25% of the cost of building the existing facilities. The Grand Rapids and Freemont Subdivisions main line between Porter and West Olive is "dark."

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[114] *See* e-workpaper "CSXT-BNSF Consumers Run-Through Agreement.pdf."

All CERR train operations are controlled by centralized dispatchers located in the CERR's headquarters building at West Olive. The centralized dispatchers also control train operations on the dark portions of the railroad by means of radio communications and track warrants.

Communications among the dispatcher, train crews, track inspectors and supervisory field personnel are conducted using radios connected to the CERR's communications system (described in Part III-F-6 below). The communications system is also linked with the CTC system. Each train crew, track inspector and field operating and maintenance-of-way supervisor also has a company-issued wireless (cell) phone for emergencies.

The Failed-Equipment Detectors, or FEDs, installed at appropriate intervals along the tracks as shown in Exhibit III-B-1, broadcast a local radio signal to the crew on the affected train. If a set-out is required, the train crew uses one of the setout tracks which are located as described in Part III-B-1-e-iii above and in Exhibit III-B-1.

ii. Dispatching of Trains

The CERR's dispatchers are based at its West Olive headquarters. Despite the CERR's short length, Mr. Orrison and Mr. Holmstrom determined that the CERR requires two dispatching desks, especially in light of the coordination that is required between railroads in the Chicago area. One dispatching desk controls the area between 22nd St. and Barr Yard and the other controls the area between Barr Yard and Curtis, and Porter and West Olive. Both dispatchers are cross-trained on the dispatching district and the territories can be temporarily shifted if circumstances and traffic require adjustment. Two dispatchers for three shifts per day, seven days per week operate the dispatching desks. The desks are responsible for dispatching trains, inspection vehicles and work equipment on the CERR system.

The dispatching desks use modern, computer-aided train control technology and communications, which greatly facilitates the work of the dispatcher.

iii. PTC Implementation Under RSIA

Under the Rail Safety and Improvement Act of 2008, commonly known as RSIA, Class I rail carriers were required to equip trains that operate over lines that carry regularly scheduled intercity or commuter rail passenger trains and certain hazardous materials (*i.e.*, TIH/PIH materials) with positive train control ("PTC") systems by December 31, 2015. As of October 30, 2015, that deadline had been extended until December 31, 2018.[115] The CERR, however, does not carry any TIH/PIH materials nor does it handle intercity passenger trains. Moreover, the CERR is a Class II railroad based on its annual revenue and such railroads are not required to implement PTC.

Nevertheless, the CERR's road locomotives will operate in run-through service over other carriers' lines that carry passenger trains and hazardous

[115] *See* http://www.wdbj7.com/news/local/president-signs-bill-giving-railroads-more-time-to-implement-train-safety-technology/36142656.

materials, and thus are subject to PTC requirements. It is likely that a CERR locomotive will occasionally be the lead locomotive on such trains while on foreign carrier lines. Thus, the CERR's road locomotives should have PTC interoperability, which means they must be equipped with an onboard PTC apparatus that is compatible with the PTC apparatus on other road locomotives. *See* 49 C.F.R. § 236.1006(b)(4). Consumers has provided for this, as described in Part III-F-6 below.

g. **Traffic Growth and Train Consists**

As described above in Part III-C-2-c, the CERR's RTC Model incorporates growth traffic into the peak period train list by adding cars to existing consists (up to the maximum train length for that type) or by adding growth trains as necessary. This procedure is consistent with cases with where the shipper is handling largely unit trains and merchandise trains handled on a through basis as the CERR is here. As noted in Table III-C-2, half of all of the base year trains handled by the CERR are unit trains, 35 percent are intermodal trains, and only 15 percent of the trains are merchandise trains. As explained Part III-C-1, these trains are pre-blocked by the CERR's interchange partners and handled on a run-through basis by the CERR. Thus, the CERR is decidedly *not* a carload railroad that requires a blocking or classification plan. *Cf. Sunbelt* at 18 (noting the carload nature of the SARR and the need for a separate blocking and classification plan "[c]ompared with unit-train coal service and . . . merchandise traffic delivered on a through basis (which does not require as extensive car classification facilities and services)" and noting that in "prior cases involving predominantly trainload traffic and fewer commodity types, developing trains for higher traffic volumes was a far simpler task.").

Further, unlike some recent cases, the CERR's non-intermodal traffic growth is minimal over the 10-year DCF period, with carload traffic increasing by just 1.37 percent per year between 2015 and 2024. *See* e-workpaper "CERR Car Traffic Forecast.xlsx," tab "CAR_Forecast," cell AT8434. Thus, there is no need for the CERR to diverge from the current train consist growth procedure that shippers have used in similar cases.

h. Miscellaneous Aspects of the Operating Plan

Other elements of the CERR operating plan are described in Part III-D and III-F below. These include locomotive maintenance facilities and procedures (including those for locomotive inspections), and operating personnel requirements. The CERR's operating personnel include Train & Engine ("T&E") crew, yard/switch crews, and non-train operating personnel involved in management, field supervision and mechanical functions. As described in Part III-D-4, the CERR's maintenance-of-way plan has been carefully coordinated with its operating plan and is fully consistent with the operating plan.

Part III-D – Operating Expenses

III. D. OPERATING EXPENSES

This section of Consumers' Opening Evidence details the CERR's annual operating expenses for equipment, personnel, information technology, maintenance-of-way ("MOW"), taxes, insurance, and loss and damage, together with the development of the related service units and costs. The expert witnesses responsible for the evidence in this Part include John Orrison and Robert Holmstrom (Operating and General & Administrative ("G&A") personnel and their equipment needs, and the CERR's outsourcing plan), Joseph Kruzich (IT requirements and costs), Lee Meadows (MOW plan, personnel and costs), and Brian Despard (the balance of Part III-D including, *inter alia*, locomotive and freight car requirements, personnel compensation, outsourcing costs, equipment lease rates and operating unit costs, taxes, loss and damage costs, travel expenses, and insurance costs).

Consumers Witnesses John McLaughlin developed train speeds and locomotives per train from the RTC Model simulation of the CERR's operations, as described in Part III-C-2 above. The RTC Model output for locomotives and train speeds were applied by Mr. Despard to the CERR base year train list. Operating statistics including locomotive hours, locomotive unit miles, railcar hours, railcar miles and crew starts were calculated for all trains moving in the

Base Year.[1] The locomotive and car statistics were then indexed to the first year in the DCF analysis (2015) based on the ratio of first-year tons divided by Base-Year tons as determined by shipment type: unit train, intermodal or merchandise. The resulting statistics were utilized to determine overall locomotive requirements and car ownership requirements, as shown in e-workpapers "CERR Operating Statistics_Open.xlsx" and "CERR Car Cost_Open.xlsx."

The CERR's statistical calculations are conservative because the actual locomotive and car hours and associated expenses derived from transit/cycle times for any year would be lower than those presented here because the average number of daily trains containing CERR traffic moved during each year from 2015 forward is less than the daily trains moved by the CERR during the peak one-week period of the 2024 peak year. Thus the CERR's transit/cycle times should be faster on a daily average basis for the entire year than as compared to the peak week.

Witness Background and Experience

The CERR's operating and G&A personnel and its equipment needs were developed primarily by Consumers' Witnesses John Orrison and Robert Holmstrom. Each has extensive experience in railroad management and railroad operations in the particular geographic area traversed by the CERR.

[1] Development of the CERR's locomotive miles, car miles, locomotive hours, car hours and T&E crew requirements is shown in e-workpaper "Base Unit Merch Trains v6_Statistics.xlsx."

Over the course of his more than 39-year career in the railroad industry, Mr. Orrison has held various executive and senior management positions at Class I railroads, including most notably, serving as CSX's Vice President of Network Planning, Vice President – Service Design, General Manager Field Operations Development, and Division Superintendent – Detroit Division, where he oversaw the portion of the lines that the CERR is replicating between Porter and West Olive, as well as many other lines in Michigan, Ohio, and Ontario, Canada. Mr. Orrison also served as CSXT's primary operating plan witness in the Conrail acquisition proceeding.[2]

While serving as CSXT's Vice President – Network Planning, Mr. Orrison was appointed the Co-Chairman of the Association of American Railroads' Chicago Planning Group, which was charged with improving passenger and freight train operations within and around the Chicago area network. He was then appointed Chairman of the Corridor Development Team, which identified and outlined the plans for major Chicago corridors that eventually were integrated into the larger Chicago Create Program. Mr. Orrison also was involved in the establishment of the Chicago Transportation Coordination Office ("CTCO"). As CSXT's Division Superintendent – Detroit Division, Mr. Orrison oversaw daily

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[2] Mr. Orrison held a number of other key position at CSXT including Assistant Vice President – Operations Research, Assistant Vice President – Operations Development, Assistant Director – Service Quality & Control, Manager – Strategic Planning, and Assistant Terminal Train Master in Hamlet, NC.

train operations within Michigan including the route from Waverly, MI to Porter, IN for westbound trains to Chicago.[3]

Mr. Holmstrom has spent more than forty years working in the railroad industry, exclusively in Chicago, IL. He began his career working for the Grand Trunk Western, and then worked for CN for many years thereafter. He served as CN's Assistant Superintendent Operations for Chicago (the most senior level position in CN's Chicago-area staffing) and after CN's acquisition of the Illinois Central in 1999, Mr. Holmstrom was selected to serve as CN's Superintendent-level representative to the CTCO.

Consumers' MOW witness, Mr. Lee Meadows, developed the CERR's engineering staff (reporting to the Chief Engineer) and equipment needs. Mr. Meadows has 41 years of transportation experience. Mr. Meadows spent more than three decades working at Norfolk Southern Corporation and its predecessor, the Norfolk & Western Railway, during which he held positions with increasing responsibility within the Engineering Department spanning management and engineering of railroad track structure, bridge and building inspection, condition assessment, maintenance, rehabilitation, design and construction.

[3] Mr. Orrison subsequently worked for BNSF Railway Company, serving as Assistant Vice President – Service Design and Performance, and also worked as Executive Vice President – Strategic Planning for one of the largest intermodal shippers in the United States.

The G&A staffing and equipment for the information technology function were developed by Consumers' Witness Joseph Kruzich. Mr. Kruzich has more than 40 years of experience in railroad accounting, executive administration and information technology. He began his railroad career in 1963 and over the next two decades, held a number of accounting-related positions at various railroads including the Atchison, Topeka and Santa Fe Railroad where he worked as a manager of work control procedures.

In 1995, Mr. Kruzich joined the Kansas City Southern Railway as Vice President of Administration, where he designed profitability, corporate measurement, revenue forecasting and corporate policy systems. In January 1997, he was promoted to Vice President Telecommunications and CIO. Since 2000, Mr. Kruzich has worked as a consultant providing state-of-the-art services in the areas of strategic planning and the development of web sites and e-business initiatives, evaluating the benefits of outsourcing information technology and business processes, and working with clients to make the initial contacts in developing global market opportunities.

Finally, the CERR's locomotive and car lease costs (including maintenance), ad valorem taxes, insurance, third-party costs, and employee compensation and equipment costs (other than for MOW equipment, computers and related equipment) were developed by Consumers' Witness Brian Despard of L.E. Peabody & Associates, Inc. Mr. Despard has over 25 years of experience analyzing economic and marketing issues related to transportation and energy. In addition to his work at L.E. Peabody & Associates, Mr. Despard was Vice President, Asset Management at Dynegy, Inc. and was Manager, Financial Analysis at Tennessee Valley Authority ("TVA"), where he managed a team of analysts within the CFO organization that supported corporate decision making through financial analysis of contracts, assets and capital additions. At Dynegy, Mr. Despard was responsible for, among other things, power marketing, commercial power operations, G&A budgeting, coal purchasing, and coal transportation by rail. Mr. Despard previously has presented stand-alone railroad revenue and operating expense testimony in cases before the Surface Transportation Board and its predecessor, the Interstate Commerce Commission.

Summary of Operating Expenses

The CERR's annual operating expenses for 2015, its first year of operations, are shown in Table III-D-1 below.

TABLE III-D-1 CERR 2015 OPERATING EXPENSES ($ Millions)	
Locomotive Lease	{ }
Locomotive Maintenance	{ }
Locomotive Operations	{ }
Railcar Lease	$5.0
Materials & Supply Operating	$0.6
Train, Engine and Yard Personnel	$7.1
Non-Train Operating Personnel	$5.0
General & Administrative	$6.9
Loss & Damage	{ }
Ad Valorem Tax	{ }
Maintenance-of-Way	$8.6
Insurance	$2.0
Startup and Training	{ }
Joint Facilities	{ }
Intermodal Lift	{ }
Total*	**$54.3**
* Total may differ slightly from the sum of the individual items due to rounding.	

The source of the numbers in Table III-D-1 is Consumers e-workpaper "CERR Operating Expense_Open.xlsx," tab "DCF Transfer."

1. <u>Locomotives</u>

The CERR's peak-year locomotive requirements are summarized in Table III-C-3 in Part III-C-1 above. The CERR uses two types of locomotives: GE ES44-AC locomotives for road service and an SD40 locomotive for yard switching service. The CERR needs a total of 12 ES44-AC locomotives to transport its annualized peak-week trains, including spares, and one SD40 locomotive for yard service.

a. Locomotive Leasing

The CERR leases all of its locomotives. However, CSXT did not provide any lease costs for the CERR's primary road locomotive, the ES44-AC.[4] CSXT prefers to purchase such locomotives. The CERR is not bound by CSXT's business model. The CERR has opted instead to lease its road locomotives.

To determine the costs associated with the ES44-AC road locomotives, Consumers experts used an annual lease cost of $102,364 based on public information available from the *AEPCO*[5] case and indexed accordingly.[6] The *AEPCO* lease cost was determined from the public materials as follows: First, the total locomotive lease cost ($40.5 million) was adjusted by backing out the lease cost associated with the SARR's switch locomotives ($36,433 per unit multiplied by the count of switch locomotives (18 units)). Next, the balance of the locomotive lease costs was then divided by the number of the remaining locomotive units, which were all ES44-AC locomotives, to derive the cost of

[4] The ES44-AC is state-of-the-art road 4400 horsepower locomotive produced by GE Transportation Systems. The units produced in 2014 meet EPA Tier 3 emissions requirements and are well known for their fuel efficiency. *See* http://www.getransportation.com/locomotives/locomotives/evolution and e-workpaper "GE AC440 Webpage."

[5] *See AEPCO* at 40-41.

[6] *See* e-workpaper "ES44AC Loco Lease Cost.xlsx."

$97,419 per locomotive. Finally, the $97,419 was then indexed from the 2010 figure to 1Q2015 for a total annual lease cost per locomotive of $102,364.

The Board accepted the same locomotive lease cost development procedure in *Sunbelt*, where it held that "[b]ecause Sunbelt chose to acquire its locomotives through lease and because NS was unable to provide any current leases [in] discovery, it was reasonable for Sunbelt to rely on a recent Board decision that included lease costs for that particular locomotive type." *Id.* at 36.

An annual lease cost of {   } was used for the CERR's one SD40 locomotive. This lease cost was developed from materials provided by CSXT in discovery."[7]

Application of these annual lease amounts results in a total locomotive lease expense of {   } million for 2015.

The count of 12 ES44AC locomotives includes the application of a spare margin and a peaking factor. The spare margin used for ES44AC locomotives equals {   } percent and is based on actual CSXT locomotive utilization data. *See* e-workpaper "Locomotive Utilization_Open.xlsx," tab "Sheet 1," cell AU20. Consumers experts also applied a peaking factor of 14.3 percent, which is described in Part III-C-1-c-iv above.

b. <u>Maintenance</u>

The CERR's locomotives are inspected and maintained at the CERR's Barr Yard, where the CERR has provided a locomotive maintenance

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[7] *See* e-workpaper "Locomotives_Leases_List.xlsx," tab "Long Term."

facility to be used by its locomotive maintenance contractor.[8] CERR road locomotives requiring inspection or maintenance are removed from trains that are stopped at Barr Yard for 1,000 or 1,500-mile inspections, but only as necessary (*i.e.*, the locomotive is due for FRA-required periodic inspection or a locomotive is in need of more extensive servicing). The CERR is not the primary servicing center for foreign locomotives in any event as those locomotive traverse less than 50 miles on the CERR. Regardless, if a swap of locomotives is required, freshly serviced units are placed on the train rather than waiting for the current units to be serviced. The switch crew at Barr Yard shuttles the locomotive to and from the locomotive shop.

Annual maintenance costs of { } and $104,358 per locomotive are used for the ES44-AC locomotives and the SD40-2 locomotive, respectively. The locomotive-maintenance cost for ES44AC locomotives equals { } per day and is based on a locomotive-maintenance agreement between CSXT and { } that CSXT provided in discovery.[9] {

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[8] This facility is shown on page 7 of Exhibit III-B-1. It is described in more detail in Part III-F-7, *infra.*

[9] *See* e-workpaper "CERR Operating Expense_Open.xlsx," tab "Summary," cell D78.

} no cost for overhauls of road locomotives is included in Consumer's calculations.

CSXT's 2014 average locomotive-maintenance cost per locomotive unit mile is used for the SD40 yard locomotive. The CSXT cost per locomotive unit mile of $1.986 per locomotive unit mile was developed from CSXT's 2014 Annual Report Form R-1 filed with the STB.[10]

The total locomotive maintenance cost for the CERR equals { } in 2015.[11]

c. Locomotive Servicing

The CERR fuels locomotives in two locations: the Consumers plant at West Olive and Barr Yard. The CERR performs locomotive fueling at an existing pad location inside the Consumers plant grounds. Direct-to-Locomotive ("DTL") trucks perform the fueling. The road crew or the helper crew, depending on the time available to the road crew before expiring, removes the locomotive units at the plant. CSXT uses the same procedure in the real world.

The CERR also fuels certain trains at Barr Yard. Specifically, it fuels all trains receiving 1,000 or 1,500-mile inspections at Barr. DTL trucks perform the fueling at CERR-built fueling pads. The pad locations appear in Exhibit III-B-1, page 7. The head end units are positioned at the west-end pads as

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[10] CSXT 2014 R-1, Schedule 410, column f, line 202 x 1,000 ÷ Schedule 755, column b, line 14.

[11] *See* e-workpaper "CERR Operating Expense_Open.xlsx."

all of the trains being fueled are westbound. However, in order to accommodate distributed power-equipped trains, Barr Yard is equipped with east-end fueling pads as well.

The CERR's Barr Yard locomotive shop performs sanding, lubrication or other quick-turnaround servicing requirements as needed at the CERR's locomotive shop. *See* Exhibit III-B-1, p. 7. The locomotive shop contractors are responsible for periodic FRA-required inspections as well. The full capabilities of the locomotive shop are described in the Part III-F-7, below.

i. <u>Fuel Cost</u>

Based on data provided by CSXT in discovery, Consumers determined the CERR's West Olive and Barr Yard fuel price per gallon. Specifically, the West Olive fuel price per gallon comes from {

}.[12] {

} *See* e-workpaper "CERR Fuel Pricing_Open.xlsx," tab "DTL Adder."

The CERR fuels trains at Barr Yard using DTL fueling. Conversely, CSXT has a fixed fueling facility at Barr Yard. However, that fixed facility reflects differing operations between the CERR and CSXT. Specifically, the fixed

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[12] *See* e-workpaper "CERR Fuel Pricing_Open.xlsx," tab "Supplier Info," line 7.

fueling facility that CSXT operates at Barr Yard only handles light locomotives (*i.e.*, locomotives detached from trains that terminate Barr Yard, locomotives being serviced the locomotive shop, etc.). Moreover, CSXT builds a number of trains per day at Barr Yard. Thus, CSXT likely fuels the locomotives before connecting them to the departing train.

The CERR does not build, block or classify any trains at Barr Yard. Thus, there are rarely light locomotives in Barr Yard, and, therefore, the CSXT's fueling model is inapposite to the CERR's operating plan. Indeed, the CERR's operating plan call for simultaneous fueling and inspection of certain westbound trains. Delay is the inevitable result of removing, fueling and returning such locomotives. At the same time, the CERR is not inspecting so many trains (only 47 in peak week of the peak year)[13] that there is no need for a mainline fixed fueling facility. Likewise, the CERR dispenses { }[14] gallons at Barr Yard in 2015 versus { }[15] gallons in 2014 by the CSXT. Plainly, there is no need for fixed mainline fueling facilities.

CSXT's Barr Yard is served directly by a pipeline. CSXT has a modest fuel storage tank that serves its mainline fueling facility. As the CERR is using DTL fueling, Consumers' experts have included a DTL fuel cost additive, as described above, to reflect the handling and fueling by truck.

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[13] *See* Part III-C-3-c.

[14] *See* e-workpaper "CERR Fuel Pricing_Open.xlsx," tab "Gallons."

[15] *See* e-workpaper "Fuel Usage by Location_2014.xlsx," cell E27, provided by CSXT in discovery.

{

} *See* e-workpaper "CERR Fuel Pricing_Open.xlsx," tab "Summary." The spot price used by Consumers is Platt's daily Chicago Pipeline for ULSD for 1Q15, which equals $1.67 per gallon. *See* e-workpaper "CERR Fuel Pricing_Open.xlsx," tab "Platts," average of 1/1/2015 through 3/31/2015 daily close prices from column H.

ii. <u>Fuel Consumption</u>

Consumers' experts developed fuel consumption data for the ES44AC provided in discovery. Specifically, CSXT provided discovery document "ERAD_2014.xlsx" that includes fuel consumed and miles traveled by CSXT locomotive type for 2014. From this data, Consumers' experts determined the average fuel consumption for CSXT's ES44AC's and applied that figure to the CERR's locomotive unit-mile data derived from the RTC Model.

Consumers' experts developed fuel consumption data for the SD40-2 locomotive from CSXT's 2014 R-1 Annual Report. Specifically, Consumers' experts divided CSXT's 2014 gallons of fuel consumed for yard switching (R-1 Schedule 750, line 3) by CSXT's 2014 locomotive unit-miles for yard switching (R-1 Schedule 755, line 13) to arrive at fuel consumption for CERR's yard locomotive. *See* e-workpaper "CERR Operating Expense_Open.xlsx," tab "Summary," line 92. This CSXT average fuel consumption for yard locomotives was applied to CERR yard locomotive unit miles, which assumes the locomotive will travel at an average of 6 miles per hour throughout the year.[16]

iii. Sanding and Other Functions

The CERR sands and lubricates locomotives as needed at Barr Yard. Consumers' experts developed the associated costs for sand and lubrication necessities from CSXT's 2014 R-1 Annual Report. Specifically, Consumers' experts developed CSXT 2014 system average locomotive servicing expenses, including lube oil, per locomotive unit mile separately for road and yard locomotives. *See* e-workpaper "CERR Loco Servicing Cost_Open.xlsx," column K. This CSXT average locomotive servicing expense was applied to CERR locomotive unit-miles to develop total CERR locomotive servicing expenses.

2. Railcars

The CERR uses a mixture of CERR-provided cars, foreign cars and private cars. The mix of car types includes boxcars, equipped boxed cars, gondolas, covered hoppers, open-top hoppers, and flat cars. The CERR also handles tank cars, but, like CSXT, it does not own any of these cars.

a. Leasing

For railroad-provided cars, Consumers developed car costs using two different approaches. First, for traffic moving in cars owned by foreign roads, Consumers based the car costs on time and mileage by car type, which it

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[16] The figure of 6 miles per hour is used in URCS A1, part 1, line 158, column (1). *See* e-workpaper "III-D Yard Switching MPH.pdf."

developed from CSXT's 2014 R-1. *See* e-workpaper "CERR Car Costs_Open.xlsx," tab "Foreign Cars," column P.

Second, for non-coal traffic moving in CSXT equipment, Consumers developed annual full-service lease costs for each car type from information CSXT provided in discovery or from publicly available sources. The cars provided by CSXT for non-coal traffic include boxcars, covered hoppers, gondolas, open-top hoppers, and flat cars. Table III-D-2 details the annual full service lease costs for each rail car indicated:

TABLE III-D-2 **RAILCAR FULL SERVICE LEASE RATES** (annual)	
Boxcars	{ }
Equipped Boxcars	{ }
Gondolas	{ }
Equipped Gondolas	{ }
Covered Hoppers	{ }
Open-top Hoppers	{ }
Flat Cars	{ }
Multi-Level	{ }
See e-workpaper "CERR Car Costs_Open.xlsx," tab "System Cars."	

i. <u>Time Included in Car Hours</u>

The car-hour requirements for CERR-provided cars are based on RTC transit times, plus free time at shipper origin and destination. The free time included is based on CSXT Tariff 8100. This tariff specifies that CSXT demurrage charges are $105 per car per day, or fraction thereof, and provides for a one-day credit (free day) for loading and a two-day credit (free days) for unloading. *See* e-workpaper "8100tariff_july2015.pdf," page 12. These credit days are included in the calculation of car days for the purpose of determining CERR system car requirements. Time beyond the credit days at origin and destination are not included because CSXT collects $105 per car per day for that time. Given that the typical car lease cost is between $9.16 and $61.93 per day, the $105 charge per day received by CSXT, and which would be received by CERR, more than offsets any additional car costs the CERR would incur for system cars at origin or destination.

ii. <u>Railcar Peaking Factor</u>

As discussed in Part III-C-d above, Consumers' experts developed a railcar peaking factor of 14.3 percent. Consumers' experts determined the figure by dividing the average number of train starts per day in the peak week of the peak year by the average number of train starts per day in the peak year. The Board has repeatedly approved this procedure. *See Sunbelt* at 35; *DuPont* at 71; *AEPCO* at 33; *Xcel II* at 13.

iii. <u>Spare Margin</u>

Consumers used a spare margin of five percent for CERR cars. This spare margin (or even a slightly lower spare margin) has been accepted by parties and by the Board in a number of recent SAC cases. For example, in *IPA*, the defendant accepted a five percent spare margin for railcars. *See IPA*, Docket No. 42136, Opening Evidence of Intermountain Power Agency (filed December 17,

2012) at III-D-10-11; *IPA*, Docket No. 42136, Reply Evidence of Union Pacific R.R. (filed April 12, 2013) at III-D-12 (accepting the complainant's spare margin). Moreover, in *Sunbelt*, the parties agreed upon an even lower 4.5% spare margin for railcars. *See Sunbelt* at 39; *see also WFA I* at 39 (accepting 5% railcar spare margin); *Otter Tail* at C-5 (accepting 5% railcar spare margin).

b. <u>Maintenance</u>

As discussed above, the CERR uses full service car leases for the railcars it provides. As the full service lease payments include maintenance costs, no other maintenance costs are included. Consumers has, however, provided a space at its Barr Yard for a contractor to place a railcar repair facility. *See* Exhibit III-B-1, p. 7.

Shippers who supply railcars for their coal movements make their own separate arrangements for maintenance of their cars, either at destination or at existing contract-repair facilities on or near the route of movement. The CERR makes running repairs as necessary for foreign private cars. The cost of these repairs was determined using URCS repair costs applied to private car-miles. *See* e-workpapers "Car Repair User_2014.xlsx," cell G20 for URCS repair cost per car-mile and "CERR Car Costs_Open.xlsx," tab "Coal Cars" cell M36 for coal private car-miles and tab "General Freight" cell N26 for general freight private car-miles.

i. Private Car Allowance

{

}

With respect to private cars used for non-coal traffic, Consumers' experts have included a private car charge per car-mile by car type which is applied to all private car-miles on the CERR. The private car mileage charge by car type was developed from data contained in CSXT's 2014 R-1. *See* e-workpaper "CERR Car Costs_Open.xlsx," tab "Private Cars."

3. Operating Personnel

The CERR is a small SARR. Indeed, compared to the *TPI*, *DuPont*, and even the *Sunbelt* SARRs, the CERR is very modest in size and scope. It is a non-unionized Class II rail carrier with $139.4 million in 2015 revenues. Half of the CERR's operations consist of unit trains, and the balance of the trains are handled intact. Moreover, the CERR has only one local customer (Consumers) and one locally served facility (59th St. Intermodal terminal). Simply put, the CERR does not require Class I-style staffing.

a. **Operating**

i. **Staffing Requirements**

The CERR's operating personnel include train crews as well as other operating employees, including the senior management staff based at the railroad's West Olive headquarters and line supervisory and other field employees in the Transportation and Engineering/Mechanical departments. Consumers' Witnesses Mr. Orrison and Mr. Holmstrom developed the staffing plan herein. Extensive descriptions of their operating experience are included at the outset of Part III-C and in Part V, as well as the beginning of this Part.

ii. **Train/Switch Crew Personnel**

The CERR requires a total of 52 train and engine ("T&E") crew members to perform its train operations. This count, which includes switch crews based at Barr Yard and helper crews based at West Olive, is based on the number of trains moving over the various parts of the CERR system during the base year (indexed to reflect first-year traffic levels), and the crew districts/assignments, switch crew assignment, and helper crew assignment developed by Mr. Orrison and Mr. Holmstrom as described in Part III-C-3-a. The RTC Model simulation was used to confirm that most train crews operating in these crew districts could complete each tour of duty within 12 hours, as required by federal law. Mr. Despard developed the CERR's crew requirements based on crew districts, yard crew assignments, and traffic levels. Details on the development of the CERR's T&E personnel are provided in e-workpaper "Base Unit Merch Trains v6_Statistics.xlsx," tab "2014 Full Base Year Unit Merch," beginning at cell V10294.

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over the entire base year. *See Xcel I* at 645. In *Xcel I*, the Board determined crew requirements based on all trains moving in the peak year rather than extrapolating peak-week crew requirements to a full year of traffic. The peak-year crew requirements were then indexed back to traffic volumes in the first year of the DCF model. Here, crew requirements are determined following the *Xcel I* precedent, *i.e.* using all trains moving in the year rather than extrapolating peak-week crew requirements to a year's traffic volume. The only difference is that the crew requirements are determined for all trains moving in the base year and indexed to traffic volumes in the first year of the DCF model, rather than being determined for all trains moving in the peak year and then indexed to traffic volumes in the first year of the DCF model. This methodology is the same as that followed by the defendants in *AEPCO*, *DuPont*, and *Sunbelt*.

Consumers' experts reviewed the delay report generated by the RTC modeling to determine the need for recrews. The RTC delay report indicates no expiring crews, thus, recrewing is not required on the CERR. *See* e-workpaper "CERR Opening.DELAY."

iii. <u>Non-Train Operating Personnel</u>

The CERR's staffing requirements for operating personnel other than train, switch and helper crews and MOW personnel are summarized in Table III-D-3 below. MOW personnel and compensation are discussed separately in Part III-D-4.

TABLE III-D-3
CERR NON-TRAIN OPERATING PERSONNEL

Position	No. of Employees
Vice President – Operations	1
Director of Operations Control	1
Managers of Train Operations	3
Assistant Managers of Train Operations	3
Manager of Locomotive Operations	1
Crew Callers	5
Dispatchers	9
Manager of Operating Rules, Safety & Training	1
Customer Service Managers	2
Chief Engineer	1
Manager of Mechanical Operations	1
Equipment Inspectors	9
Total	**37**

This staffing level reflects the volume of trains being handled by the CERR, the types of trains handled, and the other activities that the CERR requires. This staffing level is comparable, in part, to other SARRs with similar volumes of traffic (*e.g.*, *WFA* and *IPA*, as proposed by the parties to that case). However, the staffing for the CERR was developed from the ground-up by Mr. Orrison and Mr. Holmstrom to reflect the particular territory the CERR traverses, the variations in traffic flows between the 22nd St. to Curtis segment and the Porter to West Olive segment, and the need for more operating personnel to coordinate activities between the CERR and other railroads in Chicago.

(a) Headquarters Transportation Management

The CERR's Vice President-Operations heads the Operating Department. The Vice President-Operations is responsible for the transportation, customer service, engineering and mechanical functions.[17] The Vice President also provides senior-level input on marketing issues and coordination of activities between marketing and operations.

The Director of Operations Control, who reports to the Vice President, supervises all train operations and the CERR's field operating managers described below. The Director also supervises the CERR's Crew Callers and Dispatchers. The Director of Operations Control is also the CERR's primary representative to the CTCO.

The CERR's crew-calling system is automated. It is augmented by one Crew Caller position that is on duty 24/7/365 (thus requiring five employees). The crew caller is also available to answer questions that cannot be dealt with by an automated system. The crew caller also assists with crew scheduling and planning.

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[17] The CERR has a total of four senior executives – the President and three Vice Presidents including the Vice President-Operations. These executives share a pool of two Administrative Assistants who are included in the General & Administrative personnel described in the next section.

As explained in Part III-C-3-f-ii, the CERR has two train dispatching districts or "desks." One dispatching desk covers the movement of trains between 22nd St. and Barr Yard/Dolton Jct. and the other desk covers the area between Barr Yard/Dolton Jct. and Curtis, as well as the territory between Porter and West Olive. The desk responsible for 22nd St. to Dolton Jct. also coordinates the dispatching of trains over the BRC and NS trackage rights segments.

Mr. Orrison and Mr. Holmstrom determined that including two dispatching desks for the CERR would be preferable. The CERR must negotiate a number of interchanges with other carriers, several crossing diamonds, and a series of on-SARR/off-SARR connections over a relatively short distance. As such, Mr. Orrison and Mr. Holmstrom conservatively chose to provide for two CERR dispatching desks.

All dispatchers are trained to dispatch both desks. In addition, the boundaries of the dispatching desks can be adjusted temporarily if circumstances warrant. The Dispatcher position is manned 24/7/365, thereby requiring nine employees to cover the two desks.

The Manager of Operating Rules, Safety & Training also reports to the Vice President-Operations. This individual interfaces with the FRA in matters pertaining to rules and operating practice, and is responsible for the CERR's operating timetable, operating rules, operating bulletins, and related instructions. A single position is adequate to supervise the rules, safety and training function because of the CERR's limited geographic scope and its small number of employees.

The CERR's Customer Service Managers are included within the operations/transportation function. The CERR requires two Customer Service Managers. Customer Service Managers monitor train locations, maintain contact with the CERR's operating personnel and interchange partners, and answer customers' questions concerning the locations of specific trains on the CERR system. The CERR serves only one local industry (Consumers) and one local facility (59th St. Intermodal terminal). It typically handles approximately 30 trains per day. There is only one primary route on the system and one secondary trackage rights route. Moreover, half of the trains are unit trains and the remaining trains move intact over the CERR. The vast majority of the trains move less than 40 miles on the CERR. Accordingly, the CERR does not need 24/7 coverage of the customer service function.

Indeed, given the limited mileage typically traveled on the CERR system and given the fact that most transit time for trains traversing the CERR will be spent on other carriers (*e.g.*, the longer travel time spent by CERR traffic on the residual CSXT for Chicago to Schenectady, New York movements), customer service inquiries are mostly likely to be directed to the residual CSXT or another CERR interchange partner. Nevertheless, in the event a customer service call does arrive, such calls are likely to occur during normal business hours, which is when the CERR's two customer service managers are on duty.[18] To the extent the CERR receives customer service calls (including possible calls from CSXT or another carrier) at other times, however, the calls can be taken by the dispatchers on duty. Moreover, if further help with customer or carrier inquiries during such times is necessary, the on-duty Manager of Train Operations can provide assistance. Finally, if these CERR personnel are unable to respond fully to a particularly pressing customer inquiry outside normal business hours, CERR customers also will have the ability to reach the CERR's customer service managers via email or text message.

(b) <u>Field Transportation Management</u>

The CERR is staffed with three Managers of Train Operations ("MTO") and one Manager of Locomotive Operations ("MLO"). These positions, which report to the Director-Operations Control, are the equivalent of the Trainmaster and Road Foreman of Engines positions on a Class I railroad.

The MTO is stationed at the CERR's Barr Yard. This is a 24/7 position with 12-hour shifts; thus, three employees are needed to staff it. The MTO is responsible for managing train operations and for supervising train crews. The MTO also performs FRA-mandated and other appropriate testing, and responds to and investigates accidents and day-to-day operational issues. One

[18] One will be on duty from 6 AM to 2 PM, and the other will be on duty from 10 AM to 6 PM.

position is sufficient since the CERR's total route mileage (160 miles) is comparable to that of many Class I railroad subdivisions.

The MTOs are aided by three Assistant Mangers of Train Operations ("AMTO"). The AMTOs reports to the MTOs. The AMTOs' functions are similar to those of the MTO, except that on most shifts, the AMTOs spend the majority of their time in the field. In particular, the AMTOs coordinate from the ground with the MTO who largely exercises his duties from the office location. The AMTOs also assist with other functions, such as inspections, on an as needed basis.

The MLO is responsible for the safe and efficient handling of locomotives and trains by the CERR's locomotive engineers. He is an FRA-certified locomotive engineer and qualified on all of the CERR's route miles. He performs FRA-mandated testing and observation of engineers in train handling, efficiency testing, and other assistance as needed. A single individual can easily cover 160 miles given the relatively low frequency of train operations on more than half of the CERR's lines and given the fact that he does not have to cover each crew district every day. Once again, cross-training of the Road Foreman/Train Manager positions will allow for extra coverage.

The CERR does not need any separate yard management positions such as a Yardmaster. The CERR has only one yard (Barr Yard) where car inspections and associated bad-order/spare railcar switching are performed. The volume of inspections is light. The 24/7 MTO and ATMO positions can easily supervise the movement of trains and locomotives in Barr Yard as well as the switching operations themselves, especially since the MTO operates from Barr Yard.

The CERR has one moveable bridge located in St. Joseph, MI. Currently, CSXT employs a bridge tender during daylight hours.[19] However, Mr. Orrison and Mr. Holmstrom determined that a bridge tender was not necessary for several reasons: (i) the swing span is being replaced with a bascule bridge that covers only the open channel across the small bay; (ii) the bridge is in the closed position during the winter months when the channel is not navigable; and (iii) modern moveable bridges can be operated remotely using a security pin entered into the locomotive radio (somewhat similar to a FAS-PAS switch).[20]

(c) <u>Engineering and Mechanical Management</u>

The CERR's size and traffic volumes are such that it does not need a separate vice president to oversee the engineering and mechanical functions. Such top-heavy staffing is more typical of Class I railroads. Instead, the CERR has a Chief Engineer and a Manager of Mechanical Operations based at its West Olive headquarters. These individuals report to the Vice President-Operations.

The Chief Engineer oversees the CERR's engineering function, including, in particular, MOW and structures, and supervises the in-house MOW

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[19] *See* Grand Rapids Subdivision timetable included in e-workpaper "BNSF Timetable - Chicago No. 7 Sept 8 2010.pdf."

[20] Consumers added the necessary costs to allow for remote operation of the bridge. *See* Part III-F-5.

staff. He or she also is responsible for contract maintenance and for general oversight of contractor performance.

The Manager of Mechanical Operations oversees the CERR's mechanical function and interfaces with the locomotive and car maintenance contractors. He or she also is responsible for budgeting and for the Equipment Inspectors stationed at Barr Yard. The Manger of Mechanical Operations also spends time, as needed, at the Barr Yard locomotive shop.

The Barr Yard inspects, on average, 6-7 trains a day (during the peak period of the peak year). *See* Part III-C-3-c. This relatively small volume does not necessitate a large force vis-à-vis the CSXT's staff at Barr Yard where many trains receive an initial terminal inspection and many cars are inspected during classification and blocking. However, to expedite inspections, Mr. Orrison and Mr. Holmstrom assign two Equipment Inspectors for each inspection. Given the number of inspections to be performed, the CERR has one two-person crew of Equipment Inspectors stationed at Barr Yard on a 24/7 basis. However, the CERR also has one two-person crew available on an on-call basis at Barr Yard. The one-person switch crew can also assist in train inspections as can the MTO and the ATMO on duty.

The CERR performs inspections of empty trains at Consumers. Approximately, one train to 1.5 trains per day are inspected at Consumers. As such, Mr. Orrison and Mr. Holmstrom have assigned one Equipment Inspector to

West Olive. The Equipment Inspector works on an on-call basis. The Equipment Inspector is backed-up by the helper crew stationed at West Olive.

Given the staffing requirements noted above, the CERR requires nine (9) Equipment Inspectors, six (6) at Barr Yard and three (3) at West Olive.

iv. Operating Personnel Compensation

The salaries and benefits for the CERR operating personnel described above are based on comparable and competitive compensation packages presently available in the railroad industry. The annual salaries for the T&E personnel and non-train operating personnel (other than the Vice President-Operations) are based on data contained in CSXT's 2014 Wage Form A&B Reports provided in discovery.

The salary for the Vice President-Operations of $275,940 is based on the average salaries paid to senior executives employed by the Providence and Worcester Railroad Company ("P&W"), a publicly held regional railroad, as shown in its 2014 Proxy Statement to Shareholders.[21] The P&W operates 518 route miles in the northeastern United States and the salaries paid to P&W executives are far more in line with what executives at the smaller, Class II CERR would earn than are the salaries paid by CSXT to its executives.

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[21] This calculation includes salaries and bonuses paid to senior executives (excluding the Chairman/CEO) employed by P&W for the entire year 2014, indexed to 1Q15. See e-workpaper "CERR Salaries_Open.xlsx," tab "Executive Salary."

The fringe benefit ratio for all CERR employees of 37.6 percent is based on the average fringe benefit ratio for all Class I railroad employees in the United States in 2014 as reported in R-1's. *See* e-workpaper "CERR Fringe Benefits.xlsx." Consumers relied upon the fringe benefits for all Class I railroad employees in the U.S. because each Class I carrier has a presence in the vicinity of the CERR.

v. Transportation Management System Costs

The key item in the CERR operating department's technology requirements is RMI's Transportation Management Services ("TMS") package. TMS is an integrated system for managing day-to-day rail operations that is in use on several railroads. It includes modules for yard and inventory control, waybilling, train operations, switching settlements, demurrage, EDI consists, waybills, bills of lading, blocking instructions, work orders, switch instructions, and many other features. This system is outsourced to RMI using frame relay communications from West Olive, MI (where the major transactions reporting occurs) to Atlanta, GA, where RMI is located. Field personnel access the RMI system via the Internet. The annual operating expense of $3,585,540 for the RMI TMS system is detailed in e-workpapers "CERR – Operating Budget (2).xls" and "RMI Price Sheets.xls."

The CERR requires some Railinc services to pass and receive car location information to/from its interchange partners for the various interchange locations. The annual cost for Railinc service is shown in e-workpaper "CERR - Operating Budget (2).xls."

b. General and Administrative

The CERR's general and administrative ("G&A") personnel needs were developed primarily by Consumers' Witnesses John Orrison and Robert Holmstrom. As noted above, each has extensive experience in railroad management and railroad operations in the particular geographic area traversed by the CERR.

i. Basic Staffing Approach and Summary

In developing the G&A staffing for the CERR in the instant proceeding, Mr. Orrison and Mr. Holmstrom drew upon: (1) their executive and managerial experience in the railroad industry; and (2) and staffing benchmark standards developed from prior SAC decisions, third-party sources, and/or CSXT's own evidence in the pending *TPI* case. The CERR's staffing level is conservative and reasonable in accordance with the benchmark standards that Consumers has identified. In fact, under many of these benchmarks, the CERR's staffing level is at or above the most robust staffing ever determined by the Board for the various G&A functions.

The G&A staffing level developed for the CERR consists of a total of 31 persons, excluding the Vice President-Operations and the Customer Service Managers who – consistent with the Board's treatment in *WFA* – are categorized as non-train operating personnel rather than G&A personnel.

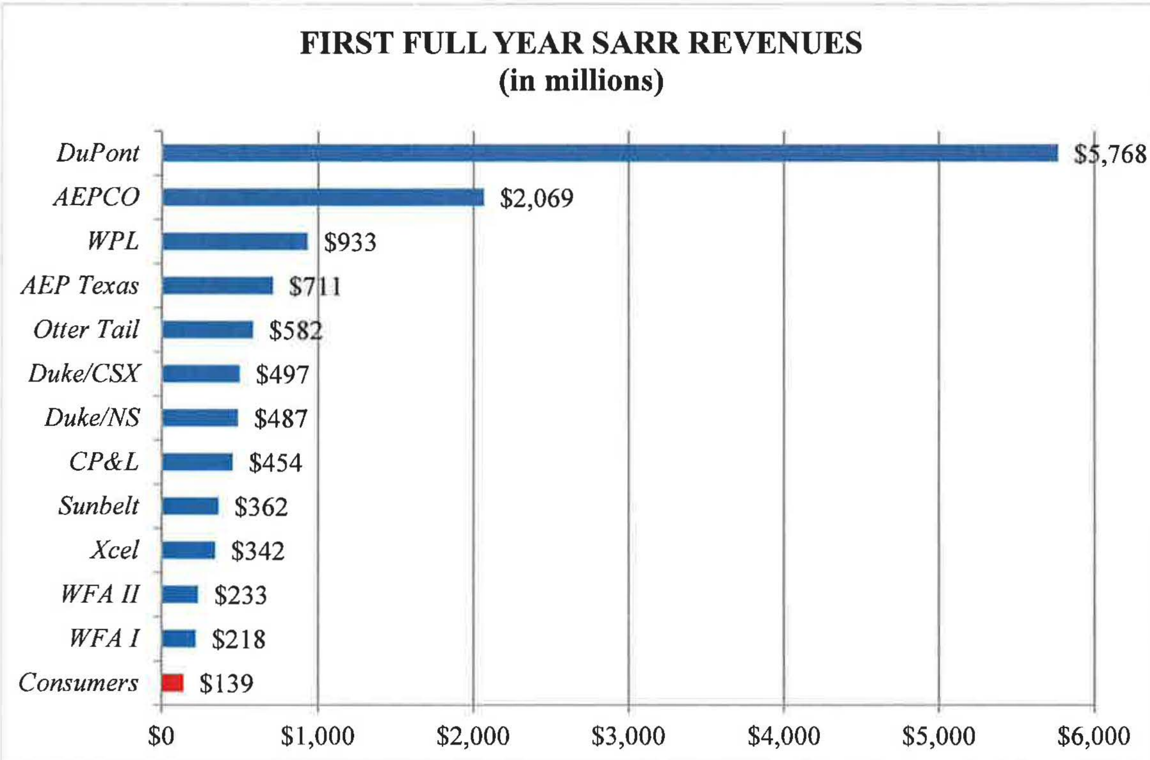
The overall G&A expense incurred by the CERR is $6.9 million, which represents 4.95% of the CERR's $139.4 million annual revenues.[22] As described below, this G&A expense level is demonstrably conservative under Board precedent.

ii. CSXT Benchmarking Standards and Prior SAC Cases

It is significant to note at the outset that the CERR's revenues are substantially lower than the revenues of SARRs in prior Board decisions. The following table shows the substantial disparity in revenues – even in nominal dollars – between the CERR (*i.e.*, $139.4 million) and the other SARRs that the Board has considered in recent years:

[22] This G&A expense calculation does not include the CERR's annual cost associated with the RMI Traffic Management System. Since the cost of that system varies from year to year based on CERR operating statistics and the number of annual CERR transactions, Consumers has treated that cost (*i.e.*, approximately $3.6 million in 2015) as part of its expenses for Operating Materials and Supplies. Upon information and belief, shippers in prior SAC cases routinely have treated this expense as part of G&A costs. Consequently, the G&A total expense comparisons set forth below demonstrate that Consumers has been even more reasonable in its G&A staffing in this case.

TABLE III-D-4



The staffing of the CERR's G&A function should not remotely approach the staffing required for the much larger railroads that have been the subject of these recent SAC cases. Unlike a typical SARR, the CERR is not a Class I railroad. Accordingly, the CERR need not incur the many costs associated with the operation of a Class I carrier, including for example, G&A expenses associated with SEC filings, Class I annual reporting to the STB, etc.

Even in terms of physical layout, the G&A staffing for the CERR will not resemble the typical large G&A staff for a Class I railroad in which the railroad's executives rarely interact with non-executive members of the G&A staff. In that type of large corporate structure, the executives of the company often are housed on a separate floor from many of the company's middle managers and bottom-layer staff members, and may rarely, if ever, have any personal interaction with that staff. Contrary to the structure of that large-carrier model, the CERR's G&A staff easily could be housed on a single floor of an office building all within a matter of 100 to 150 feet of each other.

The positions identified in Consumers' G&A evidence will be filled by a President and employees who know each other well and who will be accustomed to working together and assisting, as necessary, with job functions outside their principal areas of expertise. The notion of introducing redundant staffing or excessive management layers into that type of close working environment would be antithetical to good business practices and is unnecessary in this case.

(a) **<u>CSXT's *TPI* Reply</u>**

In its July 21, 2014 Reply Evidence in *TPI* ("CSXT TPI Reply"), CSXT provided extensive testimony on the subject of G&A benchmarking (both as to real-world railroads and stand-alone railroads), and CSXT identified a number of different means for evaluating the reasonableness of G&A staffing and overall G&A expense levels (*e.g.*, revenues, route miles, etc.). These benchmarks demonstrate that the G&A figures that Consumers has proposed for the CERR are extremely conservative and go well beyond the staffing and expense levels that the Board repeatedly has accepted in prior cases.

Consumers' G&A evidence makes reference to individual aspects of CSXT's *TPI* benchmarking in a number of different instances below, but it is worthwhile first to review certain of CSXT's aggregate staffing and expense benchmarks prior to analyzing individual functional areas. In particular, CSXT's *TPI* evidence sets forth the Board-approved G&A staffing levels in what CSXT identifies as the past ten SAC cases. *See* CSXT TPI Reply at III-D-80. The figures from CSXT's Table III-D-16 are as follows:

TABLE III-D-5 **BOARD-APPROVED STAFFING IN PAST 10 SAC CASES**			
Case	**G&A Staff**	**Revenue (in millions)**	**G&A Staff Per $10M Revenue**
Duke/NS	63	$487.1	1.29
CP&L	63	$453.7	1.39
Duke/CSXT	59	$496.8	1.19
Xcel	51	$341.5	1.49
Otter Tail	55	$581.7	0.95
AEP Texas	66	$384.2 *($711.0)*	1.72 *(0.93)*
WFA[23]	39	$218.4	1.78
AEPCO	225	$2,075.8	1.08
DuPont	820	$5,768.4	1.42
Sunbelt	100	$362.4	2.76
Average	–	–	**1.51** ***(1.43)***
CSXT Reply in *TPI*	754	$6,475.2	1.16
CERR Op.	**31**	**$139.4**	**2.22**

Id. (as noted below, Consumers has supplemented CSXT's data with corrections in certain instances).

[23] CSXT's table includes only the *WFA I* case and does not include the Board's *WFA II* decision. *See Western Fuels Association, Inc. and Basin Electric Power Cooperative v. BNSF Ry.*, NOR 42088 (STB served Feb. 18, 2009 and June 5, 2009). The revenues in *WFA II* were $232.5 million with the same 39-member G&A staff (*id.*, STB served Feb. 18, 2009, at 34, 39 and *id.*, STB served June 5, 2009, at 2), thus leading to a G&A Staff per $10 million of SARR revenue of 1.68, which is slightly lower than the 1.78 figure cited for *WFA I*.

By way of summary, CSXT identifies the "average" G&A staffing level as being 1.51 staff members per $10 million of SARR revenue. The lowest staffing figure that CSXT identifies is 0.95 staff members per $10 million of revenue in *Otter Tail*, and the highest staffing figure that CSXT identifies is 2.76 staff members per $10 million of revenue in *Sunbelt*.

There are two principal respects, however, in which CSXT's table is somewhat distorted as applied to the instant case. First, the G&A staffing figures listed by CSXT for several SAC cases include what Consumers treats as non-G&A "Operations" or "Customer Service" employees. *See*, *e.g.*, *Xcel*, 7 S.T.B. at 648 (the reported 51-member G&A staffing total includes 5 Operations employees and certain Customer Service employees); *Duke/NS*, 7 S.T.B. at 156 (the reported 63-member G&A staff includes 12 Operations employees and certain Customer Service employees), *Duke/CSXT*, 7 S.T.B. at 460 (the reported 59-member G&A staff includes 4 Engineering and Mechanical employees, 9 Operations employees, and certain Customer Service employees), and *CP&L*, 7 S.T.B. at 294 (the reported 63-member G&A staff includes 12 Operations employees and certain Customer Service employees).[24] Consistent with recent Board precedent,

[24] The G&A staffing levels accepted in past SAC cases generally include – but have not always included – outside directors amongst the G&A staffing headcount. *See*, *e.g.*, *WFA I* at 43 (including outside directors in the G&A headcount); *Sunbelt* at 52 (including independent directors in the G&A headcount); *AEP Texas* at 51-53 (including outside directors in the G&A headcount); *Otter Tail* at C-8 (including outside directors in the G&A headcount); *but see Xcel* at 65-66 (not including outside directors in the G&A headcount) and *Duke/NS*, 7 S.T.B. at 156 (not including outside directors in the G&A headcount).

Consumers treats those CERR staff members as falling outside the scope of G&A. Accordingly, the benchmark that CSXT has developed overstates G&A staffing in past SAC cases relative to the approach used by Consumers in this respect.

Second, CSXT's table incorrectly identifies the annual revenues for the SARR in the *AEP Texas* case. In particular, CSXT cited an annual revenue figure of $384.2 million and used this figure in calculating the SARR's G&A staffing per $10 million in revenue. *See* CSXT TPI Reply at III-D-80. The SARR in the *AEP Texas* case, however, commenced operations in the third quarter of 2000 (not on January 1, 2000), so the year 2000 revenue figure that CSXT identifies from the *AEP Texas* decision (*i.e.*, $384.2 million) is only a six-month revenue total. The full-year revenues for the *AEP Texas* SARR in 2001 were $711.0 million. *See AEP Texas* at 31, 112 (2001 revenues equal $711.0 million; revenues for 3Q and 4Q 2000 were $384.2 million). Using that corrected annual revenue figure for purposes of CSXT's table yields a G&A staffing level of 0.93 employees per $10 million in revenue in the *AEP Texas* case, not the 1.72 employee figure that CSXT had included. This correction also impacts the overall average that CSXT calculates for the ten different SAC cases, reducing CSXT's reported average of 1.51 G&A staff members per $10 million in revenue to a figure of 1.43 G&A staff members per $10 million in revenue.

Notwithstanding this overstatement of past results, however, the benchmarking figures that CSXT has identified show that Consumers' staffing of the G&A function is entirely reasonable, and in fact, represents a far more robust

G&A staffing than the Board had approved in virtually all of the cited cases. Specifically, Consumers has proposed a G&A staff of 31 individuals for a SARR earning $139.4 million in annual revenue, which using CSXT's metric, equates to 2.22 G&A staff members per $10 million of SARR revenue.

If Consumers were to staff the CERR's G&A function at the 1.43 "average" level for the past ten SAC cases, the total G&A staffing for the CERR would be only 19.9 individuals (*i.e.*, 1.43 G&A staff members per $10 million in revenue x $139.4 million in CERR revenue = 19.9). Consumers' proposed 31-member G&A staff substantially exceeds this average level. In fact, the 31-member level is 156% of the "STB average" G&A staffing.

Moreover, even as compared with the highest G&A staffing level ever found by the STB in the cases identified by CSXT (*i.e.*, *Sunbelt*), the G&A staffing level that Consumers has proposed for the CERR still falls within a reasonable range (*i.e.*, staffing of 2.22 vs. 2.76 per $10M of revenue).[25]

After addressing the "G&A staffing per $10 million in revenue" benchmark in its Reply Evidence in the *TPI* case, CSXT's Reply next sets forth a comparison of past SAC cases on the basis of a second metric, namely, "G&A spending as a percentage of SARR revenue." *See* CSXT TPI Reply at III-D-81. Once again, the figures identified by CSXT demonstrate that Consumers' G&A

[25] Consumers respectfully submits that the *Sunbelt* G&A result is somewhat of an aberration in SAC history and reflects, at least in part, the Board's determination to strike rebuttal evidence on significant G&A topics. *See Sunbelt* at 55.

evidence is reasonable and goes far beyond the expense levels accepted by the Board in prior cases:

TABLE III-D-6 BOARD-APPROVED G&A SPENDING IN PAST 10 SAC CASES			
Case	**G&A Spending (in millions)**	**Revenue (in millions)**	**G&A Spending as Percentage of Revenue**
Duke/NS	$13.0	$487.1	2.7%
CP&L	$13.0	$453.7	2.9%
Duke/CSXT	$12.6	$496.8	2.5%
Xcel	$10.4	$341.5	3.0%
Otter Tail	$13.3	$581.7	2.3%
AEP Texas	$12.5	$384.2 *($711.0)*	3.3% *(1.75%)*
WFA[26]	$11.0	$218.4	5.0%
AEPCO	$58.3	$2,075.8	2.8%
DuPont	$171.7	$5,768.4	3%
Sunbelt	$18.9	$362.4	5.2%
Average	–	–	**3.3% *(3.1%)***
CSXT Reply in *TPI*	$166.5	$6,475.2	2.6%
CERR Op.	**$6.9**	**$139.4**	**4.95%**

To summarize, CSXT identifies the "average" G&A spending level as being 3.3% of total SARR revenue. The lowest G&A spending that CSXT identifies is 2.3% of revenue in *Otter Tail*, and the highest spending level that CSXT identifies is 5.2% of revenue in *Sunbelt*. As had been the case with CSXT's citation of G&A staffing levels that included "Operations" or "Customer

[26] Once again, CSXT's table includes only the *WFA I* case and does not include the Board's *WFA II* decision. *See Western Fuels Association, Inc. and Basin Electric Power Cooperative v. BNSF Ry.*, NOR 42088 (STB served Feb. 18, 2009 and June 5, 2009). The revenues in *WFA II* were $232.5 million with the same $11.0 G&A spending (*id.*, STB served Feb. 18, 2009, at 34, 39 and *id.*, STB served June 5, 2009, at 2), thus leading to a G&A spending as 4.7% of SARR revenue, which is slightly lower than the 5.0% figure cited for *WFA I*.

Service" employees, CSXT's cited G&A spending levels include expenditures associated with staff members that Consumers treats as falling outside the scope of the CERR's G&A staff. In addition, the G&A expense totals in the prior cases cited by CSXT routinely include costs of a Transportation Management System of the type that CERR includes as a $3.6 million Operating Materials and Supplies expense. Moreover, CSXT's table once again misstates the annual revenues for the *AEP Texas* SARR. Correcting those revenues from the reported $384.2 million level to $711.0 million yields a revised G&A spending percentage in *AEP Texas* of 1.75% of annual SARR revenues. Moreover, correcting this error yields a revised "average G&A spending" figure for the past ten STB cases of 3.1% of annual SARR revenues rather than 3.3%.

Again, however, notwithstanding these overstatements, the G&A spending percentages that CSXT has identified show that Consumers' treatment of the G&A function is entirely reasonable. Specifically, Consumers has proposed G&A expenses that are equivalent to 4.95% of the CERR's $139.4 million annual revenues. If, as had been the case in prior SAC proceedings, Consumers had treated its substantial RMI TMS expenses as falling with the scope of G&A expenses, the CERR's total G&A expense would be approximately $10.5 million or 7.5% of total SARR revenues, which constitutes a far greater share of revenues than the Board ever had approved in the cases that CSXT cited. In any event, the CERR's G&A spending is near the highest level ever found by the Board even without the inclusion of the CERR's $3.6 million RMI expense.

If Consumers were to set the CERR's aggregate G&A expense at the 3.1% "average" level for the past ten SAC cases, the total G&A expense level for the CERR would be $4.32 million (*i.e.*, $139.4 million x 3.1% = $4.32 million). Consumers' proposed $6.9 million G&A budget substantially exceeds this average rate case level. In fact, the $6.9 million CERR expense level is 60% higher than the "average SAC case" under the spending metric that CSXT has proposed (*i.e.*, $6.9 million/$4.32 million = 160%).[27]

(b) <u>The *WFA* Case</u>

Of the cases identified by CSXT in its *TPI* reply, only the *WFA* case involved a railroad with aggregate revenues even remotely comparable to those of the CERR. In particular, the revenues in *WFA* were $218.4 million (*WFA I*) and $232.5 (*WFA II*), respectively. *See WFA I* at 31; *WFA II* at 2 (STB served June 5, 2009). On a nominal basis, the CERR's revenues are only 64.1% of those in *WFA I* and only 60.2% of those in *WFA II.*

As noted above, the G&A staffing level in *WFA I* was 39, the G&A staffing per $10 million in revenue was 1.78, and the G&A spending as a percentage of SARR revenue was 5.0%. With respect to *WFA II* (with its higher SARR revenues), the G&A staffing level again was 39, but the G&A staffing per

[27] Adding the CERR's RMI expense to its G&A expense – for purposes of an apples-to-apples comparison – yields a total expense figure that is 143% higher than the historic average G&A spending level in SAC decisions (*i.e.*, ($6.9 million + $3.6 million)/$4.32 million = 243%).

$10 million in revenue was 1.68 and the G&A spending as a percentage of SARR revenue was 4.7%:

TABLE III-D-7 *WFA* G&A METRICS			
	G&A Staffing	**G&A Staff per $10 Million in Revenues**	**G&A Spending as a Percentage of Revenue**[28]
WFA I	39	1.78	5.0%
WFA II	39	1.68	4.7%

If the G&A metrics identified by CSXT in its *TPI* Reply (*i.e.*, number of G&A staff members per $10 million in SARR revenue and total G&A expenses as a percentage of total SARR revenue) were applied to the CERR based on the *WFA II* precedent, the CERR's G&A staff would have 23.4 members and its total G&A spending would be $6.55 million.[29] While the traffic mix of the CERR is broader than that of the *WFA* SARR, it is likewise the case that the G&A staff in *WFA* was required to perform many additional tasks associated with Class I railroad status due to the SARR's substantially larger size. The CERR will not be required to perform those functions. The fact that Consumers has provided for substantially greater staffing (and expenses) than the *WFA* case would suggest –

[28] WFA included its RMI Transportation Management System cost within its total G&A expense. Again, for purposes of a fair comparison, it is necessary to consider the combination of the CERR's G&A and RMI expenditures.

[29] 1.68 staff per $10 million in revenue x ($139.4 million/$10 million) = 23.4 staff members. 4.7% x $139.4 million = $6.55 million G&A expense.

particularly if the CERR's RMI costs are added to G&A expenses for purposes of a fair comparison – confirms the reasonableness of Consumers' evidence.

iii. Staffing Requirements

The CERR's G&A staff is based at its West Olive, Michigan headquarters. As noted above, Consumers has provided staffing for the G&A functions that substantially exceeds the staffing metrics reflected in the Board's findings in virtually every prior SAC case. This staffing is sufficiently robust that it will allow each G&A staff member of the CERR to perform his or her primary responsibilities (as described herein), and also to handle various "one off" tasks that may arise from time to time.

Table III-D-8 below sets forth the CERR's G&A staffing. The table does not include the operating staff (including the CERR's Customer Service Managers), which Consumers described in the preceding section, or the MOW staff which is described in Part III-D-4.

TABLE III-D-8 GENERAL & ADMINISTRATIVE STAFF	
Department/Position	**Staffing**
Executive (5)	
Outside Directors (non-employees)	3
President and CEO	1
Administrative Assistant	1
Marketing (5)	
Director of Marketing (Reports to VP-Operations)	1
Marketing Managers	4
Finance and Accounting (8)	
Vice President-Finance/Accounting	1
Treasurer	1
Controller	1
Assistant Controller	1
Revenue Accounting Managers	2
Manager of Budgets and Purchasing	1
Administrative Assistant	1
Law and Administration (13)	
Vice President-Law & Administration	1
General Attorney	1
Director – Human Resources	1
Security Chief	1
Security Agents	3
Director – Information Technology	1
IT Specialists	5
Total	**31**

(a) **Executive Department**

The CERR's Executive Department includes the CERR's President and an Administrative Assistant. It also includes the CERR's non-employee Board of Directors.

The President also serves as the CERR's CEO, and the department heads (Vice Presidents, including the Vice President-Operations) report to him. The President also is responsible for the CERR's external relations (other than the marketing of its transportation services), including community and government relations and investor communications (*i.e.*, updating banks, investment companies, and private investors on the CERR's financial performance). Given the CERR's limited geographic scope and annual revenues, the President does not need a separate staff to assist him with these functions. Assistance can be provided as needed by the CERR's three Vice Presidents.

The Executive Department includes an Administrative Assistant who is available to serve the administrative and secretarial needs of the President. Consumers has included a total of two Administrative Assistants in its G&A staffing, with one nominally assigned to the President and one to the Vice President-Finance & Accounting. Given the small overall size of the CERR and the compact nature of its headquarters footprint, however, these Administrative Assistants will be able to work in a pool environment, supporting each of the four CERR Executives (including the Vice President-Operations) as needs require.

Notably, the G&A staff approved in *WFA* included only two Administrative Assistants and one Administrative Assistant/Paralegal. *See WFA I* at 43.

The President is also a member of the CERR's Board of Directors, and serves as Chairman of the Board. Consistent with stand-alone theory, the CERR is not a publicly-owned company and therefore does not need a large board of directors with numerous outside directors. It can be governed by a five-person Board, consisting of the President, the Vice President-Operations, and three outside Directors. The outside directors would be chosen from amongst representatives of the CERR's customer group and its lenders. This would assure independent oversight of the CERR's affairs.

Since the outside directors would have a direct and substantial interest in the CERR's affairs, they should be willing to serve on its board without compensation other than the reimbursement of expenses for attending board meetings. Consistent with STB precedent, Consumers therefore has not provided any expenses for compensating the CERR's directors except for travel expenses to attend board meetings. *See, e.g., AEP Texas* at 60 (accepting as "feasible and consistent with precedent" AEP Texas' assumption that outside directors would be willing to serve on the SARR board for minimal compensation "for the travel expenses associated with attending board meetings") (citing *Xcel*, 7 S.T.B. at 653; *Duke/CSXT*, 7 S.T.B. at 462; *CP&L*, 7 S.T.B. at 297; *Duke/NS*, 7 S.T.B. at 159; *TMPA*, 6 S.T.B. at 676-77); *see also* Docket No. 42136, Union Pacific Reply

Evidence dated April 12, 2013 at III-D-30 ("UP (like IPA) provides only for expenses of travel to board meetings for these directors.").

(b) Marketing

The CERR's Marketing (and Transportation) functions are headed by the Vice President-Operations, who reports directly to the President and who is included in the CERR's Operating personnel staffing discussed above. The Operating personnel who report to this Vice President also were described earlier. The G&A employees who fall under the oversight of the Vice President-Operations include the Director of Marketing and four separate Marketing Managers.[30]

The duties of the four Marketing Managers are differentiated generally along the lines of the CERR's principle lines of business. In particular, one Marketing Manager will be responsible for the CERR's energy business (*i.e.*, coal, oil, and ethanol traffic). Two Marketing Managers will share responsibility for the CERR's intermodal traffic. Finally, one Marketing Manager will have responsibility for the CERR's various other types of traffic, including merchandise traffic, industrial products, automotive, etc. The Director of Marketing will oversee the work of the four Managers, will assist with marketing functions as necessary, and will report to the Vice President of Operations.

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[30] The CERR also has two Customer Service Managers, who also report to the VP-Operations and are included in the Operating personnel described earlier.

(i) **Marketing Staff Benchmarks**

Significantly, the marketing staff that Consumers has proposed is reasonable in light of the metric that CSXT utilized for the marketing function in *TPI*. *See* CSXT TPI Reply at III-D-108 ("Mr. Brown's general approach was to use CSXT's staffing as a benchmark for the [marketing] staffing that the TPIRR would need, *after making adjustments for TPIRR's relative revenues* and the assumption that the TPIRR would be a least-cost, most-efficient carrier.") (emphasis added); *see also id.* at III-D-114 ("Mr. Brown has reviewed the real world CSXT staffing and concluded that the most conservative approach is to *scale TPIRR's general freight marketing staff to CSXT based on revenue*.") (emphasis added).

Using this revenue-based metric, CSXT determined that the *TPI* SARR should have a total marketing staff of 215 employees based on its $6.475 billion in revenues. *Id.* at III-D-109. That standard equates to 1 marketing employee for every $30.1 million in revenue (*i.e.*, $6.475 billion divided by 215 = $30.1 million in SARR revenue per marketing employee). Applying that same metric to the CERR's annual revenues of $139.4 million would yield a total marketing staff of 4.63 employees (*i.e.*, $139.4 million revenue divided by $30.1 million in revenue per marketing staff member = 4.63 marketing staff members). Consumers' proposed marketing staff of four Managers and a Director reporting to the Vice President of Operations therefore is conservative even under CSXT's proposed *TPI* standard.

Other recent SAC decisions similarly demonstrate the reasonableness of the CERR's marketing staff on a revenue basis. For example, the Board accepted Defendant Norfolk Southern Railway Company's proposed marketing staff in the *Sunbelt* case. That staff included a total of nine individuals (including an Administrative Assistant) for a SARR with $362 million in revenues. *See Sunbelt* at 52; *see also* Docket No. 42130, *Sunbelt*, NS Reply Evidence filed January 7, 2003 ("NS Sunbelt Reply") at III-D-70. The staffing level that the Board adopted in *Sunbelt* equates to $40.2 million in revenue per marketing staff member (*i.e.*, $362 million SARR revenue divided by 9 marketing staff members = $40.2 million in revenue per staff member). Applying the Board's *Sunbelt* marketing standard to the CERR's total annual revenues would yield a CERR marketing staff of 3.47 employees (*i.e.*, $139.4 million divided by $40.2 million in revenue per marketing staff member = 3.47 staff members).[31] Consumers' proposed marketing staff of five individuals comfortably exceeds this level.

Significantly, NS had proposed its marketing staff of nine individuals for the *Sunbelt* SARR even though that railroad moved a complex set

[31] Measuring the 9-member *Sunbelt* marketing staff without the one administrative assistant that NS had proposed yields a figure of $45.3 million in revenue per marketing staff member (*i.e.*, $362 million divided by 8 marketing staff members = $45.3 million in revenue per marketing staff member). Applying this figure to the CERR would yield a marketing staff of only 3.1 members (*i.e.*, $139.4 million in revenue divided by $45.3 million in revenue per marketing staff member = 3.1 staff members).

of traffic including a substantial volume of carload traffic. *See* NS Sunbelt Reply at III-D-69 (the Sunbelt SARR's traffic mix includes a total of 424,515 automotive, intermodal, and general freight carloads moving in Rule 11 service alone); *id.* at III-C-3 ("44% (471,597 carloads) of the traffic that SunBelt selected for the SBRR – including all of the 'issue' traffic – is 'general freight' traffic."); *id.* at III-C-5 ("The SBRR's traffic group contains nearly 600,000 units of intermodal traffic."); *see also* Docket No. 42130, *Sunbelt*, Sunbelt Rebuttal Evidence filed June 3, 2013 at III-A-2 (the *Sunbelt* SARR's traffic volume was approximately 28 million tons in 2011, including, *inter alia*, 8.9 million tons of chemical traffic, 4.0 million tons of metals traffic, and 3.8 million tons of intermodal traffic). Accordingly, statistics related to the scope of responsibility of the marketing staff in *Sunbelt* present a reasonable gauge of the marketing staff that the CERR should employ.[32]

(ii) <u>Marketing Manager Responsibilities</u>

The workload to be handled by each of the CERR's Marketing staff members is reasonable. The following is a summary of the first-year train counts for each business group, which also identifies which segments of the CERR's traffic base move in unit train service:

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[32] In *WFA*, the Board adopted a marketing staff of two Marketing Managers for a SARR with $232.5 million in annual revenues. *See WFA I* at 43. This standard equates to $116.3 million in revenue per marketing staff member. Applying the *WFA* metric to the CERR revenues would yield a marketing staff of only 1.2 employees.

TABLE III-D-9 SUMMARY OF MARKETING MANAGER RESPONSIBILITIES			
Manager	**Commodity**	**First-Year Train Count**	**Percentage of Total Trains**
Energy Mktg. (1)	Coal (Unit Train)	925	
	Crude Oil (Unit Train)	1,865	
	Ethanol (Unit Train)	903	
	Mine – Run Shifters	6	
	Total	3,699	39.4%
Intermodal Mktg. Mgrs. (2)	Intermodal – Premium	2,926	
	Intermodal – Expedited	667	
	Total	3,593	38.3%
Merchandise Mktg. (1)	Merchandise – Carload	756	
	Merchandise – Scheduled Carload	216	
	Merchandise – Expedited Unit	208	
	Automotive – Premium	398	
	Phosphate, Sulfur, Potash (Unit train)	130	
	Coke (Unit train)	121	
	Metals (Unit train)	110	
	Grain Trains (Unit train)	67	
	Chemicals/Pet Coke (Unit train)	54	
	Aggregate (Unit train)	34	
	Misc. (Unit train)	4	
	Total	2,098	22.3%
	Grand Total	9,390	100%

See Tables III-C-2 and III-C-6 (above table excludes empty coal trains). Each of the two Intermodal Marketing Managers will be responsible for approximately

1,797 trains per year, which is one-half of the total volume of intermodal traffic (*i.e.*, 3,593 trains) that the CERR will handle.

On a weekly basis, the train counts set forth in Table III-D-9 equate to approximately 71 energy trains per week (all of which are unit trains), 35 intermodal trains per week for each of the two Intermodal Marketing Managers, and 40 trains per week for the Merchandise Marketing Manager (including both unit train and carload traffic). This represents a reasonable workload for each Marketing Manager.

Within each of the CERR's main traffic groups, the Marketing Managers' principal responsibilities will include: (i) setting, managing, and maintaining rates for the CERR's traffic and for new business as existing contracts expire; (2) interacting with the CERR's interline partners (*i.e.*, the residual CSX, NS, BNSF, UP, and BRC) to set and maintain rates; (3) setting, managing, and updating fuel surcharges; (4) monitoring the process of setting and maintaining rates on overhead traffic, including negotiating terms of contracts and administering contracts associated with overhead service; (5) managing service design Interline Service Agreements (ISA) and monitoring the performance of interchange deliveries along with scorecards for operational performance and shipment trip plans; and (6) preparing revenue and volume forecasts for CERR's annual budget by communicating with customers on shipping plans and projecting how rates and fuel surcharges will be adjusted. These forecasts will enable CERR to ensure that it has enough equipment and crews and will allow CERR's engineering team to plan the CERR's maintenance program. The Marketing Managers also will coordinate with the CERR's Finance & Accounting staff to ensure that the revenue accounting system receives all necessary updates on rates and fuel surcharges.

By way of summary, the staffing proposed by Consumers for the CERR's marketing function is reasonable and, in fact, conservative in light of prior SAC-case benchmarks (even under the *Sunbelt* decision and CSXT's own evidence in *TPI*) and also is appropriate in light of the specific amount of work to be performed by the individual members of the CERR's marketing staff.

(c) <u>Finance and Accounting Department</u>

The CERR's Finance and Accounting Department consists of eight employees, headed by the Vice President-Finance & Accounting. The staff for this department includes a Treasurer, a Controller, an Assistant Controller, two Revenue Accounting Managers, a Manager of Budgets and Purchasing, and an Administrative Assistant. This level of staffing and the positions involved are appropriate given the small traffic volumes and traffic flows involved. Again, the CERR's total revenues (and accounting and cash management needs) are much smaller than those of any of the SARRs involved in recent STB rate cases.

In its Reply evidence in the *TPI* case, CSXT argued with respect to staffing for the Finance & Accounting function that "[e]mployee-to-revenue ratios are a *<u>particularly relevant</u>* means to judge accounting staff levels, because most accounting tasks are a function of the amount of a railroad's incoming revenue and the amount of its corresponding expenses." CSXT TPI Reply at III-D-121 n.274 (emphasis added). CSXT proposed a Finance & Accounting Department of 242 employees in *TPI* for a railroad with $6.475 billion in revenues. *Id.* at III-D-137, III-D-81.

Under the metric that CSXT advocated, CSXT's staffing level equates to a figure of $26.76 million in SARR revenue for every 1 Finance & Accounting Department employee (*i.e.*, $6.475 billion in SARR revenues divided by 242 employees = $26.76 million per employee). Applying that same ratio to the CERR's revenues yields a total staffing level for the Finance & Accounting Department of 5.2 employees (*i.e.*, $139.4 million CERR revenue divided by $26.76 million in revenue per Finance & Accounting staff member = 5.2 CERR Finance & Accounting staff members). Consumers has proposed a Finance & Accounting staff for the CERR that is more than fifty percent higher than that level. Each member of the CERR Finance & Accounting Department therefore will be responsible for only about two-thirds of the work that CSXT argued was feasible and appropriate in its *TPI* Reply. Consumers' proposed staffing of the Finance & Accounting function therefore is conservative and reasonable.

With the foregoing as background, the following is a summary of the responsibilities of the members of the CERR's Finance & Accounting Department staff.

(i) **Vice President**

As noted above, the CERR's Vice President-Finance & Accounting is responsible for overseeing the finance and accounting functions of the railroad. The Vice President will report directly to the CERR's President and will be supported by a staff of seven additional employees. As a privately-held Class II railroad with limited revenues and accounting/financial reporting needs, the CERR does not need the large treasury and accounting staffs that are typical of Class I railroads.

The Vice President will share responsibility with the President for investor communications, providing updates on the financial performance of the CERR for its various investors (*i.e.*, banks, investment companies, and private investors). The Vice President also will handle the risk management function for the CERR, including responsibility for insurance coverage decisions and purchasing.

(ii) Treasurer[33]

The CERR's Treasurer is responsible for managing the CERR's cash flows and balances, its debt, its insurance, and its pension plan. This individual will report directly to the Vice President – Finance & Accounting.

The Treasurer will have responsibility for dealing with the Interline Settlement System's ("ISS") impact on CERR cash flows, and will interact with the CERR's operating and marketing staff to manage operating expenses and traffic forecasts. As part of that overall responsibility, the Treasurer will maintain the CERR's various bank accounts and will invest inflows in excess of cash needs and will shift funds between investment options as funds become available or are needed. Likewise, this individual will manage the CERR's long-term investments for purposes of the CERR's retirement programs. Finally, the Treasurer will be responsible for maintaining the CERR's creditworthiness, for responding to inquiries about the CERR's creditworthiness, and for conducting credit checks on new customers.

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[33] The Board previously has accepted G&A staffing for SARRs in which a single individual served as both the Vice President of Finance & Accounting and the Treasurer of the SARR. *See AEP Texas* at 51-52, 55 ("The parties agree on the need for a vice-president of finance and accounting, who would also serve as the TNR's treasurer and primary liaison with outside auditors. . . . AEP Texas' evidence demonstrates that its smaller treasurer's staff is feasible . . . ."); *TMPA*, 6 S.T.B. at 681-83 (declining BNSF's request to staff the SARR's Finance & Accounting Department with both a Vice President and a separate Treasurer). Consumers' inclusion of a Vice President and a separate Treasurer therefore represents a conservative approach to staffing this function.

(iii) **Controller Function**

As noted above, the support staff for the Vice President-Finance & Accounting also will include a Controller, an Assistant Controller, two Revenue Accounting Managers, and a Manager of Budgets and Purchasing. This support staff is sufficient for the CERR's Controller function needs given the CERR's small size and limited traffic group, and given the availability of computerized accounting packages and programs available to assist in performing these functions.[34]

The CERR's Controller is responsible for all revenue accounting functions (including freight revenue, miscellaneous billing, and car accounting), disbursements, and financial reporting. As part of this function, the Controller's office will create freight bills and will ensure that the CERR receives timely and accurate compensation for its services. The Controller staff also will create, maintain, and update a database of rate authorities for all traffic the CERR handles in interline service, and will monitor ISS revenue determinations to ensure that the CERR is receiving and/or paying the proper amount, while handling any billing disputes with other carriers or shippers as those disputes arise.

A substantial share of the CERR's traffic (*i.e.*, approximately 50%) moves in unit train service. *See* Table III-C-2 (identifying the CERR's traffic by train type). Unit train service is a relatively simple form of traffic to handle from a

[34] These packages and programs are described in detail in the subsection below on the CERR's Information Technology Department.

revenue accounting perspective. *See*, *e.g.*, CSXT TPI Reply at III-D-127 ("[Unit train traffic] is the easiest part of the CSXT traffic mix to handle in the revenue accounting process."). Accordingly, the revenue accounting burden on the CERR for this traffic is relatively straightforward. While the CERR's remaining traffic is more labor-intensive from a Finance & Accounting perspective, the CERR's staffing is more than adequate for this responsibility. As described above, the staffing level for the CERR's Finance & Accounting function substantially exceeds the staffing ratio (per dollar of revenue) that CSXT advocated in the *TPI* case.

The Controller function staff also has responsibility for all vendor payment processing, timekeeping and payroll, equipment accounting, budgeting, auditing, and the tax function. The CERR uses an outside accounting firm with property and payroll tax specialists to prepare all tax returns. *See* e-workpaper "CERR G&A Outsourcing_Open.xlsx," tab "Outside Services," cells C5 through C8 (setting forth the CERR's outsourcing costs for outside accounting). However, members of the CERR Controller function staff will interact with outside audit and tax personnel and will prepare the data and documentation needed by the outside audit firm. The CERR is a privately-held Class II railroad with minimal financial reporting requirements (it does not need to prepare reports to the SEC or the equity-investment community), and that uses financial accounting software to track all of its physical assets and asset replacements. The Controller staff will manage the financial accounting program for purposes of this tracking function.

Finally, the Finance & Accounting Department of the CERR will include a Manager of Budgets and Purchasing. This individual handles the preparation of the annual company budget, monitors monthly performance against plan, and prepares forecasts and cost and revenue analyses as required. Given the small size and Class II status of the CERR, one individual can handle both the budgeting and the purchasing functions. As described in Part III-D-4 below, there is a separate individual in the Engineering/MOW department who shares responsibility for purchasing.

By way of summary, the CERR's Finance & Accounting Department staffing is reasonable under the revenue-based standards articulated by CSXT. The staffing also is appropriate in light of the particular functions to be handled by the individual staff members that Consumers has identified.

(d) Law & Administration Department

The Law and Administration Department is responsible for the CERR's legal affairs, safety and claims administration, human resources and training, information technology, and security. It consists of 13 employees (including the 6-member IT staff), headed by the Vice President – Law & Administration.

The Vice President – Law & Administration reports directly to the President of the CERR and functions as General Counsel for the CERR. The Vice President's direct reports include a General Attorney, a Security Chief, the Director of Human Resources, and the Director of Information Technology.

Additional Law & Administration staff members include three Security Agents and five IT Specialists.

Legal/Claims Function: The CERR Legal Staff includes a Vice President of Law & Administration and a General Attorney. These individuals will perform the majority of the CERR's annual legal work including the administration of litigation and claims, real estate issues, and contract matters. The CERR legal staff also would be available to address any environmental issues, although these should be minimal given the absence of any hazardous materials in the CERR's traffic group. The CERR will retain outside counsel to assist the in-house attorneys with the railroad's legal work.

As to claims-related work, the CERR's in-house attorneys will supervise the CERR's out-sourced risk and claims management contractor and will provide assistance in investigating claims.[35] Notably, in its *TPI* evidence, CSXT benchmarked the claims function staffing for the subject SARR to the real-world CSXT on the basis of the number of constructed/owned route miles. *See* CSXT TPI Reply at III-D-140. Specifically, CSXT calculated that the SARR in that case would require 15 claims personnel for its 6,911.87 constructed/owned route miles. *Id.* at III-D-140, 143, *see also id.* at III-B-1 and III-B-13 (identifying 6,911.87 constructed/owned SARR route miles in the *TPI* case, not including the additional mileage over which the *TPI* SARR would operate via trackage rights).

[35] The CERR's Chief of Security will be available to provide on-the-ground support for initial claims investigations.

That staffing equates to 460.7 route miles per claims employee (*i.e.*, 6,911.87 route miles divided by 15 claims agents = 460.8 route miles per claims agent). As applied to the CERR's 160.52 constructed route miles (*see* Part III-B-1), CSXT's standard indicates that only 0.348 claims personnel would be required for the CERR (*i.e.*, 160.52 CERR constructed route miles divided by 460.8 route miles per claims agent = 0.348 CERR claims agents). Given this limited need for claims work, it is reasonable for the CERR to rely upon its internal and outside legal staff to handle claims work.

Consistent with the approach advocated and adopted in a number of recent SAC cases, Consumers has approached the determination of the internal legal staffing and the outside counsel budget in an aggregate manner. In particular, Consumers first has calculated a total legal expense for the CERR as a percent of revenue based on published benchmarks. Next, Consumers has identified an appropriate internal legal staff (and expense) based upon the nature of the CERR itself, and finally, Consumers has determined the outside legal expense by subtracting the internal legal spend for the CERR from its benchmarked total legal spend. *See*, *e.g.*, CSXT TPI Reply at III-D-138 (accepting the use of a percent of revenue calculation to determine total SARR legal cost, and then subtracting the cost of internal staff to determine outside counsel cost).

Total Legal Expense Percentage – Consumers has relied on a 2012 Law Department Metrics Benchmarking Study by Corporate Counsel and ALM

Legal Intelligence which reports total legal expenses as a share of company revenues. *See* e-workpaper "ALM.pdf." The ALM Study separates responding companies into four different revenue bands: (1) revenues under $100 million; (2) revenues from $100 to $999 million; (3) revenues from $1 to $4.9 billion; and (4) revenues of $5 billion and over. ALM reports total law department fees/expenses as a percentage of revenues as follows:

TABLE III-D-10 ALM TOTAL LAW DEPARTMENT FEES/EXPENSES AS A PERCENTAGE OF REVENUES BY ANNUAL REVENUE			
Under $100 Million	$100 to $999 Million	$1 to $.9 Billion	$5 Billion and Over
1.2%	0.5%	0.2%	0.1%

See "ALM Study.pdf" at 27; *see also id.* at 24 ("By far, the most commonly used benchmark related to legal expense is that which measures total expense as a percent of the company's annual revenue."). Applying this ALM benchmark to the CERR yields a total legal expense of $697,101 (*i.e.*, $139,420,104 x 0.5% = $697,101). This figure is reasonable and conservative for the CERR. Notably, in the *TPI* case, CSXT proposed – albeit for a much larger railroad – that the SARR's aggregate legal spend should be only 0.24% of SARR revenues. *See* CSXT TPI Reply at III-D-138.

The CERR is not a public company. Accordingly, it will not incur legal expenses associated with many of the securities- and disclosure-related issues that public companies must address. Moreover, as a Class II railroad, the

CERR is far less likely to incur any expenses associated with maximum rate litigation at the STB, which can generate significant legal expenses for a Class I carrier. (The overwhelming majority of rate cases before the STB have involved Class I carriers, and that is universally the case for rate cases involving complex stand-alone cost evidence.)

In addition, it is necessary to consider that both internal and outside counsel for the CERR likely will reside in or near West Olive, Michigan, where legal salaries are substantially lower than in other markets, such as the Washington, D.C. region where outside counsel for Class I railroads typically reside. West Olive is a small community located approximately thirty miles west of Grand Rapids, Michigan and twenty-five miles south of Muskegon, Michigan. While legal salaries even in the immediate vicinity of Detroit, Michigan are substantially lower than those in Washington, D.C., salaries for SARR counsel living in the less densely populated West Olive area likely would be even lower. *See* Rachel M. Zahorsky, "What America's Lawyers Earn," ABA Journal (March 1, 2011) (*see* e-workpaper "Zahorsky.pdf") (indicating that the mean wage for attorneys in the Warren-Troy-Farmington Hills, Michigan area is only 83% of the mean wage for attorneys in Washington, D.C.).

Internal Legal Staffing and Expense – The internal legal staffing level that Consumers has proposed for the CERR (*i.e.*, the Vice President of Law & Administration and a full-time General Attorney) is sufficient to meet the CERR's needs. This staffing level is equivalent to approximately 14.3 in-house attorneys per $1 billion in revenue (*i.e.*, two CERR legal staff members for a SARR with $139.4 million in revenue). This level is substantially higher than the level advocated by CSXT in its *TPI* Reply Evidence. *See* CSXT TPI Reply at III-D-138 (an internal legal staff of six lawyers and a paralegal for a SARR with $6.475 billion in revenue, which equates to 0.93 internal attorneys per $1 billion in SARR revenue).

The annual expense associated with these two CERR legal department attorneys (including salary, fringe benefits, travel, and computer and desk costs) is { }. *See* e-workpaper "CERR G&A Outsourcing_Open.xlsx," tab "Legal Spend," cell F15 (calculating the CERR's total internal legal spend).

Outside Counsel Expense – Subtracting the CERR's internal legal expense of { } from its total legal spend of $697,101 yields and outside counsel expense of { }.

Human Resources/Training Functions: Human Resources and Training are functions that lend themselves well to out-sourcing. External resources exist in this field (as described in the section on IT systems below) that will support a small in-house human resources staff whose primary responsibility is to interface with the outside contractor and assure that the CERR has a pool of employees that enables it to engage in ongoing operations. Accordingly, the CERR will employ a Director of Human Resources to manage training, recruiting, compliance, compensation and benefits, employee relations and training since most of these functions will be out-sourced. *See WFA I* at 45; *see also* e-workpaper “”CERR Operating Expense_Open.xlsx, tab “Training” (setting forth the outsourcing costs for the CERR’s human resources/training functions). As noted in the discussion of Non-Train Operating personnel and MOW personnel, the CERR will employ two additional individuals whose responsibilities will include interacting with the outside training vendor and with the Director of Human Resources. These individuals include the Manager of Operating Rules, Safety, and Training (Non-Train Operating staff) and the Engineer of Programs, Budgets, Safety, and Training (MOW staff).

In the *TPI* case (with a SARR employing approximately 7,800 individuals), CSXT proposed an HR group of 32 employees or 0.41 HR employees per 100 SARR employees. *See* CSXT TPI Reply at III-D-99 (“TPI’s proposal is only 0.2 HR employees per 100 employees. By comparison, CSXT’s proposal is 0.41 HR employees per 100 employees.”). The CERR has a total of 157 employees (not including its Director of Human Resources). *See* e-workpaper “CERR Operating Expense_Open.xlsx,” tab “Training,” cell E10 (setting forth the CERR’s total employee count). Applying CSXT’s 0.41 HR ratio to the CERR staff would yield a required HR staff level of only 0.644 employees (*i.e.*, 157 CERR employees x 0.41 HR employees per 100 SARR employees = 0.644). Consumers’ approach to staffing this function therefore is reasonable.

Consumers has determined that a total outsource budget of $2,687,684 is appropriate for the HR/Training function. *See* e-workpaper “CERR

Operating Expense_Open.xlsx," tab "Training," cell J10 (setting forth the CERR's outsourcing costs for training, pre-hire physicals, and recruiting). This approach is consistent with prior Board decisions regarding training. *See*, *e.g.*, *AEPCO* at 61-62 (accepting AEPCO's cost estimate to outsource training); *WFA I* at 51-52. Consumers is utilizing a { } attrition rate based on CSXT 2012-2014 employee data. *See* e-workpaper "Employee_Attrition_Open.xlsx."[36]

Information Technology Function: The CERR's IT systems and associated personnel were developed by Consumers witness Joseph Kruzich and reflect the size of the CERR's traffic group and revenues and its operating plan. Mr. Kruzich has considerable experience with the IT function at Class I and other railroads, including the Kansas City Southern. The CERR's IT systems (described in the next section) are administered by a staff consisting of a Director-Information technology and five IT Specialists. As discussed in more detail in the next section, the CERR does not have a main-frame environment, but rather a NT/PC-based system. This means far less effort is required than at a Class I railroad due to the relative simplicity of a NT/PC-based system. Furthermore, approximately 90 percent of the IT computer requirements (train movement, revenue accounting, car accounting, *etc.*) are outsourced to RMI.

[36] Consistent with the *AEPCO* decision, the CERR will utilize outside medical clinics to handle incidents beyond first aid for injured employees, thus making an in-house doctor unnecessary. *See AEPCO* at 61.

A staff of six people (including the Director and five IT Specialists) is adequate to provide sufficient coverage with at least one person on duty during normal business hours seven days a week. In addition to the seven days a week coverage, each technician will be on call periodically for evening duty thereby providing 24/7 coverage. Six IT personnel are more than sufficient to provide 24/7 coverage as the vast majority of computer users will not be in the office on weekends and evenings. The dispatching and crew calling systems are the key items that require support, and such support is easily provided on an on-call basis. Finally, since most of the CERR's application software is available from vendors, very little development and maintenance effort is required.

The primary IT staff function is to trouble-shoot various problems with vendors, coordinate the transportation software applications with the outside vendor (RMI) and the business users, and monitor the network infrastructure. There will also be occasions when enhancements will be required to the crew-calling, accounting, human resources and dispatchers systems. The CERR's staff of IT specialists will be active participants in this effort.

The Director oversees the IT department's daily activities, provides senior management with updates to new technology, and advises as to the future strategic direction for the department. This includes formulation of the logical and physical computer architecture plans and assessment of the cost and feasibility of all user requests.

The five IT Specialists perform the following specific functions, but each will be cross-trained to provide basic IT support when serving as the on-call technician:

- One Lead RMI Technician – responsible for all RMI applications (RMI is the CERR's principal software vendor/contractor, as described Part III-D-3-a-v) and serves as a liaison to RMI and the user Departments. This person ensures that all the users' needs are met in an efficient and timely manner.

- One Help Desk PC Technician – takes incoming calls from the various users, assists with basic IT support for office applications, and reroutes the call to a Programmer Technician for immediate handling if an adjustment to a system is necessary. This position follows-up with the user to make sure the problem has been resolved. This assignment is during regular business hours. During non-business hours, calls will be directly routed to the on-call technician. The on-call technician will remotely diagnose problems using remote access software (such as logmein) if necessary, or the on-call technician can come to headquarters in the event a problem cannot be diagnosed remotely.

- One Network Engineer – responsible for overseeing network security matters and local area network (LAN) and wide area network (WAN) functionality. This individual oversees the messaging design and implementation of the Windows server environment. He/she is also responsible for planning, designing and managing transmission facilities and cabling and communications devices, and also handles any telecommunications issues that may occur. This person is also responsible for coordinating data backup and working with the programmers/developers to assure cross-platform data availability and integration. This person also serves as the hosted Exchange liaison.

- One Programmer/Development – responsible for maintaining and upgrading the crew calling, accounting, human resources and dispatchers systems. This employee helps manage the crew calling, dispatching and accounting systems, and also is responsible for developing a corporate information website. The programmer is also responsible for developing any necessary system integration between RMI, accounting, dispatching and other systems.

- One IT Security/Server/Programmer – responsible for defining the security model to protect against cyber-security vulnerabilities, protecting internal and external railroad data from malicious attack, as well as performing general server maintenance work. This individual is also responsible for server infrastructure support to manage network needs and system infrastructure upgrades. This person is also responsible for managing the Microsoft SharePoint and SQL databases and will assist the Programmer/Development Specialist with programming responsibilities when needed.

Security Function: The CERR's Law & Administration Department also includes a Chief of Security and three Security Agents. These individuals interact with local police departments in the area traversed by the CERR's small system. One Security Agent will have responsibility for the portion of the CERR system in Michigan, one will have responsibility for the portion of the system in Indiana, and the third will have responsibility for the portion of the system that extends from the Indiana/Illinois border to the northwestern terminus of the CERR system at 22nd Street. Given the relatively few miles of the CERR system that are located in Indiana, the Security Agent assigned principally to Indiana will have the ability to provide assistance, as needed, from Chicago to the western Michigan area as well. The Chief of Security will oversee the work of the three Security Agents and – again given the small overall size of the CERR system as compared with prior SARR systems – will be able to provide additional security coverage throughout the entire CERR route. As noted above, the Chief of Security also will assist with the claims function, principally with respect to the initial investigation of any incidents on the CERR that may lead to claims disputes.

In the *AEPCO 2011* decision, the Board approved the railroads' proposed staffing level of "1 officer for every state in which the SARR operates, with 1 chief responsible for oversight." *Id.* at 62. Based upon this standard, a staff of one Chief of Security and three Security Agents is sufficient for the CERR.

In its Reply Evidence in the *TPI* case, CSXT advocated a 90-member security staff that would include special agents, staffing for a communications center, security for SARR headquarters, and a technical special crime unit. *See* CSXT TPI Reply at III-D-145-149. CSXT also emphasized that the SARR would bear a heightened security burden because its system traversed ten High Threat Urban Areas or "HTUAs." *Id.* at III-D-145 (citing 49 C.F.R Appendix A to Part 1580). The SARR in *TPI* extends over a substantial geographic area and carriers large volumes of TIH traffic. In particular, the *TPI* SARR system is 6,911.87 route miles and traverses 18 states. *Id.* at III-D-143. Moreover, the *TPI* SARR transports 333,875 carloads of hazardous materials annually. *Id.* at III-D-149. Since the CERR is a much smaller railroad that does not carry any hazmat traffic, its security needs are much less pronounced.

CSXT's proposed 90-member security staff in *TPI* equates to one security staff member for every 76.8 constructed/owned SARR route miles (*i.e.*, 6,911.87/90 = 76.8).[37] As applied to the CERR system's 160.52 constructed route

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[37] *See* CSXT TPI Reply at III-B-1 and III-B-13 (identifying 6,911.87 constructed/owned SARR route miles, not including mileage over which the SARR would operate via trackage rights).

miles, that staffing metric would yield a CERR security staff of 2.1 individuals (*i.e.*, 160.52/76.8 = 2.1), which is approximately one-half of the four-member security staff that Consumers has proposed. On a revenue basis, CSXT's proposed staffing equates to one security staff member for every $71.9 million in revenue (*i.e.*, $6.475 billion/90 = $71.9 million). As applied to the CERR's $139.4 million in revenues, CSXT's staffing metric would yield a CERR security staff of only 1.94 individuals (*i.e.*, $139.4 million/$71.9 million = 1.94).

While Chicago is listed as an HTUA in the Code of Federal Regulations section that CSXT cited, this designation does not materially impact the CERR's security function, particularly since the CERR's traffic group does not include any TIH traffic. *See* 49 C.F.R. Part 1580, Appendix B (summarizing the securities measures applicable to each category of persons subject to Part 1580). Accordingly, the CERR's Chief of Security will be able to ensure CERR's compliance with Part 1580. In any event, as noted above, Consumers has proposed a security staff that is double the level that CSXT proposed in *TPI* on either a route mile or revenue basis, even though the *TPI* case involved ten different HTUAs and a substantial volume of TIH traffic.

Finally, in addition to its internal G&A security staff of one Chief and three Security Agents, the CERR also will provide front desk security for its West Olive, Michigan headquarters on a 24-7 basis through an outsourcing arrangement. *See* e-workpaper "CERR G&A Outsourcing_Open.xlsx," tab "Outside Services," cell C10 (identifying the CERR's outsourcing costs for this headquarters security function). Consumers has calculated the cost of this outsourcing arrangement based upon average hourly wages for security guards as developed by the Bureau of Labor Statistics for all hours of the year. Consumers has adjusted this annualized hourly wage by the CERR fringe benefits percentage, which is used as an estimate of employee benefits and agency fees.

iv. Compensation

The salaries and benefits for the CERR's G&A personnel described above are based on comparable and competitive compensation packages currently available in the railroad industry (and in other service industries).

Specifically, annual salaries for the CERR's non-executive general and administrative personnel were estimated based on data contained in CSX's Wage Form A&B Reports provided in discovery and based upon the responsibilities that Consumers has identified for each staff member. *See* e-workpapers "2014 Wage Forms A and B (CSX-CNSMR-HC-00820 to 00826).pdf" and "CERR Salaries_Open.xlsx," tab "2014" (setting forth the compensation figures for the CERR's non-executive G&A personnel). In addition, the salaries paid to the CERR's senior management, *i.e.,* the President and the three Vice Presidents, are based on the salaries and bonuses paid to officers in comparable positions at the P&W, which is a publicly traded Class II railroad. Since P&W is a public company (unlike most if not all other Class II railroads), its compensation data is available publicly. Consumers has obtained executive compensation data from the P&W's April 29, 2015 proxy statement.

See e-workpapers "III-D-3 Executive Salary.pdf" at page 12 and "CERR Salaries_Open.xlsx," tab "Executive Salary" (setting forth the compensation for the CERR's executives).

Although the P&W's annual revenues are lower than those of the CERR (*see* e-workpaper "Providence & Worcester Form 10-K.pdf," page II-12), the P&W's executive compensation nevertheless is appropriate for the CERR because of the public nature of the company. In particular, the responsibilities for the P&W's executives (as the leadership of a public company) are greater than they would be if the P&W were a privately held company.

The G&A staff compensation is summarized in Table III-D-11 below.

TABLE III-D-11 CERR GENERAL & ADMINISTRATIVE STAFF COMPENSATION			
Position	**No.**	**Annual Compensation**	**Total**
President and CEO	1	$506,124	$506,124
Administrative Assistants	2	{ }	{ }
Director of Marketing	1	{ }	{ }
Marketing Manager	4	{ }	{ }
Vice President – Finance & Accounting	1	$196,894	$196,894
Treasurer	1	{ }	{ }
Controller	1	{ }	{ }
Assistant Controller	1	{ }	{ }
Revenue Accounting Managers	2	{ }	{ }
Manager of Budgets/Purchasing	1	{ }	{ }
Vice President-Law & Administration	1	$196,894	$196,894
General Attorney	1	{ }	{ }
Director – Human Resources	1	{ }	{ }
Chief of Security	1	{ }	{ }
Security Agents	3	{ }	{ }
Director – Information Technology	1	{ }	{ }
IT Specialists	5	{ }	{ }
Total (excludes outside directors)	**28**		**$3,379,199**

* Total may differ slightly from the sum of the individual items due to rounding.

See e-workpaper "CERR Operating Expense_Open.xlsx," tab "Operating-G&A," column F.

Details supporting the derivation of the compensation numbers in Table III-D-11 are included in e-workpaper "CERR Salaries_Open.xlsx," tab

"2014," columns A through F. It should be noted that the numbers in the Total Salaries column in this table may not equal the number of employees times annual salary due to rounding.

v. Materials, Supplies and Equipment

The CERR owns and leases materials, supplies and equipment to support operating personnel (other than maintenance of way personnel) and general and administrative personnel. Materials, supplies and equipment used by these personnel include motor vehicles (automobiles), office furniture, supplies and equipment, building utilities, personal safety equipment, end of trains devices, motorized carts, tools and car part inventories. Costs for this equipment have been included in the calculation of the CERR's annual operating expenses.[38]

The CERR leases a pool of fifteen (15) Ford F150s to support the four members of the Security staff who regularly function in the field (*i.e.*, the Chief of Security and the three Security Agents) and to support the eleven members of the non-train operating staff who will need the ability to drive to different points along the CERR system (*i.e.*, the Vice President – Operations, the Chief Engineer, the Director of Operations Control, the three Managers of Train Operations, the three Assistant Managers of Train Operations, the Manager of Locomotive Operations, and the Manager of Mechanical Operations). *See* e-workpaper "CERR Materials and Supplies_Open.xlsx," tab "Automobiles," cell

[38] *See* e-workpapers "CERR Operating Expense_Open.xlsx" and "CERR Materials and Supplies_Open.xlsx."

E3 (identifying the CERR's non-MOW vehicle lease expenses).[39] In addition, the CERR will lease four "ruggedized" golf carts for use by the CERR's equipment inspectors at Barr Yard. *See id.* at tab "Insp Tools Cart," cell D56.

This pool does not include the additional vehicles that the CERR's MOW staff will utilize, as described in Part III-D-5, below.

vi. <u>Other</u>

(a) <u>IT Systems</u>

The CERR's information technology systems have been developed by Consumers Witness Joseph Kruzich, its experienced railroad IT expert. Mr. Kruzich reviewed the CERR's operating plan and G&A requirements to determine the railroad's basic computer and communications needs and the kind of support needed by its staff. The IT systems described below enable the CERR to operate safely and efficiently and to perform all administrative functions.

The CERR is a small railroad that does not require the legacy mainframe systems that characterize Class I railroads. The CERR's operations are similar to those of other small SARRs in other recent SAC rate cases such as *WFA*, in that it does not have extensive yard or switching operations. Furthermore, the CERR's traffic volumes and revenues are much lower than those of the SARR involved in *WFA*, although the CERR does have a greater variety of traffic. It has a moderate volume of train movements per day, as well as a small

[39] These vehicles also will be available for use by the CERR's headquarters G&A staff.

number of customers whose traffic originates or terminates on the CERR system. The CERR also handles primarily trainload movements, with multiple-car billing (using the RMI Revenue Service to allocate revenues), with billing for individual railcars and containers only for overhead non-coal movements or other non-unit trains. This reduces the complexity of the computer and communication systems required to support operations.

The CERR thus does not require a large data center facility to house a mainframe computer system and associated peripheral equipment. As described below, the CERR's IT system design is NT/PC-based. As noted in Part III-D-3a-v, the Transportation Management System function is outsourcing to RMI in Atlanta, GA. The CERR's server system can be housed in a room approximately 10' x 15', with normal office-environment heating and air conditioning. This room is located in the CERR's West Olive, MI headquarters.

Based on the CERR operating plan and G&A staff departments/ sizes, the capital requirements for IT and communications systems equal \$2,223,259. *See* e-workpaper "CERR – Capital Budget (2).xls," tab "Sheet 1," cell D79. The annual operating cost for IT and related communications equals \$171,487 at year 2015 price levels.

The CERR's computer and communications systems are described below. They have been designed to meet the CERR's mission-critical technology needs to achieve operating efficiencies, customer satisfaction, optimum staffing,[40] maximum productivity, and safe train operations. The costs shown in the workpapers are based on the CERR's highest daily train counts and number of annual carload transactions.

Crew Management System. A crew management system is needed to efficiently manage the CERR's train crews and equipment. The CERR will purchase a license from PS Technology for the SCAT Client Server system, and related equipment and software (Oracle Data Base). This system provides the capacity needed to schedule crew requirements involving approximately 58 train/engine/yard employees (peak year) and with four crew-change points over the CERR system. It also minimizes the need for a large staff of crew callers or other crew management personnel. Cost for the crew management system is further detailed in e-workpaper "CERR - Capital Budget (2).xls."

Dispatching System. A computerized dispatching system, assisted by two human dispatchers on a 24/7 basis, monitors the movement of trains and other equipment at all times, and distributes traffic efficiently across the railroad. The CERR will purchase and implement a PC-based version of the Alstom CTC Dispatching system. This system is similar to the one that is currently being used by the KCS. This system has plenty of capacity to meet the CERR's needs and

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[40] The CERR's IT personnel requirements are described above in the discussion of G&A personnel. The IT staff size is largely a function of the systems described in this section.

includes all necessary equipment, installation and on-site tests. A detailed description of the system's capacity is included in e-workpaper "Alstom Dispatching System.pdf."

Revenue Accounting. The CERR needs a revenue system to handle interline settlements for all the trainload transactions and the multiple-car transactions. RMI has a revenue system that meets the CERR's requirements. In particular, the RMI Revenue Management Services (RMS) is a full-function revenue management system that has been certified by the AAR for Interline Settlement System (ISS) processing. This certification allows railroads using ISS/Connect to participate in the Interline Settlement System. ISS/Connect provides complex rate management, EDI management, freight billing, and support for industry reference files, revenue protection, and additional functionality. The RMS cost is based on the total monthly settlements. The CERR has an estimated maximum of 808,351 carloads/containers annually that are processed through the revenue management system at a cost of $873,876. These costs are shown in e-workpapers "CERR – RMI Price Sheets.xls."

Car Accounting. The CERR needs a receipt and payable car hire system, because the CERR owns some railcars and uses some railcars provided by its connecting carriers. RMI has a car hire system for receipts and payables that provides the necessary features needed by the CERR to keep track of its cars off-line and foreign cars on-line. This system computes charges due the CERR from foreign railroads and the CERR's payables to foreign roads. The system separates car earnings by designated owner groups, issues remittance and settlement summaries, flags non-moving cars and missing junctions and helps keeps track of assets with on-line access to car movement data. The annual operating expense for this system ($241,668) is based on the number of non-private interchange cars and intermodal units handled per month. *See* e-workpaper "CERR – RMI Price Sheets.xls."

General Accounting. The CERR uses the Oracle Solutions package for its general accounting system. Oracle "PeopleSoft" offers fully automated solutions to support the complete Financial Control and Reporting process from establishing and managing controls, creating and interfacing transactions from operations sources, transforming ledger balance to account for enterprise allocations and re-measurement to consolidating and reporting results. Built-in best practices provide strong internal controls, save time and money, and allow for strategic analysis of the business. Oracle Financial Control provides financial snapshot and business analysis reporting and has the core accounting features needed to run a medium-size business. The software is designed to run on server-based systems. The total operating and capital cost for this system, including hardware and training, is $120,863, which includes a Dell OptiPlex 3020 PC, cables, HP LaserJet P3015n printer and Dell PowerEdge M820 Server. Details are included in e-workpaper "CERR - Capital Budget (2).xls."

Human Resource Management. The CERR uses Oracle Solutions package "PeopleSoft" for its Human Resource system. Oracle's PeopleSoft

Enterprise Human Resources delivers comprehensive HR capabilities, from workforce management to compensation and talent management. Extensive business process automation and rich self-service capabilities free HR personnel to perform value-added services while reducing operational costs. This system covers the CERR's human resource data needs at an affordable cost. This system uses a Dell OptiPlex 3020, cables, an HP LaserJet P3015n printer and a Dell PowerEdge M820 Server. The total operating and capital cost for this system, including hardware and training, is $53,343. *See* e-workpaper "CERR - Capital Budget (2).xls."

Network and Router Equipment. The CERR needs networking capability and routers because it will have a small number of computers in multiple locations. Networking and router equipment permit these computers to communicate with one another. The CERR needs one router at each field reporting location and one at its headquarters. The CERR's communication network consists of a fiber optic/microwave and commercial telephone system. The costs for these items are included in the network infrastructure costs discussed elsewhere in this Part and in Part III-F. The IT operating-expense budget for a network computer system for LAN and WAN, routers at various locations, and internet access for headquarters and field locations is shown in e-workpaper "CERR-Operating Budget (2).xls." The primary network server also provides email functionality, document management and collaboration capabilities, SQL server capabilities, and other necessary network functions. Backup of these systems is also provided for in the Capital Budget.

Mr. Kruzich has also provided for a duplicate network server, which permits the testing and operation of modifications to the network system before rolling out changes to the production environment. It also provides redundancy for other network systems.

Workstations and Printers. Both desktop and laptop PC's are provided, and included in the CERR's IT costs, with a high-end configuration to run a state-of-the-art operating system while avoiding the need to purchase other applications. One PC is provided for each G&A employee as well as for operating personnel located at headquarters. Additionally, one PC is provided at each crew change point and all yard locations where employees are assigned. Laptops are provided for use by employees who are required to travel a considerable amount of their time. The total capital cost for desktop and laptop computers is detailed in e-workpaper "CERR - Capital Budget (2).xls."

The CERR needs a variety of printers for work orders, safety bulletins and normal office work such as printing contracts, correspondence and reports. A color printer will be needed for various maps, charts and diagrams. Printers also will be needed in the field and at major interchange locations, to print information relating to the work performed there. The equipment needs include a desktop laser printer for each desktop PC, a printer for laptop PCs where needed, one color and one line printers at headquarters, and one line printer at each yard location. *See* e-workpaper "CERR-Capital Budget (2).xls."

Voice and Data Communications. The CERR needs a telephone system and telephone service to handle external and internal telephone activity. This system includes traditional telephones for each administrative employee, the NTS telephone system, a voicemail system and a calling card system. NexPath Telephony Sever-NTS Server Rack Mounted Systems is capable of handling 51 outside lines and up to 85 extensions, and thus accommodates the CERR's needs. This system is capable of handling internal calls over the microwave system and external calls from various parties. The external calls would consist of local and long-distance telephone service, 800 services, paging and faxing. The cost of this system is included in the IT Capital Budget.

Data telecommunications to support the RMI transportation system from West Olive, MI to Atlanta are provided by AT&T. This is a frame relay system that is based on estimated transactions. The Internet is used for data communications for all the field offices. The field offices also have Internet access to the RMI transportation system in Atlanta.

Mobile (cellular) phones and pagers are provided for employees who need them to perform their work efficiently. The CERR's Operating budget also provides for an email service by Microsoft for each employee on the CERR. *See* e-workpapers "CERR - Capital Budget (2).xls" and "CERR - Operating Budget (2).xls." for details on the capital and operating costs for all of these items.

Software Maintenance. Software products such as PC accounting packages that run on a server, and tools such as security software and monitoring software, require payment of annual maintenance fees for support and upgrades. Some of these fees are included in the licensing agreement, such as that for the Oracle Solutions program, which has an annual fee payable for the use of its product. Other providers have a flat charge for the package with no annual fees, but they will have enhancement from time to time with a specified charge for the upgrade. The annual fees payable by the CERR are detailed in e-workpaper "CERR - Operating Budget (2).xls."

Security Software. The CERR also needs security software to protect its network from exterior intrusion due to the large amount of data that is transmitted from West Olive to Atlanta and other parts of the railroad. The system to be used is the Watchguard Firebox X6500e UTM Software Suite. The Watchguard suite offers comprehensive Unified Threat Management and is an easily managed firewall and AV/IPS security appliance for mid-size businesses requiring a secure, private network. The specifications for this system and its capital and operating costs are shown in e-workpaper "CERR - Capital Budget (2).xls" and "CERR - Operating Budget (2).xls."

(b) Other Out-Sourced Functions

As described earlier, several functions customarily provided in-house by large Class I railroads such as CSXT can be out-sourced by the CERR. Consistent with the stand-alone concept of an efficient, least-cost railroad, outsourcing is used wherever the economics so justify without sacrificing service quality.

Out-sourced functions at the CERR include several finance and accounting functions (*i.e.*, preparation of income, property and payroll tax returns and financial/account auditing), legal services (including claims administration and investigation), administration of the company's retirement plan, and security for CERR's headquarters in West Olive, MI. *See* e-workpaper "CERR G&A Outsourcing_Open.xlsx," tab "Outside Services."

A number of independent accounting, payroll service and other firms have the experience and systems to perform these functions. For example, the payroll service firm Paychex has experience in complying with Railroad Retirement and other railroad-specific tax and regulatory reporting requirements. In the human resources area, regional and industry employers' associations are available as a resource for the CERR's internal human resources staff.

The CERR also outsources a portion of its legal work. As noted above, the CERR's outside legal budget is { }.

Estimated annual costs have been developed for outsourcing all of the functions described above. The total outsourcing expense in the CERR's first year of operations, not including start-up/training costs, equals { }. Details are provided in e-workpaper "CERR G&A Outsourcing_Open.xlsx."

By way of summary, Consumers has included the following outsource costs:

TABLE III-D-12
SUMMARY OF OTHER CERR OUTSOURCED SERVICES

	Service	Costing Approach	Expense
	(1)	(2)	(3)
1.	Payroll Processing	$50 per employee	$7,900
2.	Financial Audit	0.0236% of revenues	$32,903
3.	Internal Audit	0.03% of revenues	$41,826
4.	Tax Preparation	$100,000 for federal, state, local taxes and $50,000 for property taxes	$150,000
5.	Outside Legal	Based on 0.5% of revenues for total legal spend less internal legal spend	{ }
6.	HQ Security	Hourly wage marked up for employee benefits and agency fees	$162,485
7.	Total		{ }

(c) Start-Up and Training Costs

The CERR's start-up and training costs have been calculated based on information provided by CSXT in discovery at a cost of { }.[41] Consistent with *WFA I*, start-up training and recruitment costs are treated as an operating expense in the CERR's First Year of operations.[42] Training costs for CERR employees include both training costs (based on CSXT's Railroad Education & Development Institute) and also employee compensation when in

[41] *See* e-workpaper "CERR Operating Expense_Open.xlsx," tab "Training," cell J10.

[42] *See WFA I* at 51-54.

training. These costs are developed on a per employee basis by department, including transportation, mechanical, and engineering/MOW employees.

Table III-D-13 below displays the cost per employee, number of employees trained, and total training cost by department:

	TABLE III-D-13 TRAINING COSTS FOR THE CERR			
	Department	**Training Cost per Employee**	**Employees Trained**	**Total Training Cost**
	(1)	(2)	(3)	(4)
1.	Engineers	{ }	26	{ }
2.	Conductors	{ }	26	{ }
3.	Dispatchers	{ }	9	{ }
4.	Maintenance of Way	{ }	24	{ }
5.	Mechanical	{ }	9	{ }
6.	Total			{ }

Source: e-workpaper "CERR Operating Expense_Open.xlsx."

Training of transportation department employees includes T&E personnel and dispatchers, mechanical department employees, car inspectors, engineering/MOW employees, and all MOW track department personnel.

Recruiting costs are included for Executives (Director positions and above) at a level of { } percent of salaries, based on fees provided by CSXT in discovery document "Search Firms.xlsx."[43] In addition, a $1,000 cost per

[43] *See* e-workpaper "Search Firms_Open.xls," cell G25.

employee is included for rank and file employees based on the amount accepted by the Board in *Xcel I*.[44]

Subsequent annual recruitment and training expenses are based on a { } percent average annual attrition rate, which is based on 2012 through 2014 CSXT data included in discovery document "Employee_Attrition.xlsx."[45]

(d) Travel Expense

Travel expenses have been included for all CERR employees at the Director level and higher, for the CERR's Marketing Managers, its Security Staff, and the three outside members of the CERR's Board of Directors (*i.e.*, a total of twenty individuals):

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[44] *See Xcel I*, 7 S.T.B. at 657-658.

[45] *See* e-workpaper "Employee_Attrition_Open.xlsx," tab "Pivot," cell O9.

TABLE III-D-14 LIST OF TRAVELING CERR EMPLOYEES
Operating Personnel (3):
• Vice President – Operations
• Director of Operations Control
• Chief Engineer
G&A Personnel (17):
• Outside Directors
• President
• Director of Marketing
• Marketing Managers (4)
• Vice President – Finance & Accounting
• Treasurer
• Controller
• Vice President – Law & Administration
• General Attorney
• Director of Human Resources
• Chief of Security
• Security Agents (3)
Total: 20

See e-workpaper "CERR Operating Expense_Open.xlsx," tab "Operating-G&A," column J.

Annual travel expenses of $11,781 per traveling employee are included. This amount is based on the most recent available annual survey of corporate travel managers performed in 2014 by Runzheimer International, which estimates the annual cost of corporate business travel. *See* e-workpaper "Travel.pdf."

4. Maintenance-of-Way

The MOW plan for the CERR was developed by R. Lee Meadows, Jr., P.E. Mr. Meadows brings considerable hands-on experience with railroad MOW activities, having served in Norfolk Southern Railway's Engineering Department for 33 years including service as Inspector, Assistant to Regional Engineer-Projects, Division Engineer Construction and Maintenance, General Division Engineer, and Division Engineer. He is also an FRA-qualified track inspector.[46]

a. General Approach to Developing the MOW Plan

Mr. Meadows's MOW plan follows the precepts approved by the Board in recent prior SAC rate cases, including those discussed in *Sunbelt, DuPont, WFA I,* and *AEPCO 2011*. The *WFA I* SARR, in particular, was roughly comparable in size to the CERR although it had considerably higher traffic density in terms of gross ton-miles per mile.[47]

The CERR's MOW plan includes a field staff sufficient to perform day-to-day inspection and maintenance activities, supported by a managerial/

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[46] Mr. Meadows's detailed Statement of Qualifications is set forth in Part V.

[47] The SARR in *WFA I* had 217.95 route miles, compared to the CERR's 153 route miles. The *WFA I* SARR had a maximum density of 154.30 million gross tons per mile ("MGT"), and this density extended over 128.34 route miles or 58.9 percent of the total route-miles. In contrast, the CERR has a maximum density of approximately 60 MGT, and the average is considerably lower. *See* e-workpaper "CERR Opening MOW Costs," tab "Rail Grinding Cap. Costs," column G.

office engineering staff that reports to the CERR's Chief Engineer. Capital maintenance programs are also required during the ten-year DCF period to renew/replace the fixed facilities, including the principal elements of the track structure. The CERR's MOW staff also was structured to include planning, budgeting and contracting related to annual capital programs.[48]

Some maintenance that is considered operating expense is also contracted out, but the vast majority of day-to-day spot maintenance work is performed by the CERR's field MOW employees with assistance and supervision from the office engineering staff. This includes FRA-required weekly track inspections (the CERR is maintained to Class 3 standards) with at least 3 calendar days interval between inspections, non-scheduled or special inspections necessitated by storms or extreme heat swings, monthly turnout and walking track inspections, annual bridge and culvert inspections, at-grade rail-highway crossing protection tests, and routine day-to-day maintenance including spot-surfacing and lining rough track areas, repairing malfunctioning signals and power switches, replacing rail and welding track components, replacing broken turnout components, performing minor repairs to bridges, making emergency

[48] Consistent with the treatment of program renewal work in other recent rate cases including *Sunbelt, DuPont, AEPCO 2011*, *WFA I*, and *AEP Texas*, all of the CERR's program maintenance work is performed by contractors and the cost of capital programs is reflected in the DCF model. Under the DCF model, a portion of the CERR's fixed assets are assumed to be renewed each year even though the CERR starts operations with a new physical plant, which means there will be no need for significant program work in the first ten years of its operations.

infrastructure repairs such as those caused by a derailment, replacing a broken rail, joint and frog maintenance, bridge and culvert emergency repairs, at-grade highway/rail crossing gate repairs or replacement and minor vegetation control.

In developing the CERR's MOW plan, Mr. Meadows has provided a field organization and supervisory/support staff appropriate to each needed maintenance function given the railroad's geographic scope, terrain, traffic volume and gross tonnages by line segment.[49] The basic functions include track inspection and routine maintenance, communication and signal inspections, testing and maintenance, bridge/culvert inspection and maintenance, and minor building maintenance, as well as budgeting and administrative support. Mr. Meadows also considered the equipment needed to perform each function, as well as the maintenance work (other than capital programs) that appropriately could be contracted out. The staff and equipment described below are those needed to accommodate CERR's peak-year operations in terms of gross tons transported.

b. <u>MOW Personnel</u>

The CERR's MOW personnel (employee) requirements are summarized in Table III-D-15 below.

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[49] Mr. Meadows's development of CERR's field MOW staff is guided by the principle that an efficient, least-cost SARR does not require unionized employees and does not face the same constraints as Class I railroads in terms of the level of supervision required and ability to cross-train. This enables field MOW employees to be utilized in a more versatile manner, such that an employee can perform more than one function where consistent with the level of specialization needed.

TABLE III-D-15 CERR MAINTENANCE-OF-WAY PERSONNEL	
Position	**No. of Employees**
HQ Office/Supervisory (based at West Olive headquarters)	
Track Engineer	1
Communications & Signals Engineer	1
Bridge Engineer/Inspector	1
Engineer of Programs, Budgets, Safety & Training	1
Subtotal	4
Field	
Track Supervisor	1
Assistant Track Supervisor	3
Track Crew Foremen	3
Track Crew Members	6
Roadway Machine Operators	5
Welders/Helpers/Grinders	2
Roadway Equipment Mechanic	1
Smoothing Crew Foreman	1
Smoothing Crew Member/Machine Operator	2
C&S Supervisor/Inspector/Technician	1
Signal Maintainers	7
Communications Technician	1
Communications Maintainer	1
B&B Machine Operator	1
B&B Foreman	1
B&B Carpenter/Helper & Water Service	1
Subtotal	37
Total	**41**

The MOW personnel shown in Table III-D-15 equate to 3.92 route miles per employee and 5.27 mainline track miles per employee. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "MOW Staff Salaries," cells G47, G50.

c. <u>MOW Organization by Function</u>

The CERR's field MOW organization is dictated by the railroad's geographic scope (route miles), track miles and peak-year traffic volume measured by the gross tons traversing each line segment. (Tonnage is the metric that has the greatest single impact on railroad infrastructure condition and largely dictates how MOW resources should be allocated.) In addition, the distances that field forces must travel to cover their assigned territory are considered. The general office MOW staff (which reports to the Chief Engineer) is structured to provide adequate supervisory and administrative support to the field forces, as well as to prepare the annual MOW budget and supervise contractors in their performance of MOW work. The field and office support personnel requirements of each MOW function are discussed below.

i. Track Department

The CERR's Track Department consists of 25 employees, organized into the positions shown in Table III-D-16 below. The annual compensation associated with each position, by employee and in total, is also shown in the table. A discussion of each position follows the table.

TABLE III-D-16 CERR TRACK EMPLOYEES			
Position	**No. of Employees**	**Comp. Per Employee**	**Total Comp.**
Track Engineer	1	$ { }	$ { }
Track Supervisor	1	$ { }	$ { }
Assistant Track Supervisor	3	$ { }	$ { }
Track Crew Foremen	3	$ { }	$ { }
Track Crew Members	6	$ { }	$ { }
Roadway Machine Operators	5	$ { }	$ { }
Welder/Helper/Grinders	2	$ { }	$ { }
Roadway Equipment Mechanic	1	$ { }	$ { }
Smoothing Crew Foreman	1	$ { }	$ { }
Smoothing Crew Member/Machine Operator	2	$ { }	$ { }
Total	**25**		**$2,189,612**[1]

[1] Total compensation in this and subsequent MOW personnel tables may not add due to rounding.
See e-workpaper "CERR Opening MOW Costs.xlsx," tab "MOW Staff Salaries" for details of the salaries. The salaries were derived from CSXT Wage Form A&B Data.

General Office Staff. The Track Department reports to the Track Engineer. He is responsible for maintaining all CERR track, preparing the annual track budget and arranging for/overseeing contractor performance of track maintenance (capital) programs.

Field Staff. Given the CERR's small size and maintenance needs, the CERR does not need any intermediate field supervision between its Track Engineer and Track Supervisor. The CERR's Track Supervisor is supported by Assistant Track Supervisors, track crews and other personnel described below.

Track Supervisor and Assistant Track Supervisors. The Track Supervisor is the equivalent of a Roadmaster on a Class I railroad and is the CERR's principal field maintenance supervisor. He is responsible for day-to-day track maintenance. The CERR has one Track Supervisor district, reflecting its relatively small size – 160.52[50] constructed route miles and 215 constructed track miles (including yards and set-out tracks), requiring maintenance.

The Track Supervisor does cover more territory than the Board has accepted in recent cases. However, the segment between Porter and West Olive, while relatively long (124 route miles) is a light density segment that does not require the addition of a second Track Supervisor. In addition, there are only128.5 track miles in the segment, not including set-out tracks. Thus, Mr. Meadows has assigned an Assistant Track Supervisor to cover that territory on a day-to-day basis with input from the Track Supervisor.

The Track Supervisor is assisted by three Assistant Track Supervisors. Two Assistant Track Supervisors are primarily responsible for conducting scheduled routine and special track inspections in accordance with all applicable FRA regulations and are trained and certified by the CERR.[51] One

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[50] The CERR does not maintain the 8.13 miles of the BRC in which it owns a 25 percent. BRC maintains the facility, and the CERR pays trackage rights fees to the BRC. *See* Part III-D-5 for additional details.

[51] It is now common in the railroad industry to have Assistant Track Supervisors perform track inspections. This obviates the need for separate Track Inspector positions. FRA rules dictate the frequency of track inspections. The

Assistant Track Supervisor is primarily responsible for the territory between West Olive and Porter and the second Assistant Track Supervisor is primarily responsible for the territory between Ogden Jct./22nd St. and Curtis. In addition to performing track inspections, these individuals also assist in routine field supervision of the track crews (described below). The third Assistant Track Supervisor spends most of his time assisting the Track Supervisor with the performance of other MOW activities, such as performing routine switch inspections, vehicle maintenance coordination, scheduling the work of the track and other field crews, checking quality behind the track crews and other light maintenance, as well as additional track inspections as dictated by temperature, weather conditions or emergency situations. The third Assistant Track Supervisor also assists with routine track inspections when one of the other two Assistant Track Supervisors is on vacation or otherwise unavailable.

Track Crews. The CERR employs three field track crews, each consisting of a Foreman and two Crew Members who are essentially track laborers. (In addition each track crew is assigned a backhoe operated by a machine operator, who effectively is a third track crew member.) One crew is responsible for day-to-day maintenance of the mainline between West Olive and Michigan/Indiana State Line (CG 117) is based near Grand Junction; the other two crews share responsibility for day-to-day maintenance of the mainline between

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CERR maintains FRA Class 3 track which requires inspection weekly with at least 3 calendar days interval between inspections.

Michigan/Indiana State Line and 22nd St./Ogden Jct. and are based at Barr Yard to minimize travel distance.

The sharing of the district between 22nd St./Ogden Jct. and Michigan/Indian State Line with two crews reflects the practicalities of operating in this territory. Specifically, the area between Barr Yard and Curtis is double track with multiple crossovers, a significant number of interchange tracks, and diamond crossings. And while, as the senior railroad, the CERR is not responsible for maintaining the diamond crossings, the overall movement of trains through the area, as well on the Blue Island Subdivision, requires some (albeit minimal) down time. Thus, having two crews in the area enables a quick response to multiple problems. In addition, the sharing arrangement allows for the second crew to assist the first crew as needed or tend to other tasks near 22nd St. or near Porter, etc. In addition, the positioning of the two crews reduces travel times when Chicago traffic might be a factor.

These crews perform various tasks in connection with routine track maintenance, such as correcting track geometry defects (surface, line and gauge), repairing detected rail defects, replacing missing/broken joint bars and bolts or spikes, replacing failed tie plates/insulators/clips, replacing occasional defective ties at critical locations such as joints, switch points and frogs, removing snow/ice from switches, repairing rail lubricators, minor at-grade highway-rail crossing repairs, assisting smoothing gangs (upon request) and replacing/repairing damaged signs. These crews are also responsible for assisting in periodic maintenance duties such as clearing ditches, cutting brush, checking culverts if requested by the B&B group, and other functions as assigned by the Track Supervisor or Assistant Track Supervisors.

The territory assigned to each field track maintenance crew, the crew size, and the tasks these crews are expected to perform are all consistent with modern practice on Class I and particularly regional/short line railroads (many of which use two-person track crews). The crew territories also reflect the concept that some work traditionally handled by large, in-house track program maintenance gangs at a Class I railroad is contracted out (as described further below). Moreover, in addition to the backhoes assigned to each track crew's territory, the Track Supervisor has available an excavator with dump truck and lowboy trailer and a Prentice Loader, with operators. This further limits the need for additional track and other field personnel.

Roadway Machine Operators. Mr. Meadows has staffed the CERR with a total of five Roadway Machine Operators. One Operator is assigned to each of the two backhoes with one backhoe assigned to each track crew's territory. One additional Operator is assigned to an excavator and one to a Prentice Loader, both of which are available system-wide. The excavator operator is also assigned a hi-rail, three-way (rotary) dump truck and lowboy trailer (used to move the excavator). This equipment is used to maintain the CERR's ditches as well as to transport ballast, crushed rock or other materials that might be necessary in various MOW activities. Together with the two backhoes, the excavator can easily keep the CERR's ditches clean and free-flowing.

Additional machine operators are assigned under other classifications, such as Smoothing Crew (Tamper or Regulator Operator) Member or Foreman. Track crew members also operate a Hi-rail Boom Truck, one of which is assigned to each track crew whose members are not machine operators.

All Machine Operators are cross-trained on all equipment that the CERR uses. The Machine Operators help all track, B&B, and smoothing gangs as needed.

Welder/Helper/Grinders. The CERR employs one, two-person welding crew, coinciding with the single Track Supervisor district. The welding crew consists of a welder and a welder helper. There are substantially fewer turnouts on the CERR compared to those for which CSX is responsible today, as well as very few joints to maintain, so there will not be much need for welding repair on the brand-new CERR. However, welding crew members are qualified and trained to Thermite-weld joints where replacement rail is installed as well as to repair engine wheel burns, chipped rail ends or localized rail flow problems and maintain turnout and rail crossing frogs and switch points without removing them from the track.[52] Additionally, the welding crews will assist the B&B forces when

[52] It is much more efficient to do welding in place rather than to remove the defective frog, install a replacement and transport the defective frog to a shop for repairs.

welding on steel bridges is required. Although the CERR's main track is comprised entirely of continuous welded rail (CWR), there are some joints associated with turnouts, insulated joints and defective rail replacement locations. Rail ends must be maintained and insulated joints may require slotting to prevent joint or signal failure and premature rail removal/replacement caused by significant rail-end batter and chipping. In addition, welding crews provide backup support on larger jobs such as contracted flash butt/Thermite welding programs and rail detector car/rail grinding operations. The welding crew is assigned a hi-rail flatbed truck equipped with a self-contained, diesel-driven electric welding generator, cable crane winches for handling molds, and oxygen and propane tanks, as well as necessary hand tools and other welding equipment.

Roadway Equipment Mechanic. The CERR also needs one Roadway Equipment Mechanic. This individual is responsible for maintaining and performing routine repairs to CERR field equipment, including its tampers, regulators, backhoes and excavator as well as the other specialized equipment assigned to the field MOW forces. The Roadway Equipment Mechanic is assisted by the Machine Operators who perform simple daily maintenance tasks on their machines. Trucks (hi-rail and regular) are maintained at dealerships with local mechanics used to perform most auto or truck-related repairs and maintenance.

Smoothing Crew. The CERR employs one, three-person smoothing crew, which performs spot surfacing and lining of the track as needed to correct any significant surface irregularities noted in geometry test car data, or variations found by an Assistant Track Supervisor or the MOW employee during track inspections and track work. Given the CERR's new track structure, it is unlikely that there will be many surface or line irregularities within the first eight to ten years of the railroad's existence. Most surfacing and lining takes place in areas with curves. The smoothing crew consists of a Foreman (who obtains the crew's track protection), Tamper Operator and Ballast Regulator Operator.

This crew is assigned a Tamper and a Ballast Regulator, both on-track machines. The Tamper is used to surface and line track. The Ballast Regulator is used to move ballast, restore the roadbed section and shoulder ballast, fill the tie cribs and sweep the track following surfacing and lining. The crew is assigned a crew cab hi-rail pickup that is used on rail to avoid unnecessary delay moving tie between work points and maximizing on track work efforts. Each smoothing crew member is cross-trained on the other's job so that during times of vacation, the primary fill-in will be from this crew.[53] This crew assists field track forces and contractors with derailments or other problems requiring minor surfacing work. If additional labor is needed to assist a smoothing crew in unusual circumstances, or in other instances such as during vacation times, it can be drawn from the nearest track crew or other machine operator who has been cross-trained on the smoothing crew machinery.

[53] Should the ballast regulator need to fill-in on the lead tamper, a replacement operator can be drawn from the backhoe, excavator or Prentice Loader machines.

All MOW personnel are cross-trained in track repair, track construction, weather related tasks (*i.e.*, snow removal, tree removal, flooding issues), and other rail related issues, In the event of vacations, family leaves, sickness, and other issues affecting the workforce railway work can continue without being hampered by missing employees. Examples would be (1) the surfacing crew can assist projects not requiring the use of the tampers, (2) the surfacing crew can continue to work with the three members of the crew qualified on the tamper and ballast regulator when a regular member is absent or one of the other machine operators is qualified on the tamper or ballast regulator, (3) the welders assisting in inclement weather track inspections. There are numerous other examples of this kind of cross training.

ii. Communications & Signals Department

The CERR's Communications & Signals (C&S) Department consists of 11 employees. The specific positions and compensation levels in this department are shown in Table III-D-17 below.

TABLE III-D-17
CERR C&S EMPLOYEES

Position	No. of Employees	Comp. Per Employee	Total Comp.
Communications & Signals Engineer	1	$ { }	$ { }
C&S Supervisor/Inspector/Technician	1	$ { }	$ { }
Signal Maintainers	7	$ { }	$ { }
Communications Technician	1	$ { }	$ { }
Communications Maintainer	1	$ { }	$ { }
Total	**11**	x	**$ 1,032,962**

General Office Staff. The C&S Department is headed by the Communications & Signals Engineer who reports to the Chief Engineer. This Engineer position is responsible for all communications and signals-related functions, assuring that the proper tests are conducted and that any necessary maintenance is being performed. This position is also responsible for developing the necessary capital programs to keep all signal and communication equipment functioning reliably as well as supervising outside contractors who maintain the communications equipment including microwave towers and associated equipment and radios. This individual works closely with the C&S Supervisor to ensure that any signal or communication problems are handled promptly.

Field Staff. The field staff is led by one C&S Supervisor. The C&S Supervisor position is responsible for field supervision of the Signal Maintainers, Communications Maintainer and Communications Technician (described below). The C&S Supervisor is located at Barr Yard. Indeed, as the Porter to West Olive segment is dark, except for at-grade crossing signals, Consumers' expert opted to place the C&S Supervisor at Barr Yard. The CERR's C&S Supervisor is also the lead signal technician and inspector – covering the few repairs beyond the standard signal maintainer, such as advanced troubleshooting and maintenance on electronic signal equipment. The C&S Supervisor also performs two-year, four-year and ten-year FRA mandated tests with the assistance of a Signal Maintainer. As these tests are infrequent and the total number of signals on the CERR is relatively small, the C&S Supervisor can handle these duties. However, to the extent that troubleshooting duties may interfere with such testing or the C&S Supervisor requires additional assistance, the C&S Engineer can assist with such inspections/tests.

Signal Maintainers. The CERR employs seven Signal Maintainers. These positions are responsible for scheduled inspections and routine testing and maintenance of the CERR signal system. Signal Maintainers repair defective trackside signals that govern train movements, repair/replace at-grade, highway-rail crossing protection devices, perform monthly FRA-mandated tests and change out broken signal bulbs. The number of Signal Maintainers required is a function of the number of AAR signal units.[54]

In recent cases, the Board has accepted figures ranging from 1,100 to 1,250 signal AAR signal units per Signal Maintainer. *See, e.g.*, *Sunbelt* at 79; *WFA* at 61. However, due to the particular specifications of the CERR, Mr. Meadows has increased the number of signal units per maintainer, vis-à-vis those precedents for a portion of the CERR.

The CERR has 9,618 AAR Signal Units. *See* "CERR Opening C-S Costs.xlsx," tab "Summary," cell F13. Of those units, 69 percent (6,634) are attributable solely to at-grade crossing equipment. Moreover, 145 of the 187 protected crossing are located between Porter and West Olive (5,144 AAR Signal

[54] An AAR signal unit is a measure of the difficulty of maintaining a particular signal device. There are normally more AAR signal units than there are individual signals.

Units). *See* e-workpaper "CERR Opening C-S Costs.xlsx," tab "Crossing Counts," cells A197 and A198 for counts and tab "AREMA-AAR," cells G35 and G38 for AAR Signal Units. Given that only a few trains traverse this territory a day, a grade crossing signal malfunction will not substantially impair the operation of the CERR. Specifically, if a malfunction is indicated, the dispatcher will inform any affected train crews, and those crews, depending on the malfunction type, will proceed under a 10 MPH slow order or they will stop train at the crossing and manually flag the intersection. In light of this minimal requirement for immediate repairs, Consumers' expert has assigned three Signal Maintainers between West Olive and Porter.[55]

For the balance of the CERR, between 22nd St./Ogden Jct. and Curtis, Mr. Meadows assigned one Signal Maintainer to roughly 1,100 AAR Signal Units in accordance with *Sunbelt*. Thus, for this territory, the CERR has four Signal Maintainers that maintain equipment with 4,474 AAR Signal Units.

Communications Technician. The CERR employs one Communications Technician who is primarily responsible for maintaining train crew radios and other communications devices and is based at West Olive. The Technician is on call if a problem arises in the dispatch center and can be supplemented by assistance from the Communications Maintainer if necessary.

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[55] There is only one signal-controlled turnout on the Porter to West Olive territory, one AEI reader and FEDs on the Porter to West Olive segment. The total AAR Signal Units is 5,628. This equates to one Signal Maintainer per 1,876 signal units.

Communications Maintainer. The CERR employs one Communications Maintainer who is primarily responsible for maintaining communication devices throughout the CERR system and assists the Communications Technician when applicable. This position is based at Barr Yard, and also assists with problems in the dispatch center when necessary.

iii. Bridge & Building Department

The CERR Bridge & Building (B&B) Department consists of four employees. The specific positions and compensation levels in this department are shown in Table III-D-18 below.

TABLE III-D-18
CERR B&B EMPLOYEES

Position	No. of Employees	Comp. Per Employee	Total Comp.
Bridge Engineer	1	$ { }	$ { }
B&B Machine Operator	1	$ { }	$ { }
B&B Foreman	1	$ { }	$ { }
B&B Helper	1	$ { }	$ { }
Total	**4**		**$ 351,289**

General Office Staff. The CERR B&B Department is headed by the Bridge Engineer who is responsible for inspections and maintenance of the CERR's bridges, and culverts, and for inspections of and minor repairs to buildings. This position is also responsible for preparing the annual bridge repair budget and supervising the contractors who perform periodic bridge maintenance and/or major structural repairs, as well as periodic building maintenance. He also serves as the CERR's FRA-designated bridge inspector/supervisor. Pursuant to the current FRA Part 237 regulations, the Bridge Engineer also is a qualified

Professional Engineer (PE). The CERR office and field staff is sufficient to comply with FRA Bridge Management Program requirements. The Bridge Engineer is located at West Olive. The Bridge Engineer directly oversees the bridge field staff.

Field Staff. The B&B field staff is not large, reflecting the fact that the CERR has a total of only 73 bridges, all of which are constructed using modern technology with concrete and steel components. That combination results in little or no annual maintenance to the structures – unlike bridges with timber components which are common on Class I railroads.

Other field B&B employees. The B&B Department's field employees also include one B&B Machine Operator, and one B&B crew that performs routine bridge and culvert maintenance. The B&B Supervisor is assisted by the B&B Machine Operator, who is equipped with a rubber-tired bridge hoist/crane. The B&B crew consists of a Foreman and a Helper. This crew, working in conjunction with the bridge hoist, performs bridge and culvert repairs to the extent they do not involve major pier or superstructure repairs, which would not occur during the foreseeable future and which would be contracted out. Any needed welding of steel bridge components is accomplished by utilizing the welding crew which is qualified in bridge welding procedures.

iv. Misc. Administrative/Support Personnel

The CERR employs one additional Engineering administrative and support person at the West Olive headquarters who is dedicated to the MOW function but who does not support any particular field sub-department. This person, the Engineer of Programs, Budgets, Safety & Training, reports to the Chief Engineer and helps develop the annual MOW budget (including the capital or program budget) as well as interfacing with contractors performing both program and day-to-day work and with governmental agencies involved in public projects that affect the railroad. The Engineer also deals with other MOW administrative matters involving environmental, safety and training, as well as payroll and monitoring/payment of contractor invoices.[56] This Engineer has an annual salary of ${ }.

The MOW department shares administrative with the G&A department as needed.

d. Compensation of MOW Employees

Salaries of CERR MOW personnel, other than the Chief Engineer (who is included in the Operating personnel discussed earlier in Part III-D), are set forth in Tables III-D-16 through III-D-18 above. The total annual compensation of these MOW personnel in the Base Year (excluding fringe benefits) equals $3,686,642. MOW[57] salaries are based on the salaries paid by CSXT to MOW Details are provided in e-workpaper "CERR Salaries_Open.xlsx."

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[56] The CERR's purchasing function is centralized within the Finance & Accounting Department, discussed above under General& Administrative expenses. However, purchasing associated with the CERR's MOW function is coordinated by the Engineer of Programs, Budgets, Safety, & Training.

[57] *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "MOW Staff Salaries," cell C45.

e. **Non-Program MOW Work Performed by Contractors**

While CERR's in-house MOW forces handle most day-to-day maintenance of CERR track and facilities, it is more cost-effective to contract out some maintenance work that is often treated as operating expense. The treatment of such contracted work by the CERR is consistent with the approach approved by the Board in *Sunbelt* at 89-94; *WFA I* at 69-73 and *AEPCO 2011* at 75-76.

Such contracted work involves several broad categories including: (i) routine maintenance that can be scheduled on a regular basis but is not performed frequently enough to justify CERR investment in the equipment and personnel required to accomplish it (such as track geometry, ultrasonic rail testing, rail grinding and ballast cleaning); (ii) unplanned maintenance that does not occur at regular intervals and is more economically handled by contractors who have the requisite expertise and specialized equipment available (such as snow and/or storm debris removal and bridge pier or superstructure repairs); and (iii) unplanned maintenance events requiring more employees or specialized equipment than the CERR supports because of the infrequency and unusual nature of the events (such as removing damaged cars/lading and repairing the track structure after a major derailment or weather event/storm).

Specific areas of maintenance that are performed by contractors are described below.

i. Planned Contract Maintenance

Track Geometry Testing. Track geometry testing is a routine maintenance function. The frequency of such testing is generally a function of the annual gross tonnage moving over the track. Such testing ensures that the track and related structures meet all FRA standards in terms of alignment, gauge and profile. Track geometry test results are used to prioritize work by the smoothing crew. Geometry testing is required and completed with varying frequency, depending on the annual gross tonnage moving over various portions of the CERR. Generally, the CERR's track carries less than 30 million gross tons per year (double track total gross tons were divided by two). Consistent with *Sunbelt*, where track with less than 30 MGT was tested once per year, the CERR tests it a rate of one pass per track mile per year. *See Sunbelt* at 89-90. This frequency is generally consistent with Class I railroad practice, as well.

The cost of track geometry testing is $120.00 per track mile. The unit cost reflects data from other projects that Mr. Meadows has worked on directly. However, Mr. Meadows is not at liberty to directly disclose this data, and Mr. Meadows is concerned that the submission of this data may jeopardize certain vendor relations that he requires for his daily work. Regardless, this figure is consistent with CSXT's direct cost of {   } incurred when CSXT in-house staff perform this work, but in that case, CSXT owns the geometry car and that cost is not detailed. The total annual miles of testing and related cost calculations are detailed in e-workpaper "CERR Opening MOW Costs.xlsx, tab "Geometry Testing" and tab "Annual MOW Expenses."

Ultrasonic Rail Testing. Ultrasonic rail testing is important in preventing derailments because it helps reveal internal rail defects before failure that could cause disruptions to CERR operations. FRA regulations (49 C.F.R. § 213.237) require testing rail to locate internal defects in Class 3 track over which passenger trains do not operate at least once every 30 MGT or once a year, whichever interval is longer, and similar testing of Class 4 through 5 track at least once every 40 MGT or once a year, whichever interval is shorter. Consistent with these standards, the CERR conducts ultrasonic rail testing at least once a year on all of its main lines (it has no track carrying greater than 40 MGT annually). These testing frequencies are more than adequate given that the CERR starts operations with all new rail on its main tracks and sidings.

Based on data provided by CSXT in discovery, the average cost of ultrasonic rail testing by Sperry for 2014 by state is \${ } per track mile for MI, \${ } per track mile for IN, and \${ } per track mile for IL. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Rail Flaw Detection' for details. The total annual miles of ultrasonic testing and related cost calculations are detailed in e-workpaper "CERR Opening MOW Costs.xlsx," tab "Rail Flaw Detection."

Rail Grinding. Rail grinding is a part of most Class I railroads' MOW plans that is deemed necessary based on traffic, tonnage and rail characteristics, while extending the service life of the rail and increasing locomotive fuel efficiency. Here, due to the moderate annual tonnage, no 136-pound premium CWR rail is being used on the CERR's tracks; instead standard 136-pound CWR is used on all CERR main tracks. Rail grinding best practices suggest grinding tangent track every 40-60 MGT, 16-24 MGT on curves less than 3 degrees, and 8-12 MGT on curves greater than 3 degrees.[58] Grinding of switches, rail crossings (diamonds) and rail located in at-grade road crossings is performed at the same time that normal rail grinding is performed.

The annual cost per mile allocated to rail grinding is ${ } per pass mile. This cost is based on information provided by CSXT in discovery. *See* e-workpaper "IN_IL_MI Grinding Cycles.xlsx," cell Z2. The total miles of grinding and the related cost calculations are detailed in e-workpaper "CERR Opening MOW Costs.xlsx," tab "Rail Grinding Costs," cell N24. The quantity has been included in the total rail grinding effort to be accomplished.

Consistent with *Sunbelt* and other recent precedents, Consumers has included rail grinding as an operating expense. *Sunbelt* at 90-91.

Shoulder Ballast Cleaning. Consistent with the Board's decision in *Sunbelt*, Consumers' has not included any contract maintenance for shoulder ballast cleaning. *Id.* at 93-94.

Yard Cleaning. The CERR's Barr Yard does not necessarily requiring cleaning given the activities in the yard (*i.e.*, there is no classification or

[58] *See* e-workpaper "Rail Grinding Best Practices.pdf," accepted by the Board in *Sunbelt* at 90.

other activities likely to jar loose commodities). Nevertheless, to be conservative, Consumers' expert determined that the yard should be cleaned once a year to ensure that debris does not affect operations. The amount and cost of yard cleaning required in these yards is based on $2,500 per day, and $2,000 per cleaning for mobilization/demobilization. CSXT did not provide any specific cost data for this item. Mr. Meadows based this unit cost on his experience. This unit cost is generally also consistent with *Sunbelt*. *Id.* at 91. Based on *Sunbelt*, Consumers assumed the contractor will clean 10,000 track feet per day. There are 11.29 yard track miles at the Barr Yard. Thus, Consumers allotted six days for the cleaning at a total cost of $17,000. Details of the calculations are shown in e-workpaper "CERR Opening MOW Costs.xlsx," tab "Yard Cleaning."

Vegetation Control. Weed spraying, brush cutting and mowing are necessary to prevent overgrowth into the rail bed or other structures, which can cause a safety hazard. The most obvious and critical vegetation control concerns the ballast section. If vegetation is allowed to flourish in the ballast section, it will soon foul the ballast and interfere with the most important function of ballast, which is to permit water to drain from the track structure, uninterrupted. If water is allowed to be retained in the track structure, it can reduce tie life and destabilize the track structure, thus increasing the risk of track irregularities and derailments. Vegetation control also is critical in the vicinity of at-grade, highway-rail crossings to ensure the safety of both train operations and the road traveling public.

CERR vegetation control requirements are based primarily on the climatic conditions and annual rainfall in the geographic areas it serves. The CERR system can control potential vegetation growth on its system by weed spraying once per year in the spring with a second application as needed about three to five weeks after the initial application.

CSXT did not provide any discovery data for such costs. The annual cost of vegetation control is based costs from *WFA/Basin*. Specifically, Consumers utilizes a cost per mile of vegetation control of $248.57 per track mile. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Vegetation Control," cell Specifically, the unit cost represents a combination of the total cost for vegetation control *and brush cutting* on the *WFA/Basin* SARR divided by the track miles of the *WFA/Basin* SARR. The cost per track mile was then indexed from 3Q04 to 1Q15. The CERR has 202.71 mainline track miles (including interchange tracks). Thus, the total annual cost is $50,388. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G6.

Very little brush-cutting should be required because the CERR right-of-way will be cleared during construction. Scheduled, periodic weed spraying will inhibit brush growth greatly. However, because brush and weeds sometimes tend to accumulate near road grade crossings, the CERR's system-wide excavator and the Track Supervisor's backhoes will be used as needed to keep the right-of-way cleared near road crossings where contracted vegetation control work may not be sufficient. Moreover, the CERR's regular maintenance crews can assist in periodic brush clearing as needed. Nevertheless, to be conservative, Consumers has included brush cutting contracting as well.

Crossing Repaving. At-grade, highway-rail crossings must be repaved periodically. Asphalt pavement is typically used with treated hardwood crossing timbers in many public grade crossings. The life of asphalt pavement is largely a function of highway/road traffic, at least beyond 24 inches outside each rail, although rail traffic is also a factor within the crossing zone proper. A typical pavement application will last eight to twelve years, or longer. Consequently, there should be little need for the CERR to begin re-paving activities immediately. However, to be conservative, and consistent with the approach used in the DCF model, Mr. Meadows assumed that paving would begin in the CERR's first year of operations. As the paving should last at least ten years, Mr. Meadows assumed that ten percent of the total crossing paving quantity would be re-paved each year. The total cost of crossing paving is $299,936 (assuming 10% of crossings must be repaved each year). *See* e-workpaper "CERR Opening MOW Costs.xls," tab "Annual MOW Expenses," cell G21.

Equipment Maintenance. Normal maintenance of company-owned or leased equipment is contracted out, although the CERR employs one in-house mechanic who performs routine maintenance and repairs to the basic equipment used by its field track forces. Equipment that may require additional maintenance/repair by contractors (because it may be beyond the capability of the CERR's mechanic) includes hi-rail trucks, excavators and backhoes, ballast regulators, tampers, hydraulic power units and certain power hand tools. The CERR's mechanic is prepared and equipped to perform preventive maintenance and straightforward repairs even to this equipment.

The annual costs for vehicle maintenance, including fuel, accident repairs, and parts, was derived from data provided by CSXT. Maintenance costs for machines were based on five percent of the purchase price, which is consistent with Mr. Meadows's experience (CSXT did not provide any relevant data). Fuel costs for machines was derived from data provided by CSXT. Specifically, CSXT provided data detailing the costs to maintain all of the MOW vehicles it operates over the Chicago Division (which covers a number of Subdivisions, including the Barr, Blue Island, Grand Rapids and Freemont Subdivision, which the CERR replicates in part), as well as an inventory of such owned and lease vehicles. From that data, Consumers developed an average annual maintenance cost per vehicle, which was based on 2014 data. Consumers then applied the per vehicle cost to its own count of such vehicles to determine an annual cost of ${ }. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Costs," cells U67:V72.

For the annual fuel cost (including lubricants and other fuel costs) for vehicles and machines, Consumers performed a similar analysis to the one used to determined annual vehicle expenses. Specifically, CSXT provided data detailing its fuel costs for 2014 (apparently covering vehicles and machines). Consumers divided this cost by the count of vehicles and machines that CSXT owns or leases to develop a per-unit cost. This cost was then applied to the count of vehicles and machines operated by the CERR to determine an annual cost of ${ }. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Costs," cells U74:V79.

Communications System Inspection and Repair. Periodic inspection and planned maintenance of the CERR communications system, which is described in detail in Part III-F-6 below, is performed in part by contractors with assistance from the CERR's in-house Communications Technician and Maintainer. The CERR communications system includes microwave towers, fiber optics and LMR radio facilities, which are inspected annually.

Communications maintenance and inspection costs are normally a component of maintenance agreements covering communications systems entered into at the time of installation. In *WFA I*, the complainant proposed and the Board accepted an annual communications system maintenance cost of two percent of original purchase cost. Based on Mr. Meadows's experience this percentage is reasonable, and the Board has recently used the same figure. *See Sunbelt* at 71 (figure shown in MOW total equals two percent of the communications system cost shown on page 144 of the decision). Consumers applied the two percent figure to the CERR communications-equipment acquisition costs developed by Consumers Witness Grappone. The result is an annual cost of contracted repairs to CERR communications facilities of $109,088. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G20.

Bridge Inspections. As described earlier, the CERR B&B Supervisor/Inspector performs basic bridge inspections as part of his duties, including annual inspections of all bridges. Since all CERR bridges will be newly constructed, the CERR's B&B Supervisor/Inspector can perform all the annual bridge (and culvert) inspections. Therefore, no contract bridge inspection is required. Moreover, as the CERR has only 73 bridges, the inspections process should be manageable by the B&B Supervisor/Inspector.

Building Maintenance. All CERR buildings are new at operations start-up so only occasional routine maintenance is required. Other than general plumbing and electrical repairs over time, HVAC systems generally require semi-annual inspections and/or maintenance which are performed by contractors (as is occasional outside maintenance). Mr. Meadows developed an annual cost of $115,464 for contract building maintenance, which is based on two percent of the total building cost. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G19. *See Sunbelt* at 71 (figure shown in MOW total equals two percent of the communications system cost shown on page 152 of the decision).

ii. Unplanned Contracted Maintenance

Snow Removal. The CERR main tracks may require occasional snow removal. Most snow removal activity is performed by CERR field maintenance personnel who are not normally as busy in the winter as during the remainder of the year in the areas where snowstorms are likely to occur.

All main track switches are equipped with switch heaters. The ballast regulator is equipped with a snow blower and can be used to blow out snow-laden switches and trackage as needed; the regulators are run by Smoothing Gang members who are not as busy in the winter in those areas. Snow removal from roadways and parking lots, primarily at West Olive and Barr Yard, including the CERR's headquarters and the crew-change locations and fueling yard areas, will be contracted out; it is better handled by contractors because it is uneconomical to employ extra in-house staff and own infrequently used, specialized equipment necessary to perform this work.

Based on the fact that the CERR has only two significant snow-plowing locations and the availability of the in-house MOW forces' backhoes to clear heavy snow from parking areas, Mr. Meadows has allocated $100,000 per year to perform contract snow removal. This figure is higher than those of other SAC cases to account for the CERR's proximity to the high snowfall area along the southeast and eastern edge of Lake Michigan. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expense," cell G14.

<u>Storm Debris Removal</u>. There may be infrequent occasions where severe winds bring down trees or scatter debris on the right-of-way, as well as ice storm damage during winter conditions. Depending on the severity and extent of the damage, outside contractors will be called upon to clean up debris. In-house MOW forces will be available to assist, but the CERR will not staff up to respond

to such occasional potential events. CSXT provided no information in discovery on storm debris removal costs.

Based on his experience, Mr. Meadows provides $25,000 annually to cover the cost of this activity. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G16. Storm debris costs are necessarily speculative as storm debris removal costs are not significant when compared to other MOW activities and are rarely tracked, if at all, by railroads. Moreover, the cost estimates provided are reasonable given the inability to realistically plan or forecast an annual amount to cover activities that are based solely on unpredictable weather. Regardless, the CERR is not particularly susceptible to flash floods, hurricanes, or tornados. Thus, $25,000 should adequately cover the occasional need to remove storm debris from tracks.

iii. <u>Large Magnitude, Unplanned Maintenance</u>

<u>Derailments and Clearing Wrecks</u>. A new railroad such as the CERR, constructed to modern standards, is less likely to experience a major track-caused derailment than the older track structure and sub-grade of the CSXT lines being replicated. Nevertheless, over the CERR's ten-year life under the DCF model, derailments may occur. Removing equipment and lading and restoring the track structure after a major derailment usually requires heavy specialized equipment. Today, few railroads use in-house staff to clear and repair track after such derailments without assistance from a contractor, and most Class I railroads no longer employ auxiliary forces dedicated to derailment response. The same is

true for regional and short-line railroads, which are even less able to afford this stand-by resource. Almost all rail carriers rely primarily on contractors to respond to such occurrences because it is not cost-effective to support a separate complement of employees and heavy equipment on stand-by to deal with infrequent, major derailments.

In order to determine the annual costs for derailments and clearing wrecks, Consumers utilized CSXT's R-1 data for clearing wrecks, and then developed a per route mile cost for such activities. The per route mile cost was multiplied by the CERR's total route mileage (including trackage right segments) to develop a total cost of $154,794 per year. *See* e-workpapers "CERR Clearing Wreck Costs.xlsx" and "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G16.

Washouts. Again, a new railroad roadbed/track structure is not as prone to washouts as older, real-world railroad roadbed that may have experienced previous water-related damage. Nevertheless, washouts may occur – for example, when a culvert through the sub-grade becomes blocked, preventing the flow of water. This blockage can be caused by melting snow or severe rainstorms that cause heavy runoff to threaten the integrity of the right-of-way; floating debris on the upstream ends of some culverts also could prevent culverts from serving their intended purpose.

Based on the conditions attendant to the Great Lakes coastal territory in which much of the CERR route is situated and the CERR's total route miles, the average annual cost of washout repairs should not exceed $30,000. This cost includes furnishing and placing up to 700 tons of rip-rap at a material cost of $30 per ton. Other related work would be performed by local field forces (including the backhoe, excavator and smoothing crew) as needed. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G17.

Environmental Cleanups. The CERR operates locomotive inspection and servicing or repair facilities at Barr Yard that that might be a source of inadvertent discharge of environmentally hazardous materials. Derailments are less likely to occur on the CERR than on a Class I railroad such as CSXT because the CERR begins operations in 2015 over a brand-new track structure that includes CWR on all of its main tracks. It will not incur costs associated with situations where CWR replaced jointed rail that caused ballast and sub-grade problems due to compression, which increases the risk of track-caused derailments.

The CERR is providing protective drip pans at the location where locomotives are fueled at its Barr Yard locomotive facility (*see* Part III-F-7, below). This insures that oil emissions from idling locomotives are contained.

CSXT provided no information on the cost of environmental cleanups in discovery. However, consistent with *Sunbelt*, Consumers has included $10,000 annual for such cleanup costs. *See Sunbelt* at 71.

f. Contract Maintenance

Program maintenance, such as rail and tie renewal programs, is performed by contractors and is capitalized in the DCF model. Consistent with the

Board's SAC precedent and Class I railroad practice, the following more frequent MOW work that is contracted out is also capitalized rather than being included in operating expense.

i. **Surfacing**

The CERR employs one field smoothing crew which performs day-to-day surfacing of the track to correct rough spots. In addition, heavy-tonnage track subjected to the high axle loadings of unit coal and other trains needs to be surfaced on a regular basis (once every three years) to prevent it from deviating from acceptable standards. Consistent with standard railroad practice as well as the Board's approach in recent SAC cases, including *WFA I*, this surfacing is performed by a contractor and it is capitalized in the DCF model because it is in the nature of program work.

ii. **Bridge Substructure and Superstructure Repair**

Bridge life expectancy is 71 years in the DCF model. This life expectancy generally reflects the longevity and stability of bridge superstructure and substructure components.[59] Nonetheless, unexpected minor repairs on a bridge substructure and superstructure will be required from time to time. The likelihood that steel and concrete repairs will be required is negligible given that the CERR structures are new in year one and enjoy a life expectancy of over half a century.

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[59] The CERR's bridge replacements are accounted for in the DCF process.

However, to be conservative, Mr. Meadows assumed having to repair or perform contract maintenance on two of the CERR's 73 total bridges annually, as a result of unexpected events such as being struck by vehicles or high water, resulting in having to repair/replace bridge components or make pier repairs. Mr. Meadows assumed a contractor's crew of four working over a period of two days ($2,000 per day) plus material ($1,000) and equipment ($1,000) for the two emergency repairs or a total of $8,000 annually. This cost is expensed. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Expenses," cell G18.

g. <u>Equipment</u>

The CERR's in-house MOW forces require a variety of equipment to perform their duties, some of which has been described previously. MOW equipment requirements and costs (other than for small tools, whose cost is included as a materials additive to the base compensation cost of each employee) are described below. The costs of all of this equipment are detailed in e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost." The costs for the vehicles and machines are based on costs provided by CSXT in discovery. References to the CSXT cost data are included in the aforementioned spreadsheet.

i. <u>Hi-Rail Vehicles</u>

Each of the CERR's three field track crews is equipped with a hi-rail truck which provides transportation of the crew and is equipped with the tools necessary for the crew to perform its duties. This crew-cab vehicle, which is appropriate for the tasks it is intended to accomplish, comfortably seats a Foreman and two Track Maintainers. Its hi-rail gear provides the versatility required of maintenance forces to gain access to the track and carry out their duties. For example, if a track crew cannot access the track at a particular location due to imminent train arrival, the crew travels by road to a point where a dispatcher can provide positive protection for the crew to get on the track. Alternatively, if a crew is on the track and it cannot remain or proceed due to an oncoming train, the hi-rail vehicle is removed until the train clears the CTC block or, in non-signaled territory, passes the track crew's location, and then either returns to the track or moves, by road, to another point where (with authority from a dispatcher) it again obtains the authority to gain access to the track.

Each of the hi-rail vehicles is equipped with a boom crane and overhead racks. They allow the crew to load 39-foot rails, frogs, switch points, switch ties, cross ties and other materials necessary to perform track maintenance.[60] The vehicle also is equipped with a hydraulic system providing the capability for operating portable tamping tools (2), an impact wrench (1), a rail saw (1), a rail drill (1), a spike hammer or driver (1), a spike puller (1), *etc.*, which

[60] It should be noted that the heavier materials such as longer weldable frogs would be handled by the Prentice Loader, working in conjunction with the track crew. This "teaming" aspect of equipment utilization moderates the size required for the track crews' trucks.

are included in the complement of tools carried on the vehicle.[61] Based on information obtained from hydraulic tool vendors, Mr. Meadows determined that the CERR's cost to equip a gang truck or Assistant Track Supervisor truck with these tools is $16,300 per vehicle. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cell L51.

While the B&B crew hi-rail truck is equipped with a different type of crane than the track crew hi-rail trucks, the B&B truck costs approximately the same and is similarly outfitted with hydraulic and hand tools.

Other MOW personnel are assigned smaller hi-rail vehicles. These include the Track Supervisor and Assistant Track Supervisors, Smoothing Gang, Signal Maintainers and welding crew. The Assistant Track Supervisors' vehicles also are equipped with a hydraulic pump and tool set similar to the system in the track and bridge crew vehicles (an Assistant Track Supervisor may not carry the full complement of hydraulic tools every day on his truck to reduce weight; in all likelihood these trucks would carry the impact wrench and possibly the spiker on a daily basis, and the other complement of hydraulic tools as necessary). The HQ Engineering/MOW staff also is assigned hi-rail vehicles as described in Part III-D-3-f. In addition, the CERR equipment roster includes one trailer assigned to move the excavator to job sites as well as a Prentice Loader (material handling) truck. A

[61] The hydraulic systems on the track crew's hi-rail trucks can perform more functions than an air compressor. Air tools largely have been replaced by hydraulic tools supplied to each crew and each Assistant Track Supervisor.

trailer is also provided to host the backhoes assigned to each track crew's territory. These vehicles are used to deliver equipment, tools and materials to the field track and other crews.

Smaller hi-rail vehicles driven by supervisory employees are intended essentially for their transportation and that of others who may accompany them together with some capability for small material transport. Vehicles rated three-quarters to one ton are suitable. Hi-rail vehicles assigned to Assistant Track Supervisors, the Smoothing Gang, Signal Maintainers and Welders not only provide transportation of employees, but are equipped with service bodies for transporting equipment, tools and parts. Here, too, vehicles rated three-quarters to one ton are appropriate. The rating specification accommodates a wide variety of vehicle manufacturers and body configurations.

ii. Equipment for Track and Related Work

CERR field crews responsible for track maintenance (including the track crews, smoothing crews and welding crews) are assigned other specialized equipment needed to perform their tasks, as described below.

Rail Drills. Rail drills are needed by field track crews for drilling holes in new replacement rail when bolted joints are installed by replacing a rail that is found to be defective through electronic testing or visual detection. Each track crew and each Assistant Track Supervisor is assigned one hydraulic rail drill as part of the hydraulic tool set on their truck.

Rail saws. Rail saws are used by field MOW personnel to crop torch-cut rail ends or shorten existing rail ends when joints are to be installed. Providing smooth rail-sawn ends meets FRA requirements for the CERR track classes, as no torch-cut rail is allowed in Class 3 track. Each hydraulic tool set contains one rail saw.

Impact Wrenches. Each track crew and Assistant Track Supervisor also is outfitted with an impact wrench in the hydraulic tool set on their hi-rail vehicle. This piece of equipment is used to loosen and tighten joint bolts where joints are present in the track infrastructure. The impact feature of these tools is especially effective where a nut and bolt are rusted or seized and manual attempts to loosen them might prove unsafe. The impact wrench also is equipped with calibration capability so that applied force can be set in accordance with manufacturer's specifications.

Tamping Tools. Each field track crew is equipped with two small, hand-held tampers. Major surfacing programs are incorporated into major rail and tie renewal projects and are performed by outside contractors with large tamping equipment. However, additional spot surfacing may be required to smooth joints, switch and railroad crossing frogs, switch points, bridge approaches, at-grade crossing approaches, local spots on the high sides of curves, and as curves move (out) in the spring and (in) during the fall. This spot power tamping (versus hand tamping with ballast forks) minimizes speed restrictions due to track conditions.

Thus, each track crew is equipped with a set of tamping tools powered by the hi-rail vehicle's hydraulic system.

Spike Hammers (Drivers). Each set of hydraulic tools is accompanied by a single spike hammer or driver which drives regular cut spikes into wooden ties or lag screws into timber headers (or planks) in at-grade, highway-rail crossings. These power tools reduce manual labor associated with spike installation.

Spike Puller. Lastly, each set of hydraulic tools includes a single spike puller, which again reduces the amount of manual labor associated with spikes, only this time involving the removal of existing spikes from timber ties.

Tamper and Ballast Regulator. The smoothing crew is equipped with a modern high-speed tamper with switch-tamping capability to perform spot tamping work and a ballast regulator, which is required to move ballast, restore the roadbed section and shoulder ballast, and sweep the track. The crew performs virtually all of the spot tamping, lining and surfacing required to maintain proper track line and surface. These are expensive machines. Indeed, the CSXT data provided in discovery indicates that the replacement cost for a Tamper is ${ } and the replacement cost for a Ballast Regulator is ${ }. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cells P10 and P11.

Grinders. The welding crew is equipped with a complement of rail grinding equipment, including straight and profile grinders. This equipment is used to grind rail to the designed profile at specific locations. The CERR's welding crew uses the Thermite welding process to eliminate joints created temporarily in CWR where a section of rail is replaced. It also restores, by welding, rail ends which are battered, chipped or crushed, switch and rail crossing frogs, and switch points. Once welding is complete, the weld zone needs to be ground to conform with the rail profile adjacent to the zone. In addition, the crew slots insulated rail joints found in the vicinity of switches, railroad crossings and bridge approaches. The joints require slotting as the railhead flow, under traffic, moves to span the joint gap. If the flow is not checked by slotting, it eventually breaks off, causing the rail end to chip or may cause signal failures.

Each of the two track crews also is equipped with a straight grinder in connection with its occasional rail repair work. The cost of straight grinders used by the track crews and one set of grinding equipment used by the welding crew is included in the cost of the welding or track crew trucks.

<u>400-Amp Welders</u>. The welding/grinding crew also is equipped with a 400-amp welder, mounted on the crew's hi-rail truck. This smaller welding tool provides the crew with the needed flexibility to access a work site regardless of track location. The cost of one 400-amp welder is $12,900, which is included in the truck cost of welders. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cell L48.

<u>Oxy-Propane Welders</u>. Finally, the welding crew is equipped with welding and cutting torches and fuel cylinders. The total cost of oxy-propane

equipment used by the welding crew is $775. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cell L49.

Track Hoe. The CERR's MOW equipment roster includes one backhoe track excavator (also known as a "trackhoe"). This machine, which is operated off-track, is also available to assist the two backhoes. It is used primarily in clearing slide areas, installing culverts, and other miscellaneous excavation work. It is also occasionally needed by the field track and signal forces. The trackhoe is effective in specialized ditching purposes (such as improving drainage in the vicinity of at-grade highway/rail crossings and placing signal conduit) and in spot excavating. It also can clear debris and beaver dams lodged at culverts and bridges when equipped with the optional grapple attachment. The total cost of the trackhoe is, according to CSXT, ${ }. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cell P12.

Backhoes and Dump Trucks. Each of the three track crew territories is equipped with a small rubber-tired backhoe, dump truck, and trailer to transport the backhoe. These additional support vehicles supplement the equipment described in the preceding sections and are available to the track and smoothing crews on an as-needed basis. The unit cost of this equipment is ${ }, ${ }, and ${ } respectively. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost," cells P6:P8.

Details (including sources) concerning the costs of all equipment items described above are provided in e-workpaper "CERR Opening MOW Costs.xlsx," tab "Annual MOW Equipment Cost."

iii. Work Trains

Contractors provide all equipment (except locomotives) necessary to support large track programs. As explained in Part III-C-2-c, the CERR has spare road locomotives that are available for occasional use in contractor work-train service, as needed.[62] Those locomotives also can be used to move the occasional car of ballast, *etc.*, needed by the CERR's field MOW track forces.

The CERR does not need any separate work-train equipment of its own. Spot ballast is purchased by the carload, with the CERR simply moving the carload supplied by the vendor the relatively short distance to the location where it is needed. Spot ties can be moved to the location where they are needed by the Prentice Loader truck. Based on Mr. Meadows's personal knowledge and observation, many railroads (including Class I's) are now using this approach (depending on the complexity of the project) and no longer employ fleets of work-train equipment to be used by in-house MOW forces.

The CERR does need to store or hold work-train equipment temporarily, for either contract jobs or cars of material supplied by outside

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[62] For example, CWR is laid in 1,400-foot strings from a rail train of specialized flatcars that requires a locomotive. Other contractor equipment items such as a spike pullers, nipper-spikers, tampers and ballast regulators are self-propelled and do not require motive power.

vendors. Mr. Meadows has provided a 1,000-foot MOW equipment storage track for this purpose at the CERR's Barr Yard. This track also can be used for temporary storage of some of the CERR's larger hi-rail equipment as well as contractor on-track equipment.

h. <u>Scheduling of Maintenance</u>

Spot maintenance work carried out by the CERR's MOW crews is not scheduled in planned maintenance windows. Although much of the work is routine, some occurrences are unplanned but require immediate attention and do not reflect the normal, routine approach to spot maintenance. Given the flow of traffic on the railroad, scheduling spot MOW work must be fluid and flexible to the extent feasible given specific maintenance needs. Although the CERR's field MOW crews (including signal maintainers) are responsible for all routine maintenance work that occurs on the CERR right-of-way, they also address conditions requiring immediate remedial action such as broken rails, broken joint bars, down or malfunctioning crossing signal gate arms, *etc.* Any condition requiring remedial action that cannot be met by the MOW field crews is referred to the proper authority, usually the Track Supervisor or an Assistant Track Supervisor, who calls in needed resources. In the meantime, field MOW forces provide flag protection in such situations.

A CERR field maintenance crew may perform different work on succeeding days. In addition to regular duties, which the Foreman of each crew will have planned, the Track Supervisor or other supervisor will assign specific tasks which will be referred to a particular crew or a combination of crews. The tasks assigned on a particular day will depend on the expected rail traffic (train frequency) and thus the work window available. A particular track crew may be able to move on track by hi-rail vehicle directly from its base to a location requiring, for example, the change-out of a defective rail which has precipitated a temporary slow order, thereby restricting the speed of trains. Another crew could be assigned a similar task but, because of a differing circumstance with respect to train location and work window, must move by road (in its hi-rail vehicle) closer to the task's location, and then obtain a work window from a dispatcher.

Other activities can be scheduled more easily. For example, following the passage of an ultrasonic rail test car, some rails will require immediate removal and joints must be Thermite-welded. Since the testing is planned, the replacement of defective rails can be scheduled. The field track crew, assisted by a welding crew, can then be in position to replace the defective rails and weld them.

Ultimately, the CERR field MOW crews are not relying on specific maintenance windows that are planned substantially in advance of needed work. Instead, crews plan their days around specific information concerning the number of trains expected that day in their territory and the work that needs to be completed. No scheduled maintenance would be performed during the CERR's peak traffic periods. Only emergency repairs would be performed during such periods.

i. Contributions from Michigan DOT

The Michigan Department of Transportation ("MDOT") shares, in part, the cost to maintain active warning devices protecting at-grade crossings. Specifically, MDOT states that by "state law . . . the cost of active warning device maintenance is split 50/50 between the railroad and the agency with jurisdiction over the road." *See* e-workpaper "MDOT – Maintaining Railroad Crossings.pdf." MDOT publishes a schedule of annual maintenance costs for which it will provide reimbursement: $1,271 for flashing signals locations and $1,978 for flashing signals and gates locations. *Id.* Based on the CERR's count of various crossing types, Consumers calculates that the state would provide annual contribution payments of $202,582. *See* e-workpaper "CERR Opening MOW Costs.xlsx," tab "Crossing Contribution from MI," cell E6. While the reimbursement figures may not truly represent 50 percent of the costs incurred by the CERR – the costs for the relevant signal maintainers' salaries alone exceeds the reimbursement, the CERR is conservatively assuming that no additional funds would be available.

5. Joint Facilities

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} The joint facilities agreements utilized by the CERR are summarized in Table III-D-19 below.

	TABLE III-D-19 SUMMARY OF CERR JOINT FACILITIES AGREEMENTS				
	Agreement Type	**Counter Party**	**Geographic Area**	**CSXT Agreement Reference**	**CERR Base Year Charges**
	(1)	(2)	(3)	(4)	(5)
1.	Trackage Rights	{ }	{ }	{ }	{ }
2.	Trackage Rights	{ }	{ }	{ }	{ }
3.	Trackage Rights	{ }	{ }	{ }	{ }
4.	Interlocking & Bridges	{ }	{ }	{ }	{ }
5.	Total				{ }
	Source: e-workpaper "Open_ConsumersJointFacCharges2014.xlsx," tab "Consumers."				

The joint facilities charges for each of the agreements above were developed using joint facilities invoices provided by CSXT in discovery. *See* e-workpaper "Open_ConsumersJointFacCharges2014.xlsx." Specifically, average charges by unit were develop based on CSXT actual data and applied to CERR operating statistics.

6. Loss and Damage

The CERR's annual loss and damage cost equals { }. This cost was developed by multiplying CSXT's actual 2014 loss and damage per ton for the commodities moving on the CERR by the number of tons of each commodity moved on the CERR in the base year.[63] In other SAC proceedings, complainants and defendants have used, and the Board has accepted, this same methodology to calculate loss and damage costs.[64]

7. Insurance

The standard practice of large railroads is to self-insure against potential liability except for catastrophic risks. The CERR also self-insures against most types of claims, and obtains insurance at competitive rates to cover catastrophic loss and Federal Employers Liability Act exposure.

Insurance expenses for the CERR were calculated using the experience of the Providence and Worcester Railroad Company, a publicly traded regional railroad, for 2010 through 2014. The result is a CERR insurance expense of 3.75 percent of operating expenses. *See* e-workpaper "CERR Insurance_Open.xlsx," tab "Sheet1", cell D21.

8. Ad Valorem Tax

The CERR operates in the states of Illinois, Indiana, and Michigan. Consumers' experts developed CERR's ad valorem taxes for these states in a manner that is consistent with how these taxes are developed by CSXT. That is to say, Consumers recognizes the various approaches used by each state to calculate

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[63] Consumers calculated the CERR's share of the loss and damage payments on the percentage of the CERR's car-miles to CSXT's total car-miles by two-digit STCC code. *See* e-workpaper "CERR FDC1_by_STCC_Open.xls."

[64] Review of the public record shows that most recently, the Complainant used this method in the *AEPCO* and *DuPont* proceedings and it was accepted by Defendants in those proceeding, without comment by the Board.

ad valorem taxes. Illinois uses a combination of income, cost and equity approaches to calculate ad valorem taxes, while Indiana uses just a cost approach and Michigan uses an income and cost approach.

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For the cost and equity approaches used for Illinois and Indiana ad valorem taxes, Consumers used a mileage prorate of CSXT's ad valorem taxes to determine CERR taxes on a cost and equity basis. Specifically, the amount of tax that CSXT paid per route mile was calculated for CSXT's route miles in each state. These amounts were then applied to the CERR's route miles in each state and summed to arrive at CERR's Ad Valorem Tax on a cost and equity basis. These tax calculations by state were then applied to weight each state uses for cost and equity based valuations.

For the income approach used for Illinois ad valorem taxes, Consumers developed taxes for the CERR in the same way that Illinois develops taxes for CSXT. Specifically, Consumers takes CERR's 2015 revenues and subtracts operating expenses, depreciation and a provision for deferred income taxes to arrive at net railway operating income. *See* e-workpaper "CERR Ad Valorem Taxes_Open.xlsx," tab "IL Income Calc," lines 1 through 5. Illinois' income approach requires the use of net railway operating income. *See* e-workpaper "Ad Valorem State Workpapers (CSX-CNSMR-HC-19172 to 19323).pdf," page 19, line 1). Consumers' approach to developing net railway operating income conforms with the approach used by all Class I carriers within their R-1's. *See*, *e.g.*, CSXT's 2014 R-1, Schedule 210, lines 62 through 67. The CERR capitalized value was developed by dividing net railway operating income by the weighted average cost of capital used for the CERR. *See* e-workpaper "CERR Ad Valorem Taxes_Open.xlsx," tab IL Income Calc," lines 6 and 7. Consumers then applied the same adjustments applied by the state of Illinois to capitalized value to arrive at an assessed value for the CERR. *See* e-workpaper "CERR Ad Valorem Taxes_Open.xlsx," tab "IL Income Calc," lines 8 and 11. As all of CERR's Illinois track resides in Cook County, Consumers applied the effective tax rate for Cook County to the CERR assessed value. This tax calculation was applied to the weight Illinois uses for income based calculations to determine the portion of CERR's ad valorem taxes attributable to the Illinois income-based approach.

After the ad valorem taxing approaches described above were weighted by state assigned weights, Consumers arrived at a first year total ad valorem tax for CERR of { }. *See* e-workpaper "CERR Ad Valorem Taxes_Open.xlsx," tab "Summary," cell G13.

9. <u>Intermodal Lift Costs</u>

As described in Section III-C-1 above, the CERR originates intermodal traffic out of CSXIT's 59th Street facility. Since line-haul revenues for this traffic includes the cost of lifting containers onto railcars, Consumers must include the cost of a lift charged by CSXIT in its operating expenses. The total cost for intermodal container lifts in the first year equals { }. This cost for the CERR was developed by applying an estimate of CSXIT's cost to lift a container onto a railcar by the 173,848 containers carried by CERR out of the 59th

Street facility.[65] The lift cost developed by Consumers equals { } per lift and includes CSXT's actual costs associated with lifting containers onto railcars. See e-workpaper "CERR CSXIT Lift Charge_Open.xlsx."

10. Calculation of Annual Operating Expenses

As noted at the beginning of this Part III-D, the statistical inputs used to develop the CERR's annual operating expenses (equipment and operating-personnel needs, locomotive unit miles, crew starts, etc.) were developed by Consumers' expert operating, IT, and engineering/MOW witnesses. Consumers' witness Despard also developed the annual salaries, equipment, and operating unit costs. Mr. Despard used all of these inputs to develop the CERR's First Year operating expenses.

The procedures used to develop the CERR's annual operating expenses for the First Year—applying transit times calculated for the peak period of the Peak Year to a full year of train data to calculate operating statistics, rather than calculating statistics for the peak week and expanding those statistics to reflect a full year of data—were approved by the Board in *WFA I*.

The First Year operating expenses were then provided to Consumers' witness Fapp who developed operating expenses for each period in the DCF model.

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[65] *See* e-workpaper "Carloads And Containers Traffic 2014 Final Stats.xlsx," tab "Pivot-Containers by move type."

Part III-E – Non-Road Property Investment

III. E. NON-ROAD PROPERTY INVESTMENT

1. Locomotives

As previously described, the CERR leases all of its locomotives. The annual locomotive lease cost is included as an operating expense, as described in Part III-D-1 above.

2. Railcars

The CERR also leases all of its railcars. The annual railcar lease cost is also included as an operating expense, as described in Part III-D-2 above.

3. Other

Most of the CERR's other equipment, including company vehicles, maintenance-of-way equipment such as hi-rail trucks, radios, and telephones (*see* Parts III-D-3 and III-D-4 above) are purchased. Computers and related hardware are also purchased. The CERR's information technology and computer system needs, and the associated capital investment, are described in Part III-D-3 above. The purchase prices of these items are annuitized and included in the CERR's operating expenses.

The CERR operates over nine joint facilities owned by other carriers. The BRC, which is included in this calculation, is 25% owned by the CERR.

Part III-F – Road Property Investment

III. F. ROAD PROPERTY INVESTMENT

The CERR replicates existing CSXT rail lines in the States of Illinois, Indiana, and Michigan, including portions of the Barr, Blue Island, Fremont, and Grand Rapids Subdivisions.[1] The CERR starts at the UP/Ogden Jct. at West Ogden Avenue near 22nd Street in Chicago, IL and extends 160.52 route miles to West Olive, MI. The CERR serves only one customer: Consumers' Campbell Station.[2] The CERR includes a second route through Chicago, which includes 8.13 route miles of the existing Belt Railway Company of Chicago ("BRC"). CSXT owns 25% of the BRC, so the CERR steps into CSXT's shoes and assumes 25% of the cost of the BRC facilities, property, and track utilized by the CERR.

The CERR's road property investment costs are summarized in Table III-F-1 below.

[1] Consumers' SARR road property investment evidence is being sponsored by Stuart Smith (land acquisition costs), Harvey Stone (engineering and construction costs), Timothy Crowley (grading/roadbed preparation costs), and Victor Grappone (communications and signals). These witnesses' qualifications are set forth in Part V.

[2] The CERR also serves one local facility: CSXIT's 59th St. Intermodal Terminal.

TABLE III-F-1
CERR ROAD PROPERTY INVESTMENT COSTS
(millions)

	Item	Investment
1.	Land	$ 120.2
2.	Roadbed Preparation	30.3
3.	Track	189.2
4.	Tunnels	0
5.	Bridges	72.2
6.	Signals, Communications & Other Equipment	33.8
7.	Buildings & Facilities (including Fueling Facilities)	11.9
8.	Public Improvements	3.4
9.	Subtotal	461.0
10.	Mobilization	9.2
11.	Engineering	34.1
12.	Contingencies	38.4
13.	**Total Road Property Investment Costs**	**542.7**

1. Land

The CERR's land acquisition costs were developed by Stuart I. Smith of Stuart I. Smith Realty Advisors, LLC, affiliated with US Realty Consultants, Inc. Mr. Smith has over 30 years of real estate appraisal experience. He has prepared land acquisition cost testimony in prior STB maximum-reasonable rate cases, including *AEPCO.* Mr. Smith's extensive qualifications in the real estate appraisal field are set forth in Part V.

The CERR right-of-way ("ROW") starts at the UP Ogden Jct., passes through a small section within the city limits of Chicago using one of two routes, and then runs north-northeast to Consumers' Campbell Station. For land valuation purposes, the route from Milepost 33.6 in West Olive to Consumers Energy J.H. Campbell Generating plant was excluded, because the ROW is already owned by Consumers. *See* e-workpapers "Consumers Boundary Map for Parcel ID: 70-11-01-300-005.pdf" and "Campbell Side Track Agreement.pdf." The CERR is also not assuming any of the costs for land or the facilities at CSXIT's 59th Street Intermodal Terminal.[3]

All of the land that would be acquired by the CERR in Illinois and the greater Chicago area is classified as either Industrial or as Mixed Use/Urban Areas. The land from Porter, IN to West Olive, MI is more rural, with less variation in usage, and is primarily classified as Agricultural/Open Space. Mr. Smith's land acquisition report ("Report") closely focuses on changes in highest and best use in accordance with across-the-fence valuation. Those changes in land use and variations in value are most pronounced in the greater Chicago-area.

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Mr. Smith's methodology and his determination of land acquisition costs for the CERR are set forth in his Report which is included as e-workpaper "CERR Land Valuation Report.pdf." A summary of Mr. Smith's land valuation determinations is provided in Table III-F-2 below.

TABLE III-F-2 CERR LAND ACQUISITION COSTS	
Property Type	**Cost (millions)**
Main Line ROW (includes Microwave Towers)	$ 103.16
Dolton Interchange #2	$ 3.85
BRC (second route) CERR 25% Ownership	$ 6.14
Barr Yard	$ 7.03
Total	**$ 120.2**

a. Right-of-Way Acreage

The CERR will acquire 1,818 acres in fee simple for its ROW, and a 25% ownership in 74 acres related to the BRC lines at a total cost of $120.2 million. The ROW was estimated to have an average width of 75 feet ("ft") in the more urban and densely populated areas, which includes most of the areas in and around Chicago, and an average width of 100 ft in the more rural areas, which includes a significant portion of the land from Porter to West Olive.[4]

[4] *See Duke/CSXT* at 472-73; *WPL* at 1018; *WTU* at 702.

b. Yard Acreage

The CERR has only one yard, the Barr Yard in Chicago, which is located near Blue Island, a neighborhood on the south end of Chicago and close to the Indiana border. The Barr Yard includes the CERR's locomotive repair facility, a maintenance-of-way ("MOW") office and garage, a locomotive shop, and a crew building. This is also the location where train inspections take place. The total acreage required for these facilities is 63.32 acres, at a cost of $7.03 million. Details of the Barr Yard acreage calculations are included in e-workpaper "Barr Yard Site Development Costs.xls."

c. Microwave Tower Acreage

The CERR has 6 microwave tower locations situated on or near its ROW in order to support necessary communications systems. The microwave towers were placed within 25 miles of each other to provide coverage from Porter to West Olive, which will be operated as "dark" territory due to the relatively light traffic density. For each microwave tower, one acre[5] was added to the corresponding land segment.[6] Thus, the CERR requires a total of six acres for

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[5] Microwave towers do not have a significant footprint, but to be conservative Mr. Smith estimated one acre for each tower. This estimation has previously been accepted as adequate. *See* Opening Evidence of Complainant IPA, Narrative (Public Version) at III-F-5, *IPA* (filed Dec. 17, 2012); Reply Evidence of Defendant Union Pacific Railroad Company, Narrative (Public Version) at III.F-2, *IPA* (filed April 12, 2013) ("UP generally accepts IPA's valuation of the land for the IRR right of way and for microwave tower sites.").

[6] *See* e-workpaper "Land Valuation Worksheet.xls," rows 9, 15, 21, 29, 34, and 38 (one acre was added to the following segments: Waverly Yard Limit; Fennville; Hartford; St. Joseph; Bridgman; and Michigan City-B).

microwave towers, at a cost of $237,402,[7] which was included in the total cost for the main line ROW of $103.16 million.

d. Property Values

Consistent with established Board precedent, property values were determined by evaluating the land adjacent to the CSXT ROW being replicated by the CERR. *See Xcel I* at 668; *Duke/CSXT*, 7 S.T.B. at 473; *Duke/NS*, 7 S.T.B. at 169. The total cost of the property necessary for construction of the CERR is $120.2 million. The methodology used and analysis developed in determining the acquisition cost are summarized below.

i. Methodology

Vacant land is best appraised using the sales comparison approach. *Xcel I* at 669. This method provides a price indication by comparing the subject properties to similar properties that have sold recently, applying appropriate units of comparison, and making adjustments as warranted. For the rural areas, it was possible to develop a market value based solely on comparable vacant land sales. However, with respect to Chicago, there was an insufficient number of comparable sales, making it necessary to augment the direct sales comparisons by examining improved sales and allocating a price for the land component.

In valuing the CERR's ROW, Mr. Smith utilized a method that is consistent with traditional and accepted real estate practices applied to all types of

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[7] *See* e-workpaper "Land Valuation Worksheet.xls," cells Q9, Q15, Q21, Q29, Q34, and Q38 (total cost of microwave tower acreage = $6,534 + $6,534 + $6,534 + $130,680 + $32,670 + $54,450).

ROWs. Land sales in the vicinity of a ROW are examined to develop across-the-fence ("ATF") land prices. *See Xcel I* at 669 (supporting ATF values). Land sales adjacent to or near the CSXT rail lines being replicated form the basis for the CERR's real estate acquisition cost estimate. Additionally, to assist with the land valuation in Chicago, Mr. Smith reviewed land sale data provided by a local appraiser who has experience working in the Chicago area and is licensed in Illinois.[8]

ii. <u>Application</u>

Mr. Smith was able to physically inspect almost all of the CERR ROW and the surrounding areas by driving near the replicated CSXT ROW.[9] Areas that were unable to be physically inspected were reviewed using other data such as topographic maps and satellite imagery. Mr. Smith details his various inspection techniques in his Report. *See* e-workpaper "CERR Land Valuation Report.pdf" at 38-41.

These inspections aided in Mr. Smith's determination of the highest and best use of the property along the ROW, the specific breaks between land use segments, and the overall impression of an area relevant to potential value. Such inspections are inherently of more value in populated areas than in the isolated rural areas, where land patterns are consistent for long stretches.

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[8] *See* e-workpaper "CERR Land Valuation Report.pdf." The local appraiser was also consulted for additional details regarding the data provided.

[9] Several locations were unreachable without entering onto private property.

After completing his inspections, Mr. Smith subdivided the ROW into various segments based on the land use types he identified. In particular, Mr. Smith utilized seven different land use categories: Agricultural/Open Space; Recreational/General Land Use; Mixed Use/Small Town; Residential (urban areas); Commercial (urban areas); Mixed Use/Urban Areas; and Industrial. Mr. Smith then examined comparative sales data for each segment, and assigned a per acre value to the segment. The analysis was performed assuming a fee simple ownership interest in property in undeveloped and unimproved condition. The appraisal includes the right-of-way for the tracks, the Barr Yard, and the Dolton Interchange.

iii. <u>Costing</u>

The valuation process described herein provides the most probable hypothetical cost to acquire a fee simple interest in the right-of-way for the railroad lines being constructed by the hypothetical CERR. Land was valued in its undeveloped condition, without consideration of adjacent ownership boundaries, abutting ownership, or severance damages, with values determined as of January 1, 2015.

The CERR system is comprised of 158.1 route miles of railroad ROW,[10] covering 1,761 acres. The CERR's land requirements include Barr Yard,

[10] The total constructed route miles of the CERR is 160.52 (not including the BRC track). Mr. Smith used the ROW mileage of 158.1 miles because, as discussed *supra*, Consumers owns the underlying property from Milepost 33.6 in West Olive, MI to Consumers' Campbell Station. *See* e-workpapers "Consumers

which accounts for an additional 63 acres. The CERR holds a 25% ownership in 8.13 miles of BRC track, which covers 74 acres. As explained above, the ROW width varies in different areas based on evaluations of the surrounding terrain and the existing CSXT ROW being replicated. No assemblage factor was added to Mr. Smith's calculations as CSXT's predecessors built all of these lines more than 100 years ago, and there is no indication that CSXT incurred any assemblage costs for these properties.

e. <u>Conclusion</u>

Based on the investigation and analysis undertaken by Mr. Smith, the market value of the fee simple estate and easements in the ROW needed for the CERR's lines as of January 1, 2015, subject to all stated assumptions and limiting conditions delineated in Mr. Smith's Report, is $120.2 million. No easements were excluded from these costs because the documents provided by CSXT as part of discovery on May 8, 2015 did not include enough information to link deed documents to land documents. Specifically, the file "Deed Index.xlsx" provided May 8, 2015 did not link to the land identified in the file "Val Map Index IL IN MI.xlsx" provided April 17, 2015 in a manner that would allow for identification of easements applicable to the CERR.

Boundary Map for Parcel ID: 70-11-01-300-005.pdf;" and "Side Track Agreement.pdf."

2. **Roadbed Preparation**

Consumers' engineering witness, Harvey Stone, with Consumers' expert witness Timothy Crowley, developed the CERR's roadbed preparation costs in a manner generally consistent with prior Board decisions, including *DuPont, SunBelt, AEPCO 2011, WFA I, AEP Texas, Xcel I, Duke/CSXT, Duke/NS,* and *Carolina P&L*. Their qualifications are set forth in Part IV.

The ICC Engineering Reports were used to develop the CERR quantities for clearing, grubbing, earthwork, rip rap, retaining walls, and lateral drainage. As noted below, the information extracted from the ICC Engineering Reports was adjusted to reflect current engineering and design specifications.

The roadbed preparation unit costs utilized herein are based on actual costs reported by numerous contractors to the Michigan Department of Transportation ("MDOT"), and the Means Handbook.[11] The Means Handbook costs are very conservative for this application because they are based on an average of costs for projects of all sizes from around the country and assume a unionized workforce. There is no way to scale the Means Handbook unit costs to be commensurate with a project the size of the CERR, or to accurately estimate the impact of using non-union labor. In some instances, the MDOT costs are a better reflection of what the CERR would experience and are discussed further

[11] RS Means 2015 Site Work & Landscape Cost Data ("Means Handbook").

below in the sections in which MDOT costs were utilized in lieu of Means Handbook costs.

A summary of the CERR's roadbed preparation costs are summarized in Table III-F-3 below.

TABLE III-F-3
CERR ROADBED PREPARATION COSTS[1/]

	Item	**Cost (in thousands)**
1.	Clearing and Grubbing	$2,354
2.	Earthwork	
	a. Common	$12,642
	b. Loose Rock	$66
	c. Solid Rock	$295
	d. Borrow	$7,415
	e. Land for Waste Excavation	$0
3.	Drainage[2/]	
	a. Lateral Drainage	$202
4.	Culverts[3/]	$1,146
5.	Retaining Walls	$4,442
6.	Rip Rap	$251
7.	Relocation of Utilities	$40
8.	Topsoil Placement/Seeding	$27
9.	Surfacing for Detour Roads	$199
10.	Environmental Compliance	$48
11.	Fine Grading	$1,146
12.	**Total**	**$30,274**

[1/] *See* e-workpaper "CERR Grading_Opening.xlsx," tab "Total Cost Summary," Section C "Table III-F-3 Development"
[2/] Yard drainage is included in building site development costs.
[3/] *See* e-workpaper "CULVERT COST WORKSHEETS.xlsx," tab "CULVERT COST SUMMARY."

a. Clearing and Grubbing

The CSXT mainlines being replicated by the CERR were constructed in the 1800s, before the ICC Bureau of Valuation prepared the ICC Engineering Reports. Consumers reviewed the valuation section index maps accompanying the ICC Engineering Reports for the lines traversed by the CERR,[12] and identified the valuation sections applicable to the CERR. A listing of the valuation sections used in the development of the roadbed preparation construction costs for the CERR is included in Consumers' workpapers.[13] All of the lines being replicated by the CERR, except for one small spur segment, are covered by ICC Engineering Report data. The first 2.38 miles of the Consumers lead track (the spur serving Campbell Power Station), which are assumed to be built and owned by the CERR, were constructed in the 1960's. For this segment, Consumers' experts used the acres per track mile quantities for the adjacent valuation section, PM-3-MI, on the CSXT mainline, as shown in the Engineering Reports.

Based on this selection of valuation sections, the clearing and grubbing quantities required for the original construction of the CERR lines were taken from the ICC Engineering Reports.[14] These quantities were then modified to reflect current construction specifications.[15]

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[12] The ICC Engineering Reports were compiled in the first quarter of the 20th century. At that time, the current lines of CSXT were owned by many different railroads.

[13] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Eng Reports Used." The ICC Engineering Reports shown are included as e-workpaper "ICC Engineering Reports_CERR_opening.pdf"

[14] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Eng Report Summary," column (35) through column (38).

[15] The clearing and grubbing quantities (acres per track mile) were increased by the ratio of the current roadbed specifications to the original roadbed specifications and applied to the track miles (including yards and sidings) of the

Historically, clearing and grubbing costs have been developed and applied separately depending on the acreage requiring the grubbing of tree stumps. In past cases the Means Handbook has been relied upon to develop clearing and grubbing unit costs; however, the Means Handbook consists of construction projects of various sizes that occur all throughout the country. In this case, Consumers' engineers have based clearing and grubbing costs on various MDOT projects, which are more comparable to the CERR's specific circumstances.[16] The MDOT costs are based on a variety of real-world construction projects located throughout Michigan. In using the MDOT unit costs, Consumers was able to utilize the specific costs incurred by contractors throughout Michigan that are directly applicable to clearing and grubbing, and more relevant to the CERR territory than the Means Handbook.

In this proceeding, Consumers has relied upon MDOT construction cost data, and followed the specific procedures outlined in the MDOT Unit Cost Development workpaper,[17] in order to develop clearing and grubbing unit costs for the CERR. Consumers was able to identify 45 construction projects in Michigan that contained clearing and grubbing unit costs. Consumers divided these 45 projects into three (3) tiers: Tier I, projects within 30 miles of the CERR; Tier II,

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CERR's line segments to develop current clearing and grubbing quantities. *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Calculations."

[16] MDOT costs are particularly relevant as 105.94 of the CERR's 160.52 route miles (66%) are located in Michigan.

[17] *See* e-workpaper "Methodology for Developing MDOT Unit Costs.docx" referred to in the rest of this document as "MDOT Unit Cost Development."

projects between 30 and 100 miles from the CERR; and Tier III, projects more than 100 miles from the CERR. Of the 45 projects, 19 of the Tier III projects were excluded because they were not within close proximity to the CERR and therefore were not considered to have data representative of CERR site conditions.

Of the 15 Tier I and 11 Tier II projects remaining, Consumers calculated the weighted average clearing and grubbing unit cost based on total acres for the 26 projects, which resulted in a unit cost per acre of $3,204.[18] Consumers used this MDOT unit price both for the acres requiring clearing and the acres requiring grubbing. This is a very conservative approach, as areas that require clearing, but not grubbing, typically are less expensive than areas that require both clearing and grubbing. By applying the MDOT clearing and grubbing unit cost to both the clearing acres and grubbing acres, Consumers is ensuring that all aspects of clearing and grubbing are covered for the CERR.

Consumers submits that unit cost calculations based on a weighted average are superior to those based on a simple average because the weighted average approach reflects the economies of scale inherent in larger projects. The weighted average approach has been accepted by the Board in previous cases.[19] In

[18] *See* e-workpaper "MDOT Clearing & Grubbing Unit Costs.xlsx," tab "Unit Cost Comparison," cell H9.

[19] *See TPI* at 33-34 ("We agree with CSXT's weighted average approach to calculating "railroad miles" in this case because such an approach is more consistent with real-world operations than TPI's predominant route approach. See *DuPont* at 18 n.53 (accepting the railroad's actual mileage rather than PC*Miler/Rail calculation).").

addition, the weighted average quantity approach is the accepted methodology utilized by numerous state Departments of Transportation ("DOT") for cost analyses and project estimates. In the California DOT 2013 Contract Cost Data summary, for example, it is noted that "[p]rices shown in this tabulation are the mechanically weighted average of the awarded bidders' prices and are affected by location, time, quantity in the job and size of the item (relative to the size of the job)."[20] In Appendix D to the I-69 Evansville To Indianapolis Tier 2 Final Environmental Impact Statement detailing the Cost Estimation Methodology, it is noted that "[t]he quantities were used to generate construction costs, using INDOT's newest estimating methodology, OMAN; which uses a quantity weighted average from historic data spanning from 1996 through the most current letting award."[21] Similarly, the Massachusetts DOT Production Based Construction Cost Estimate states that "[f]or all common unit priced elements (other than the Lump Sum Bridge), MassDOT has implemented a "Weighted Average" unit price tracking program."[22] The New York State DOT Weighted

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[20] *See* e-workpaper "California DOT_2013 Contract Cost Data.pdf," highlight at page 3.

[21] *See* e-workpaper "Indiana DOT_Environmental Impact Statement_Appendix D Cost Estimation Methodolgoy.pdf," highlight at page 2.

[22] *See* e-workpaper "Massachusetts DOT_Production Based Construction Cost Estimate.pdf," highlight at page 3.

Average Item Price Report also notes that "[t]he weighted average prices are calculated as total dollars awarded divided by total quantity used."[23]

The Tier I (*i.e.*, projects within 30 miles of the CERR) weighted average MDOT unit cost for clearing and grubbing was $3,091.34 per acre.[24] However, in order to increase the sample size from 15 to 26 projects so that the data is more reliable, Consumers is conservatively utilizing the Tier I and II combination of $3,204 per acre as the best evidence of record that more accurately reflects the clearing and grubbing unit cost that the CERR would realize.

In order to ensure that the MDOT unit prices were similar to clearing and grubbing unit costs that CSXT has realized in its normal course of business, Consumers analyzed the Authorization for Expenditure ("AFE") data provided by CSXT in discovery. The process that was undertaken in order to analyze this data is explained in Consumers' CSXT AFE Unit Cost Review workpaper.[25] CSXT's AFE discovery data contained ten (10) projects that listed unit cost data for clearing and grubbing, however invoices with actual clearing and grubbing costs realized by CSXT were only provided for four (4) of those projects.[26] The 1Q15

[23] *See* e-workpaper "New York DOT_2014 Weighted Average Item Price Report.pdf," highlight at page 2.

[24] *See* e-workpaper "MDOT Clearing & Grubbing Unit Costs.xlsx," tab "Unit Cost Comparison," cell H6.

[25] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx."

[26] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx," section A.

weighted average clearing and grubbing unit cost for those four (4) projects was $4,319 per acre.[27]

While on its face this CSXT weighted average clearing and grubbing unit cost is higher than the MDOT unit cost of $3,204, the MDOT value is the more appropriate unit cost because it is based on the larger sample size of the projects (*i.e.*, 4 vs. 26), and it reflects multiple projects undertaken near the CERR's lines. It is worth noting that one of the projects found in CSXT's AFE's had a bid for a 300 acre clearing and grubbing project in KY of ${ } per acre at 1Q15 levels.[28] CSXT's KY AFE demonstrates that economies of scale will reduce the applicable costs accordingly. Regardless, to be conservative, Consumers' clearing and grubbing unit cost relies on numerous smaller projects in Michigan, all under 40 acres. Projects of this size do not realize the economies of scope and scale that should inure to a project the size and of the CERR. In the specific circumstances of this case, the costs prove that the Means Handbook unit costs for clearing and grubbing is overstated at a weighted average cost of over $5,800 per acre.[29]

In order to confirm that the MDOT unit costs include all of the necessary aspects of clearing and grubbing for the CERR, Consumers reviewed

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[27] *See* e-workpaper "CSXT Invoice Unit Costs Summary.xlsx," tab "Unit Cost Summary," cell AD8.

[28] *See* e-workpaper "CSXT Invoice Unit Costs Summary.xlsx," tab "CSXT AFE Project Data," cell Z20.

[29] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," cell BH 83.

the MDOT 2012 Standard Specifications for Construction.[30] Section 201: Clearing provides that when clearing is required contractors must "[c]ut, remove, and dispose of trees, stumps, brush, shrubs, roots, logs, and other vegetation. Salvage marketable timber. Preserve vegetation and objects required to remain from injury or defacement."[31] The MDOT Specifications go on to discuss clearing removal, and state that contractors must "[r]emove trees, stumps and other vegetation to 10 ft outside the limits of earth disturbance or to the right-of-way line, whichever is less. In other areas, remove trees, stumps, and other vegetation as shown on the plans. Remove trees without endangering traffic and the general public, injuring other trees, and damaging structures or property."[32]

In order to confirm that the MDOT Specifications meet CSXT's standards, Consumers has reviewed the CSXT Standard Specification For The Design and Construction of Private Sidetrack found on CSXT's website.[33] CSXT did not provide any documentation for mainline design and construction, but it is reasonable to assume that the clearing and grubbing specifications for private

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[30] *See* e-workpaper "MDOT 2012 Standard Specifications for Construction.pdf," referred to in the rest of this section as the "MDOT Specifications."

[31] MDOT Specifications at 122.

[32] *Id.*

[33] *See* e-workpaper "CSX_Industrial_Sidetrack_Manual_063003.pdf" also found as a public document at http://www.csx.com/share/wwwcsx_mura/assets/File/Customers/Services_and_Partners/CSX_Industrial_Sidetrack_Manual_063003.pdf. This document is referred to in the rest of this section as the "CSXT Specifications."

sidetrack would be similar and that they would be applicable to the CERR.

Section B of CSXT's specifications regarding clearing and grubbing states that:

> [c]learing will consist of the cutting of all trees, stumps, brush, shrubs, and other vegetation at a level not more than 12 inches above ground and the disposal of all cut material and other fallen timber, fallen branches and other surface litter, rubbish, and debris.... Grubbing will consist of the removal and disposal of all stumps, roots, root mats, embedded logs, and all boulders and debris visible on the surface where clearing is to be done. Stumps will be grubbed where embankments are less than 5 feet in height; where the profile indicates excavations; in all areas designated for the construction of other facilities; and in borrow areas. In all other areas, the stumps may be cut off even with the ground.[34]

Based on the foregoing, the MDOT Specifications for clearing and grubbing that require the removal "to 10 feet outside the limits of earth disturbance" and the complete removal of "trees, stumps and other vegetation" meet or exceed CSXT's Specifications for clearing and grubbing projects. Therefore, the use of the MDOT unit cost for clearing and grubbing encompasses the necessary functions required by the CERR for clearing and grubbing.

As stated above, the 26 MDOT construction projects that contained unit costs for clearing and grubbing { } are all lower than the unit costs provided in the Means Handbook for clearing and grubbing. This demonstrates that the Means Handbook for clearing and grubbing

[34] *See* e-workpaper "CSX_Industrial_Sidetrack_Manual_063003.pdf" at 46.

is overstated in this case, and does not reflect the actual clearing and grubbing costs realized in the vicinity of the CERR. Furthermore, the use of a unit cost based on a combination of smaller projects found in the MDOT construction database is conservative, because these projects would not benefit from the economies of scale and scope that a project the size of the CERR would realize. The unit cost for clearing and grubbing at 1Q15 levels is $3,329 per acre.[35]

b. Earthwork

The ICC Engineering Reports were utilized to develop the earthwork quantities for each valuation section covering the line segments of the CERR. These quantities were adjusted to reflect current roadbed specifications. The adjusted earthwork quantities then were used to develop the earthwork requirements and costs for the CERR. As described below, a combination of actual unit costs from the MDOT (indexed to 1Q15) and the Means Handbook average costs were used to develop the earthwork costs.

Table III-F-4 summarizes the earthwork quantities and costs associated with construction of the CERR.

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[35] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (6) line 15 and line 16. The $3,204 per acre unit cost for clearing and grubbing found in MDOT was adjusted by a weighted average location factor (1.039) to reflect the fact that the CERR traverses rail lines in Illinois and Indiana in addition to Michigan. *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Location Factor," column (14) for the location factor calculation.

TABLE III-F-4
CERR EARTHWORK QUANTITIES AND COSTS

Item	Cubic Yards (000)	Cost (000)
(1)	(2)	(3)
1. Common Excavation	5,042	$12,642
2. Loose Rock Excavation	5	$66
3. Solid Rock Excavation	18	$295
4. Borrow	716	$7,415
5. Total	5,781	$20,418

Source: *See* e-workpaper "CERR Grading_Opening.xlsx," tab "Total Cost Summary," Section D "Table III-F-4 Development."

i. ROW Quantities

Consumers' engineers identified the miles of main-line track, other main track, and all other track required for the CERR from the applicable ICC Engineering Reports.[36] They also extracted the cubic yards ("CY") of excavation and embankment material by type – common, loose rock, solid rock, and embankment (borrow) from the ICC Engineering Reports.[37] The grading quantities from the ICC Engineering Reports were then used to develop distribution percentages for the four types listed above.[38] Based on a review of railroad construction literature prevailing at the time the ICC Engineering Reports were compiled, Consumers' engineers estimated that the ICC Engineering Report quantities for the rail lines comprising the CERR reflect average roadbed widths of

[36] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Eng Report Miles Inputs."

[37] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Eng Report Grading Inputs."

[38] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Road Grading," column (14) through column (18).

19 ft for fills and 22 ft for cuts (including ditches).[39] The earthwork quantities obtained from the ICC Engineering Reports were adjusted to reflect the roadbed widths required for today's heavier trains. Table III-F-5 shows the more modern roadbed widths utilized in the construction of the CERR.

TABLE III-F-5
ROADBED WIDTHS FOR
CONSTRUCTION OF THE CERR

Track Type	Roadbed Width 1/ Fills	Cuts
(1)	(2)	(3)
1. Single Track	24 feet	40 feet
2. Double Track	39 feet	55 feet

1/ Based upon 15 foot track centers, a side slope of 1.5 to 1, and side ditch depth of 2 feet.
See e-workpaper "CERR Grading_Opening.xlsm," tab "Calculations," track centers spacing in Cell C12, side slope in Cell C9 and C10, side ditch depth in Cell C14 and C15, single track fill calculated in Column (19), single track cut calculated in Column (20), double track fill calculated in Column (24), and double track cut calculated in Column (25).

Consumers' engineers used the specifications in Table III-F-5 to adjust the earthwork quantities from the ICC Engineering Reports for the valuation sections comprising the CERR.[40] Relying on these adjusted quantities, Consumers' engineers then calculated the earthwork quantities for the CERR's

[39] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Inputs." Sourced from William C. Willard, *Maintenance of Way & Structures*, McGraw-Hill Book Company, 1915, pp. 29-31 included in e-workpaper "Original Roadbed Width.pdf."

[40] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Road Grading,," column (19) through column (26).

line segments.[41] In particular, Consumers first matched the CERR line segments with the applicable valuation section. Next, the track miles for each segment were categorized as first main (route miles), other main (multiple track and passing sidings), and other track (such as set out tracks) based on the CERR's track configuration shown in the CERR stick diagrams. Finally, the number of track miles was multiplied by the applicable cubic yards per mile for the appropriate valuation section. As noted above, all portions of the CERR, except the 2.38 miles of lead track owned by Consumers, are covered by the ICC Engineering Reports. For this small segment, Consumers' experts used the per-track mile quantities for the adjacent valuation section, PM-3-MI.

ii. <u>Yard Quantities</u>

As discussed in Part III-B-3-a, the CERR has one yard. For the Barr Yard, Consumers calculated the grading requirements based on an assumed average fill height of one foot and 25 foot track centers.[42]

Yard earthwork is classified as excavation because the estimated yard track quantities removed using the ICC Engineering Report total the

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[41] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Road Grading,," column (28) through column (36).

[42] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Yard Grading" column (8) and column (9). The one-foot fill height was used for the CERR yards because an assumed fill height of one foot is used to allocate earthwork quantities to the yard tracks involved in the original construction and reflected in the ICC Engineering Reports. This methodology has been applied repeatedly, and accepted by the STB, to develop SARR yard earthwork quantities. *See WPL* at 1022; *Xcel I* at 675; *AEP Texas* at 81; *Otter Tail* at D-10; *Duke/NS* at 172; *CP&L* at 310-311; *Duke/CSXT* at 477; *AEPCO* at 90.

quantities that were removed from the excavation quantities for each valuation section.

iii. Earthwork Unit Costs

Consumers' expert Harvey Stone and his associates are familiar with the route of the CERR and knowledgeable about the appropriate earthwork and equipment required for excavation. Rail lines, including the lines comprising the CERR, are generally laid out to follow the natural ground as much as possible, minimizing grade changes and avoiding difficult terrain whenever possible. The CERR relies upon the same least-cost-but-feasible grading approach.[43]

(a) Common Earthwork

In many previous SAC proceedings, earthwork excavation unit costs have been based on the Means Handbook.[44] However, as discussed above, the costs in the Means Handbook are conservatively high because they are based on an average of costs for projects of all sizes from around the country. In two recent decisions, *WFA I* and *AEPCO 2011*, complainants have proposed, and the STB has accepted, common earthwork unit costs based on actual projects instead of the Means Handbook. Consumers follows this approved approach.

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[43] *See FMC* at 800 ("UP has not shown that it would be infeasible to use the equipment selected by FMC… FMC is entitled to have the equipment that results in the overall lowest cost used. Therefore, we use FMC's unit costs for grading to determine earthwork costs."); *see also Duke/CSXT* at 478-480; *PSCo/Xcel I* at 676-678.

[44] *See Xcel I* at 677-678; *AEP Texas* at 81-82; *Otter Tail* at D-11-12; *Duke/CSXT* at 478-479; *Duke/NS* at 174-176; *CP&L* at 313.

In *WFA I*, complainants used costs from actual railroad construction projects. In that case, both BNSF and the Board accepted the common excavation cost per CY based on an actual BNSF track construction project.[45] In *AEPCO 2011*, the complainant relied on costs from five BNSF railroad projects and these costs similarly were accepted by the Board.[46]

In this proceeding, CSXT provided a number of documents containing earthwork cost information in response to Consumers' discovery requests. As detailed in e-workpaper CSXT AFE Unit Cost Review,[47] Consumers evaluated twelve (12) invoice files provided in discovery that contain grading unit costs. {

}.[48] This CSXT project is evidence that the Means Handbook unit costs for common excavation is overstated at $5.61 per CY.[49] It is further corroborated by Consumers' review of a larger sample of projects available in the MDOT construction cost database.

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[45] *See WFA I* at 86 ("the parties agreed on the unit costs for common excavation"); WFA/Basin Opening Evidence (Public Version) at III-F-36-37 (filed Apr. 19, 2005) (describing the source of the common excavation unit cost); and WFA/Basin Rebuttal Evidence (Public Version) at III-F-56 (filed Sept. 30, 2005) (stating that BNSF accepted WFA/Basin's common excavation unit cost).

[46] *See AEPCO* at 86-88.

[47] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx"

[48] *See* e-workpaper "CSXT Invoice Unit Costs Summary.xlsx," tab "Unit Cost Summary," cell AD18.

[49] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (39), line 57.

As there were so few invoices containing common earthwork unit costs provided by CSXT in discovery, Consumers evaluated over 1,000 projects listed in the MDOT construction cost database to determine earth excavation unit costs in Michigan for projects that were similar to the CERR construction.[50] Consumers has outlined the specific process used to determine the MDOT unit costs for excavation in the MDOT Unit Cost Development workpaper.[51] Briefly summarized, Consumers was able to identify 54[52] construction projects in Michigan that contained common earth excavation unit costs. Consumers divided these 54 projects into three (3) tiers: Tier I, projects within 30 miles of the CERR: Tier II, projects between 30 and 100 miles from the CERR; and Tier III, projects further than 100 miles from the CERR. A majority (33) of the 54 projects reviewed fell in the Tier III category, which is beyond a reasonable distance from the CERR to assume they are representative of the excavation conditions that the CERR likely would encounter. From the 11 Tier I and 10 Tier II projects remaining, Consumers calculated the weighted average earth excavation unit cost

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[50] *See* e-workpaper "MDOT Excavation Unit Costs.xlsx".

[51] *See* e-workpaper "Methodology for Developing MDOT Unit Costs.docx."

[52] Consumers actually found 58 construction projects that contained common earth excavation as part of the work description, however 4 of these projects listed a unit cost for borrow excavation that was less than $1.00/CY. Consumers assumed these projects were anomalies and removed them from the analysis in order to not artificially deflate the common excavation unit cost. *See* e-workpaper "MDOT Excavation Unit Costs.xlsx," tab "Contracts," column (1).

based on the total cubic yards for the 21 projects, which resulted in a unit cost per CY of $2.41.[53]

The Tier I projects (i.*e.*, projects within 30 miles of the CERR) weighted average MDOT unit cost for common excavation was $2.07 per CY.[54] However, in order to increase the sample size from 11 to 21 projects, Consumers conservatively combined the Tier I and II projects and calculated a weighted average of $2.41 per CY, as the best evidence that more accurately reflects the common excavation unit cost the CERR would realize.

In order to confirm that the MDOT unit cost includes all of the necessary aspects of common excavation for the CERR, Consumers reviewed the MDOT Specifications. Section 205.03, Roadway Earthwork Construction states that excavated material is the property of the contractor.[55] Contractors must:

> [c]ompact the subgrade to at least 95 percent of its maximum unit weight and to a depth of at least 10 inches. If the subgrade cannot be compacted to 95 percent of its maximum unit weight, using conventional construction methods, the Engineer may authorize use of other methods to attain compaction… Maintain the roadbed and ditches and provide drainage at all times. Install and remove temporary drainage facilities at no additional cost to the Department. Perform grading to avoid removing or loosening material outside the required slopes. Replace and compact material removed or loosened outside the

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[53] *See* e-workpaper "MDOT Excavation Unit Costs.xlsx," tab "Unit Cost Comparison," cell E9.

[54] *See* e-workpaper "MDOT Excavation Unit Costs.xlsx," tab "Unit Cost Comparison," cell E6.

[55] *Id.*

> slopes to the required density and cross section... Remove roots, stumps, or other materials unacceptable to the Engineer in the slopes and bottom of the ditch and backfill the holes with suitable material. Maintain ditches until the Engineer's final acceptances.[56]

The MDOT Specifications are consistent with, if not more demanding than, the CSXT Specifications found on CSXT's website.[57] In section C regarding excavation, the CSXT Specifications state that:

> [s]lopes of all excavations shall be cut true and straight and all loose stones in the slopes shall be removed. Rock shall be removed below sub-grade and the area refilled with approved materials. The Contractor shall take whatever measures may be necessary to properly drain the excavations during and after construction to prevent water from flowing into, or standing in the excavations for any appreciable time, whether it be storm or ground water."[58]

Based on the above, the MDOT specifications for excavation meet or exceed the CSXT Specifications for excavation projects. The use of the MDOT unit cost for common excavation encompasses the necessary functions required by the CERR for common excavation.

The data from the 54 MDOT construction projects that contained unit costs for common excavation and the only construction project provided by

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[56] *Id.*

[57] *See* e-workpaper "CSX_Industrial_Sidetrack_Manual_ 063003.pdf" also publicly available at http://www.csx.com/share/wwwcsx_mura/ assets/ File/Customers/Services_and_Partners/CSX_Industrial_Sidetrack_Manual_063003.pdf.

[58] *See* e-workpaper "CSX_Industrial_Sidetrack_Manual_063003.pdf," page 46.

CSXT in discovery that contained unit costs for common excavation confirm that the Means Handbook for common excavation does not reflect the actual common excavation costs realized in the vicinity of the CERR. The use of a unit cost based on a combination of smaller projects found in the MDOT construction database actually is conservative because these projects would not benefit from the economies of scale and scope that a project the size of the CERR would realize. Therefore, the unit cost for common excavation at 1Q15 levels that Consumers has utilized is $2.51 per CY.[59]

The CERR does not traverse areas that would be classified as adverse (*i.e.*, the territory is more difficult and access is limited due to the terrain). This is shown in CERR's workpapers, based on a review of topographical maps to identify that no portions of the CERR traverse areas with steep slopes alongside or surrounding the rail line.[60]

(b) Loose Rock Excavation

Loose rock excavation is a category shown on the ICC Engineering Reports that does not have a counterpart in today's railroad construction environment. Railroads today use the categories of common (or unclassified) and

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59 *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (6) line 1. The $2.51 per CY unit cost for common excavation found in MDOT was adjusted by a weighted average location factor (1.039) to reflect the fact that the CERR traverses rail lines in Illinois and Indiana in addition to Michigan. *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Location Factor," column (14) for the location factor calculation.

60 *See* e-workpapers "Identification of Adverse Territory.pdf," and "CERR Grading_Opening.xlsm," tab "Road Grading," column (29).

solid rock. Thus, Consumers is being extremely conservative by applying a separate loose rock cost to such excavation rather than including it with the common excavation quantities. Loose rock excavation costs are based on the combination of one 300 HP dozer and one 410 HP dozer for ripping the loose rock in ideal conditions and pushing it into piles, a three CY power shovel for placing the ripped and dozed rock into the truck (including the Means 15% additive), a combination of a 42-CY off-highway truck (48%) and a 22-CY off-highway truck (52%) to haul the material to the fill or disposal site,[61] and a dozer to spread the material after it is dumped. Both of the dozers are equipped with rock rippers at the rear and large push blades in front. The unit cost[62] for loose rock excavation is $12.58 per CY.[63]

(c) Solid Rock Excavation

Consumers' solid rock excavation unit cost development is consistent with previous Board decisions.[64] The unit cost for solid rock blasting is based on an average of the Means Handbook cost for blasting rock over 1,500

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[61] This percentage split was used by the parties in *DuPont*. *See* NS's Reply Evidence (Public Version) at III-F-69-70 (filed November 30, 2012) and DuPont's Rebuttal Evidence (Public Version) at III-F-38 (n. 74) (Filed April 15, 2013).

[62] The unit costs from the 2015 Means Handbook are at 1Q15 levels and are adjusted by the Means Handbook location factors. *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (21).

[63] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," Column (41) line 57.

[64] *See WFA/Basin I* at 86-87; *AEP Texas II* at 82-83; *Xcel I* at 677-678 and *AEPCO* at 89-90.

cubic yards and the cost for bulk drilling and blasting. Consumers has added the costs to excavate the blasted rock, load it into trucks, haul it away, and dump it. In addition, the cost to spread the material and the average compaction cost for embankment that was used for the other earthwork categories were applied.

Consumers' engineers used a 50/50 combination unit cost made up of the solid rock unit cost ($20.06 per CY[65]) and the loose rock unit cost ($12.58[66] per CY) based on their expert opinion that at least half of the quantities classified by the ICC as solid rock would be rippable (and therefore classified as loose rock or common excavation) using modern equipment.[67] This 50/50 combination results in a cost per CY of $16.32 for solid rock excavation.[68]

As evidence that Consumers' use of the Means Handbook is conservative and overstates the unit cost for solid rock excavation, Consumers reviewed the CSXT AFE data provided in discovery[69] and found two (2) invoices with actual solid rock excavation costs realized by CSXT. The 1Q15 weighted

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[65] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," Column (43) line 54.

[66] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (41) line 57.

[67] This 50/50 combination has been repeatedly accepted by the Board in cases such as *WFA/Basin I*. *Otter Tail* at D-12; *Xcel I* at 677 (where BNSF also agreed on this split); *Duke/NS* at 174; *CP&L* at 312; *Duke/CSXT* at 478; *AEPCO* at 89-90.

[68] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (43) line 57.

[69] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx"

average solid rock excavation unit cost for those two (2) projects was ${ } per CY.[70]

(d) Embankment/Borrow

As with common excavation, Consumers has relied upon MDOT construction cost data for borrow, and has followed the specific procedures outlined in the MDOT Unit Cost Development workpaper to develop a borrow unit cost for the CERR.[71] Consumers was able to identify 19 construction projects in Michigan that contained borrow excavation unit costs.[72] Consumers divided these 19 projects into three (3) tiers: Tier I, projects within 30 miles of the CERR; Tier II, projects between 30 and 100 miles from the CERR; and Tier III, projects further than 100 miles from the CERR. A majority of the 19 projects reviewed fell in the Tier III category, which is beyond a reasonable distance from the CERR. Of the 5 remaining Tier I and II projects, Consumers calculated the weighted

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[70] *See* e-workpaper "CSXT Invoice Unit Costs Summary.xlsx," tab "Unit Cost Summary," cell AD17.

[71] *See* e-workpaper "Methodology for Developing MDOT Unit Costs.docx."

[72] Consumers actually found 22 construction projects that contained "borrow" in part of the work description, however 3 of those projects listed a unit cost for borrow excavation that was less than or equal to $1.00/CY. Consumers assumed those projects were anomalies and removed them from the analysis in order to refrain from artificially deflating the borrow unit cost. *See* e-workpaper "MDOT Borrow Unit Costs.xlsx," tab "Contracts," column (1).

average borrow unit cost based on the projects' total cubic yards, which resulted in a unit cost per CY of $9.97.[73]

The Tier I weighted average MDOT unit cost for borrow was $8.62 per CY.[74] However, due to the relatively small sample size (2), Consumers is conservatively utilizing the Tier I and II combination, $9.97 per CY, as the best evidence that more accurately reflects the borrow unit cost the CERR would realize.

Consumers analyzed the AFE data provided by CSXT in discovery to ensure that the MDOT borrow unit costs are similar to borrow unit costs that CSXT has realized in its normal course of business, which is further explained in the CSXT AFE Unit Cost Review workpaper.[75] CSXT's AFE discovery data contained five (5) projects that listed unit cost data for borrow. However, invoices with actual borrow excavation costs realized by CSXT were only provided for two (2) of those projects.[76] The 1Q15 weighted average borrow unit cost for those two (2) projects was { } per CY.[77] While on its face this CSXT weighted average borrow unit cost is higher than the MDOT unit cost of $9.97, the MDOT

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[73] *See* e-workpaper "MDOT Borrow Unit Costs.xlsx," tab "Unit Cost Comparison," cell E9.

[74] *See* e-workpaper "MDOT Borrow Unit Costs.xlsx," tab "Unit Cost Comparison," cell E6.

[75] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx."

[76] *See* e-workpaper "Review of CSXT Discovery AFE Unit Costs.docx," section B.

[77] *See* e-workpaper "CSXT Invoice Unit Costs Summary.xlsx," tab "Unit Cost Summary," cell AD12.

value is more representative based on the larger sample size of the projects (5 vs. 2). Regardless, both unit costs prove that the Means Handbook unit costs for borrow is overstated at a weighted average cost of over $22 per CY.[78]

While the CSXT Specifications do not go into detail regarding borrow excavation, the MDOT Specifications do contain a section that discusses borrow specifications. The MDOT Specifications state that:

> [t]he department defines borrow as material found outside the excavation limits. Unless otherwise required by the contract, the Contractor must provide borrow material. The cost of excavating borrow material is included in the contract unit price of the pay items for which the borrow material is used… If the contract identifies a source of borrow materials, it is the Contractor's responsibility to determine the equipment and work required to produce acceptable material from that source… The contractor is responsible for necessary construction, maintenance, and rehabilitation of routes used to haul borrow material, unless otherwise required by the contract. The cost to build and maintain routes to haul borrow material is included in the contract unit price for the relevant pay items.[79]

Since CSXT has not provided clear specifications for borrow exaction, it is impossible to compare the CSXT Specifications to MDOT Specifications. However, Consumers' experts determined that the MDOT Specifications for borrow excavation fulfills the necessary functions required by

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[78] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," cell BF81.

[79] *See* "MDOT 2012 Standard Specifications for Construction.pdf," pages 48-50 (pdf pages 59-61).

the CERR for borrow excavation. Furthermore, the use of a unit cost based on a combination of smaller projects found in the MDOT construction database is conservative because these projects would not benefit from the economies of scale and scope that a project the size of the CERR would realize. Therefore, the unit cost for borrow excavation at 1Q15 levels is $10.35 per CY. [80]

(e) Land for Waste Excavation

Not all of the excavated material for the CERR is re-used as fill. However, Consumers' experts have determined that it is not necessary to include any additional costs for land to dispose of waste excavation because the MDOT Specifications relied on for the CERR's unit costs clearly state that excavated material is the property of the contractor. Therefore, these costs are already included in the unit cost Consumers is relying on for excavation. The MDOT Specifications state that for earth excavation the "excavated material…is the property of the Contractor"[81] and contractors are to "[d]ispose of surplus or waste material resulting from ditch construction."[82] The waste material could be sold from the waste site as fill dirt or the land could be re-sold after construction of the

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[80] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (6) line 7. The $9.97 per CY unit cost for borrow found in MDOT was adjusted by a weighted average location factor (1.039) to reflect the fact that the CERR traverses rail lines in Illinois and Indiana in addition to Michigan. *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Location Factor," column (14) for the location factor calculation.

[81] *See* e-workpaper "MDOT 2012 Standard Specifications for Construction.pdf" document page 131, pdf page 142, yellow highlight.

[82] *See* e-workpaper "MDOT 2012 Standard Specifications for Construction.pdf" document page 132, pdf page 143, orange highlight.

CERR is completed. Consumers has not factored this stream of revenue into its development of stand-alone costs. In addition, Consumers' witness Harvey Stone confirms that it is normal practice for contractors to include disposing of waste excavation as part of the unit cost for excavation used in their bids and invoices for excavation projects.

For these reasons, Consumers has not included any additional cost for land needed for waste excavation.

(f) **Total Earthwork Cost**

The total earthwork cost associated with constructing the CERR is $23.4 million.[83]

c. **Drainage**

i. **Lateral Drainage**

The linear feet of pipe per route mile for lateral drainage was obtained from the ICC Engineering Reports and applied to the CERR's line segments. The cost per linear foot for installed drainage pipe, including backfill and compaction, was taken from the 2015 Means Handbook and adjusted by the Means Handbook location factors, for an estimated cost of $59.13 per linear foot of pipe.[84] Based on the ICC Engineering Reports, the CERR requires 3,411 linear

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[83] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7) line 28.

[84] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (6) line 14.

ft of lateral drainage pipe.[85] The CERR's total investment in lateral drainage equals $201,671.[86]

ii. Yard Drainage

Yard drainage costs for the Barr Yard are included in the yard site development costs discussed in Part III-F-7.

iii. Culverts

Culverts are devices placed in the roadbed to facilitate the movement of water from one side of the track to the other where large drainage areas, typically crossed by bridges, are not required. The culverts specified by Consumers' engineers are corrugated aluminized metal pipe ("cmp") except where the size of the opening required for the conditions exceeds the maximum cmp diameter. In such cases, concrete box culverts were used.

Consistent with practice in other SAC cases, culverts replace certain bridges where a culvert is suitable.[87] In total, Consumers' engineers have substituted 6 culverts for existing CSXT bridges. The details of the substitutions are shown in e-workpaper "Bridge Costs.xls," tab "Route Bridges" column P (note stating "Make Culvert").

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[85] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (5) line 14.

[86] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7) line 14.

[87] *See, e.g.*, *AEP Texas* at 93.

(a) Culvert Unit Costs

Unit costs were developed for the installation of culverts assuming that the open trench placement method would be used. Unit costs for the corrugated metal pipe culverts are driven by the linear feet of the culvert required in a particular location as well as the diameter of the pipe. *See* e-workpaper "CULVERT COST WORKSHEETS.xls," tab "CMP PIPE" for details of the unit prices. Unit costs for the concrete box culverts are driven by the width and height of the opening, as well as the linear feet through the track cross section. *See* e-workpaper "CULVERT COST WORKSHEETS.xls," tab "CONC BOX CULV." Additional unit costs were developed for excavation, furnishing and placing crushed stone for bedding material, rip rap for slope protection, culvert installation, and backfill for both culvert types. These unit costs are detailed in e-workpaper "CULVERT COSTS WORKSHEETS.xls," tab "CULVERT COST SUMMARY."

(b) Culvert Installation Plans

All culverts are installed during the early stages of preparation of the railroad subgrade. The sites are easily accessible, in part through the ongoing preparation of the roadbed, and in part by the myriad of at-grade crossings located on the CERR. The culverts can be installed with a minimum of excavation using the open trench method of installation. In particular, culverts are installed after a sufficient depth of compacted roadbed fill has been placed. A trench is excavated to a depth of one foot below the flow line of the culvert, and one foot of bedding stone is placed in two compacted layers.[88] The culvert is laid, and then backfilled in compacted layers back to the top of the trench.

The work flow is also simplified by installing the culverts at this stage of the project because no waterway diversions are required.

Once the base layer of the roadbed is in place, the trench for the cmp or concrete box culvert is excavated one foot wider on each side than the culvert width. The bottom of the excavation is covered with an average depth of 12" of crushed stone bedding material to act as a foundation and cushion for the culvert, providing a means for transferring the load into the ground below the culvert as well as a level surface. The first culvert section is placed on the prepared bedding material. The next section is placed adjacent to the first and a connecting band is installed to connect the two sections. This continues until all sections have been set in place. The culvert is backfilled, and rip rap is placed for slope protection. After the subbase has been prepared, most culverts can be installed in less than one day.

(c) <u>Culvert Quantities</u>

Consumers' engineers used the culvert inventories provided by CSXT in discovery to identify the number and the dimensions of the culverts on the lines that the CERR is replicating. Consumers' engineers then added additional culverts where a culvert was being substituted for a bridge.

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[88] *See* e-workpaper "RCP Bedding Detail.pdf" (schematic for box culvert excavation).

(d) Total Culvert Costs

The total cost of the CERR's culverts is $1.15 million. *See* e-workpaper "CULVERT COST WORKSHEETS.xls," tab "CULVERT COST SUMMARY," cell AF196.

d. Other

i. Side Slopes

The CERR roadbed has average side slopes of 1.5:1. This side slope design consistently has been accepted by the Board.[89]

ii. Ditches

In cuts, the CERR has side ditches that are two feet wide and two feet deep and that are trapezoidal in section.[90] Two-foot ditches are commonly used by Class I railroads such as CSXT for new construction projects and have repeatedly been accepted by the Board.[91]

iii. Retaining Walls

Retaining wall quantities for the CERR are extracted from the ICC Engineering Reports. The Engineering Report data includes cubic yards of masonry, timber walls, and walls made from timber ties and pilings under the category "Protection of Roadway" included in Account 3, Grading. Consumers

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[89] *See AEP Texas* at 80; *WFA I* at 83; *Otter Tail* at D-8; *Xcel I* at 672; *Duke/NS* at 171; *CP&L* at 310; *Duke/CSXT* at 476; *TMPA* at 701 n.183; *WPL* at 1021-22; *FMC* at 795.

[90] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Calculations," Cell C14 and C15.

[91] *See Duke/NS* at 171; *CP&L* at 310; *Duke/CSXT* at 476; *TMPA* at 701 n.183; *WPL* at 1023.

has assigned all of the ICC Engineering Report retaining wall quantities to the main line miles (route miles) of each valuation section. The resulting average quantity per main line mile for each valuation section is then applied to the route miles of the CERR corresponding to each valuation section to calculate the retaining wall quantities for the CERR line segments.

Rather than construct masonry or timber retaining walls, the CERR uses gabions (galvanized steel mesh boxes filled with rock) for all of its retaining walls. Gabions are suitable because they can be assembled on site and bent to fit the existing terrain. Consumers has utilized the 1.54:1 ratio of the weight of masonry to the weight of gabion[92] accepted by the Board in recent cases.[93]

Consumers has used the cost for retaining wall gabions (including the rock) and the cost for timber pilings from the 2015 Means Handbook, for a unit cost of $287.50 per CY[94] for retaining walls and $26.89 per linear foot[95] for timber pilings. Total retaining wall investment for the CERR equals $4.44 million at 1Q15 levels.[96]

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[92] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Road Grading," column (39).

[93] *See DuPont* at 178; *Sunbelt* at 123.

[94] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (54), row 57.

[95] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (55), row 57.

[96] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7), row 29.

iv. **Rip Rap**

Consumers' engineers developed rip rap quantities from the ICC Engineering Reports, and applied the unit cost of $58.43 per CY[97] from the Means Handbook to machine-place the rip rap. The material portion (rock) of the unit cost is included because the material is not readily available from the excavated rock that is wasted. Consumers has included $250,846 for rip rap investment at 1Q15 levels.[98]

v. **Relocating and Protecting Utilities**

The vast majority of the lines being replicated by the CERR were constructed by CSXT's predecessors in the 19th and early 20th centuries. Few, if any, utility lines existed at that time and would have had to be relocated. These costs were not incurred by the incumbent and thus, under the *Coal Rate Guidelines*, would constitute a barrier to entry if imposed on the CERR.[99]

However, one small section of track (Consumers' plant lead track) being replicated by the CERR was built subsequent to the existence of utility lines. This section could not be found on the ICC valuation maps accompanying the ICC

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[97] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Unit Costs," column (53), row 57.

[98] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7) line 9. Note: This rip rap investment does not include the rip rap used on culvert faces and for bridge pier and abutment protection. Those costs are included, where needed, in the appropriate investment category. Details on rip rap investment for roadbed preparation are provided in e-workpaper "CERR Grading_Opening.xlsm," tab "Road Grading," column (38).

[99] *See AEP Texas* at 84; *Xcel I* at 680; *Duke/CSXT* at 483.

Engineering Reports. Therefore, consistent with prior STB decisions, Consumers included $39,987, based on the cost per mile in *WFA I* indexed to 1Q15, for costs to relocate and protect utilities on these lines.[100]

vi. <u>Seeding/Topsoil Placement</u>

Embankment protection quantities for all lines other than the recently-constructed branch lines were derived from the ICC Engineering Reports.[101] For the recently-constructed line discussed above, Consumers' engineers estimated the acres per mile for seeding/topsoil placement based on the average acres per mile for the 79-mile Orin Line, constructed by the BNSF Railway in Wyoming during the 1970's.[102]

For seeding and topsoil placement costs, Consumers' engineers relied upon the unit cost per acre from the Means Handbook.[103] Total CERR investment costs for seeding/placing topsoil equal $27,230.[104]

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[100] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Total Cost Summary," line 19; *see also* WFA/Basin Rebuttal Evidence (Public Version) at III-F-78 (filed Sept. 30, 2005) in STB Docket No. 42088.

[101] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Seeding and Topsoil," line 1 through line 9.

[102] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Seeding and Topsoil," line 11.

[103] *See* e-workpapers "CERR Grading_Opening.xlsm," tab "Unit Costs," column (57) line 57. This is consistent with recent Board decisions. *See DuPont* at 180; *SunBelt* at 136.

[104] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Total Cost Summary," column (7) line 20.

vii. **Fine Grading**

Consistent with recent STB decisions regarding the necessity of fine grading, [105] Consumers has calculated the square yards of fine grading necessary for the CERR.[106] Total CERR investment costs for fine grading equals $1.15 million.[107]

viii. **Subgrade Preparation**

As addressed above, Consumers' experts have relied on MDOT unit costs for both common excavation and borrow. Per MDOT Specifications, the excavation unit costs must include subgrade preparation costs, therefore Consumers has not included any additional costs for subgrade preparation. The MDOT Specifications for earth excavation state that the contractor must "[c]ompact the subgrade to at least 95 percent of its maximum unit weight and to a depth of at least 10 inches,"[108] which indicates this unit cost includes all materials necessary to compact the subgrade to at least 95 percent. In addition, Mr. Stone confirms that it is normal practice for contractors to include subgrade preparation costs, including water for compaction, in their bids and invoices for excavation projects.

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[105] *See DuPont* at 172; *Sunbelt* at 115-16.

[106] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Road Grading, column (80) through column (85).

[107] *See* e-workpaper "CERR Grading_Opening.xlsm," tabs "Total Cost Summary", column (7) line 23.

[108] *See* e-workpaper "MDOT 2012 Standard Specifications for Construction.pdf," pages 131-132 (pdf page 142-143).

ix. **Surfacing for Detour Roads**

Consumers' engineers did not include costs for any road detours for the CERR's lines that are covered by ICC Engineering Reports, as there is no evidence that CSXT incurred any costs for this item when the lines were originally built, and CSXT did not provide any information in discovery indicating that it incurred such costs. This is consistent with the approach approved by the Board in other SAC cases.[109]

For the CERR's one small segment built to connect to the Consumers' lead track, Consumers' engineers included an estimate of $199,401 for the cost to provide road detours for the 3 roads crossed by the Consumers lead track spur during construction.[110]

x. **Construction Site Access Roads**

In general, the CERR's track subgrade is used for its site construction roads. In addition, most of the CERR right-of-way is accessible from public roads and highways, thereby permitting construction access without building separate access roads. Indeed, the CERR is crisscrossed with at-grade crossings averaging more than one per route mile. Further, the initial construction activity includes clearing the CERR right-of-way and creating initial site access with the heavy construction equipment. As the site is leveled by either cutting or

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[109] *See Xcel I* at 681-82; *Duke/NS* at 180; *CP&L* at 317; *Duke/CSXT* at 484; *TMPA* at 707-08; *WPL* at 1024-25; *FMC* at 802.

[110] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7) line 18.

filling the right-of-way, access roads are created for moving earth, rock, and other materials to and from the construction sites. In any event, no additional costs should be incurred for site construction access roads because this is normally not a compensated portion of the grading contractor's requirements. Consumers' approach to this issue is consistent with several prior SAC decisions.[111]

xi. Environmental Compliance

Consumers' engineers did not include any costs for environmental compliance for the CERR's lines that are covered by ICC Engineering Reports because these costs were not incurred when the replicated lines were originally constructed by CSXT or its predecessors. Inclusion of these costs on the lines originally constructed in the 19th and early 20th centuries by CSXT or its predecessors would constitute a barrier to entry.[112]

Consumers' engineers have included a total of $48,200 for environmental compliance for the short segment built to connect to Consumers' lead track that was constructed after the ICC Engineering Reports were issued.[113]

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[111] *See Duke/CSXT* at 476-477; *Duke/NS* at 172; *CP&L* at 317; *AEP Texas* at 80.

[112] *See WP&L* at 1025 (the parties agreed that environmental mitigation was only required for the recently constructed segments); *FMC* at 802; *Xcel I* at 682 (the parties agreed on the level of such costs); *AEP Texas* at 86. *See also* WFA/Basin Rebuttal Evidence (Public Version) at III-F-81-82 (filed Sept. 30, 2005) in STB Docket No. 42088 (environmental compliance costs applied only to recently-constructed lines).

[113] *See* e-workpaper "CERR Grading_Opening.xlsm," tab "Total Cost Summary," column (7) line 22.

3. Track Construction

Track construction encompasses the work needed to lay track once the subgrade has been completed, including placing subballast, ballast, ties, rail, and other track components. The total cost for track construction as determined by Consumers' engineers equals $242.1 million. Details are provided in e-workpaper "III-F Total – 2001.xlsx." Development of this cost is discussed in detail below.

a. Geotextile Fabric

Consumers' engineers reviewed the U.S. Department of Agriculture ("USDA") mapping and soils designations[114] in the vicinity of the CERR route and in an abundance of caution decided that AREMA class non-woven geotextile fabric would be installed in areas where the soil is designated as "very limited" to preserve the integrity of the ballast and to address any issues with marginal soils and shallow rock.[115] It should be noted that this is a very conservative approach and that the line the CERR is replicating was not originally installed using geotextile fabric. The number of track miles for each segment that included "very limited" soils was identified and the acreage was calculated to determine how

[114] *See* e-workpapers "Geotextile Work Sheet.xls." "Breedsville to Pullman.pdf;" "Dalton to NS.pdf;" "Holland to Consumers.pdf;" "Ogden to Dalton.pdf;" "Porter to Rt 12.pdf;" "Pullman to Holland.pdf;" "Rt 12 to Shoreham.pdf;" "Shoreham to Van Buren County line.pdf;" and "Van Buren to Breedsville.pdf."

[115] *See* e-workpapers "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY" rows 257 to 298 and "Geotextile Work Sheet.xls."

much of the geotextile fabric would be required.[116] In addition to the track miles along the main line, the geotextile fabric will be used for all of the turnouts.[117]

The unit cost for the installation of the geotextile fabric was obtained by using two bids: one from Illinois Department of Transportation ("ILDOT"),[118] for geotextile fabric that was used for roadwork and is $1.00 per square yard, and a second bid supplied by U.S. Fabrics Inc., which lists the "heavier version" of "ground stabilization fabric" that would be used with roadwork for $0.65 per square yard and includes transportation costs.[119] The ILDOT bid does not include a price for installation, so to determine this rate the U.S. Fabrics Inc. cost of $0.65 was subtracted from the ILDOT cost of $1.00, making the installation cost $0.35 per square yard.[120] This installation cost of $0.35 was then added to the cost per square yard for the AREMA grade geotextile fabric of $1.11,[121] which includes transportation costs.[122] This total price was then indexed to 1Q15 bringing the

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[116] *See* e-workpaper "Geotextile Work Sheet.xls" and "2015 OTM Worksheet.xls."

[117] *See* e-workpaper "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY," rows 288 to 298.

[118] *See* e-workpaper "IL Geotextile Bid.pdf" at 9.

[119] *See* e-workpaper "Road Geotextile Quote.pdf."

[120] *See* e-workpaper "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY," rows 257 to 298.

[121] *See* e-workpaper "Geotextile.pdf."

[122] *See* e-workpapers "Geotextile.pdf" and "2015 OTM Worksheet.xls."

total unit cost for geotextile fabric with installation and delivery to $1.44 per square yard.[123]

b. Ballast

Consumers' engineers have used 18 inches of ballast and subballast for the main line track, consisting of a 6-inch subballast layer and a 12-inch layer of clean rock ballast for all main tracks.[124] Consistent with *DuPont*, Consumers' engineers used 10 inches of ballast and subballast, consisting of a 4-inch subballast layer and a 6-inch layer of clean rock ballast for all yard tracks, helper pocket tracks, set-out tracks, and interchange tracks. Diagrams of the standard CERR main track cross sections are included in e-workpaper "TYPICAL TRACK DETAILS.pdf."

Ballast for the CERR track from Porter to West Olive is supplied by the National Lime & Stone Co. located in Findlay, Ohio. CSXT produced an invoice from National Lime & Stone Co. listing the cost of ballast at { }. A Means historical construction cost index[125] was used to adjust the price to

[123] *See* e-workpapers "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY" rows 257 to 298.

[124] { } and Board precedent. *See DuPont* at 187 (Board accepted value agreed upon by NS and DuPont), NS Reply at III-F-120 (NS accepted DuPont's ballast and subballast depth specifications), and { }

[125] *See* e-workpaper "Means Historical Construction Cost Index.xlsx."

January 1, 2015 making the base ballast cost { }.[126] The National Lime & Stone Co. facility is directly served by rail. Using PC Miler, the mileage from the facility to Porter is 243.6 rail miles. A cost per ton-mile of $0.035 was assumed. This cost is more than sufficient. Specifically, in discovery, CSXT produced a document showing that UP charged ${ } per ton-mile to deliver ballast and other track materials (from multiple locations) to a CREATE project on the CSXT/UP joint facility at Thornton Jct. (located just to the south of the CERR's Dolton Interchange track). This CREATE project received significant public funding and presumably UP's charges were subject to audit. Moreover, CSXT oversaw these invoices as they reviewed and corrected them before passing them on to the Federal Highway Administration. The UP per ton-mile rate is significant given that the railroad defendants have long-complained that the $0.035 per ton mile, interline courtesy rate, used by shippers to determine transportation additives should be increased by the Board. Here the UP costs provide ample evidence that even the $0.035 per-ton mile additive is not only conservative but probably significantly overstated. Nevertheless, to be conservative, for all transportation costs on a carrier other than UP, Consumers has used the $0.035 per ton-mile that the Board has repeatedly approved. For track items shipped on the UP, Consumers has used the ${ } additive.[127] Including

[126] *See* e-workpaper "2015 Ballast & subballast Worksheet.xlsx."

[127] *See* e-workpaper "UP Rail Transportation Costs.pdf" at 8.

the delivery cost, the ballast price with rail delivery to Porter is ${ } per ton.[128]

The ballast from National Lime & Stone Co. is limestone. However, the invoice supplied by CSXT indicates it was used for { }. Further, { }, which is the case for the CERR's track from Porter to West Olive.[129]

Ballast for the CERR track from UP/Ogden Jct. to Curtis is trap rock obtained from the Iron Mountain quarry located near Ironton, MO. This facility has direct rail access.[130] A quote from this facility lists the ballast cost per ton at $11.00 per ton.[131] Applying a historical cost index[132] reduces the ballast cost to $10.88 per ton.[133] From this facility in Ironton, MO to the south end of the Dolton Interchange track is 352.9 miles. Transportation is UP-direct. A cost per ton-mile of ${ } was assumed based on the invoice provided by CSXT in discovery.[134]

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[128] *See* e-workpaper { }

[129] { }

[130] *See* e-workpapers "Fred Weber Quote.pdf" and "Iron Mountain Trap Rock Google Earth.jpg."

[131] *See* e-workpaper "Fred Weber Quote.pdf."

[132] *See* e-workpaper "Means Historical Construction Cost Index.xlsx."

[133] *See* e-workpaper "2015 Ballast & subballast Worksheet.xlsx."

[134] *See* e-workpaper "UP Rail Transportation Costs.pdf."

Including the delivery cost, the ballast price with rail delivery to the south end of the Dolton Interchange is ${ }.[135]

Details of the unit cost and necessary transportation additives for ballast are detailed in e-workpaper "2015 Ballast & subballast Worksheet.xls."

Subballast will be supplied from the Ottawa Aggregate Pit in Grand Rapids, MI and delivered by truck to locations along the CERR from Watervliet, MI to West Olive, MI. The quote provided by the Ottawa Aggregate Pit for subballast was $9.50 per ton-mile.[136] A quote to provide trucking was obtained and from this a cost per ton-mile was calculated.[137] To determine the trucking cost to each delivery point a location factor was applied to the trucking cost per ton-mile and then multiplied by the driving distance from the Ottawa Aggregate Pit.[138] The cost for subballast with transportation from Watervliet, MI to West Olive, MI ranged from $10.21 to $20.21 per ton.

Subballast will be also be supplied by Hanson Aggregate in McCook, IL from the McCook Pit and delivered by truck to locations along the

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[135] *See* e-workpaper "Means Historical Construction Cost Index.xlsx."

[136] *See* e-workpaper "Subballast Quotes.pdf" at 1 and "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[137] *See* e-workpapers "John Anderson Trucking Quote.pdf" and "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[138] *See* e-workpaper "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

CERR from UP/Ogden Jct. to Watervliet, MI.[139] The quote provided by Hanson Aggregate for subballast was $9.05 per ton.[140] The same trucking quote was used as for the subballast for Porter to West Olive.[141] After applying a location factor to the cost per mile, this rate was then multiplied by the driving distance between the delivery points and McCook Pit.[142] The cost for subballast with transportation from UP/Ogden Jct. to Porter ranged from $14.65 to $20.95 per ton.[143] The average price for subballast with delivery across the CERR from either the McCook Pit or the Ottawa Aggregate Pit indexed to 1Q15 is $15.59 per ton.[144]

Ballast and subballast quantities were developed for all sections of track based on the lengths of single and double track sections, and the roadbed sections referenced above. Consumers' engineers have included cross-sections of the CERR track designs in e-workpaper "CERR TYPICAL TRACK DETAILS.pdf." The e-workpaper "Ballast & subballast Worksheet.xls" includes the volume per foot of track for ballast and subballast. The quantities were

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[139] *See* e-workpaper "Subballast Quotes.pdf" at 2 and "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[140] *See* e-workpaper "Subballast Quotes.pdf" at 2 and "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[141] *See* e-workpapers "John Anderson Trucking Quote.pdf" and "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[142] *See* e-workpaper "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[143] "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

[144] "2015 Ballast & subballast Worksheet.xls," tab "SUBBALLAST COST."

calculated by multiplying the sectional area in square feet by one foot in length and then dividing by 27 to obtain cubic yards. The volume of rock displaced by the volume of the ties being used in particular locations was removed from the total volume calculation.

Ballast and subballast quantities for yards were calculated assuming each track in the yard is a single track and using four inches of subballast and six inches of ballast. Consumers' experts also used the standard conversion factor of 1.5 tons/CY in determining the ballast and subballast quantities, a figure approved by the Board in *WFA I* at 93 and accepted by the parties in *DuPont*.[145]

c. <u>Ties</u>

Consumers' engineers used CSXT costs for both pre-plated crossties and crossties without pre-plating from a project CSXT undertook in Utica, IL, not far from the CERR.[146] The pre-plated crossties are used for all sections of track tangent and in curves up to three (3) degress. Standard crossties are installed with pandrol plates, clips, and spikes where the track curve is greater than three degrees. The CSXT AFE price likely included transportation costs. However, to be conservative, transportation costs were added to the crossties for being laid between UP/Ogden Jct. and Curtis by determining the rail miles from Galesburg, IL (a rail station with a major tie supplier) to Ogden Junction. The transportation

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[145] *See* NS Reply at III-F-120 and e-workpaper "Ballast & subballast Worksheet.xls."

[146] *See* e-workpaper "AFE-IL, Utica-BIF 92.pdf."

is UP direct. Rail transportation costs were also added to the pre-plated crossties for the being laid between Porter and West Olive. These costs assume that the UP moves the ties to Chicago and the NS moves those ties to Porter.[147] The cost for the pandrol plates, clips, and spikes to be used with the crossties that are not pre-plated were accounted for and included as a separate track construction item.[148]

Tie spacing was assumed to be 20.5 inches for all main track, passing sidings, and branch lines. This is consistent with railroad industry standards for mainline track, and the Board has also accepted wood tie spacing of 20.5 inches.[149] Because of the lighter traffic and slower train speeds, Consumers' engineers used wood ties with 24" spacing in yards, set-out tracks and interchange tracks.[150]

The CERR is constructing its bridges with ballast decks, thereby obviating the need for transition ties.[151] Similarly, the Board has recognized that transition ties are not needed at turnouts.[152] Transition ties are included at road crossings, but those particular costs are reflected in the road crossing unit prices.

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[147] *See* e-workpaper "2015 OTM Worksheet.xls," tab "Tie Cost" at row 24.

[148] *See* e-workpaper "2015 OTM Worksheet.xls," tab "Total Cost Summary" at cell L92 and "III – F Total – 2015.xls" at cell F23.

[149] *See, e.g.*, *DuPont* at 193 (Board accepted agreement by parties on spacing of ties).

[150] *See DuPont* at 193 (accepting parties' agreement to have 24 inch spacing of ties for yards and set-out track).

[151] *See DuPont* at 193.

[152] *Id.*

d. Track (Rail)

i. Main Line

As discussed in Part III-B, new 136-pound standard CWR is used for the CERR's main tracks from Ogden Jct. to Cutis and the BRC track. For the Porter to West Olive segment, the CERR is using new 115-lb CWR.

The CERR's cost per linear foot for 136-pound and 115-pound standard rail was derived from information provided by CSXT in discovery. *See* e-workpapers "Rail Worksheet - 2011.xls" and "Rail Prices.xls." However, while the rail prices produced by CSXT {

}. Using the rail prices supplied by CSXT for 1,400 foot long CWR segments, a conservative amount was added for transportation by assuming the rail would need to travel a total of approximately 1,000 miles at a cost of $0.035 per ton-mile. The 1,000 miles of transportation are broken into two separate segments. The first segment brings { } from a known production facility in Steelton, PA to { }. The second segment moves the {

} The cost for a rail work train is $3,000 per day.[153] The final rail costs include both transportation for 1,000 rail miles and the cost for the rail work car.[154]

After the rail is delivered, it will be unloaded and distributed by the rail installation contractor, which costs are covered in Consumers' track construction labor costs.

ii. Yard and Other Tracks

As discussed in Part III-B, the CERR is using 115-pound CWR for yard, interchange, helper pocket tracks, and set-out tracks. The unit price per linear foot for the 115-pound relay rail is the same as for the 115-pound relay rail used on the main line track for the Grand Rapids and Fremont subdivisions.[155]

iii. Field Welds

A quote from Orgo-Thermit was obtained for the cost of materials required for field and comp welds. *See* e-workpaper "Orgo-Thermit Inc Quote.pdf." Field and comp welds are required to connect the 1,400-foot strings of welded rail produced by the manufacturer as well as to insert insulated joints,

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[153] *See* e-workpaper "LB Foster Train Cost – Page 2.pdf."

[154] *See* e-workpapers "Rail Worksheet – 2015.xls" and "LB Foster Train Cost – Page 2.pdf."

[155] *See* e-workpapers "Rail Worksheet – 2015.xls," tab "136 & 115 Rail Cost Summary."

make connections to turnouts and span grade crossings. The calculations for the number of field and comp welds are shown in e-workpaper "Track Quantities-2015.xls," tab "Track Quantities," rows 98 to 103.

The cost of labor for all field and comp welds is included in the bid provided by Ohio Track, Inc., which also provided a price for the installation of the main track and turnouts. The Ohio Track, Inc. quote was indexed to 1Q15.[156]

iv. **Insulated Joints**

Insulated joint costs are included in the signals and communications costs described in Part III-F-6 below.[157]

v. **Switches (Turnouts)**

Consumers' engineers included the number and size of turnouts specified in the CERR's track diagrams (Exhibit III-B-1). Unit costs for turnouts are based on a quote obtained by Consumers' engineers and indexed to 1Q15. *See* e-workpapers "Progress Rail Quote 2015.pdf" and "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY," rows 108-119." Turnouts include all the materials listed in e-workpaper "Turnout Materials.pdf." Switch stands are also included as needed. The unit costs for switch stands are based on a quote obtained by Consumers' engineers and indexed to 1Q15. *See* e-workpapers "Switch Stand.pdf" and "Voestalpine Hand Thrown Switch Stand Quote.pdf." Switch

[156] *See* e-workpaper "2015 OTM Worksheet.xls."

[157] *See* e-workpaper "CERR Signals Communications Rev 3.xlsx," tab "Signal & Comm Counts," column AV.

heaters and related propane tanks are also included at each mainline turnout. The unit costs for the switch heaters and propone tanks are based on quotes obtained by Consumers' engineers and indexed to 1Q15. *See* e-workpapers "Switch heaters 2012 Quote.pdf" and "Propane Tank Quote.pdf." Switch machines are included in the signals costs where applicable.

e. Other

i. Diamond Crossing

Consumers' experts and operating witnesses have identified only one rail crossing along the CERR's route where at the time of construction CSXT and its predecessors would have been the junior railroad. At MP DC 28.0, a single track of the CERR will need to cross parallel CN tracks at a 70 degree angle. The total cost for materials to construct this double diamond crossing is $250,894.09, including transportation.[158]

ii. Rail Lubrication

Rail lubricators are used by the CERR to distribute grease to the wheel/flangeway interface where the degree of curve of the track is four degrees or greater on mainlines and branches. Spacing of lubricators is based on the coverage of the grease as defined by the supplier, and as warranted by track

[158] *See* e-workpaper "III- F TOTAL – 2015.xlsx," and "Diamond Crossing Quote.pdf."

conditions.[159] The unit cost for rail lubricators is based on a quote from LB Foster indexed to 1Q15.[160]

iii. Plates, Spikes and Anchors

On tangents and curves less than three degrees, the CERR is using wood ties with cut spikes that will be used to hold the rail to the tie plate and the tie plate to the ties, and to provide lateral restraint to hold the rail to gauge (4'-8½" inside dimension between the railheads). Two spikes per tie plate (four spikes per tie) are used on all tracks with timber ties and less than 3-degree curves. This spiking pattern is standard practice for U.S. railroads, { } and was approved by the Board in *DuPont* at 197-98. *See* e-workpaper { }. As discussed *supra*, for curves three degrees or greater, pandrol plates and clips are used with four screw spikes per pandrol plate. This pattern is consistent with industry practice and AREMA. *See* e-workpaper "AREMA Chapter 30 TIES, Part 1 General Considerations, Section 1.7 Fastenings.pdf."

Rail anchors are drive-on or spring clip-on devices that clamp under the base of the rail and bear against the sides of the timber ties. Anchorage of the rail prevents the rail from running, or moving in a longitudinal direction down the

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[159] Details of the lubricator count are shown in e-workpaper "CURVE DATA WORKSHEET _ 2015.xlsx" with the total listed at merged cell FG 166.

[160] *See* e-workpapers "LB Foster Lubricator Quote.pdf" and "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY" rows 130 to 132.

track due to thermal expansion or train acceleration/braking loads. The anchors transmit the longitudinal stress forces in the rail to the ties, which then transmit the forces to the ballast thereby restraining movement of the track structure. Anchors are used on both sides of every other tie on main track, branch lines, yard tracks, set-out tracks and interchange tracks where the curvature does not exceed three degrees (no anchors are required where pandrol clips are used). Anchors are used on both sides of every tie for 200 ft on each end of grade crossings and turnouts (those costs are included in the grade crossing and turnout costs). The anchoring pattern being used on the CERR is consistent with AREMA. *See* e-workpaper "Anchoring.pdf."

The unit costs for plates, spikes, anchors, and clips are detailed in e-workpapers "2015 OTM Worksheet.xls, tab "TOTAL COST SUMMARY" (costs indexed to 1Q2015) and "Rail works Quote.pdf" at 3 (quote for spikes, anchors and clips).

iv. <u>Derails and Wheel Stops</u>

Derails are used to keep cars from rolling from a spur track or side track through a turnout and onto the main track. Derails are included at all FED set-out track turnouts and at yard turnouts at the four yard locations where cars are set out from trains and stored. Wheel stops are used at the end of single ended tracks to keep the cars from rolling off the end of the track. The unit costs for all derails and wheel stops are based on the Means Handbook cost from 2015. *See* e-workpaper "2015 RS Means Page 678.pdf." The total number of derails and wheel stops are tabulated in e-workpaper "Track Quantities-2015.xls," tab "Track Quantities," rows 105 and 107. The total costs, with location factor, are listed in e-workpapers "III – F Total – 2015.xlsx," rows 29 and 30, and "2015 OTM Worksheet," tab "TOTAL COST SUMMARY" rows 100 to 106.

v. Materials Transportation

Specific transportation costs associated with a given item are addressed in the relevant portions of this Subpart, or in the applicable e-workpapers. Therefore, no additional transportation costs have been added for those items.

vi. Track Labor and Equipment

The CERR's track laying and related costs were derived from a quote obtained by Consumers' engineering experts and indexed to 1Q15. *See* e-workpaper "Ohio Track Cost Estimate.pdf." Installation costs are itemized and tabulated in e-workpaper "2015 OTM Worksheet.xls," tab "TOTAL COST SUMMARY" rows 212-245.

4. Tunnels

There are no tunnels on the lines that the CERR is replicating.

5. Bridges

Consumers' engineers have inspected the lines being replicated by the CERR and reviewed the specific information contained in CSXT's bridge inventory and other documentation produced by CSXT. From their inspection and review, Consumers' engineering witnesses have developed bridge quantities and costs consistent with the CERR's needs. Bridge design and unit costs were derived primarily from documents produced by CSXT in discovery that were modified to incorporate some lower-cost elements and construction methods that are typical of and generally accepted by Class I railroads. Additionally, adjustments were made consistent with best engineering practices and to reflect current conditions, resulting, for example, in a single span bascule bridge being substituted for the swing bridge at St. Joseph/Benton Harbor, and several of the smaller bridges with a span of less than 20 ft being converted to culverts. The CERR's bridge costs exclude the costs of the Barr Subdivision truss bridge at mile post DC 15.21 that spans the Calumet Sag Channel and the Blue Island Subdivision bridge at mile post DC 28.10 that spans the Chicago Sanitary Canal because it was determined that the City of Chicago constructed both of these bridges.[161]

a. Bridge Inventory

Consumers' engineers prepared the CERR bridge inventory based on a review of the bridge information provided by CSXT in discovery. The bridge inventory includes bridge length, number of spans, average span length, features crossed, number of tracks, the location factor, and bridge cost per location. The inventory is provided in e-workpaper "Bridge Costs.xls." As noted above, certain

[161] *See* e-workpapers "Gazette indicating that the Sanitary district paid.pdf" at 1; "Bridge Costs.xls," tab "Route Bridges," row 47.

smaller bridges were converted to culverts and the existing swing bridge at St. Joseph/Benton Harbor was replaced with a single span bascule bridge.

b. Bridge Design and Cost Overview

The CERR replicates the bridges at 65 locations along the CSXT track, and is required to pay for 25% of the construction costs for bridges associated with the 8.3 miles of BRC track at 31 locations. The bridge inventory being replicated by the CERR does not include any "large" bridge. Including the bascule bridge and its related approach spans, there are only four bridges with overall lengths greater than 500 ft, and none exceeds 550 ft. As a result, Consumers' engineers were able to rely on just three bridge design types in addition to the bascule bridge in St. Joseph/Benton Harbor. As described below, the costs and designs of these bridge types were based on documents produced by CSXT and are thus representative of real-world conditions and pricing, and they are consistent with Class I railroad best engineering practices.

i. Bridge Design

When the lines replicated by the CERR were constructed, a variety of bridge types and lengths were used. However, when constructing a series of bridges from scratch, it is far simpler and more efficient to use modern bridge building techniques and a standard design if possible. Thus, the CERR's bridges have the same lengths as the real-world bridges on the lines being replicated, but rely primarily on three bridge types:

(a) Type 1 Bridges

Type 1 bridges are pre-cast and pre-stressed deck beams that span 24 feet. This bridge is ideal for the City of Chicago streets, since most bridges currently span two lanes of traffic, with each lane requiring 12' of width. The typical City of Chicago railroad overpass is four spans, shorter spans of 10 to 12 ft over the sidewalks and two 24 ft spans. The center columns also divide the street for opposite directions of traffic. The newly built CREATE WA-4 bridges are perfect examples of this type of bridge.

(b) Type 2 Bridges

Type 2 bridges consist of six parallel W24 x 102 steel beams and a timber deck. Like the Type 1 bridge, this bridge is designed to nominally span 24 feet. The Type 2 is needed because the Type 1 pre-cast, pre-stressed concrete deck beams are rectangular in shape and will not work for skewed bridges where the railroad crosses the road at an angle.

(c) Type 3 Bridges

Type 3 bridges span up to 50 feet using six parallel W36 x 302 steel beams and a timber deck. Type 3 is a larger version of the Type 2 bridge and can be used when the railroad crosses the feature at an angle. This bridge design is primarily used in Indiana and Michigan where the CERR crosses bodies of water.

(d) St. Joseph/Benton Harbor Moveable Bridge

In addition to the three bridge types above, the CERR will use a bascule bridge, instead of the existing swing bridge, to span Benton Harbor at MP

CG 87.60 and to provide an opening of 100 horizontal feet for boat traffic. When the swing bridge was originally built it made sense, but this type of bridge is no longer as common and current boat traffic does not require access to channels on either side of the bridge. In fact, Mr. Scott Strifler of District 9 of the U.S. Coast Guard has confirmed that while there is still a need for a movable bridge, only one of the two 100ft openings is required for boat traffic through Benton Harbor.[162] In order to preserve access to one channel, a slightly scaled down version of a CSXT bascule bridge complex built in Pascagoula, MS will be used.

ii. Bridge Costs

The bridge designs and costs were derived from CSXT projects. While many bridge projects were reviewed, the particular bridge projects used as prototypes came from AFE A35859, a pre-stressed concrete beam bridge ("PCBB") and AFE 35844, a steel beam bridge with a timber deck. However, these designs were modified to use pre-cast components, which while not typical for CSXT, is an accepted design and construction method used by other Class I railroads.[163] The bridge prototype based on AFE 35844 was also modified to use the more typical 14-inch H-Pile Pier design instead of the more expensive and less common 30-inch diameter steel pipe.

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[162] *See* e-workpaper "Coast Guard Phone Call log.pdf."

[163] *See generally* e-workpaper "Example Supplier of Precast Bridges for Rail.pdf" at 3.

Instead of pre-cast components, CSXT typically uses cast-in-place concrete for pile caps, wing walls, and back walls. CSXT also infills their hollow concrete piles with concrete. The CERR will use precast pile caps and wing walls because cast-in-place concrete is a slower process and is weather dependent. Due to the large number of bridges being built simultaneously, there will also be economies of scale savings by having hundreds of identical parts produced in a factory rather than each one being "formed and poured" individually in the field. Costs for the precast pier caps and wing walls were obtained from Coreslab structures, a precast manufacturer that produces these materials for other Class 1 railroads.[164]

CSXT's AFE 35859, which served as the prototype for the Type 1 and 2 bridges, used the less typical 30-inch diameter steel pipe for piling material instead of the 14-inch H-Pile pier design. However, modifying this prototype and adjusting the costs was fairly straightforward because CSXT used the 14-inch H-Pile pier design for AFE 35844. Therefore, while the design changed, the costs still are the same as provided by CSXT. Details of the particular unit costs as applied are shown in e-workpaper "Bridge Costs.xlsx," tab "Bridge Type 1" rows 4-24.

Costs for the bridge at St. Joseph/Benton Harbor were based on the Pascagoula, MS bascule bridge. The methodology for determining the cost per

[164] *See* e-workpaper "Coreslab quote.pdf."

linear foot using this CSXT movable bridge has previously been accepted by the Board. *See* DuPont Rebuttal at III-F-98 n. 266 ("775-foot bridge with a 170-foot bascule span is shown at $8,336,800 in 1994. . . . the cost per foot used by DuPont is $62,991 per foot.") and *DuPont* at 223 ("The Board will accept DuPont's costs for movable bridges because NS failed to demonstrate that DuPont's methodology for cost development was not sufficient for constructing the requisite structures."). Most recently, the parties agreed on the costs for the same movable bridges with some minor modifications. *See* TPI Rebuttal at III-F-79 – III-F-80. Consumers' has made a further modification and has used the costs for the entire bridge including the approaches to avoid the issue of separating out the drawbridge costs and indexed these costs to 1Q15. In addition to the cost of the bridge, Consumers added $500,000 for technology to allow remote operation thereby eliminating the need for a bridge tender.[165] In total, the CERR's bridge costs for the CSXT line are $55.4 million, and the CERR's 25% cost-share for the BRC line bridges is $8.4 million.[166]

c. **<u>Highway Overpasses</u>**

The highway overpass costs were developed using information from an actual overpass that was built to cross existing CSXT railroad tracks. A review of discovery documents shows most of these bridges are built by state departments

[165] *See* e-workpaper "A Case for Movable Bridge Remote Operation.pdf" at 9.

[166] *See* e-workpaper "Bridge Costs.xls," tab "Route Bridges" at cells V78 and V114.

of transportation with the railroads contributing small percentages in the range of 5 – 10%.[167] CSXT is not directly involved in constructing or designing these bridges.

The prototype for the highway overpasses is based on information obtained from { } The costs and design features of the prototype highway overpass were obtained through the Department of Transportation of the State of Georgia.[168] The roadway costs were separated from the bridge structure costs, although both are included in the prototype bridge costs. This separation of costs is appropriate because a longer or shorter bridge will still have the same roadway approach costs, and there are some instances where roadway approach costs will not be incurred.

The prototype highway overpass is 210 feet long and spans one existing track and has room for future track as well, with 15 ft center to center ("c/c") track spacing proposed. Many of the proposed CERR overpasses will only span one track and can thus be 15' shorter. Columns Q and R of the "Overpasses.xls" spreadsheet adjust the costs for narrower bridges without approach roadways. The total cost for all overpasses on the CERR is computed,

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[167] *See AEP Texas* at 103.

[168] *See* e-workpapers "2014-03-19 Capital AFE Request.pdf;" "B14098-11-000-0-plans.pdf;" "B14098-11-000-0-sheet7.pdf;" "2011-06-30 GA0106 Fully Executed Construction.pdf."

but only 10% is charged to the SARR as has been customary in past rate cases. *See DuPont* at 212.

The total cost for the CERR's bridges and highway overpasses is $72.3 million. *See* e-workpapers "Bridge Costs.xls" cell V116 and "Overpasses.xlsx" cell D42.

6. **Signals and Communications**

The CERR's signals and communications costs are summarized in Table III-F-6 below. As described in Part III-B and Part III-C, the CERR uses a CTC traffic control system to govern train movements on the CERR's Blue Island and Barr Subdivision main lines between 22nd St. and Curtis. The remainder of the railroad between Porter and West Olive is "dark."[169] Communications needs are met through a combination of fiber optic trunk lines, microwave towers and land mobile radio stations. The CERR's cost-share for crossings was assumed to be 50%, except in the instances where a government agreement produced by CSXT as part of discovery indicated a different cost share percentage. *See* e-workpaper "Review of Government Agreements.xls," column D.

The systems and associated costs are summarized below in Table III-F-6.[170]

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[169] The CERR includes one FAS-PAS switch at the turnout for the Holland Interchange.

[170] *See* e-workpaper "CERR Opening C-S Costs.xlsx" (totals listed in Table III-F-6 represent the sum of signal and communications for the Blue Island, Barr, Grand Rapids, and Fremont Subdivisions plus 25% of the signal and communications costs for the BRC).

TABLE III-F-6 **SIGNALS AND COMMUNICATIONS SYSTEM COSTS** ($ millions)	
Item	**Cost**
1. Signals and Wayside PTC	$ 13.12
2. Communications	$ 5.92
3. Crossings	$ 12.07
4. AEI's & FED's	$ 1.03
5. Central CTC	$ 0.84
6. Locomotive PTC	$0.85
Total	**$33.8**

a. Centralized Traffic Control & Remote Switches

The CERR's signal and communications systems were designed and costed by Consumers Witness Victor Grappone. The various component quantities were developed by reviewing the track diagrams for the CERR system.[171]

Unit costs were derived from various quotes developed by Mr. Grappone. The costs developed for the CTC system include all of the materials necessary for the operation of each signal, including vital control equipment, power distribution, cables, switch mechanisms, wayside signals, internal wiring, huts, batteries, power drops and insulated joints. *See generally* e-workpaper "CERR Signals & Communications.xlsx." For the BRC segment costs, *see* e-

[171] *See* Exhibit III-B-1.

workpaper "CERR Signals & Communications - BRC.xlsx." Intelligent electronic track circuit technology is applied for the automatic signal locations between interlockings. Insulated joint costs are included in the signal system unit prices.

Automatic signals have been spaced to provide a maximum block length of 10,500 feet, which is within the capability of the equipment. Interlocking huts employ vital microprocessor technology. These huts provide far greater capability for complex logic than relay-based systems, thereby making it possible to employ advanced functionality, including the independent control and indication of the switches comprising a crossover. Sufficient switch cabling has been provided to support this feature.

Consumers' signals expert also provided for both manual and machine trench digging and cable installation as required to interconnect the equipment huts and wayside appliances. In the areas covered by fiber optic communications, each interlocking and other CTC device includes fiber optic link equipment as required to link them to the CERR's communication system. In the areas covered by microwave communications, each of these locations includes the data radios necessary to provide this link. The entire system is linked into the dispatching center at the CERR's West Olive headquarters, where there are two dispatching desks. The dispatching center costs are presented in this section.[172]

[172] Mr. Grappone also developed the total number of AAR signal units for the CERR system (9,618), and provided this number to Consumers' MOW

The dispatching center cost of $1,122,600 was based on previous dispatching center costs accepted by the Board, but scaled to reflect the smaller level of traffic on this SARR. *See, e.g.*, *WFA I* at 114 (accepting, by incorporation, the dispatching center unit cost). The *WFA* cost, as here, was based on information provided by Alstom. This system includes a back-up system as well in the event the main system experiences a malfunction.

One remotely controlled switch is used in the CERR's dark (non-CTC) territory. The Fail Safe Audible Signal-Power Activated Switches ("FAS-PAS") are sold by Global Rail Systems. This is a vital system that provides operational safety through switch control and indication circuitry, time locking and wayside signals. Mr. Grappone conferred with the vendor, and determined that the switches would meet the operating needs of the CERR as defined by Consumers' operating witnesses. Details of the FAS-PAS system and costs and are included e-workpapers "FAS-PAS.docx" and "CERR Signals and Communications.xlsx."

b. Detectors

Automatic roll-by failed equipment detectors ("FEDs") are included along the CERR main lines as required by operations and consistent with the current industry standard: AREMA 2001 Standards, Chapter 16, Section 5.3.1, Items j & k. These FEDs are located approximately every 25 miles along the main

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witness, Lee Meadows, for use in developing annual maintenance costs for the CERR's signals and communications system.

line. In addition, the detectors have been strategically located to minimize the traffic back-up should a train be required to stop for inspection and/or to remove a bad order car. A bad order setout track has been sited within approximately 3 miles of each failed equipment detector to provide for train stopping distances and allow removal of bad order cars to the setout track. All setout tracks near the detectors are 600-foot clear length (860 feet between switches) double-ended tracks.

The CERR also has 9 AEI scanners. Details of the costs and components for the FEDs and AEI scanners are shown in e-workpaper "CERR Signals and Communications.xlsx."

c. Communications System

The CERR's railroad radio system enables locomotive communications, two-way radio communications, general voice communications, general data communications, and FED alerts. A combination of fiber optic and microwave radio technology is used for the communications system backbone, and land mobile radio technology is used to facilitate communications between end user applications and the radio system backbone. Land mobile radio ("LMR") technologies provide communication access (via fixed, mobile and portable radios) to the radio system backbone for operating crews, CSXT supervisory and track maintenance personnel that need to communicate with the railroad's operating headquarters and central dispatching facility at West Olive. LMR technologies are co-located with microwave radio technologies at network (tower) sites if appropriate. LMR technologies operate in Very High Frequency ("VHF") mode to accommodate railroad operational frequencies assigned by the AAR.

The backbone of the CERR's railroad radio system includes fiber optic cable and microwave towers along the CERR route. The microwave towers were used only to provide coverage for the CERR route between Porter and West Olive.

Consumers' engineers opted to use fiber optic cable for the CERR's communications backbone where it has been placed by telecommunications providers on the CSXT lines being replicated. The typical arrangement between a telecom provider and a railroad grants the telecom provider the right to lay fiber optic cable along the railroad's right-of-way, and then operate that cable for a contracted period of years. In exchange, the railroad is often paid fees for such access, and more importantly for present purposes, the railroad is typically allowed to use a portion of the available bandwidth free of charge. Accordingly, Consumers' engineers have assumed that the telecom provider would install the fiber optic cable at its cost and that the CERR and the provider would enter a contract on terms that would entail no cost to the CERR to use it.

Consumers' engineers have included the equipment costs required to access the relevant fiber optic facilities. Each wayside control cabinet includes a fiber modem and related fiber node costs, which replace the data radio. The equipment selected is based on other projects with fiber data transmission. The unit costs for the equipment are derived from publicly available sources. *See* e-workpaper "Fiber Node Costs.xlsx." These fiber modems also act as repeaters, so additional repeater locations are not required.

Only some of the lines being replicated are served by fiber optic cable. For those areas where fiber is not presently in place, Mr. Grappone has included microwave tower facilities that were spaced at intervals no greater than 20 miles. *See* e-workpaper "Telecom Site Map.pdf." In total, the CERR has 6 microwave facilities.

Mr. Grappone also included additional LMR facilities to ensure the consistency of radio communications between fiber nodes and/or microwave towers. *See* e-workpaper "CERR Signals and Communications.xlsx" and "CERR Signals and Communications - BRC.xlsx."

7. **Buildings and Facilities**

The CERR is a geographically limited railroad with a relatively small staff, especially compared to the CSXT. It requires only a few facilities to serve its needs, including a headquarters building, a locomotive shop, and roadway buildings for crew change locations and MOW crews. The details for the various facilities are discussed below. The total building costs are summarized in Table III-F-7.

TABLE III-F-7 **BUILDINGS AND FACILITIES** ($ millions)	
Facility	**Cost**
1. Headquarters Building	$2.05
2. Locomotive Shop	$2.48
3. Crew, MOW/Roadway Buildings	$1.25
4. Yard Site Costs (Roads, Lighting, Drainage, Wastewater, etc.)	$6.09
Total	**$11.87**

a. Headquarters Building

The CERR headquarters is located in West Olive. Consumers' engineering experts designed the headquarters building to accommodate more than 60 people.[173] The design for this building was then provided to the Modular Space Corporation, which provided a quote to build, deliver, and install the structure as designed for $1.5 million.[174] The quote for the headquarters provides for transportation to Burns Harbor, IN, but no additional transportation costs were added to the quoted costs because (1) the cost had not been indexed to January 1, 2015, which would have reduced the overall costs; and (2) the Modular Space Corporation is headquartered in Berwyn, PA, and has "80 sales and service offices

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[173] *See* e-workpaper "HQ Building.pdf."

[174] *See* e-workpaper "HQ MOW CREW ModSpace Building Proposal.pdf" at 24.

that span the United States,"[175] so an additional transportation cost above what was already included in the bid is not warranted.

The total headquarters building site costs includes the necessary site prep, catch basin, asphalt paved parking and drive areas, fencing, lighting, and gates, and a tie to existing facilities.[176] In total, the headquarters building cost is $2.1 million.[177]

b. <u>Fueling Facilities</u>

The CERR has no fixed fueling facilities. Locomotive fueling is performed by trucks, *i.e.*, direct-to-locomotive ("DTL") fueling as needed, at the CERR's Barr Yard and at the Consumers plant (at an existing fueling pad on the Consumers' property). Most of the fueling at the Barr Yard occurs on the inspection tracks as fueling occurs at the same time 1,000 or 1,500 mile inspections are being performed. Consumers also provided for a separate fueling track to accommodate the fueling of locomotives that have just been serviced at the locomotive shop. *See* e-workpaper "BARR YARD.pdf" for the location of the fueling pads. Consumers' engineers also provided for construction of paved roads on each end of the Barr Yard to allow for easy vehicle access and to simplify the

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[175] *See* e-workpaper "HQ MOW CREW ModSpace Building Proposal.pdf" at 3.

[176] *See* e-workpaper "2015 Buildings.xls," tab "Headquarters," and tab "Total Building Cost Summary."

[177] *See* e-workpaper "2015 Buildings.xls" tab "Total Building Cost Summary" and "III-F Total-2015.xls," row 69.

fueling operations.[178] Additionally, Consumers' engineering experts equipped the facilities with fueling pans[179] on each side of the inspection tracks and two on the separate fueling track.[180] A quote obtained by Consumers' engineering experts for the fueling pans provides a cost of $250 per foot delivered.[181] Consumers' engineering experts used RS means to determine the price of pipe, which provides costs for 4-inch pipe of $14.63 per ft and for 12-inch pipe of $29.38. The total cost for the eight (8) fueling pans, the associated piping, and installation is $369,167.[182]

c. Locomotive Shop and Office

The CERR has 12 road locomotives and one switch locomotive. Thus, its need for a substantial locomotive shop is minimal. Nevertheless, the CERR may need to perform running repairs or other service on run-through locomotives. So rather than contracting out all locomotive repairs, which would be possible in Chicago given that are a number of third-party locomotive shop in the area, Consumers conservatively constructed its own shop. Specifically, Consumers' engineers designed the locomotive shop and office at the CERR's

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[178] *See* e-workpaper "BARR YARD.pdf"

[179] *See* e-workpaper "HDPE Enviropan.pdf."

[180] *See* e-workpaper "FUELING PANS SITE.pdf."

[181] *See* e-workpapers "HDPE Environpan Costs.pdf" and "2015 Building Sites.xls."

[182] *See* e-workpaper "2015 Building Sites.xls," tab "YARD" at rows 15-19.

Barr Yard by reviewing CSXT's documents on the existing shop at Barr Yard[183] and with few exceptions, worked to replicate every element including the size of the offices, the number of lockers, the number of tracks, and even the number of toilets. With respect to the locomotive shop, the only key differences is that the pit for CERR's locomotive shop is a different size and there is a jib crane in the large work area instead of an overhead crane. The building was also improved on by making it all one height and then including a storage area above the office.[184] Consumers' design was then provided to Kessel Construction, Inc., which prepared a proposal to construct the 17,050 square foot locomotive shop as designed for a total cost of $2.5 million.[185]

This shop will not perform major component repairs such as rebuilding engines. As is typical of most railroads, these major repairs will be contracted out to vendor shops that specialize in this work. Thus, the components are repaired on a repair-and-return or unit-exchange basis. The locomotive shop is, however, set up to remove such components from the locomotive and reinstall the repaired or replaced part. In other words, the CERR shop would change out components that are rebuilt off site (contracted out), as opposed to removing and rebuilding all the individual components in-house. Consequently, the locomotive

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[183] *See* e-workpaper "Loco Shop Blueprint - Barr Yard (CSX-CNSMR-C-16616 to 16648).pdf" at 4-5.

[184] *See* e-workpaper "Chicago IL Locomotive Shop KCI Drawing Set.pdf."

[185] *See* e-workpapers "Chicago IL Locomotive Shop KCI Proposal.pdf" at 31 and 34.

shop does not need the equipment that might be found in a major repair facility, such as an engine block washer, traction motor stands, traction motor gearcase racks, or air brake test racks.

In addition to the structure, Consumers' engineers have included a full complement of equipment. Consistent with the Barr Yard information CSXT provided in discovery, Consumers' engineers have included, *inter alia*, 330 feet of embedded track, a 35-ton crane, 2 ton jib cranes, 3 inspection pits which will be used in lieu of drop-tables, elevated stair rails, and a wheel pit.[186] The locomotive equipment that Consumers' engineers bid out separately from the locomotive shop includes the oil interceptor, the alliance sand storage, and the lube oil storage.[187]

d. <u>Car Repair Shop</u>

Under the relevant CERR (CSXT) car maintenance agreements, a contractor is responsible for providing all necessary shops. *See* Part III-D-4-a. Thus, Consumers has not included a separate car shop. However, the Barr yard does include an area that has been reserved to allow for the future installation of a repair shop and provides for embedded track to that location.[188] Running car repairs are performed at Consumers' Barr Yard car repair facility, where 1,000 or 1,500-mile inspections of certain trains are also performed.

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[186] *See* e-workpapers "Chicago IL Locomotive Shop KCI Proposal.pdf" and "2015 Buildings.xls," tab "Locomotive Shop Equipment."

[187] *See* e-workpapers "2015 Buildings.xls," tab "Locomotive Shop Equipment;" "Oil Interceptor Cost.pdf;" "Macton Quote Sand Tower.pdf;" and "Locomotive Oil Storage for lubrication Cost.pdf."

[188] *See* e-workpaper "BARR YARD.pdf."

e. **Crew Change Facilities/Yard Offices**

The CERR has crew change buildings at 71st Street, Barr Yard, Curtis, and West Olive. Each location includes a crew change building. Consumers' engineering experts designed these facilities to accommodate crews of four to six at one time. Each facility has a locker room with a shower and 20 lockers; two offices; a breakroom/meeting room; and separate men's and women's bathrooms.[189] Consumers' engineering experts provided the designs for these buildings to the Modular Space Corporation, which provided a quote to build, deliver, and install the structures for $36-56 thousand.[190] This quote, like the quote for the headquarters building, assumed delivery and installation at Burns Harbor, Indiana. For the same reasons as discussed *supra* with respect to the headquarters building, and given the various locations of the crew facilities, it is not necessary to provide for additional transportation costs above what is already included in the bid.

Each crew change building's site costs range from $42-$65.6 thousand, which includes the necessary site prep, fencing, lighting, and gates.[191] In addition, the tie to existing sewer with a location factor is approximately $3-4

[189] *See* e-workpaper "Crew Building.pdf."

[190] *See* e-workpaper "HQ MOW CREW ModSpace Building Proposal.pdf" and "2015 Building Sites.xls," tabs "Crew Change" and "Crew Change in Yard."

[191] *See* e-workpaper "2015 Buildings.xls," tabs "Crew Change" and "Crew Change in Yard."

thousand.[192] In total, the crew change buildings range from $142,685 at the Barr yard, to $166,172 at 71st Street in Chicago.[193]

f. <u>Maintenance of Way Buildings (Roadway Buildings)</u>

The CERR has MOW office and garage buildings at Barr Yard and at Grand Junction.[194] Each building is similar in office space and design to the crew change facilities. However, additional area is provided for garaging certain vehicles as necessary and storing certain supplies. Consumers' engineers developed the space requirements based on the typical MOW crew located in each location as well as the need to house signal maintainers.

Consumers' engineering experts designed each MOW Office building to include three offices; a large open office area; a lunchroom/meeting area; a restroom/locker room area; separate men's and women's bathrooms; and a storage area.[195] This design for the MOW Office building design was then provided to the Modular Space Corporation, which provided a quote to build, deliver, and install the building for $106 thousand.[196]

The MOW Garage is a 1,800 square foot post and frame barn type building with a reinforced concrete floor and was designed to accommodate three

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[192] *See* e-workpaper "2015 Buildings.xls," tabs "Crew Change" and "Crew Change in Yard."

[193] *See* e-workpaper "2015 Buildings.xls," tab "Building Site Totals."

[194] *See* e-workpaper "2015 Building Sites.xls," tab "Building Site Totals."

[195] *See* e-workpaper "MOW Building.pdf."

[196] *See* e-workpapers "2015 Buildings," tab "MOW" and "HQ MOW CREW ModSpace Building Proposal.pdf" at 23.

hi-rail vehicles; an area for undercover work; and space for parts and storage.[197] Consumers' engineering experts used RS Means for the cost, which provides a price of $114 thousand.[198]

Each MOW office and garage site costs range from $68-$113 thousand, which includes the necessary site prep, fencing, lighting, and gates.[199] The MOW office and garage at Grand Junction also includes gravel parking and storage areas.[200] In addition, the tie to existing sewer with a location factor is approximately $3-4 thousand.[201] In total, the MOW office and garage buildings range from $291,928 at the Barr yard to $336,320 at the Grand Junction.[202]

g. Wastewater Treatment

The CERR's Barr Yard and the locomotive shop are located near public sewer service, and Consumers' engineers assumed that a connection would be made for those facilities. Consumers' engineering experts provide for 200 ft of 8-inch sanitary pipe from the headquarters and locomotive shop, and for 200 ft of

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[197] *See* e-workpaper "MOW Garage.pdf."

[198] *See* e-workpaper "2015 Buildings.xls," tab "MOW Garage" and "MOW Garage Cost.pdf."

[199] *See* e-workpaper "2015 Buildings.xls," tabs "MOW" and "MOW in Yard."

[200] *See* e-workpaper "2015 Buildings.xls," tab "MOW."

[201] *See* e-workpaper "2015 Buildings.xls," tabs "Crew Change" and "Crew Change in Yard."

[202] *See* e-workpaper "2015 Buildings.xls," tab "Building Site Totals."

6-inch sanitary pipe for all other buildings.[203] The costs to tie to the existing sewer, which includes the necessary piping, is tabulated in e-workpaper "2015 Buildings.xls," tab "Total Building Cost Summary" column E.

For the locomotive shop and for each of the eight fueling pads there is an oil/water separator system that is part of the fuel containment system. The costs for the oil/water separators are included as part of the total costs for the locomotive shop equipment.[204]

h. <u>Yard Air, Yard Lighting and Yard Drainage</u>

Lighting for security is included at all of the CERR's buildings and at the Barr Yard.[205] Consumers uses 40 foot light poles, with double light "heads" that use 400 watt HPS lamps.[206] Lighting at the Barr Yard was installed every 300 feet along the yard track for a total of 129 yard lights.[207] At the Barr Yard, the MOW, locomotive shop and crew change facilities also have additional lighting, and these are included separately as part of those building costs.[208]

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[203] *See* e-workpaper "2015 Building Sites.xls," tab "Unit Costs" rows 18-36.

[204] *See* e-workpapers "Oil Interceptor Cost.pdf" and "2015 Buildings.xls," tab "Locomotive Shop Equipment."

[205] *See* e-workpaper "2015 Building Sites.xls."

[206] *See* e-workpaper "Lights1.pdf."

[207] *See* e-workpaper "2015 Building Sites.xls," tab "YARD."

[208] *See* e-workpaper "2015 Building Sites.xls," tabs "Crew Change in Yard," "MOW in Yard," and "Headquarters."

To handle storm water runoff and to provide adequate drainage, the Barr yard includes 126 catch basins.[209] Due to the high water table, catch basins that measure 6ft x 6ft and are 3ft deep are located every 400 feet along the yard tracks.[210] In total, this drainage system costs $210,275.[211]

No yard air is included as the CERR's yard activity is light. Trains normally are not broken apart at Barr Yard except in connection with removing bad-order cars during 1,000 or 1,500 mile inspection, which would not necessitate yard air as the cars would not be off air for more than few minutes.

8. Public Improvements

a. Fences

Consumers has provided for fencing around the locomotive shop, and all MOW and crew change facilities, as well as the headquarters building. Fencing costs are included in the building costs.[212] The existing Barr Yard does not have fencing, so the CERR's Barr Yard also does not include a perimeter fence. The CERR also does not include fencing for the ROW because Consumers' experts in the field observed that there was limited to no fencing present along either the BRC or CSXT line it is replicating. *See* e-workpaper folder "Photos."

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[209] *See* e-workpapers "2015 Building Sites.xls," tab "YARD" and "Yard Drainage Cost.pdf."

[210] *See* e-workpaper "Yard Drainage Cost.pdf."

[211] *See* e-workpapers "2015 Building Sites.xls," tab "YARD" and "Yard Drainage Cost.pdf."

[212] *See* e-workpaper "2015 Building Sites.xls."

b. Signs and Road Crossing Devices

Consumers' operating and engineering experts have included the costs for mile post signs, whistle post signs, cross bucks, 1-800 signs, stop signs, and sign posts. A complete count of the included signs is included in e-workpaper "2015 Crossing List.xls" with the unit costs shown in e-workpaper "III - F TOTAL - 2015.xlsx."

c. Grade-Separated and At-Grade Crossings

Consistent with *AEP Texas* at 102 and *Xcel I* at 115-16, the CERR is building all at-grade crossings, and paying 100 percent of the cost for the crossing materials. *See* e-workpapers "2015 Crossing List.xls" and "III - F TOTAL - 2015.xlsx." Details of the unit costs and quantities for grade crossing materials are included in e-workpaper "2015 Crossing List.xls."

Active warning devices for at-grade crossings are addressed in Part III-F-6.

Grade separated crossing costs are discussed in Part III-F-5 above.

9. Mobilization

Consistent with *Sunbelt* at 167, Consumers' engineers have added a 2.7 percent mobilization factor[213] for all items where mobilization is not already included in the contractor's bid. Consumers' experts separately determined that the 2.7 percent mobilization is very conservative given the ready access to the

[213] *See* e-workpaper "III-F TOTAL – 2015.xls."

CERRR system, the proximity to other rail carriers, and the availability of many contractors that tend to cluster in and around major metropolitan areas.

10. Engineering

In *Xcel I*, the Board advised that, in that case and future SAC cases, a 10 percent estimate for all engineering cost components would be used. *Id.* at 697. The Board followed its precedent, most recently, in *Sunbelt* at 167. Thus, Consumers' engineers have used a 10 percent additive here to cover all engineering, construction management, and resident inspection costs, as well as other items such as soil testing.[214]

11. Contingencies

Consistent with prior Board decisions in other SAC cases,[215] Consumers' engineering experts have used a 10 percent contingency factor and applied it to the construction subtotal excluding land.[216]

12. Other

a. Construction Time Period

The construction time period for the CERR is based on a 30-month construction schedule, which is more than ample given the very limited size and complexity of the facilities to be built.[217] The work begins on the CERR with the

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[214] *See* e-workpaper "III-F TOTAL – 2015.xls."

[215] *See*, *e.g.*, *Sunbelt* at 187.

[216] *See* e-workpaper "III-F TOTAL – 2015.xls."

[217] *See* e-workpaper "Construction Schedule.xls." The construction schedule does not include the 8.13 mile segment of the existing BRC facilities

start of surveying and mapping operations, and then the establishment of the alignment, grades and ROW. A three-month period is allocated to obtain sufficient information to allow preliminary planning and engineering design to begin. Design of the railroad and appurtenances requires a ten-month period including the three-month start-up/surveying period.

Land acquisition takes approximately seven months to complete. It commences ten months after project initiation. Test borings are timed to coincide with land acquisition so sufficient test borings can be made during the design process.

By the seventeenth month, grading on all of the Subdivisions begins because in general, the construction work has been planned by Subdivision. The work sequence has been structured so that all site work and bridges can be completed prior to installation of track and signals. Total design and construction time for the CERR is 26 months with four months available at the end of construction for final operational testing. Thus a 30-month overall construction period has been provided.

The CERR construction project will be divided into three track packages (the Grand Rapids track package will also build the Fremont Subdivision), 5 site work/grading packages, 58 bridge packages, 0 tunnel

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because those facilities are not actually being constructed as they already exist. Instead, Consumers determined the costs the CERR would incur to acquire a 25 percent ownership interest in those facilities based on Consumers' estimate of the construction costs to build such facilities today.

packages, 3 track packages, 6 building packages, and 2 CTC and communications packages. *See* e-workpaper "Construction Schedule.xls."

Finally, most of the track material costs are for delivery by rail to the individual subdivisions or alternatively, at the railheads in Porter and Dolton or Ogden Jct. The materials that are not easily shipped by rail are easily trucked because the replicated line has numerous road access points (*e.g.*, all subballast will be delivered by truck).[218] The quote provided by Ohio Track, Inc. for the installation of track specifically includes handling and "[m]aterial transportation from delivery points."[219]

[218] *See* e-workpapers "2015 Crossing List.xls."

[219] *See* e-workpaper "Ohio Track Cost Estimate.pdf."

Part III-G – Discounted Cash Flow

III. G. DISCOUNTED CASH FLOW ANALYSIS

The SAC Constraint rests on the twin premises that a captive shipper should pay no more than the minimum necessary to receive service from a least-cost, most-efficient replacement for the incumbent railroad, and that the shipper should not bear the cost of any facilities or services from which it derives no benefit. *Sunbelt* at 4; *Coal Rate Guidelines*, 1 I.C.C.2d at 523-24.[1] The SAC Constraint is derived from the theory of contestable markets.

In the Board's contestable market structure, the threat of entry by the hypothetical stand-alone entity, typically a SARR, constrains the rates of the incumbent. The SARR, which faces no barriers to entry or exit, has an incentive to enter the incumbent's market if it can sustain itself by charging a rate below that of the incumbent. The presence of that incentive demonstrates that the challenged rates are causing the shipper to subsidize the defendant, meaning that the shipper is contributing to (subsidizing) the cost of services that it does not use.

SAC thus provides a regulatory ceiling on rates where a carrier has market dominance, and if the incumbent's rates exceed those that would be charged by the SARR (the CERR in this case), then the existing rates are unreasonable. As the Board summarized in *Sunbelt*:

> A SAC analysis seeks to determine whether a complainant is bearing the cost of any inefficiencies or the cost of any facilities or services from which it

[1] The evidence in this Part III-G is sponsored by Consumers' Witnesses Thomas D. Crowley and Daniel L. Fapp.

> derives no benefit; it does this by simulating the competitive rate that would exist in a "contestable market," i.e., a market that is free from barriers to entry. The economic theory of contestable markets does not depend on a large number of competing firms in the marketplace to ensure a competitive outcome. Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d at 528. In a contestable market, even a monopolist must offer competitive rates or lose its customers to a new entrant. Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d at 528. In other words, contestable markets have competitive characteristics that preclude monopoly pricing.
>
> To simulate the competitive price that would result if the market for rail service were contestable, the costs and other limitations associated with entry barriers must be omitted from the SAC analysis. Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d at 529. This removes any advantages the existing railroad would have over a new entrant that create the existing railroad's monopoly power. A SARR that could serve the traffic at issue if the rail industry were free of entry barriers is therefore hypothesized. Under the SAC constraint, the rate at issue cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs and earning a reasonable return on investment. This analysis produces a simulated competitive rate against which the challenged rate is judged. Coal Rate Guidelines, Nationwide, 1 I.C.C. 2d at 542.

Sunbelt at 5.

Since the function of a SAC analysis is to identify the cost associated with providing maximally-efficient, least-cost service to the captive shipper, it follows that the SAC test should be applied in a manner that reflects rational economic behavior by the SARR. In particular, the SARR should pay no more than is necessary for its inputs. Moreover, while the CERR in this case is considered to be a substitute or replacement for CSXT to the extent of the scope of the CERR's planned services, SAC theory does not require that the CERR replicate the CSXT system, operations, policies, or practices in their entirety, or even in any single respect. As the Board's predecessor established in *Coal Rate Guidelines*, the design of the stand-alone system and the traffic it carries are chosen to achieve the goals of maximizing revenues and minimizing service costs to the shipper, regardless of the actual circumstances of the incumbent railroad. *Coal Rate Guidelines*, 1 I.C.C.2d at 543-44. The CERR thus must be considered a replacement for the relevant portions of the CSXT system, not a rival for the incumbent, and it must be afforded the flexibility to configure its system and service scope in a manner that maximizes efficiency and cost effectiveness. *See*, *e.g. Nevada Power II,* 10 I.C.C.2d at 280-81 (Chairman McDonald, commenting).

These core principles guide the CERR's traffic group, system design, configuration, and planned operation, as detailed in the previous Parts of this Narrative. They also guide the proper treatment of inflation, taxes and capital cost recovery, which are addressed next.

1. <u>Cost of Capital</u>

Calculation of the capital recovery charge for the CERR necessarily reflects the CERR's assumed cost of capital ("COC"). Past cases have consistently utilized the general (Class I) railroad industry's average costs of common equity ("COE"), debt capital and preferred equity capital (if any), and their percentage mix within the capital structure for the industry, as determined by the Board in its annual cost of capital proceedings, in calculating the COC elements for the SARR over the relevant construction period (July 2012 through December, 2014 in this case) and operating period (January 1, 2015 – December 31, 2024). *See Sunbelt* at 183*; WFA/Basin I* at 135; *Duke/NS*, 7 S.T.B. at 123; *Carolina P&L*, 7 S.T.B. at 261-62; *Duke Energy Corp. v. Norfolk Southern Ry.*, 7 S.T.B. 862, 878-79 (2004). Consumers has utilized this standard Board approach here.

The CERR's cost of debt ("COD") and preferred equity during the 10-year DCF period is assumed to equal the weighted average railroad industry cost of debt or preferred equity over the CERR's construction period, weighted by the CERR's investment by construction year. The COE during the construction period is based upon the Board's annual COE during each applicable year of the construction period. The CERR's capital structure reflects the industry average during each year of the construction period, is also weighted by the CERR's investment by construction year, and thus is effectively frozen as of the end of the construction period.

The COE for the CERR during each operating year reflects the COE for the railroad industry as determined by the Board, if that value has been determined. When the value has not been determined (which is presently the case for all years of the CERR's operation, 2015-2024), the simple average of the COE values for the years during the construction period is utilized, which means 2012-2014 in the present circumstances.

Consumers has followed the Board's approach in developing capital costs. *See Sunbelt* at 183-85; *AEPCO 2011* at 135-38. This includes the exclusion of common equity flotation costs. The Board indicated in *Sunbelt* that while a SARR may incur costs for floating common equity, such costs can only be included if there was some evidence of the existence and size of equity flotation fees for stock issuances of a similar size as that needed by the SARR.[2] However, knowing the size of similar issuances is not enough to develop the estimated costs of a new railroad stock issuance. While the size of the issuance is a factor in the cost incurred,[3] equity risk, company risk, the issuer's industry, and numerous other factors dictate the gross-spread incurred in an equity offering.[4] Given the complexity of the issue and the fact that no reasonable surrogates are currently available for the issuance of railroad company stock, Consumers has followed the approach taken by the Board in *Sunbelt* and excluded equity flotation costs from its calculations.

Consistent with SAC principles, the CERR's approach to debt capital also should mirror the debt actually issued by CSXT and the other U.S.

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[2] See *Sunbelt* at 184 n.933.

[3] The costs incurred in issuing common equity often are recouped by the issue's underwriters through the difference in the actual price offered to the equity's purchasers and the underwriting price received by the issuing company. This difference, or "gross spread," is the compensation that the underwriters of an offering receive to cover expenses, management fees, commission and risk.

[4] These other factors can include, but not be limited to, whether the stock issuance is an initial public offering ("IPO") or a seasoned offering, whether the issuance is an IPO or private placement, or whether the issuance is backed by a reputable investment banking firm or venture capitalist.

Class I railroads included in the Board's annual cost of capital determination.[5] Reflecting current industry practice, the CERR will make fixed coupon payments of interest on its debt, re-issuing new debt instruments (and starting new coupon interest payments) as debt issuances mature.[6] This is different from the "home mortgage" approach taken in other proceedings under the SAC Constraint, where debt service presumes quarterly payments consisting of principal and interest components, with the interest portion declining over time. However, railroad companies in the real world, like other large corporations, do not as a normal course of business make periodic payments that contain constantly changing principal and interest components, but rather make coupon payments on the debt consisting only of fixed interest. Following a home mortgage model in the face of these facts creates a mismatch between the source of the debt rate (the railroad cost of capital determinations by the Board) and the debt type (a home-style mortgage that is not used by those same railroads).

The AAR's filing in the Board's 2014 cost of capital proceeding showed that approximately 94 percent of railroad industry debt consists of corporate bonds, notes and debentures that incorporate periodic coupon payments.[7] The vast majority of CSXT's own debt likewise is held in the form of

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[5] *See, e.g., WTU*, 1 S.T.B. at 712.

[6] *See Nevada Power II*, 10 I.C.C. 2d at 319.

[7] *See* the Verified Statement of John T. Gray, in Ex Parte No. 558 (Sub No. 18), *Railroad Cost of Capital – 2014* (filed April 20, 2015), at page 18, Table 7. Mr. Gray thoroughly discusses the pricing of bonds based in part on their coupon

corporate notes and debentures. According to CSXT's 2014 SEC Report 10-K and the AAR's 2014 cost of capital filing, $9.257 billion of CSXT's $9.514 billion of long-term debt (over 97%) is held in notes and debentures paying fixed coupon (interest only) payments.[8]

Consistent with the rule that the CERR's cost of debt should mirror the railroad industry cost of debt, which necessarily means that it also should mirror the composition of that debt and how the interest is paid to the debt holders, Consumers has developed quarterly coupon payments associated with the CERR's debt as depicted in Table E of Exhibit III-H-1.[9] The CERR's quarterly interest payments are developed by multiplying the fourth-root of the appropriate Table A cost of debt by the sum of the total investment and IDC for the year.

Consumers' approach is consistent with the STB's industry cost of capital calculation, which is composed of a mix of debt with different maturities, and produces a weighted cost of debt equal to the railroad industry cost of debt for each year. The public record shows that the railroads' level of debt has remained

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payments and shows the coupon payments for the railroads' long-term notes and debentures. Mr. Gray submitted verified statements in the Board's *Railroad Cost of Capital* proceedings for the years 2008 through 2014 that show that the debt issued by the railroads in those years also primarily consisted of notes and debentures with coupon provisions.

[8] *See* Comments of the Association of American Railroads and Its Member Railroads in STB Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, filed April 20, 2015 at CSX Exhibit 4 located on page 6 of Mr. Gray's submitted workpapers.

[9] Most railroad companies pay interest semi-annually, but to remain consistent with the structure of the Board's DCF model, Consumers has assumed that the CERR will make coupon payments on a quarterly basis.

fairly level since the last round of mergers in the mid-1990s. This confirms that railroads are issuing new debt as debt instruments mature, or as they redeem older debt issuances and replace them with newer issuances. In other words, the railroads are holding their levels of debt fairly constant, and as such, are consistently paying interest on this debt. Between 1998 and 2014, the four (4) main railroads included in the STB's cost of capital calculation incurred aggregate interest expenses ranging in a narrow band between $3.9 and $4.4 billion.[10] The CERR is employing the same methodology that CSXT and other real world railroads employ, and holding a stable capital structure. This is consistent with the Board's DCF model, which assumes that the capital structure does not change over time. This is also consistent with the DCF model's assumption that future interest rates will equal prior year interest rates. To reflect this steady-state nature, the SARR must reissue debt as older debt is retired, which ultimately leads to consistent interest payments as reflected in Consumers' DCF model.

In the *DuPont* and *Sunbelt* decisions, the Board explicitly acknowledged that the approach taken here by Consumers was in-line with real world railroads' debt practices.[11] Nevertheless, the Board rejected the shippers' evidence in those cases, based upon two (2) stated concerns: (1) that the hypothetical nature of a SARR meant that its use of interest-only coupons would

[10] *See* e-workpaper "Interest Expense by Railroad.xlsx," tab "Railroad Industry Interest," Column (6).

[11] *See DuPont/NS* at 281, *Sunbelt* at 191; *see also Nevada Power II*, 10 I.C.C. 2d at 319.

not be subject to the scrutiny provided by the financial markets for real world railroads; and (2) that allowing a SARR to employ the same approach to debt used by real world railroads would lead to the SARR's failure to repay principal, and thereby not pay the full costs of constructing, maintaining and operating its system.[12] Consumers submits that neither of these is a valid basis for depriving the CERR of access to the same debt service tools that routinely are used by CSXT.

First, because both the CERR's cost of debt and its approach to debt service are derived from the actual experiences of CSXT and other major railroads, they already have been scrutinized by the financial community, and validated by that community's willing purchases of railroad notes, bonds and debentures. The "checks and balances" of the real world effectively have been applied to the CERR through their application to CSXT.[13]

Second, CERR's use of the same coupon interest model used by CSXT and the other railroads does not result in the non-payment of "principal," because the repayment of any principal amounts borrowed is accounted for in the levelized stream of capital recovery payments under the DCF model. Debt amortization does not serve that purpose under the SAC Constraint..

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[12] *Sunbelt* at 189-191.

[13] *See WPL*, 5 S.T.B. at 984, discussing the efficiency of capital markets and the reflection of railroad risk in the railroad industry cost of capital.

As the Board noted in *Sunbelt*, the computerized DCF model "simulates how the SARR would likely recover its capital investments, taking into account inflation, Federal and state tax liabilities, and a reasonable rate of return."[14] The DCF model ensures sufficient cash is generated by the SARR to meet the required rate of return on investment both to debt and equity holders, as well as ensuring sufficient cash flows to cover the return *of* the required investments. This occurs through the capital carrying charges included in the "Investment SAC" level of the DCF model, which ensure that the SARR is developing enough quarterly cash flows to pay back not only the interest on the debt (as encompassed in the weighted-average cost of capital used as a discount factor), but also the principal amount originally borrowed (as reflected in the investment costs and interest during construction costs). Far from not paying back any principal, the quarterly capital charges explicitly account for repaying principal on existing and future investments. The repayment of principal is accounted for in the DCF model irrespective of whether the Board or litigants use a home mortgage amortization approach or a coupon approach.

As the DCF model shows, the principal repayment values calculated in any amortization method are *not* directly used to develop any actual principal repayment. The principal portions of the quarterly payment included in the amortization calculations are used for purposes of calculating the *interest*

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[14] *Sunbelt* at 6.

component of the assumed payment, in order to develop the interest tax shields to determine state and Federal tax payments. Principal components of debt amortization do not directly feed into the capital carrying charges, which provide the SARR's return on, and return of capital. The sole purpose of the debt amortization calculation is to develop the expected interest payments for use in estimating state and Federal taxes. The interest-only coupon approach used by CSXT in the real world and by the CERR in this case determines those interest payments directly, and its employment by Consumers is fully consistent with the general SAC rule that "recognize[s] the importance of allowing the SARR to use the same business strategies as the railroad industry to the maximum extent possible…."[15]

2. Inflation Indices

The prices of goods and services used by the CERR will change over the 10-year DCF period. It is therefore necessary to forecast rates of inflation for application to the capital assets and operating expenses over the timeline covered by the SAC analysis; *i.e.* January 1, 2015 through December 31, 2024. The time path of capital recovery charges for the CERR likewise must maintain the real purchasing power of those charges.

The annual inflation forecast that is used to calculate the value of the CERR's road property assets is based on actual railroad chargeout prices and wage rate indexes calculated by the AAR for materials and supplies, wage rates and

[15] *See DuPont/NS* at 282; *Sunbelt* at 191.

supplements, and materials prices combined (excluding fuel) ("MWSExFuel") for eastern railroads, and the current IHS Economics[16] October 2015 forecast for rail labor and rail materials and supplies.[17] Board precedent endorses this approach. *See AEP Texas* at 109; *Duke/NS*, 7 S.T.B. at 123; *Carolina P&L*, 7 S.T.B. at 261.

For land assets, the annual forecast inflation rate is based upon indices that reflect rural and urban land prices on the CERR system routes. Rural land indexes were developed from historic rural land values reported by the U.S. Department of Agriculture.[18] This is consistent with prior cases. *See, e.g.*, *Sunbelt* at 186; *Duke/NS*, 7 S.T.B. at 123; *Carolina P&L*, 7 S.T.B. at 261. This collection of forecasts and their application is shown on Exhibit III-H-1.

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[16] IHS, Inc. acquired Global Insight, Inc. in 2008. From 2008 through 2013, IHS Global Insight produced the forecast. Beginning in 2014, the IHS Operational Excellence and Risk Management group began producing the forecast under the name IHS Economics.

[17] IHS does not develop a forecast of the AAR's MWSExFuel index. Consumers therefore uses a proxy that weights IHS's materials and supplies and labor rate index forecasts, which parties in SAC cases have relied upon for purposes of execution of the DCF model. *See, e.g.*, AEPCO Opening at III-G-16 n.17, and AEPCO Reply at III-G-8.

[18] *See* e-workpaper "CERR Land Appreciation.xlsx." The STB determined in its *AEPCO 2011* decision that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values. The STB cited to its use of historical averages of more than 80-years in developing railroad cost of equity estimates. Given the STB's clear preference for longer historical averages, and the use of averages dating from the late 1920's to 1930 to calculate the CERR's cost of equity, Consumers developed the historic average annual and quarterly percentage change in rural land values between 1935 and 2015 for the states of Illinois, Indiana , and Michigan, and used these historic averages to forecast future changes in rural land values.

Urban land values, which are assumed to consist of a mix of industrial, residential and commercial properties, were indexed using a combination of indexes published by investment reporting firms Moody's and Standard & Poor's. For residential properties, Consumers used a combination of the Moody's/RCA Commercial Property Price Index ("Moody's/RCA CPPI") for Apartment buildings and the Standard & Poor's/Case-Shiller Home Price Index ("S&P/Case-Shiller"), which tracks changes in home prices. For commercial properties, Moody's/RCA CPPI for office buildings and retail properties were used to index commercial properties, while Moody's/RCA CPPI for industrial properties was used to index industrial land values. Consumers used the actual index values published by Moody's/RCA and by S&P/Case-Shiller for the periods through 2Q 2015, the last full quarter published for the indexes.[19] For the quarters after 2Q 2015, Consumers relied on the historic change in the Moody's/RCA and by S&P/Case-Shiller between 1Q 2001 and 2Q 2015.[20]

In *Major Issues*, the Board adopted a convention for the indexing of operating expenses for a SARR under which expenses for the first year would adjust based on 100% of the change in the RCAF-U; expenses for the second year would adjust based on 95% of the change in the RCAF-U and 5% of the change in

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[19] *See* e-workpaper "CERR Land Appreciation.xlsx," tab "Composite," columns (G), (H) and (I) at rows 6 to 17.

[20] *See* e-workpaper "CERR Land Appreciation.xlsx," tab "Composite," columns (G), (H) and (I) at rows 18 to 55.

the RCAF-A; and each succeeding year of the DCF period would use a mix reflecting increasing shares of the RCAF-A in 5% increments.[21] *Id.* at 40. Consumers applies the Board's method to the indexing of operating expenses for the CERR. Consumers' model uses actual RCAF-U and RCAF-A indexes through 4Q 2015, the latest quarter available, and applies IHS Economics' October 2015 RCAF-U and RCAF-A forecasted indexes thereafter.[22] Consumers reserves the right to supplement this data on Rebuttal.

3. <u>Tax Liability</u>

Federal taxes for the CERR are calculated on the assumption that it pays taxes at the 35% corporate rate, with all payments for debt interest, state income taxes and depreciation expenses treated as reductions in taxable income. *See FMC*, 4 S.T.B. at 847-48.[23] Depreciation expenses for tax purposes use accounting lives from the Modified Accelerated Cost Recovery System ("MACRS"), with investments placed in service in the first quarter using a mid-quarter convention. In addition, as described in Part III.H.l.f, the CERR calculated bonus depreciation available under 2012 to 2014 tax laws.

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[21] Under the Board's hybrid approach, operating expenses for the tenth and final year of the DCF period would be determined using an index comprised of 55% of the change in the RCAF-U, and 45% of the change in the RCAF-A.

[22] *See* e-workpaper "Exhibit III-H-1.xlxm," tab "Inputs RCAF_RCR," columns (T) and (U).

[23] *See* e-workpapers "Exhibit III-H-1.xlxm," tab "Inputs," cell C297 and e-workpaper "IRS Publication 542 - Corporations.pdf" at page 17.

The CERR also must account for any income tax liability accruing in Illinois, Indiana, and Michigan. As detailed in Exhibit III-H-1, the state tax rate applicable to the CERR is 6.38%.[24]

4. <u>Capital Cost Recovery</u>

The Board's DCF methodology uses economic depreciation to calculate the capital recovery cost of the CERR's property. Economic depreciation effectively represents an asset's loss of earning power as it approaches the end of its life and/or its replacement date. As a result of *Major Issues*, a 10-year analysis period is used to benchmark the CERR's asset value. However, the CERR's investments would not be retired at the end of the 10-year DCF period, and it is instead assumed that CERR will make continuing investments to enable it to operate, hypothetically, in perpetuity. Consumers' calculation of SAC in Part III.H thus accounts for the costs associated with the renewed investments in and continued operation of the CERR after 2024, using the approach approved by the Board in previous cases. *See*, *e.g.*, *Sunbelt* at 182-183.

Beginning with *FMC*, the Board requires an equal capital carrying charge in real terms in each year of the DCF period, regardless of changes in the SARR's volume. Accordingly, annual changes in volumes, rates, and associated

[24] *See* e-workpapers "Exhibit III-H-1.xlxm," tab "Investment SAC," cell K10.

revenues produce changes in the SAC results and the measure of SAC relief. *See WFA/Basin I* at 134-35. Consumers' computations of the pattern of capital recovery apply this approach. *See* Exhibit III-H-1.

Finally, Consumers has incorporated the adjustment to the terminal value of the CERR that the Board addressed in *AEPCO 2011* and *Sunbelt*. *AEPCO 2011* at 140-41; *Sunbelt* at 192-194.

Part III-H – Results of SAC Analysis

III. H. RESULTS OF SAC ANALYSIS

1. Results of SAC DCF Analysis

The results of the SAC DCF analysis conducted by Consumers' experts[1] are shown in Exhibit III-H-1. The calculations shown in each table of Exhibit III-H-1 are summarized below.[2]

a. Cost of Capital

The cost of capital for the CERR reflects the Board's annual cost of capital determinations for 2012, 2013 and 2014. The weighted average of the available years' capital costs is used through the remaining years of the DCF model.

b. Road Property Investment Values

The calculation of road property investment costs is summarized in Table C of Exhibit III-H-1.

c. Interest During Construction

Interest During Construction ("IDC") accrues on the road property assets of the CERR. Table D of Exhibit III-H-1 shows the total IDC amount and the portion that is debt-related. IDC is calculated based on the investment values in Table C, the composite cost of capital by year from Table A, and the assumed length of the finance period for each account. The construction schedule

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[1] This Part III.H is being sponsored Consumers Witnesses Thomas D. Crowley and Daniel L. Fapp.

[2] Consumers addresses the cost of capital (Table A) and inflation indices (Table B) in Part III.G.

described in Part III.F.12 (July 2012-December 2014) is used as the basis for the length of the finance period for the DCF model. The portion of IDC that is debt-related is calculated by multiplying the investment by the length of the finance period, the CERR's debt percentage, and the annual cost of debt for the year of investment. Debt-related IDC is shown as an interest deduction for tax purposes during the construction period.

d. <u>Interest On Debt Capital</u>

As discussed in Part III-G-1, the CERR's approach to debt capital mirrors the debt actually issued by CSXT and the other U.S. Class I railroads included in the Board's annual cost of capital determination. Reflecting current industry practice, the CERR will make fixed coupon payments of interest on its debt, re-issuing new debt instruments (and starting new coupon interest payments) as debt issuances mature. Consumers has included a schedule of future interest payments in Table E of Exhibit III-H-1.

e. <u>Present Value of Replacement Cost</u>

Table F of Exhibit III-H-1 shows the additional investment (on a present value basis) required to make each of the CERR's assets (excluding land) continue indefinitely at the end of its useful life. The 2012-2014 average cost of capital values are used to calculate replacement value for road property assets.[3] This calculated investment is added to the initial investment in Table I prior to determining the quarterly cash flows.

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[3] *See* e-workpaper "Exhibit III-H-1.xlsm," tab "Replacement," cell K18.

f. **Tax Depreciation Schedules**

Table G of Exhibit III-H-1 displays the tax depreciation allowed under the Federal Tax Code as currently in effect.[4] Depreciation was calculated assuming a mid-quarter convention, with assets placed in service in the first quarter. Investments in communications (Account 26), signals and interlockers (Account 27), and the track accounts (Accounts 8-12) were depreciated over seven years, employing a 200 percent declining balance methodology, then switching to straight-line depreciation when the straight line percentage exceeds the declining balance percentage. Investments in bridges and culverts (Account 6), public improvements (Account 39), fences and roadway signs (Account 13), roadway buildings (Account 17), fuel stations (Account 19), shops and engine houses (Account 20), and public improvements (Account 39) were depreciated over 20 years using a 150 percent declining balance method, and then switching to straight-line depreciation at the point when the straight line percentage exceeds the declining balance percentage. Investments in grading (Account 3) were amortized over 50 years using straight-line amortization. Investments in engineering (Account 1) were amortized over five (5) years using straight-line amortization. These reflect the MACRS schedules and asset lives used and accepted by the Board in prior SAC proceedings.

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[4] The mandatory method for depreciating most tangible property placed in service after December 31, 1986 is MACRS. In addition, Engineering Costs have been amortized over a 60-month period, starting with the month in which the business begins.

The CERR will take advantage of additional or "bonus" depreciation provisions enacted in 2010, 2012 and 2014 as part of federal economic stimulus legislation. The Tax Relief, Unemployment Compensation Reauthorization, and Job Creation Act of 2010 provided bonus depreciation on capital investments with MACRS recovery periods of 20 years or less through 2012.[5] The American Taxpayer Relief Act of 2012 extended this bonus depreciation into 2013, while the Tax Increase Prevention Act of 2014 did so through 2014.[6]

Table G of Exhibit III-H-1 displays the amount of bonus depreciation available to the CERR.

g. <u>Average Annual Inflation in Asset Prices</u>

Table H of Exhibit III-H-1 computes the average annual inflation rate by which the capital recovery charge in Table I is indexed. The weighted average inflation rate was used because Table H calculates the required capital recovery necessary to return the investment. All road property and equipment accounts are indexed at the quarterly rates shown in Table B of Exhibit III-H-1. The weighted average inflation rates are based on the inflation indexes discussed in Part III.G.

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[5] *See* e-workpaper "2010 Tax Relief Job Creation Act.pdf" at page 6.

[6] *See* e-workpapers "American Taxpayer Relief Act of 2012.pdf" at page 9 and "Tax Increase Prevention Act of 2014.pdf" at pages 2-3.

h. **Discounted Cash Flow**

Table I of Exhibit III-H-1 shows the calculation of the capital carrying charge and associated flow of funds required to recover the total road property investment and equipment investment. Inputs to this spreadsheet were taken from the Tables described *supra.* Table I calculates the quarterly capital carrying charge required over the 40 quarters of the DCF period, after consideration of the applicable tax liability.

The total start-up investment is comprised of the road property and equipment investment shown in Table C, the road property IDC calculated in Table D, and the present value of replacement investment calculated in Table F.[7] The result equals the total investment to be recovered over the life of the CERR from the quarterly capital recovery stream. The quarterly capital recovery stream reflects the tax benefits associated with interest on the investment financed with debt from Table E, and the asset tax depreciation from Table G.

The cash flow shown in Column (8) of Table I is the amount remaining each quarter after the payment of federal and state tax liabilities. This cash flow is used for payment of return on total investment in the CERR, *e.g*, the principal involved with financing the railroad with debt and return to equity shareholders. For road property investment included in the DCF, this quarterly figure is then discounted by the fourth root of the composite annual cost of capital

[7] In addition, capitalized rail grinding maintenance of way expenses are included in the discounted cash flow calculation.

from Table A. The present value cash flow is then summed for each quarter along with the future cash flow; the total equals the total cost that must be recovered. The future cash flow is the residual value of the CERR's unconsumed assets, and the present value of future interest payments and remaining tax liabilities (remaining interest and depreciation), and serves to reflect the cash flow required to account for the value of the assets not consumed during the 10-year life of the DCF model. Consumers also adjusts the terminal value of the CERR in accordance with the STB's decision in *AEPCO 2011*.[8] Likewise, Consumers adjusts "the terminal value in the capital carrying charges to reflect the cost of capital assumption that the SARR's level of debt is held constant into perpetuity, and that interest tax shields consistent with this level of debt are accounted for in the cash flow calculation." *Sunbelt* at 192.[9]

The development of the quarterly levelized capital carrying charge requirement is a straightforward calculation, *i.e.,* starting capital carrying charge requirement times the quarterly index factor from Table H, which will recover total investment during the 10-year DCF model period. The starting capital carrying charge requirement which recovers the total investment is developed through an iterative process. The DCF model begins with a specified amount and then runs through the calculation described above to develop the cumulative present value of the cash flow. If this cumulative number does not equal the total

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[8] *See AEPCO 2011* at 140-41.

[9] *See* e-workpaper "Exhibit III-H-1.xlsm," tab "Investment SAC," cell F63.

costs to be recovered from the quarterly revenue flow (start-up investment plus the present value of the replacement investment), the starting cost is adjusted upward or downward as necessary and the DCF model runs through the calculations again. The process is repeated until the starting quarterly charge yields a cumulative present value cash flow which equals the required investment to be recovered from the quarterly capital recovery flow.

i. Computation of Tax Liability – Taxable Income

Table J, Part 1 of Exhibit III-H-1 displays the calculation of the CERR's federal tax liability. The procedures followed to develop the federal tax liability are discussed in Part III.G. Table J, Part 2 shows the calculation of the CERR's state income tax liability.

j. Operating Expenses

Table K-Part 1 of the DCF model displays the operating expenses incurred in each year of the DCF period based on the traffic levels described in Part III.A. Annual operating expenses that change with the level of traffic volumes are adjusted by the annual change in net ton-miles to take into consideration the shifting nature of the CERR's traffic.[10] The operating expenses

[10] For example, assume that in Year 1 of the 10-year period, Movement A transports 100,000 net tons over 10 miles of the SARR, producing 1.0 million net ton-miles of traffic (100,000 net tons x 10 miles = 1,000,000 net ton-miles). In Year 2, Movement A is forecasted to be discontinued, but is replaced in the SARR traffic group by Movement B. Movement B also transports 100,000 net tons, but moves over 100 miles of the SARR, producing 10,000,000 net ton-miles (100,000 net tons x 100 miles = 10,000,000 ton-miles). Even though both Movement A and Movement B represent 100,000 tons of traffic annually, Movement B will be more

adjusted by the change in ton-miles include (but are not limited to) train and engine personnel expenses, locomotive related expenses, loss and damage expenses, trackage rights fees and intermodal lift costs.

Table K-Part 2 states the annual operating costs on a quarterly basis, and indexes them to reflect inflation over the 10-year analysis period based on the inflation rates shown in Table B.

k. Summary of SAC

Total SAC for the CERR based on its investment and operating costs is summarized in Table L of Exhibit III-H-1. The capital requirement from Table I and the annual operating expenses from Table K-Part 2 are presented and summed in Table L for each year of the CERR's operation.

2. Maximum Rate Calculations

The SAC analysis summarized in Parts III-A through III-G and the accompanying Exhibits, and displayed in Exhibit III-H-1, demonstrates that over the 10-year DCF period the revenues generated by the CERR exceed its total capital and operating costs. Table III-H-1 below shows the measure of excess revenue over SAC in each year of the DCF period for this case.

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expensive to move than Movement A, given the lower aggregate costs associated with a shorter movement and the 900 percent increase in ton-miles. Adjusting costs by the change in ton-miles instead of the change in tons reflects the shifting nature of the SARR's traffic mix and its actual impact on the SARR's operating costs.

TABLE III-H-1 **SUMMARY OF DCF RESULTS – JAN. 1, 2015 TO DECEMBER 31, 2024** **($ in millions)**					
Year (1)	Annual Stand-Alone Requirement (2)	Stand-Alone Revenues (3)	Overpayments or Shortfalls (4)	PV Difference (5)	Cumulative PV Difference (6)
2015	$112.8	$139.4	$26.6	$25.1	$25.1
2016	$109.3	$124.3	$15.0	$12.6	$37.6
2017	$119.1	$157.7	$38.6	$28.9	$66.5
2018	$123.8	$158.7	$34.9	$23.2	$89.7
2019	$129.0	$164.0	$35.0	$20.7	$110.3
2020	$134.5	$179.7	$45.2	$23.7	$134.1
2021	$138.5	$186.3	$47.8	$22.3	$156.4
2022	$144.7	$200.9	$56.1	$23.3	$179.7
2023	$149.7	$202.6	$52.9	$19.6	$199.3
2024	$157.6	$223.8	$66.2	$21.8	$221.1
Source: e-workpaper "Exhibit III-H-1.xlsm," tab "Netting," cells P12 to W21.					

Where, as in this case, stand-alone revenues are shown to exceed costs, rates for the members of the CERR traffic group – including Consumers in particular – must be adjusted to bring revenues and SAC into equilibrium. In *Major Issues*, the Board adopted MMM as its rate prescription approach for use in proceedings under the *Coal Rate Guidelines*. *See Major Issues* at 14-23.

Under MMM, maximum reasonable rates for each year of the DCF period are expressed as a ratio of each movement's stand-alone revenues to the variable cost of providing the subject service over the CERR route. Revenues are expressed as each movement's annual stand-alone revenue calculated using the ATC methodology detailed in Part III-A-3. Revenues are categorized based on traffic type (*i.e.,* coal and other carload traffic, and intermodal), CSXT origin and destination, and CERR origin and destination. Variable costs for each movement are calculated using 2014 CSXT Phase III URCS costs applied to the nine (9) cost inputs identified in *Major Issues*.[11]

To project the CSXT Phase III URCS variable costs for each of the movements in the CERR traffic group, Consumers used the *OG&E* URCS indexing procedures. This procedure was recently approved by the Board. *Sunbelt* at 196; *DuPont* at 286-86.

The STB's URCS index uses five indexes: the AAR's (1) Wage, (2) Wage Supplements, (3) Materials and Supplies and (4) Fuel Indices, and (5) the Producer Price Index – All Commodities ("PPI"), which are weighted by actual railroad costs reported in Annual Report Form R-1. IHS Economics publishes forecasts for each of the first four indices, and the Board already accepts IHS Economics' forecasts of the first three for use in the DCF model. The fuel forecast is included in the same documentation. Likewise, EIA – whose coal production, transportation cost and GDP-IPD forecasts already are accepted by the Board – publishes a PPI forecast. To forecast CSXT URCS Phase III variable costs for MMM purposes, therefore, Consumers uses the STB's URCS index, with the October 2015 IHS Economics' and EIA's June 2015 forecasts of its components. Weighting factors are taken from CSXT's 2014 Annual Report Form R-1 data.

[11] Consistent with Board precedent, a tenth variable, service type, was used when developing URCS unit costs for intermodal traffic.

Following the calculation of the specific annual variable costs for each movement, Consumers calculated each movement's maximum contribution toward SAC each year, expressed as a mark-up over the movement's variable costs. Under MMM, a movement cannot contribute more to SAC than the contribution reflected in the mark-up of its current, actual or forecasted rate over variable cost. For each year in the DCF period, the MMM model sets each movement's R/VC ratio at the lesser of the average R/VC ratio required to cover total SAC, or the movement's actual R/VC ratio. The average R/VC ratio required to cover SAC then is iteratively increased until no movement in the traffic group is assigned a share of SAC greater than its actual contribution over variable costs as measured by its R/VC ratio, and the aggregate adjusted stand-alone revenues equal total SAC.[12] *Major Issues* at 14.

Application of MMM yields the following maximum R/VC ratios for Consumers' Campbell coal traffic for each year of the DCF model:

[12] According to the Board, this step reflects the assumption that the rates charged by CSXT on all non-issue traffic are profit-maximizing rates, such that the reapportionment represents "an appropriate application of demand-based differential pricing." *Major Issues* at 14.

TABLE III-H-2 MMM RESULTS	
Year	**Maximum R/VC**
2015	351.4%
2016	406.7%
2017	304.2%
2018	319.0%
2019	321.1%
2020	293.3%
2021	284.7%
2022	264.6%
2023	266.3%
2024	239.6%
Source: Exhibit III-H-2.	

As indicated in Table III-H-2, the maximum R/VC ranges from 239.6% to 406.7% over the 10-year DCF period.

As applied to the unadjusted Phase III URCS variable costs for the issue movements, the following MMM maximum reasonable rates apply to shipments to Campbell from the Chicago interchange at the 1Q15 wage and price levels:

TABLE III-H-3 CONSUMERS MMM RATES PER TON – 1Q15 MAXIMUM REASONABLE RATES FOR COAL MOVEMENTS TO CAMPBELL			
CSXT Origin	**Car Type**		**1Q15**
Chicago, IL	Gondola		$10.02
Chicago, IL	Hopper		$9.91
Source: e-workpaper "1Q15 to 3Q15MMM Rates.xlsx," worksheet "Rates," cells D22 and E22.			

The maximum lawful rates for the transportation of coal from the origin covered by Tariff CSXT-13952, Amendment 1, equals the greater of the jurisdictional threshold or the MMM maximum rates. Table III-H-4 compares CSXT's rates to Consumers as of January 1, 2015 to the jurisdictional threshold and the MMM maximum. The issue rates are greater than both the jurisdictional threshold and the MMM rates.

TABLE III-H-4
MAXIMUM RATE SUMMARY FOR 1Q15 TO 3Q15

Quarter	CSXT Rate Level (Including fuel surcharge)	Jurisdictional Threshold per Ton	MMM Rate Per Ton	Maximum Rate Per Ton[1/]
Gondola				
1Q 2015	$14.95	$5.13	$10.02	$10.02
2Q 2015	$14.95	$5.20	$10.16	$10.16
3Q 2015	$14.95	$5.17	$10.09	$10.09
Hopper				
1Q 2015	$14.95	$5.08	$9.91	$9.91
2Q 2015	$14.95	$5.15	$10.05	$10.05
3Q 2015	$14.95	$5.11	$9.98	$9.98

[1/] The Maximum Rate Per Ton equals the greater of the Jurisdictional Threshold or MMM Rate per ton.

Source: e-workpaper "1Q15 to 3Q15MMM Rates.xlsx," worksheet "Rates," cells D12 and E29.

3. Reparations

As described in Part I, Consumers has been paying rates under Tariff CSXT-13952, Amendment 1, in excess of the maximum reasonable rates per ton since January 1, 2015. CSXT thus owes Consumers the difference between the rates paid and the lawful maximum levels in principal reparations payments. Such principal will increase until CSXT complies with a final order of the Board in this proceeding. Consumers also is entitled to interest on all principal reparations amounts, calculated from the date that the first unlawful charge was paid at the rate assessed under CSXT-13952, and otherwise in accordance with 49 C.F.R. § 1141.1, *et seq*.

The Board's regulations (49 C.F.R. § 1141.1, *et seq.*) provide for interest at the U.S. Prime Rate as published by the Wall Street Journal, updated and compounded for each change in the published rate. *See also Rate Regulation Reforms* at 35-36, 41.

Part IV – Revenue Adequacy

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY	)	
Complainant,	)	
v.	)	**Docket No. NOR 42142**
CSX TRANSPORTATION, INC.	)	
Defendant.	)	

PART IV

REVENUE ADEQUACY

Consumers' revenue adequacy claim in this case encompasses two core issues. The first is whether CSXT has achieved revenue adequacy within the meaning of 49 U.S.C. § 10704(a)(2) and the *Coal Rate Guidelines*. The second is the appropriate measure of relief under the *Guidelines*' Revenue Adequacy Constraint, assuming that CSXT is considered revenue adequate.[1]

[1] As discussed in Part I, unambiguous agency precedent clearly establishes that the Revenue Adequacy Constraint is separate and independent of the SAC Constraint, and that Consumers has the right to pursue relief under both in this case. Thus, the unreasonableness of the rate increase that CSXT imposed on Consumers' Campbell traffic as of January 1, 2015 under the Revenue Adequacy Constraint entitles Consumers to commensurate relief irrespective of the ultimate result of the Board's application of the SAC Constraint. If, as Consumers' evidence shows, the maximum reasonable SAC rate is lower than the rate in effect prior to the increase that CSXT imposed on January 1, 2015 under Tariff CSXT-13952, then the relief to which Consumers is entitled would be determined by the SAC test.

As demonstrated below, CSXT has achieved genuine revenue adequacy on a long-term basis, meeting the specifications of both 49 U.S.C. § 10704(a)(2) and the *Coal Rate Guidelines*. Since CSXT is revenue adequate by any reasonable measure, then consistent with the *Coal Rate Guidelines*, the January 1, 2015 rate increase that CSXT imposed on coal delivery service to Campbell was unreasonable and unlawful, and CSXT should be directed to cancel it. Subject to the additional relief to which Consumers is entitled under the SAC Constraint, CSXT should be prohibited from charging Consumers a higher Campbell rate than that in effect on December 31, 2014, adjusted only for actual inflation as measured by the Rail Cost Adjustment Factor, adjusted for productivity ("RCAF-A"). This remedy is consistent with the Board's application of the Revenue Adequacy Constraint in *CF Industries, Inc. v. Koch Pipeline Company, L.P.,* 4 S.T.B. 637, 656-62 (2000), *aff'd sub nom. CF Indus., Inc. v. S.T.B.*, 255 F.3d 816, 828 (D.C. Cir. 2001).

Evidence presented in this Part IV is sponsored by Consumers' expert witness Dr. John Hennigan, whose full Report ("Hennigan Report") appears as Exhibit IV-1.

A. THE BOARD's ROI=COC TEST

1. Application of the ROI=COC Test Does Not Demonstrate that CSXT Is Revenue Inadequate

Pursuant to 49 U.S.C. § 10704(a)(3), the Board makes annual "snapshot" determinations of which carriers have achieved a version of revenue adequacy measured by the relationship between a railroad's calculated return on net investment ("ROI") and a Board-determined industry average cost of capital ("COC").[2] In denying CSXT's motion to dismiss Consumers' revenue adequacy count in this case, the Board made clear that these annual findings are not determinative under the *Guidelines*' Revenue Adequacy Constraint, and ratified pre-ICCTA precedent that "any other competent and probative evidence relative to the carrier's revenue adequacy may be submitted in individual rate reasonableness proceedings." *See Consumers Energy Co. v. CSX Transp., Inc.*, NOR 42142 (STB served June 11, 2015), at 2 (quoting *Bituminous Coal–Hiawatha, Utah, to Moapa, Nev.,* 6 I.C.C.2d 1, 7 n.24 (1989)).

During the period 2010-2014, the Board annually found CSXT's ROI to be numerically lower than the industry COC, by relatively small margins:

[2] The theory underlying the ROI=COC test is that a firm that fails to earn its COC will be unable to attract or retain the capital that it needs in order to sustain its operations. As shown *infra*, for many years CSXT has had no difficulty attracting, generating and retaining sufficient capital to meet its needs.

TABLE IV-1 COMPARISON OF STB COC TO CSXT ROI			
Year	STB Cost of Capital	CSXT ROI	ROI Deficit (in basis points)
2010	11.03%	10.85%	18
2011	11.57%	11.54%	3
2012	11.12%	10.81%	31
2013	11.32%	10.0%	132
2014	10.65%	10.18%	47
Average	11.14%	10.68%	46
Source: e-workpaper "RA.xlsx," tab "Table 1." STB COC and CSXT ROI values are taken from the STB's annual revenue adequacy determinations.			

Even assuming *arguendo* that the STB's COC methodology is sound, the results of its ROI=COC test constitute statistical estimates, not precise measures of financial health. As explained in the Hennigan Report at 5-6, Exhibit 1 of his Appendix, and associated e-workpaper "RA.xlsx," tab "Exhibit 1," a simple test of the gap between CSXT's ROI and the Board's COC estimates from 2010-2014 shows that it is not statistically different from zero at the 5% level of significance. Accordingly, while the numerical values of CSXT's ROI are slightly less than the railroad industry COC as estimated by the Board, the actual statistical difference between these values is zero with a 95% confidence. Using the Board's "snapshot" test, the most that can be rationally concluded from an economics perspective is that CSXT's returns approximately meet the industry's average cost of capital, as the Board currently measures it. As Consumers shows below and as Dr. Hennigan's analysis confirms, however, when measured against a properly-calculated industry average {

} cost of capital, CSXT's returns show a financial status that far surpasses the revenue adequacy threshold, even as measured by the ROI=COC test.

In this Part IV, Consumers presents evidence of CSXT's financial health and performance in a variety of contexts, measured over at least a four-year period. Use of a four-year time period to assess CSXT's long-term revenue adequacy is consistent with the approach that the Board adopted for calculating the railroads' annual RSAM and R/VC>180 ratios in applying the Three Benchmark rate reasonableness methodology, in cases where use of the SAC test is too costly or impractical. *Simplified Standards for Rail Rate Cases*, EP 646 (Sub-No. 1) (STB served Sept. 5, 2007), at 20 ("[I]n a rate case, we will not rely on the figures from a single year, but will use a 4-year average when possible."); *Rate Guidelines – Non-Coal Proceedings,* 1 S.T.B. 1004, 1032-33 (1996) (explaining that annual fluctuation in revenue "[is] not surprising given the cyclical nature of railroad traffic, and the effect can be minimized by applying a multi-year average (we use a 4-year averaging period), so as to smooth out annual variations and minimize the impact of any year that may have been aberrational for that carrier").[3] The four-year measurement period also reflects the observation in the *Guidelines* that the revenue adequacy determination should account for the fact that business cycles can include individual years of excess and shortfall, and that railroads should not

[3] Such an approach was endorsed for use in revenue adequacy determinations by then-ICC Commissioner Clapp in *Standards for Railroad Revenue Adequacy*, 364 I.C.C. 803, 824 (1981) ("*Ex Parte No. 393*").

be forced to "continually readjust" rates in order to keep revenues exactly at the break-even point. 1 I.C.C.2d at 536.

2. **<u>The ROI=COC Test with an Appropriate CAPM COC</u>**

The Comments and Reply Comments of the Western Coal Traffic League in *EP 664 (Sub-No. 2)*, which Consumers endorses and adopts for purposes of this proceeding,[4] set out in detail the specific reforms that should be adopted by the Board to correct flaws in its current approach to estimating the equity portion of the COC. Specifically, and by way of succinct summary, the COE should: (a) utilize only the Capital Asset Pricing Model (CAPM), and not the Multi-Stage Discounted Cash Flow (MSDCF) model now in use, in order to conform to standard practice within the financial and investment communities and to avoid the errors and inaccuracy in the MSDCF; (b) use a 50-year historical market risk premium ("MRP") to better conform to the current expectations and practices of investors; and (c) apply a Blume adjustment to the observed beta in the CAPM to improve long-term accuracy and better reflect opportunity costs.[5] Hennigan Report at 37-41.

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[4] *Petition of the Western Coal Traffic League to Institute a Rulemaking Proceeding to Abolish the Use of the Multi-Stage Discounted Cash Flow Model In Determining the Railroad Industry's Cost of Equity* Capital, EP 664 (Sub-No. 2), Comments filed Sept. 5, 2014, Reply Comments filed Nov. 4, 2014, and Supplemental Comments filed Aug. 6, 2015. In the interest of economy, Consumers will not repeat or reproduce WCTL's arguments in full here, as they are a matter of public record.

[5] In addition, the COC should be calculated in a manner that recognizes off-balance sheet debt, as discussed *infra*.

Making these changes would lead to a more accurate COC that also would affect the outcome of the ROI=COC test as applied to CSXT. Hennigan Report at 41-49. The following table applies the test assuming that the COC is calculated utilizing only the CAPM, with a rolling 50-year historical MRP and a Blume adjustment:

TABLE IV-2
COMPARISON OF CAPM-ONLY COC
WITH A 50-YEAR MRP AND BLUME-ADJUSTED
BETA TO CSXT ROI

Year	CAPM Cost of Capital with 50-Year MRP and Blume Beta Adjustment	CSXT ROI	COC Surplus (in basis points)
2010	7.94%	10.85%	291
2011	7.15%	11.54%	439
2012	6.51%	10.81%	430
2013	7.96%	10.00%	204
2014	7.67%	10.18%	251
Average	7.45%	10.68%	323

Source: e-workpaper "RA.xlsx," tab "Table 21."
CSXT ROI values taken from annual STB revenue adequacy determinations.

The table shows that CSXT has been numerically revenue adequate in each of the past five years by a very healthy margin, with its ROI exceeding the COC by an average of 43% of the COC itself over that period. With a properly formulated COC, CSXT more than satisfies the ROI=COC test for assessing revenue adequacy.

The same results are found if the ROI=COC test is applied using a CSXT-specific COC calculated in the same manner, using: (a) CAPM only; (b) the 50-year historical MRP; (c) CSXT's debt-equity capital structure as determined by the Board; (d) a Blume-adjusted CSXT beta; and (e) CSXT's cost of debt as determined by the Board. Hennigan Report at 49-60. The following table presents that analysis:

TABLE IV-3
COMPARISON OF CSXT-SPECIFIC CAPM-ONLY COC WITH A 50-YEAR MRP AND BLUME-ADJUSTED BETA TO CSXT ROI

Year	CSXT CAPM Cost of Capital w/ a 50-Year MRP and Blume Beta Adjustment	CSXT ROI	COC Surplus (in basis points)
2010	7.91%	10.85%	294
2011	7.11%	11.54%	443
2012	6.43%	10.81%	438
2013	7.79%	10.00%	221
2014	7.52%	10.18%	266
Average	7.35%	10.68%	332

Source: e-workpaper "RA.xlsx," tab "Table 29."
CSXT ROI values taken from annual STB revenue annual adequacy determinations.

3. { }

{

[6] The materials, included as {

} The documents consist largely of presentations from senior management to the Finance Committee of the CSX Corporation Board of Directors, or to the full Board itself.

[7] It is reasonable to assume that the reclassified leases are operating leases (since capital leases are treated as balance sheet debt under GAAP). S&P treats both operating leases and unfunded retiree liabilities (pension and health care) as debt. *Standard & Poor's Encyclopedia Of Analytical Adjustments For Corporate Entities* (July 9, 2007) at 25-28; *see also* Anil Shivdasani & Irina Stefanescu, *How Do Pensions Affect Corporate Capital Structure Decisions?*, 23 Rev. Fin. Stud. 1287 (2010). *See* e-workpapers "RA-SPEnclyclopedia.pdf" and "RA-Shivdasani.pdf" (earlier version of published article). CSXT appears to utilize balance sheet debt instead of the Board's calculation of the market value of debt.

[8] CSXT's production included {

}

}

B. THE STATUTORY REVENUE ADEQUACY CRITERIA

The statutory standard for revenue adequacy in 49 U.S.C. § 10704(a)(2) is set forth as follows:

> (2) The Board shall maintain and revise as necessary standards and procedures for establishing revenue levels for rail carriers providing transportation subject to its jurisdiction under this part that are adequate, under honest, economical, and efficient management, to cover total operating expenses, including depreciation and obsolescence, plus a reasonable and economic profit or return (or both) on capital employed in the business. The Board shall make an adequate and continuing effort to assist those carriers in attaining revenue levels prescribed under

> this paragraph. Revenue levels established under this paragraph should—
>
> (A) provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, and cover the effects of inflation; and
>
> (B) attract and retain capital in amounts adequate to provide a sound transportation system in the United States.

49 U.S.C. § 10704(a)(2).

A logical starting point to examine potential gauges of revenue adequacy beyond the ROI=COC test – which the Board has affirmed is not dispositive under the *Guidelines* – is the statutory definition and the available data that is relevant to its various elements. As Dr. Hennigan addresses in detail in his Report, consideration of the statutory criteria compels the conclusion that CSXT earns adequate revenues. *See* Hennigan Report at 9-25.

1. Revenues to Cover Operating Expenses and Profit

Revenue adequacy is first framed in 49 U.S.C. § 10704(a)(2) as revenue levels that "are adequate, under honest, economical, and efficient management, to cover total operating expenses, including depreciation and obsolescence, plus a reasonable and economic profit or return (or both) on capital employed in the business." CSXT's own financial data show that CSXT has met this standard, at least since 2010. The following table presents excerpts from CSXT's Consolidated Income Statement for the period from 2010 through 2014:

TABLE IV-6
EXCERPTS FROM CSXT'S CONSOLIDATED INCOME STATEMENTS
2010-2014
(Dollars in millions)

	Fiscal Years				
	2010	2011	2012	2013	2014
Revenue	$10,636	$11,795	$11,763	$12,026	$12,669
Expense					
Labor and Fringe	2,957	3,073	3,020	3,138	3,377
Materials, Supplies and Other	2,075	2,229	2,156	2,275	2,484
Fuel	1,212	1,668	1,672	1,656	1,616
Depreciation	947	976	1,059	1,104	1,151
Equipment and Other Rents	374	379	392	380	428
Total Expense	7,565	8,325	8,299	8,553	9,056
Operating Income	3,071	3,470	3,464	3,473	3,613
Interest Expense	(557)	(552)	(566)	(562)	(545)
Other (Expense) Income -Net	32	22	73	11	(24)
Earnings Before Income Taxes	2,546	2,940	2,971	2,922	3,044
Income Tax Expense	(983)	(1,086)	(1,108)	(1,058)	(1,117)
Net Earnings	$1,563	$1,854	$1,863	$1,864	$1,927
Per Common Share					
Net Earnings per Share					
Basic	$1.37	$1.71	$1.80	$1.83	$1.93
Assuming Dilution	$1.35	$1.70	$1.79	$1.83	$1.92
Average Common Shares Outstanding (Millions)					

Basic	1,143	1,083	1,038	1,019	1,001
Assuming Dilution	1,154	1,089	1,040	1,019	1,002
Cash Dividends Paid Per Common Share	$0.33	$0.45	$0.54	$0.59	$0.63
Source: CSX 2012 Annual Report at 59 (for 2010); CSX 2013 Annual Report at 45 (for 2011); CSX 2014 Annual Report at 57 (for 2012-2014); e-workpapers "RA.xlsx," tab "Table 3," and "RA-Table3.pdf."					

In each year, the revenue levels shown in the first row of the table are more than sufficient to cover total operating expenses, including depreciation, interest, income taxes, and the other expenses shown, and actually generate substantial and growing net earnings, starting at $1.563 billion in 2010 and growing to $1.927 billion in 2014, an increase of 23%. On a per share basis, the growth in earnings has been even greater, from $1.35 in 2010 to $1.92 in 2014 (fully diluted basis), amounting to 41%. The fact that earnings per share have increased faster than total earnings is attributable to stock repurchases that reduce the total number of shares outstanding, *i.e.,* 1,154 million shares in 2010 and 1,002 million shares in 2014, a decrease of 13%. As discussed *infra*, the repurchases are another reflection of revenues sufficient to meet capital needs. Cash dividends per share also have risen from 33 cents in 2010 to 63 cents in 2014, an increase of over 90%. Hennigan Report at 11-12.

That CSXT has generated a reasonable economic profit and return sufficient to attract investment is further confirmed by the following chart, Table

IV-7,[9] which compares the stock performance of CSXT over the relevant period to that of the S&P 500:

TABLE IV-7
STOCK MARKET PERFORMANCE – CSX VERSUS S&P 500
2008-2015

Source: Bloomberg Finance – Comparison of CSX stock index against S&P 500 index - January, 2008=100; e-workpapers "RA.xlsx," tab "Table 4," and "RA-Table4.pdf;" Hennigan Report at 13.

The chart shows that beginning with the decline in the United States stock market in 2008, through the market recovery beginning in 2009, and up through July 20, 2015, CSXT has enjoyed stock appreciation of 118.0%, as

[9] This chart, and others, have been denominated as tables to facilitate ease of reference and permit consecutive numbering. Dr. Hennigan utilized Bloomberg as the source of data for CSX and S&P 500 values, as well as related beta calculations for the CSXT-specific COC, as a matter of convenience, as information on the performance of CSX and the S&P 500 is available from a range of sources. The Board has accepted the use of Bloomberg data for other purposes. *See, e.g., Railroad Cost of Capital - 2011*, EP 558 (Sub-No. 15) (STB served Sept. 13, 2012), at 4 (finding Bloomberg to be a credible provider of financial data).

compared to 44% appreciation in the S&P 500 stock index. An equivalent comparison starting from March 2, 2009, which marks the lowest point for the values of both CSXT and the S&P 500 during the recession, shows CSXT stock appreciation of 282%, as compared to 175% appreciation in the S&P 500 stock index. Measured from either starting point, CSXT's stock has outpaced the S&P 500 by a substantial amount. In spite of the difficulties that confronted the United States economy in 2008-2009, CSXT's financial performance and its profits plainly have been more than sufficient to attract investment. Hennigan Report at 13-14.

2. **Income Adequate to Support Capital Outlays, Repay Debt, Permit the Raising of Capital, and Cover Inflation**

The statute at 49 U.S.C. § 10704(a)(2)(A) states that adequate revenues should "provide a flow of net income plus depreciation adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, and cover the effects of inflation." CSXT's revenues are more than sufficient to meet each of these requirements.

The following table provides excerpts from CSXT's consolidated cash flow statements for the period 2010-2014:

TABLE IV-8 CSXT'S CASH FLOWS 2010-2014 (Dollars in Millions)								
			Fiscal Years					
Row	**Description**	**Source** [a]	**2010**	**2011**	**2012**	**2013**	**2014**	**Average**
(a)	Net Earnings	App. Ex. 2, Row (1)	$1,563	$1,854	$1,863	$1,864	$1,927	$1,814
(b)	Depreciation	App. Ex. 2, Row (2)	$947	$976	$1,059	$1,104	$1,151	$1,047
(c)	Net Earnings Plus Depreciation	App. Ex. 2, sum of Rows (1) and (2)	$2,510	$2,830	$2,922	$2,968	$3,078	$2,862
(d)	Deferred Income Taxes	App. Ex. 2, Row (3)	$474	$609	$592	$300	$298	$455
(e)	Other Operating Cash Flow	App. Ex. 2, sum of Rows (4) through (11)	$277	$52	-$568	-$1	-$33	-$55
(f)	Operating Cash Flow	App. Ex. 2, Row (12)	$3,261	$3,491	$2,946	$3,267	$3,343	$3,262
(g)	Property Additions	App. Ex. 2, Row (13)	$1,840	$2,297	$2,341	$2,313	$2,449	-$2,248
(h)	Proceeds from Property Dispositions	App. Ex. 2, Row (16)	$108	$240	$186	$53	$62	$130
(i)	Other Investing Cash Flow	App. Ex. 2, sum of Rows (14), (15) and (17)	-$39	-$530	-$122	$33	$204	-$91
(j)	Investing Cash Flow	App. Ex. 2, Row (18)	$1,771	$2,587	$2,277	$2,227	$2,183	-$2,209
(k)	Long-Term Debt Issued	App. Ex. 2, Row (19)	$800	$1,200	$1,100	$500	$1,000	$920
(l)	Long-Term Debt Repaid	App. Ex. 2, Row (20)	-$113	-$605	-$508	-$780	-$933	-$588
(m)	Net Increase in Long-Term Debt	App. Ex. 2, sum of Rows (19) and (20)	$687	$595	$592	-$280	$67	$332
(n)	Dividends Paid	App. Ex. 2, Row (21)	-$372	-$480	-$558	-$600	-$629	-$528
(o)	Shares Repurchased	App. Ex. 2, Row (23)	$1,452	$1,564	-$734	-$353	-$517	-$924
(p)	Other Financing Cash Flow	App. Ex. 2, Sum of Rows (22) and (24)	-$90	$36	$32	$1	-$4	-$5
(q)	Financing Cash Flow	App. Ex. 2, Row (25)	$1,227	$1,413	-$668	$1,232	$1,083	-$1,125

[a] Hennigan Report, Appendix, Exhibit 2; e-workpapers "RA.xlsx," tabs "Table 5" and "Exhibit 2," and "RA-Table5.pdf;" Hennigan Report at 14-15.

The above data is utilized in the following analysis of the adequacy of CSXT's cash flows.

a. Prudent Capital Outlays

CSXT's net capital outlays have averaged $2.248 billion annually during the period from 2010 to 2014, as shown in Table IV-8. These investments are substantial. The following table analyzes CSXT's capital expenditures as a percentage of its revenues, which is a standard metric for viewing the adequacy of capital expenditures:

TABLE IV-9
CAPITAL EXPENDITURES/REVENUES
2010-2014

Year	Capital Expenditures (billions)	Revenues (billions)	Percentage Ratio
2010	$1.840	$10.636	17.3%
2011	$2.297	$11.795	19.5%
2012	$2.341	$11.763	19.9%
2013	$2.313	$12.026	19.2%
2014	$2.449	$12.669	19.3%
Average	$2.248	$11.777	19.1%
Total	$11.240	$58.889	19.1%

Source: CSX SEC Annual Reports (Income and Cash flow Statements), Tables IV-6 and IV-8; e-workpapers "RA.xlsx," tab "Table 6," and "RA-Table6.pdf."

The railroad financial analyst Tony Hatch has commented that capital expenditures for "rails have averaged about 15% of revenues in the modern era,"[10] and the AAR depicts an average of 19% for capital expenditures in recent

[10] http://myemail.constantcontact.com/Rail-Industry-Capital-Expenditures---Special-Report-by-Tony-Hatch--Sponsored-by-the-NRC.html?soid=1106103828154&aid=xwRVdIrDGyE; e-workpaper "RA-Hatch.pdf." The report is undated, but likely was produced during 2013, as it uses estimated data for that year.

years.[11] CSXT's capital outlays are squarely in line with those of the other major railroads, and clearly prudent on a relative basis. Hennigan Report at 14-17.

CSXT also has the ability to devote even more of its resources to capital expenditures, if it had a need for additional investment. As shown in the following table, CSXT has devoted substantial resources to buying back its own stock, a clear indicator that CSXT does not suffer from a capital shortfall:

TABLE IV-10
CSXT STOCK BUYBACK
EXPENDITURES 2010-2014

Year	Dollars Spent on Stock Buybacks	Source
2010	$1.5 billion	CSX 2010 10-K, p. 45
2011	$1.6 billion	CSX 2011 10-K, p. 65
2012	$734 million	CSX 2012 10-K, p. 21
2013	$353 million	CSX 2014 10-K, p. 20
2014	$517 million	CSX 2014 10-K, p. 20
Average	$941 million	
Total	$4.704 billion	

Source: e-workpapers "RA.xlsx," tab "Table 7," "RA-Table7.pdf," and "RA-CSXT-Fin.pdf" at { }.

{

[11] AAR, *Overview of America's Freight Railroads* (July 2015), at 4. https://www.aar.org/BackgroundPapers/Overview%20of%20America's%20Freight%20RRs%20July%202015.pdf; e-workpaper "RA-AAROverview.pdf."

} Hennigan Report at 17-18.

b. <u>Repayment of a Reasonable Level of Debt</u>

During the period 2010-2014, and earlier, CSXT had no difficulty repaying its debt. CSXT increased its level of borrowing, but it did so voluntarily, and has maintained and improved its favorable credit ratings in the process.[12] Increasing the debt has helped to maintain CSXT's debt-equity capital structure, which otherwise would tip further toward equity due to CSXT's increasing price per share, noted *supra*. {

} Hennigan Report at 18-20.

The following table depicts CSXT's scheduled maturation of debt during the relevant period:

[12] CSXT's credit ratings improved during 2012, 2013, and 2014. CSX 2012 10-K at 44; CSX 2013 10-K at 39; CSX 2014 10-K at 40. For example, Moody's raised its rating on CSX's senior unsecured debt from Baa3 (investment grade) to Baa2 on October 17, 2012, and to Baa1 on September 9, 2014. https://www.moodys.com/research/Moodys-raises-ratings-of-CSX-and-Consolidated-Rail-Corp-senior--PR_257623; https://www.moodys.com/research/Moodys-upgrades-CSXs-ratings-sr-uns-to-Baa1--PR_307526; e-workpaper "RA-Moodys.pdf."

TABLE IV-11 SCHEDULED MATURATION OF CSXT DEBT IN 2010-2014		
Year Debt Due	Amount (millions)	Source
2010	$113	CSX 2011 10-K, p. 93 n.9
2011	$613	CSX 2012 10-K, p. 94, n.9
2012	$507	CSX 2013 10-K, p. 90 n.9
2013	$780	CSX 2014 10-K, p. 87 n.9
2014	$533	CSX 2014 10-K, p. 87 n.9
Average	$509	
Total	$2,546	
Source: e-workpapers "RA.xlsx," tab "Table 8," and "RA-Table8.pdf."		

On an average annual basis during the relevant period, CSXT's net income plus depreciation was $0.105 billion higher than the sum of prudent capital outlays and reasonable debt repayments (*i.e.*, $2.862 billion in net income plus depreciation less $2.248 billion in capital expenditures less $0.509 billion for debt repayment), and CSXTs operating cash flow was $0.505 billion higher than the sum of prudent capital outlays and debt repayments (*i.e.*, $3.262 billion in operating cash flow less $2.248 in capital expenditures less $0.509 billion for debt repayment). Hennigan Report at 19.

c. **Raise Needed Equity Capital**

CSXT has had no difficulty raising needed equity capital. Indeed, neither CSXT nor any of the other Class I railroads that were included in each year's determination of the railroad industry cost of capital have had new offerings of stock to the public since 1991, when BNSF floated additional equity.[13] For its

[13] CSXT's annual reports explain that in 2001 it issued $564 million in unsubordinated callable zero coupon convertible (into common stock at maturity) debentures due in 2021. *See, e.g.*, CSX 2011 Annual Report at 93-94. As of

part, CSXT has been engaged in substantial net buybacks of its common stock at least since 2006.

The decision to go to the capital markets for equity financing or bonds, to use the shorter term money markets for financing, or to use internal cash flow to finance railroad operations or investments, is an individual corporate decision. That decision logically is made based on numerous factors such as access to capital, availability of internal sources of funds, bond ratings, current interest rates on debt, and a desire to maintain a favorable capital structure and associated cost of capital. While CSXT obviously has determined that it has no need to raise capital through the sale of stock, CSXT has been active in the capital markets for debt funding and refinancing. Since the cost of debt capital is lower than the cost of equity capital, CSXT optimizes its capital structure to lower its weighted cost of capital. CSXT's decision to use, on average, $0.924 billion of cash annually during the relevant time period for share repurchases (see row (o) on Table IV-8, *supra*) also is very strong evidence that CSXT's revenues were more than adequate to meet its capital needs. Hennigan Report at 20-21.

d. **Cover the Effects of Inflation**

As noted *supra*, CSXT increased its earnings by 23% and its earnings per share by 41% during the period from 2010-2014. In contrast, the increase in the RCAF-U from the first quarter of 2010 to the first quarter of 2015

December 2012, only $2 million face value (convertible into 245,000 shares) of the debentures remained. 2012 Annual Report at 67; e-workpaper "RA-CSX-Convertible.pdf."

(so as to cover five years) was 10.3%, and the corresponding increase in the RCAF-A was 4.7%.[14] CSXT's earnings have increased at more than double the rate of the RCAF-U and nearly five times the rate of the RCAF-A. Obviously, its revenues have been more than adequate to cover the effects of inflation. Indeed, cutting off the comparison as of the first quarter of 2015 is conservative, because it gives only partial recognition to the recent decrease in fuel prices. The RCAF-A value for the second quarter of 2015 was 0.376, which is lower than the RCAF-A value for the first quarter of 2010 (0.387). Cost inflation over the 21 quarters actually was negative 2.8%.

CSXT also makes frequent use of inflation-based pricing mechanisms such as the All-Inclusive Index Less Fuel, and fuel price surcharges to offset the effects of inflation, and CSXT's capital expenditures help support productivity improvements. *See*, *e.g.*, http://www.railwayage.com/index.php/finance-leasing/csxs-capex-strategy.html, and e-workpaper "RA-Blanchard.pdf." Hennigan Report at 21-23.

3. <u>Attract and Retain Adequate Capital</u>

The final stated criterion in 49 U.S.C. § 10704(a)(2)(B) is that carriers have revenues that "attract and retain capital in amounts adequate to

[14] The RCAF-U values are 0.858 and 0.946, and the RCAF-A values are 0.387 and 0.405, as shown on the AAR's "Rail Cost Adjustment Factor – 2012r Base," available at https://www.aar.org/Documents/Rail%20Cost%20Indexes/RCAF%20History/RCAF%20History%202015Q3.pdf, and e-workpaper "RA-AAR-RCAF.pdf."

provide a sound transportation system in the United States." CSXT satisfies this standard as well.

As noted *supra*, CSXT has not needed to raise outside equity capital in at least 25 years. Instead, CSXT's revenues have been adequate to enable it to repurchase a large portion of its outstanding shares. *See* Table IV-8, *supra*. Had CSXT wanted – or needed – it could have retained those funds for use in its business, such as for additional capital expenditures. As its own records show, CSXT has been able to retire its debt as scheduled (or earlier, when it is favorable to do so) and to take on additional debt, {

} Furthermore, CSXT has maintained or improved its credit ratings at the same time, as noted at page IV-20 n.12, *supra*.

CSXT also has been able to devote approximately 19% of its revenues over the past years to capital expenditures, so as to maintain and expand its operations. As stated by the CSX Chairman in the letter to shareholders in the 2014 Annual Report at p. 11: "Since 2003, CSX has invested an astonishing amount – nearly $21 billion – in its network and equipment. A record capital investment in 2014 of more than $2.4 billion supported safe, reliable service upon which our customers rely." *See* e-workpaper "CSX-2014-AnnualReport.pdf." CSXT has had additional funds, such as the funds used for stock buybacks, available to engage in capital expenditures and other investments. The fact that

CSXT has chosen to use these funds for other purposes is proof that it has and can retain adequate capital. *See also* Hennigan Report at 23-25.

The staff of the United States Senate Committee on Commerce, Science and Transportation summarized the situation as follows:

> While the freight railroads have been investing record amounts of their profits into much-needed capital projects, they have also doubled dividend payments to their shareholders and spent billions more dollars repurchasing their publicly-traded shares to boost the short-term value of their stocks. These large expenditures undermine the railroads' argument that they still lack the income to reinvest in their long-term capital needs.[15]

In short, CSXT has faced no problems in attracting and retaining capital. Hennigan Report at 23-25.

C. VARIOUS FINANCIAL RATIOS SHOW CSXT TO BE REVENUE ADEQUATE

As Consumers and its co-parties showed in *Ex Parte No. 722*,[16] it is appropriate to consider CSXT's revenue adequacy under various ratios that are commonly used in financial analysis to assess the economic health of firms. The Board's predecessor relied on these ratios in the revenue adequacy methodology adopted in *Standards and Procedures for the Establishment of Adequate Railroad*

[15] *The Current Financial State of the Class I Freight Rail Industry*, Report of Office of Oversight and Investigations, U.S. Senate Committee on Commerce, Science and Transportation, Sept. 15, 2010, at 1 ("2010 Senate Report"), available at http://www.commerce.senate.gov/public/?a=Files.Serve&File_id=76823478-a901-4b4d-869b-9301bb43343b; e-workpaper "RA-2010-SenateReport.pdf."

[16] *Railroad Revenue Adequacy*, EP 722, Comments filed Sept. 5, 2014 and Reply Comments filed Nov. 4, 2014.

Levels, 359 I.C.C. 270, 273-74 (1978), and applied them in *Adequacy of Railroad Revenue (1978 Determination)*, 362 I.C.C. 199, 257 (1979). While the ICC later adopted the ROI=COC test for its annual determinations in *Ex Parte No. 393*, two of the Commissioners at that time recommended continued reliance on the other financial indicators. *See* 364 I.C.C. at 824 (Commissioner Clapp, concurring in part and dissenting in part), and 835 (Commissioner Gilliam, concurring). Consideration of additional factors here certainly is appropriate in light of the Board's ratification of the principle that other "competent and probative evidence" may be introduced and considered under the Revenue Adequacy Constraint in the *Guidelines*. *See also* Hennigan Report at 25-27.

1. Market to Book Value Ratio

The market to book value ratio represents the ratio of the market value of the common stock of a company to the net book value of the company's assets. This important metric reflects the current and future expectations of capital providers or investors about the performance of the company relative to the initial or embedded equity investment. The ratio reflects the market's valuation of the current and expected profitability of the firm's assets, as well as expectations that the company will be able to make investments to replenish the capital stock so as to continue to exist and expand for the future.

The following table depicts CSXT's market to book ratios, using data in CSXT's annual reports to the SEC for 2010-2014:

TABLE IV-12 CSXT MARKET TO BOOK RATIOS FOR 2010-2014	
Year	Market to Book Ratio
2010	2.36
2011	3.00
2012	2.57
2013	2.58
2014	2.85
Average	2.67
Source: CSX Annual SEC Reports and e-workpapers "RA-xlsx," tab "Table 10," and "RA-Table10.pdf."	

CSXT's ratios are well in excess of 1.0 and generally have increased throughout this period. The ratios represent a strong vote of confidence by investors, and a belief that the assets have a going concern value in excess of their book value. The ratio implies that investors believe that it is worth reinvesting in the company to enable it to continue functioning and expanding. The ratio thus is a confirmation that the company's revenues are adequate to provide "a reasonable and economic profit or return (or both) on capital employed in the business," and to "attract and retain capital in amounts adequate to provide a sound transportation system in the United States." 49 U.S.C. § 10704(a)(2). Hennigan Report at 27-29.

It also should be recognized that the book value of CSXT's assets does not represent a static figure. Instead, it represents the regular and ongoing replacement of CSXT's assets through the normal process of CSXT's capital expenditures. As CSXT has stated on the record in this case, "it calculates replacement costs every time it replaces or upgrades a piece of railroad infrastructure, and [] Consumers could review the extensive capital spending data produced by CSXT if it wanted information on the replacement costs of CSXT's infrastructure."[17]

2. Debt to Capital Ratio

Another important metric is the debt to capital ratio, representing the average market value of long term debt as a percentage of long term debt plus current average market value of stock. The related ratio is the debt/equity capital structure, meaning the percentage of the capital structure represented by debt followed by the percentage of the capital structure represented by equity, such that the two sum to 100%. The Board uses the debt/equity structure to calculate the railroad industry COC. The ratio is relevant to determine how leveraged an entity is, whether its capital structure is optimized,[18] and what changes have occurred over time, particularly when an entity has engaged in stock buybacks and issued additional debt, as CSXT has done.

The following table presents CSXT's debt/equity capital structure, relying on the Board's assessment of CSXT's capital structure in its annual COC determination:

[17] CSXT Reply to Consumers' Motion to Compel, July 6, 2015, at 12-13.

[18] The Modigliani-Miller theorem holds that the value of the firm exists independent of the capital structure, and that changing the capital structure does not alter the COC because, *e.g.*, increasing the debt will result in offsetting increases to the COD and COE, causing the overall COC to remain constant.

TABLE IV-13 CSXT DEBT/EQUITY CAPITAL RATIOS FOR 2010-2014	
Year	Debt/Capital Ratio
2010	27%/73%
2011	26%/74%
2012	30%/70%
2013	27%/73%
2014	24%/76%
Average	26%/74%
Source: STB Cost of Capital Decisions and e-workpaper "RA.xlsx," tab "Table 11."	

The table shows that CSXT has been able to maintain a relatively conservative level of debt throughout the period. CSXT's net earnings and cash flow exceed overall debt service costs by a comfortable margin, and CSXT retained an investment grade rating that improved throughout the period. CSXT's debt to capital ratio gives no indication of inadequate revenues, insufficient profitability, or an inability to raise sufficient capital. *See* Hennigan Report at 28-29. The ratio also does not indicate that the firm is staying afloat only because it is taking on additional debt. Instead, the debt to capital ratio is further confirmation of CSXT's revenue adequacy. *Id.* at 29.

3. <u>Operating Ratio</u>

The operating ratio represents the ratio of operating expenses, including depreciation, as a percentage of operating revenues. "Operating ratio, which is the inverse margin or the ratio of operating expenses to operating revenues expressed as a percentage, is a widely used performance measurement in the railroad industry."[19]

The operating ratio is a key metric for railroads as it serves to help identify the margin or dollars that are available for capital expenditures, dividends, and buybacks.[20] For example, CSXT had an operating ratio of 86.1% in 2002, which left little room for expansive capital expenditures and dividends. CSX SEC 2002 Annual Report at 18; e-workpaper "RA-CSX-2002-Annual Report.pdf." However, CSXT's operating ratios improved substantially in subsequent years, as shown by the following table:

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[19] Testimony of Michael J. Ward, Chairman and CEO, CSX Corporation, U.S. House Committee on Transportation and Infrastructure, Subcommittee on Railroads, Pipelines, and Hazardous Materials, *Hearing on Investment in the Rail Industry*, 110th Congress (March 5, 2008) (H. Rept. 110-104), *quoted in* 2010 Senate Report at 6 n.21; e-workpaper "RA-2010-SenateReport.pdf."

[20] Capital expenditures are shown on the cashflow statement and can be financed by depreciation and other adjustments to earnings.

TABLE IV-14 CSXT OPERATING RATIOS FOR 2010-2014	
Year	Ratio
2010	71.1%
2011	70.6%
2012	70.6%
2013	71.1%
2014	71.5%
Average	70.9%
Source: CSX Annual SEC Reports and e-workpapers "RA.xlsx," tab "Table 12," and "RA-Table12.pdf."	

CSXT places a high priority on the operating ratio. It served as the exclusive measure for CSXT's executive long term incentive compensation plans from 2007 to 2013, when it began to be weighted equally with return on assets. The incentive compensation serves to align the interests of management (and the employees they manage) with stockholders, and has helped to lead to dramatic improvement in CSXT's operating and financial results in recent years. Hennigan Report at 31.

The target goal in CSXT's executive incentive plan cycle that ended in 2014 was an operating ratio in the range of 65.5% to 69.5%. CSX 2014 Proxy Statement at 43-44, and 2015 Proxy Statement at 44-47; e-workpaper "RA-CSX-2014-2015-Poxy.pdf." CSXT did not achieve that optimistic result in 2014, but measured a record low of 66.8% in the second quarter of 2015.[21] During its earnings call for the second quarter of 2015, CSXT ratified that its goal remains to move its operating ratio to the mid-60s.[22] An annual operating ratio in the low-70s and a stated expectation to drive the ratio to the mid-60s provide further confirmation of CSXT's long-term financial soundness. Hennigan Report at 30-31.

4. Return on Equity

Return on equity represents net income as a percentage of shareholders' average book value of stock. It can be calculated as net income divided by shareholders' equity, where shareholders' equity equals net assets minus liabilities. Equity investors use the ratio to assess the profitability of their investment in the firm's equity or assets, and the ratio is a primary measure of profitability for an investment in a company's stock.[23]

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[21] *See* p. 12 of the transcript of the second quarter earnings call at e-workpaper "RA-CSX2Q15-EarningsCall.pdf."

[22] *Id.* at 3, 8. CSXT achieved an operating ratio of 71.5 for 2014. CSX 2015 Proxy Statement at 46; e-workpaper "RA-CSX-2014-2015-Poxy.pdf."

[23] The American Association of Institutional Investors explains that:

> Return on equity is a popular measure of profitably and corporate management excellence. The measure is determined by dividing the annual earnings of the firm by stockholders' equity. The measure relates earnings generated by a company to the investment that stockholders have made and retained within the firm. This latter figure—stockholders' equity is equal to total assets of the firm less all debt and liabilities of the firm. Also known as stockowners' equity, owners' equity, or even simply equity, it represents investor's

The following table depicts CSXT's return on equity for 2010-2014:

TABLE IV-15 CSXT RETURN ON EQUITY FOR 2010-2014	
Year	Return on Equity
2010	17.9%
2011	21.6%
2012	21.3%
2013	19.0%
2014	17.8%
Average	19.5%
Source: CSX Annual SEC Reports, 2010-2014; e-workpapers "RA.xlsx," tab "Table 13," and "RA-Table 13.pdf."	

CSXT's equity returns have been consistently high over the period, particularly as represented by the average return of 19.5%. CSXT's return on equity has exceeded even the inflated COE for the railroad industry as determined by the Board under its current methodology, by a very substantial margin. Such returns should be considered more than sufficient to enable CSXT to attract and/or retain whatever equity capital is needed.[24] The attractive return on equity, along

ownership interest in the company. On the balance sheet it is the sum of preferred stock, common stock and retained earnings.

http://www.aaii.com/stock-screens/screendata/ROE; e-workpaper "RA-AAIIROE.pdf."

[24] As noted, CSXT has not needed to raise any outside equity capital investment in at least the past 25 years, and instead has engaged in sizeable stock buybacks.

with the dividends, buybacks and operating ratios, logically contributes to the substantial appreciation in CSXT's stock price over this period, and provides further confirmation of CSXT's revenue adequacy. *See* Hennigan Report at 32-33.

5. Cash Flow to Equity

Cash flow to equity, or cash flow return on shareholders' equity, depicts cash flow (defined as net income plus depreciation and deferred taxes) as a percentage of the shareholders' average book value of stock. It is similar to return on equity, but instead of using income it uses cash flow, in that depreciation is a non-cash expense that is attributed to the specified period and deferred taxes represent taxes that otherwise would be due on the reported income. *See, e.g. Standards for Railroad Revenue Adequacy*, 3 I.C.C.2d 261, 272-75 (1986) (deducting deferred taxes from net investment base for calculating ROI). The use of cash flow as a measure is particularly significant for firms, such as railroads, that are very capital intensive.

The following table depicts CSXT's cash flow to equity for the period 2010 through 2014:

TABLE IV-16 CSXT CASH FLOW TO EQUITY RATIOS FOR 2010-2014	
Year	Cash flow to Equity
2010	37%
2011	41%
2012	34%
2013	33%
2014	31%
Average	35%
Source: CSX Annual SEC Reports, 2010-2014; e-workpapers "RA-xlsx," tab "Table 14," and "RA-Table14.pdf."	

CSXT's average cash flow to equity ration of 35% over the period reflects both the substantial measure and the components of cash flow. CSXT has had substantial cash available for corporate purposes, including dividends, stock repurchases, and cash expenditures. The high cash flow simultaneously makes CSXT less dependent on outside financing, and very attractive as a recipient of equity and debt financing; *i.e.*, a sound investment. Hennigan Report at 33-34.

6. Dividend Payout Ratio (Dividend Yield)

The dividend payout ratio, often referred to as the dividend yield, represents the ratio of the annual dividends paid per share to the average market value of a share of stock. The ratio may vary if a company changes the amount of the dividend, or if the price per share fluctuates. The dividend yield represents the cash distribution that a shareholder receives, and can be compared both to the dividends of other companies and/or to the yield that may be received on stable debt investments, such as securities issued by the United States Treasury.

The following table depicts CSXT's dividend payout ratios or yield over the past five years:

TABLE IV-17
CSXT DIVIDEND PAYOUT RATIOS (YIELD) FOR 2010-2014

Year	Dividend Yield
2010	1.8%
2011	1.9%
2012	2.5%
2013	2.4%
2014	2.0%
Average	2.1%

Source: CSX Annual SEC Reports, 2010-2014; e-workpapers "RA.xlsx," tab "Table 15," and "RA-Table15.pdf."

The table shows that CSXT's annual dividends have remained relatively stable over the period. While the yield decreased in 2014, CSXT announced a dividend increase (as well as a new stock buyback plan) in conjunction with its earnings release for the first quarter of 2015.[25] It also should be noted that the steady dividend yields occurred amidst the appreciation in the value of CSXT stock shown in Table IV-7 and represented a use of cash that could have been devoted to capital expenditures if CSXT needed resources for that

[25]http://investors.csx.com/phoenix.zhtml?c=92932&p=irol-newsArticle&ID=2035010; e-workpaper "RA-CSX1Q15Release.pdf."

purpose. CSXT's yield also compared favorably to those on five-year U.S. Treasuries over the same period. *See* e-workpaper "RA-5YRTreasuryYield.pdf." Measured by these metrics, CSXT is a preferred investment. *See* Hennigan Report at 35-36.

D. CSXT REVENUE ADEQUACY AS PERCEIVED BY THE FINANCIAL AND INVESTMENT COMMUNITIES

In assessing CSXT's revenue adequacy, it is appropriate to consider analyses prepared by and relied upon by the financial and investment communities. Such analyses provide an independent and informed assessment of CSXT's financial health and viability, and its suitability or desirability as an investment.

For this purpose, Dr. Hennigan utilized reports prepared by ValueLine, S&P, and Morningstar. Hennigan Report at 66-72.[26] These firms were selected for several interrelated reasons. First, they are independent and well-respected. Second, they are commonly utilized and relied upon, especially by retail investors. Those investors and the reports are more geared toward fundamental investing on a long-term or buy-and-hold basis, as distinguished from relatively short-term trading or arbitrage. A fundamental, long-term focus is appropriate for the Board's assessment of revenue adequacy. Third, the reports are readily accessible (as online resources at many public libraries), and the fact

[26] The reports are included as e-workpapers "RA-ValueLineCSX.pdf," "RA-CSXMorningstarReport.pdf," "RA-CSXMorningstarStockAnalysis.pdf," and "RA-CSXSandP.pdf."

that they are available to the public at little or no cost comports with the Board's preference to rely on publicly-available materials where feasible.[27]

1. **ValueLine**

As of August 28, 2015, ValueLine assigned CSXT a safety rating of 3 on a scale of 1 (highest) to 5 (lowest), which is an average rating. The safety ranking reflects the average of CSXT's financial strength, which was B++, and the stock's price stability, which was 70 out of 100. *See* e-workpaper "RA-ValueLineGuide.pdf" at 4. For purposes of revenue adequacy, the financial strength rating is the significant metric, as the stability ranking is equivalent to beta. The B++ is an above average rating, demonstrating that CSXT is financially healthy.

ValueLine presents a number of data metrics for CSXT, including average annual dividend yield, operating margin (the inverse of operating ratio), return on total capital, return on shareholder equity, and capital structure (which includes an adjustment to treat operating leases as debt), which are most of the same ratios discussed *supra*. The report also identifies a target price for CSXT for 2018-2020 with a low of $35 and a high of $55, indicating that substantial further price appreciation of between 20% and 85% is anticipated.

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[27] *See, e.g.*, *Railroad Cost of Capital–2006*, EP 558 (Sub-No. 10) (STB served Apr. 14, 2008), at 7 ("On the second issue, WCTL complains that AAR has relied on a proprietary data source... We find this disconcerting.... Should S&P make its total return index available to the public in the future, we would again consider relying on that index. Otherwise, we will rely on the publicly available data to promote transparency and predictability.").

ValueLine's brief commentary regarding CSXT states that "Significant margin expansion is the highlight for CSX," and notes that CSXT achieved a record 66.8% operating ratio in the second quarter of 2015. The report also states that "Core pricing (including fuel surcharges) is tracking above rail inflation, which is a long-term goal." This further demonstrates that CSXT has no problems covering the effects of rail inflation, one of the statutory criteria for revenue adequacy. The report adds that CSXT "is targeting productivity savings of $200 million for 2015, and the longer-term goal is for a full-year operating ratio in the mid-60s, compared to 71.5% in 2014."

In short, consistent with the myriad indicators discussed *supra*, the ValueLine analysis depicts CSXT as being a desirable investment, and gives no suggestion that the company is revenue inadequate or that it faces a precarious future because of any inability to attract needed capital.

2. <u>Morningstar</u>

Morningstar provides a large volume of quantitative data about CSXT, including the price/book ratio, operating margin, return on assets, return on equity, and capital structure, which further confirms the relevance and utility of those metrics for assessing a company's health. *See* e-workpaper "RA-CSXMorningstarReport.pdf." Morningstar also provides more extensive commentary, which is updated periodically. *See* e-workpaper "RA-CSXMorningstarStockAnalysis.pdf." The recent "Investment Thesis" for CSXT, dated April 27, 2015, states that:

> CSX's margin gains of the past decade are nothing short of astounding. The firm lagged its peers after the rail renaissance began in 2004, but surprisingly strong profitability during the recession marked the end of its perceived second-class status. Historically, CSX's closest comparative peer, Norfolk Southern, earned at least 5 percentage points better annual margin, but CSX achieved record improvements in operating ratio (operating expenses/revenue) during 2009-2012 and more than closed the performance gap. The Eastern railroad started its margin improvement trajectory during the early days of the modern railroad renaissance and advanced its OR to around 71% (29% EBIT margin) during the past five years from more than 90% in 2003.
>
> Management's long-run mid-60s OR target seems attainable to us, for we believe much-improved profitability is here to stay at CSX....
>
> .... CSX made meteoric progress in its operations during the past decade, improving safety shortening terminal dwell time, and increasing on-time arrivals. In almost every measure of operating performance, CSX moved the needle significantly. Along with better-run operations the company materially improved its pricing, expanding consolidated yield at a 6% compound rate since 2004. Given this progress, there's now less room for improvement, but we expect pricing power to persevere in excess of 2%-3% annual railroad cost inflation.

Morningstar thus depicts a company that has done extremely well since the recession, and is poised to continue and expand on its success. The assessment stresses the importance of the operating ratio and also explains that inflation has been an opportunity, rather than a problem, for CSXT.

Morningstar also provides an "Economic Moat" analysis, which begins by observing that "CSX's wide economic moat is based on cost advantages and efficient scale," and then adds that "[t]he network of track and assets Class I railroads have in place is impossible to replicate," and that "[b]arriers to entry are powerful for railroads." Morningstar then observes that CSXT and its peers outearn their cost of capital:

> While the rails don't outearn their cost of capital by much, our wide moat rating stems from our confidence that rails will leverage cost and efficient scale competitive advantages to generate positive economic profits for the benefit of share owners with near certainty 10 years from now, and more likely than not 20 years from now; by our methodology, this defines wide economic moat.

Morningstar's evaluation states that CSXT and the other major Class I railroads not only satisfy the Board's ROI=COC test currently, but are highly likely to continue doing so at least for the next ten years, further attesting to their long-term revenue adequacy.

3. **<u>Standard & Poor's</u>**

S&P provides many of the same metrics as ValueLine and Morningstar, including yield percentage, capital structure (long-term debt as a percentage of capitalization), net margin (operating margin after taxes), return on equity, and return on assets, confirming their relevance for investors and for assessing a company's financial health. *See* e-workpaper "RA-CSXSandP.pdf."

S&P also provides some proprietary evaluations, including an "Investability Quotient Percentile" of 91 for CSXT. S&P explains that the ranking means it has determined that CSXT is more investable than 91% of all companies for which S&P reports are available. S&P explains elsewhere that the investability quotient is a measurement of the stock's medium-to-long term return potential relative to other stocks.[28] A finding that CSXT is more investable than 91% of other stocks is a strong indication that CSXT currently is revenue adequate, and is projected to maintain that status into the future. Like ValueLine and Morningstar, S&P gives strong confirmation that CSXT's revenues, earnings, margins, operating ratio, cash flow, and projected performance are more than sufficient to attract investment for the company to remain healthy and sustainable for the long-term.

E. CSXT'S REVENUE ADEQUACY REQUIRES CANCELLATION OF ITS JANUARY 1, 2015 RATE INCREASE

As Consumers and its co-parties in *Ex Parte No. 722* demonstrated, applicable agency precedent mandates the relief that should be granted under the Revenue Adequacy Constraint.[29] In *Coal Rate Guidelines*, the ICC adopted as "the logical first constraint" the rule that "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier

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[28] *Your Guide to S&P Capital IQ™ Stock Reports* explains that the investability quotient is "[a] quantitative measure of investment desirability" and the IQ indicates potential medium- to long-term return and can serves as a caution against downside risk. The IQ percentile presents the company's IQ score relative to all other ranked stocks." https://www.capitaliq.com/stockreportguide (April 2012) at 3, and e-workpaper "RA-SandpGuide.pdf."

[29] *See Ex Parte No. 722*, Comments of Allied Shippers at 26-32; Reply Comments of Allied Shippers at 31-35.

capable of meeting its current and future service needs." 1 I.C.C.2d at 535-36; *see also Major Issues* at 21 (maximum rate methodology is designed to allow a railroad to "engage in enough differential pricing to earn adequate demand-based revenues, but no more."). Then, in *CF Industries, Inc.,* the Board explained how this rule is implemented in a specific case under the *Guidelines*' Constrained Market Pricing methodology: if a carrier imposes a rate increase on captive traffic and that carrier was revenue adequate "under its pre-rate increase structure," the rate increase is unlawful and the shipper's maximum rate for the future should be limited to "the pre-increase...level." 4 S.T.B. at 663-664.

Applied to this case, the Revenue Adequacy Constraint as defined in the *Guidelines* and implemented in *CF Industries* compels a ruling that CSXT's January 1, 2015 rate increase on Consumers' Campbell traffic under Tariff CSXT-13952 was unreasonable and unlawful. Since the evidence shows that CSXT was revenue adequate prior to assessing the increase, it was not entitled to impose further differential pricing on Consumers' captive Campbell traffic, and must restore the rate on that traffic to its pre-increase level, subject to separate, further reduction through application of the SAC Constraint. *See* I-53-59.

That the pre-increase Campbell rate was set by an expiring contract has no effect on Consumers' right to the proper remedy under the Revenue Adequacy Constraint. While the Board does not have jurisdiction over contract rates,[30] it routinely uses contracts as source documents for rate and rate adjustment information when administering the SAC Constraint,[31] as it will do in this case. *See* Part III.A.3. Tariff CSXT-13952 imposed an increase on a rate that had been established by an expired contract, and the Board here is extending jurisdiction only over Consumers' payment of that increase, which is not subject to Section 10709. Since Contract CSXT-C-84720 expired on December 31, 2014, the Board's jurisdiction over coal rates for service to Campbell was reinstated as of January 1, 2015, which also is the effective date of the unreasonable rate increase and the relief to which Consumers is entitled under the Revenue Adequacy Constraint.

Consistent with its position in *Ex Parte No. 722*, Consumers acknowledges that but for the further rate reduction required under the SAC Constraint that is called for by the evidence presented herein, CSXT would have the freedom under the Revenue Adequacy Constraint to adjust the December 31, 2014 pre-increase rate by changes in the RCAF-A, or to seek to meet the evidentiary requirements prescribed in the *Guidelines* for revenue adequate carriers desiring further differential price increases.[32] However, CSXT's January

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[30] 49 U.S.C. § 10709(c).

[31] *AEP Texas* at 37; *TMPA*, 6 S.T.B. at 601.

[32] *See Ex Parte No. 722*, Comments of Allied Shippers at 32. These are (1) a specific showing of a need for higher revenues; (2) a demonstration of specific harm that would result if CSXT could not collect them; and (3) a specific showing of an inability to raise them from any source other than captive shippers. *See* 1 I.C.C.2d at 536 n.36.

1, 2015 { } stands in sharp contrast with the 3.6% *decline* in the RCAF-A from the Fourth Quarter of 2014 to the First Quarter of 2015, and CSXT offered no justification whatsoever for its selection of $14.95 per ton as the new common carrier rate for Campbell deliveries.

Finally, as noted *supra* and discussed in Part I, Consumers' entitlement to relief under the Revenue Adequacy Constraint is independent of its case for greater rate relief under the SAC Constraint, and the maximum rate ultimately prescribed by the Board should be the *lowest* rate supported by the evidence, so long as it exceeds the jurisdictional threshold. As the ICC explained in *Coal Rate Guidelines*:

> Thus, the various constraints contained in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonably high, i.e., set at a level greater than necessary to collect the portion of unattributable costs that can properly be charged to that shipper. If we determine that a rate has been set at an unreasonably high level, we will take whatever action is appropriate, based upon the nature and extent of the violation shown, to afford relief to the complaining shipper and to promote proper pricing by the carrier.

Id., 1 I.C.C.2d at 548; *see also Consolidated Rail Corp.*, 812 F.2d at 1451. Subsequent decisions further clarified that if more than one of the *Guidelines*' rate constraints are invoked in a proceeding, the complainant is entitled to benefit from that which results in the greatest measure of relief, consistent with the limits of the Board's jurisdiction. *See CF Industries, Inc. v. Surface Transp. Bd.*, 255 F.3d 816, 827-828 (D.C. Cir. 2001); *Bituminous Coal – Hiawatha, UT to Moapa, NV*, 6

I.C.C.2d at 6-17; *Arkansas Power & Light Company v. Burlington Northern Railroad Company, et al.*, 3 I.C.C. 2d 757, 765-777 (1987).

Part V – Witness Qualifications

PART V

WITNESS QUALIFICATIONS AND VERIFICATIONS

This Part contains the Statements of Qualifications of the witnesses who are responsible for the Narrative portions of Consumers Energy Company's Opening Evidence (and the exhibits and workpapers referred to therein) identified with respect to each witness.

1. BRIAN D. GALLAWAY

Mr. Gallaway is Executive Director of Fossil Fuel Supply at Consumers Energy. He is responsible for directing all of the company's activities with regard to procurement and transportation of all fuel supplies to meet the requirements of the company's electric generating facilities. His business address is 1945 W. Parnall Road, Jackson, MI 49201. Mr. Gallaway is sponsoring the Background Facts set forth in Part I-A, and the historic information regarding Consumers' approach to coal transportation for the Campbell Station set forth in Part II-B.

Mr. Gallaway received a Bachelor of Science degree in Electrical Engineering from Michigan State University in 1979. He was awarded a Masters of Business Administration, specializing in integrative management, from Michigan State University in 2001. Mr. Gallaway has been employed at Consumers Energy since 1979. During this time, he has held a variety of engineering, operating, and supervisory positions in departments involved with the operation of the electric system and with the economic operation of Consumers' generating plants.

From 1979 to 1988, Mr. Gallaway was a General Engineer, and performed power flow studies to insure the safe and economic operation of the power system as well as production-costing studies to project generation, purchased and interchange power expense, and fuel consumption. Mr. Gallaway was a Senior Engineer from 1988 to 1991, and was responsible for all the engineering application software in Consumers Energy's first Energy Management System; this included software specification, testing, database development, and negotiations with the software vendor. From 1991 to 2002, he was a Senior Engineer—Lead, in which he assisted in the creation of profit center models to assess the competitive position of Consumers' generating units. He also developed methodologies to calculate energy, capacity, and ancillary services payments for use in the profit center models.

In 2002, Mr. Gallaway joined the Fossil Fuel Supply area in the Electric and Gas Supply Department as Fuels Transportation and Planning Director. In this role, he was responsible for the transportation of all coal to the company's electric generating plants, including daily delivery logistics and plant fuel inventory management. Mr. Gallaway was also responsible for negotiating and managing all coal transportation agreements with railroads and lake shipping companies. Moreover, he was responsible for forecasting fuel requirements for the company's electric generating plants, including purchase volumes and the timing of such purchases. He also provided guidance to the Next Generation Project Team by evaluating fuel delivery options to proposed new generation sites and ultimately specifying fuel delivery infrastructure requirements for the selected site.

In July of 2011, Mr. Gallaway was promoted to Director of Fossil Fuel Supply in what is now the Energy Supply Operations Department and in February of 2015 was named Executive Director of Fossil Fuel Supply. As the Executive Director of Fossil Fuel Supply, Mr. Gallaway's duties include establishing strategy and evaluating risk for all activities associated with providing fuel to the generating plants and insuring that all arrangements related to fuel are accepted as reasonable and prudent before the Michigan Public Services Commission. Additionally, Mr. Gallaway oversees the preparation of short and long term projections specifying purchase volumes and pricing for coal, oil, and natural gas; fuel purchases and inventory control; fuel transportation arrangements; and plant fuel inventories and the daily logistics for the delivery of fuel to the generating plants.

VERIFICATION

I, Brian D. Gallaway, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

B. D. Gallaway

Brian D. Gallaway

Executed on October 29, 2015

2. **<u>RALPH W. BARBARO, Ph.D., P.E.</u>**

Dr. Barbaro, Ph.D., P.E., is the President of Energy Research Company LLC. His business address is 13515 Hunting Hill Way, North Potomac, MD 20878. Dr. Barbaro is sponsoring Part II.

Dr. Barbaro was awarded a dual Ph.D. degree in Mining Engineering and Operations Research from The Pennsylvania State University in 1987. In 1981, he earned a dual Master of Science degree in Mining Engineering and Operations Research from The Pennsylvania State University. Dr. Barbaro also holds a Bachelor of Science degree in Mining Engineering with highest distinction from The Pennsylvania State University. Dr. Barbaro is a member of the Society of Mining Engineering of AIME and the Operations Research Society. He has been a Registered Professional Engineer since 1985.

After completing his graduate work, Dr. Barbaro joined Energy Ventures Analysis, Inc., where he provided consulting services to energy companies, utilities, and other firms. From 1986 to 1989 he served as an Associate and then was promoted to Principal in 1989; he then served as a Principal until 2010. During Dr. Barbaro's time at Energy Ventures Analysis, Inc., he performed coal supply studies on coal supply and demand for all of the major U.S. producing regions. He also conducted transportation analysis including capital and operating costs, existing and future capacity, regulations, AAR indices, market issues, etc. for rail, barge, trucking conveyors, transloading, ocean vessels and other transportation modes. Furthermore, he performed financial, discounted cash flow analysis, and/or operating performance evaluation of numerous coal companies, mines, and coal reserves. He has also provided support to utilities in coal procurement and contracting.

In 2010, Dr. Barbaro founded Energy Research Company, LLC, where he continues to provide similar consulting services to energy companies, utilities, and other firms. As President of Energy Research Company, LLC, Dr. Barbaro regularly performs coal markets studies and forecasting. His particular specialties with respect to coal mine analysis include acquisition analysis/due-diligence; financial/cost analysis (pro forma models); valuation analysis using DCF, comparable, and replacement costs; management/operational review; performance and benchmarking studies; reserve analysis; market analysis; and strategic planning. Dr. Barbaro also provides coal transportation analysis and projects future transportation costs for all of the major coal supply regions to all of the plants that may potentially burn that coal, which requires evaluating rail, barge, truck, and transloading operations.

Dr. Barbaro has authored or co-authored papers that have been published in professional magazines and symposia including *Coal Age*, *Mining Engineering*, *Application of Computers and Operations Research to the Mineral Industry*, and *Use of Computers in the Coal Industry*. He has been quoted in national publications including *Wall Street Journal*, *Forbes*, *Journal of Commerce*, and *Power Market Week*.

VERIFICATION

I, Ralph W. Barbaro, Ph.D., verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Ralph W. Barbaro

Ralph W. Barbaro, Ph.D.

Executed on October 23, 2015

3. TIMOTHY D. CROWLEY

Mr. Crowley is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Crowley is sponsoring the quantitative market dominance evidence in Part II-A and is coordinating the workpaper production of all electronic files in accordance with the Surface Transportation Board's ("STB") March 12, 2001 decision in Ex Parte No. 347 (Sub-No. 3), *General Procedures For Presenting Evidence in Stand-Alone Cost Rate Cases* and the STB's July 10, 2015 decision in this case that outlines the procedures for the format of evidence to be presented. Mr. Crowley is also sponsoring the roadbed preparation/ earthworks component of the road property investment cost of the SARR in Part III-F.

Mr. Crowley received a Bachelor of Science degree in Management with a concentration in Finance from Boston College in 2001. He graduated cum laude. He has been employed by L.E. Peabody & Associates, Inc. since 2002.

Mr. Crowley has provided analytical support for both market place and litigation projects sponsored by L.E. Peabody & Associates, Inc. The analytical support included the gathering, review and manipulation of data from the major Class I railroads, the STB and various other government and public sources. Specifically, the analyses conducted by Mr. Crowley have included the development of the transportation costs associated with the movement of chemicals, coal and other products to different destinations located throughout the country.

Mr. Crowley has also assisted in developing the return on road property investment realized by major western railroads for specific sections of rail. These studies were used in variable, avoidable, and stand-alone cost analyses. He has forecasted transportation revenues included in transportation contracts entered into by major companies, taking into account the escalation factors used in specific contracts. Additionally, Mr. Crowley has reviewed virtually all major transportation coal contracts between eastern and western railroads and the major consumers of coal in the United States. The results of this review were presented to the STB.

Mr. Crowley has experience with the STB's Simplified Standards For Rail Rate Cases issued in Ex Parte 646 (Sub No. 1). He has done extensive work with the revised guidelines for non-coal proceedings, which incorporates a three benchmark methodology. The three benchmark methodology includes calculations using revenue shortfall allocation method ("RSAM"), in which Mr. Crowley was trained by members of the STB. Mr. Crowley also has extensive experience with the STB's recently revised full stand alone cost procedures having developed and sponsored evidence in a number of recent maximum reasonable rate cases based on this constraint.

VERIFICATION

I, Timothy D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Timothy D. Crowley

Executed on October 31, 2015

4. **DANIEL L. FAPP**

Mr. Fapp is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, transportation, marketing, and fuel supply problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Fapp is sponsoring the SARR traffic selection and Average Total Cost division evidence in Part III-A and is co-sponsoring the discounted cash flow modeling evidence and stand alone cost results (Part III-G and Part III-H, respectively) with Mr. Thomas D. Crowley.

Mr. Fapp received a Bachelor of Science degree in Business Administration with an option in Marketing (cum laude) from the California State University, Northridge in 1987. In 1993, he received a Masters of Business Administration degree specializing in finance and operations management from the University of Arizona's Eller College of Management. Mr. Fapp has lectured in graduate level finance and economics classes discussing corporate capital theory and costs of equity determination, and is a member of the Professional Advisory Council for the Eller School of Management Finance Department at the University of Arizona. He is also a member of Beta Gamma Sigma, the national honor society for collegiate schools of business.

Mr. Fapp has been employed by L.E. Peabody & Associates, Inc. since December 1997. Prior to joining L. E. Peabody & Associates, Inc., he was employed by BHP Copper Inc. in the role of Transportation Manager - Finance and Administration, where he also served as an officer of the three BHP Copper Inc. subsidiary common-carrier railroads: The San Manual Arizona Railroad, the Magma Arizona Railroad (also known as the BHP Arizona Railroad) and the BHP Nevada Railroad. Mr. Fapp has also held operations management positions with Arizona Lithographers in Tucson, AZ and MCA-Universal Studios in Universal City, CA.

While at BHP Copper Inc., Mr. Fapp was responsible for all financial and administrative functions of the company's transportation group. He also directed the BHP Copper Inc. subsidiary railroads' cost and revenue accounting staff, and managed the San Manuel Arizona Railroad's and BHP Arizona Railroad's dispatchers and dispatching functions ensuring safe and efficient operations. He served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team, where he was responsible for evaluating the acquisition of new railroads, including developing financial and economic assessment models. During his time with MCA-Universal Studios, Mr. Fapp held several operations management positions, including Operations Manager, where his duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses and simulations.

As part of his work for L.E. Peabody & Associates, Inc., Mr. Fapp has performed and directed numerous projects and analyses undertaken on behalf of utility companies, short line railroads, bulk shippers, and industry and trade associations. Examples of studies which he has organized and/or directed include traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities. He has also analyzed multiple car movements, unit train operations, divisions of through rail rates and switching operations throughout the United States. The nature of these studies enabled him to become familiar with the operating procedures utilized by railroads in the normal course of business.

Since 1997, Mr. Fapp has participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads. He has conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal. He has also participated in and managed several projects assisting short-line railroads. In these engagements, he assisted short-line railroads in their negotiations with connecting Class I carriers, performed railroad property and business evaluations, and worked on rail line abandonment projects.

Mr. Fapp has been frequently called upon to perform financial analyses and assessments of Class I, Class II and Class III railroad companies. In addition, he has developed various financial models exploring alternative methods of transportation contracting and cost assessment, developed corporate profitability and cost studies, and evaluated capital expenditure requirements. He has also determined the Going Concern Value of privately held freight and passenger railroads, including developing company specific costs of debt and equity for use in discounting future company cash flows.

His consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations. In these assignments, Mr. Fapp has calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity. He is also well acquainted with and has used the commonly accepted models for determining a firm's cost of equity, including single-stage and multi-stage Discounted Cash Flow models ("DCF"), and the Capital Asset Pricing Model ("CAPM").

In his tenure with L.E. Peabody & Associates, Inc., Mr. Fapp has assisted in the development and presentation of traffic and revenue forecasts, operating expense forecasts, and DCF, which were presented in numerous proceedings before the STB. He presented evidence applying the STB's stand-alone cost procedures in a number of rail proceedings before the STB. He has also presented evidence before the STB in numerous proceedings, including, but not limited to, Ex Parte No. 661, *Rail Fuel Surcharges,* Ex Parte No. 664, *Methodology To Be Employed In Determining the Rail Road Industry's Cost of Capital,* Ex Parte No. 664 (Sub-No. 1), *Use Of A Multi-Stage Discounted Cash Flow Model In Determining The Railroad Industry's Cost of Capital*, Ex Parte No. 558 *Railroad Cost of Capital*, Ex Parte No. 715, *Rate Regulation Reforms,* Ex Parte No. 664 (Sub-No. 2), *Petition Of The Western Coal Traffic League To*

Institute A Rulemaking Proceeding To Abolish The Use Of The Multi-Stage Discounted Cash Flow Model In Determining The Railroad Industry's Cost Of Equity Capital, and Ex Parte No. 665 (Sub-No. 1), *Rail Transportation of Grain, Rate Regulation Review*. In addition, his reports have been used as evidence before the Nevada State Tax Commission, and the Superior Court of California, County of Alameda.

VERIFICATION

I, Daniel L. Fapp, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Daniel L. Fapp

Executed on October 31, 2015

5. **MICHAEL E. LILLIS**

Mr. Lillis is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Lillis is sponsoring the portions of Part III-A related to the forecast of the SARR traffic group volumes and related revenues.

Mr. Lillis received a degree in economics from the University of Virginia. He has taken continuing education courses in law at the University of Virginia and has taken numerous graduate courses while enrolled in the MBA program at George Washington University.

Mr. Lillis has been employed by L.E. Peabody & Associates, Inc. since 1995. Prior to joining L.E. Peabody & Associates, Inc., Mr. Lillis worked for Western Fuels Association, Inc., ("WFA") a national fuel supply organization in the electric utility industry. While with WFA, he managed coal supply and rail transportation agreements for shippers that represented the membership of WFA. He organized and presented numerous economic studies and analyses for shippers relating to coal transportation, coal supply and related economic and regulatory problems. Mr. Lillis has negotiated, implemented and monitored both long term and short term coal supply and rail transportation agreements. Mr. Lillis has conducted field trips to coal suppliers in Wyoming's Powder River Basin and New

Mexico's San Juan Basin to develop on-site information used in the quantification of contract provisions and the development of operational mine costs.

While at L.E. Peabody & Associates, Inc., Mr. Lillis has participated in studies that utilize various formulas employed by the Surface Transportation Board ("STB") in the development of costs for common carriers, including the Uniform Railroad Costing System ("URCS"). He has developed variable costs for common carriers with particular emphasis on the general purpose costing system for rail carriers. Mr. Lillis has also performed extensive analyses in the area of stand-alone costing including route layout, design and construction costs, traffic and revenue development, forecasting and the development of detailed operating plans for various stand-alone railroads.

As part of his work at L.E. Peabody & Associates, Inc., Mr. Lillis conducted numerous studies for electric utilities regarding least cost alternatives for coal and natural gas delivery to various power plants. These studies included the valuation of existing contractual arrangements for fuel supply and transportation service, the evaluation of alternative fuel sources and transportation options (including trucking coal from nearby railroad locations, rail build-out to a competing railroad and conveyor delivery) and the development of operating characteristics and the associated operating and investment costs for each alternative. He has also developed numerous forecasts of coal prices, natural gas prices, freight rates and general economic indicators for electric utilities.

VERIFICATION

I, Michael E. Lillis, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Michael E. Lillis

Michael E. Lillis

Executed on October 31, 2015

6. **ROBERT D. MULHOLLAND**

Mr. Mulholland is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801.

Mr. Mulholland is sponsoring the development of the base year and peak period train lists in Part III-C.

Mr. Mulholland received a Bachelors degree in Government & Legal Studies from Bowdoin College in 1995. In 2004, he received a Masters degree in Transportation Policy, Operations & Logistics from George Mason University's School of Public Policy. Mr. Mulholland was employed by L.E. Peabody & Associates, Inc. from 1995 through 2004 and rejoined the Firm in 2008.

Mr. Mulholland has directed and conducted economic studies and prepared reports for freight carriers, shippers, federal agencies, the U.S. Congress, and other public bodies dealing with freight transportation and related economic issues. As part of his work for L.E. Peabody & Associates, Inc., Mr. Mulholland has developed evidence containing base year traffic, revenues, and revenue divisions, forecasts of those volumes and revenues, train lists supporting the movement of selected traffic, and operating statistics associated with their movement, for hypothetical stand-alone railroads ("SARR") in several Surface

Transportation Board ("STB" or "Board") proceedings dealing with the calculation of maximum reasonable rail transportation rates for coal and chemical shippers. Mr. Mulholland has presented written testimony before the STB in several Ex Parte proceedings, including: Docket No. EP 706, related to reporting requirements for PTC-related expenses and investments; Docket No. Ex Parte 715, related to the inclusion of cross-over traffic and the development of revenue divisions for that traffic in rate reasonableness proceedings; Docket No. EP 431 (Sub-No. 4), related to proposed adjustments to the STB's Uniform Railroad Costing System ("URCS") mode, and Docket No. EP 661 (Sub-No. 2), related to the application of the "Safe Harbor" provision to railroad fuel surcharge programs. Mr. Mulholland has developed evidence and presented written testimony containing fuel cost calculations for multiple commodities in an STB proceeding dealing with the determination of reasonable practices related to fuel surcharges.

Mr. Mulholland has conducted analyses of historical and forecasted rail transportation rates based on contract and tariff provisions and U.S. Government economic data for use in rail transportation contract negotiations. He has conducted multiple studies of rail fuel surcharge revenue collection formulae relative to fuel consumption and costs. He has developed studies analyzing delivered fuel prices to electric utilities using Federal Energy Regulatory Commission ("FERC"), Energy Information Administration ("EIA"), and related data. Mr. Mulholland conducted studies forecasting the impact of the Union Pacific-Southern Pacific merger on shippers with reduced access to rail competition following the merger, and developed studies analyzing the impact of the 1997-1998 Union Pacific Railroad service crisis on system traffic flows and transit times. He has organized and directed multiple traffic operations and cost analyses in connection with rail facilities analyses and rate and revenue division analyses.

Mr. Mulholland has developed a series of reports evaluating and critiquing the Federal Railroad Administration's ("FRA") benefit-cost analyses (BCA") related to the implementation of Positive Train Control ("PTC") systems on the Class I carriers' rail systems. He has developed economic and operational studies relative to the rail transportation of coal, grain, chemicals, and crude oil on behalf of various shippers, including analyses of the relative efficiency and costs of railroad operations over multiple routes. He has supported the negotiation of transportation contracts between coal shippers and railroads. He has developed numerous variable cost calculations utilizing the various formulas employed by the STB for the development of variable costs for common carriers, with particular emphasis on the basis and use of the URCS model.

From 2004 to 2006, Mr. Mulholland directed the freight economics and freight infrastructure delivery programs for the Office of Freight Management & Operations of the Federal Highway Administration ("FHWA"). While employed at FHWA, Mr. Mulholland was a member of the United States Department of Transportation ("USDOT") inter-agency working group that drafted the National Freight Policy. In addition, Mr. Mulholland served on the

USDOT Freight Gateway Team, a group headed by the Undersecretary for Policy and composed of one representative from each of the surface modal agencies.

From 2006 to 2008, Mr. Mulholland was employed by ICF International, where he directed and conducted numerous analyses of the trucking and rail industries for Federal transportation agencies including the Federal Motor Carrier Safety Administration ("FMCSA"), the FRA, and the FHWA. His work included analyses of the current rail and trucking industries and forecasts of future trends in both industries.

VERIFICATION

I, Robert D. Mulholland, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Robert D. Mulholland

Executed on October 31, 2015

7. **JOHN W. MCLAUGHLIN**

Mr. McLaughlin is Director, Market and Network Solutions for R.L. Banks & Associates, Inc. His business address is 2107 Wilson Blvd. Suite 750, Arlington, VA 22201. Mr. McLaughlin is sponsoring evidence related to train speeds and locomotives per train from the RTC Model simulation of the CERR's operations, as described in Part III-C-2. He is also co-sponsoring the simulation and validation of the CERR's infrastructure and operating plan, as well as development of certain operating statistics discussed in Part III-C and III-D.

He has 28 years of railroad, intermodal, and motor carrier experience on clients' needs. During his 18 years at Conrail, he developed expertise in railroad operations analysis, planning, costing, car scheduling, service design, customer service management, and intermodal marketing and pricing. He managed the penetration of the truckload motor carrier market, the launch of run-through intermodal services to Kansas City, Memphis, and Atlanta, and coordinated service management to exceed the on-time service requirements of Conrail's U.S. Mail contract.

In nine years of LTL motor carrier market research at Jevic Transportation, he established and managed market research processes that led to the penetration of 8 new geographic markets. He also led the company's cross-functional web development team in defining user requirements, programming development, testing, and implementation.

VERIFICATION

I, John W. McLaughlin, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

John W. McLaughlin

Executed on October 29, 2015

8. BRIAN A. DESPARD

Mr. Despard is a Vice President of L.E. Peabody & Associates, Inc. an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Glens Falls, NY. Mr. Despard is sponsoring Consumers Opening evidence related to the analysis of joint facilities costs in Part III-C and the development of operating expenses in Part III-D.

Mr. Despard earned a Bachelor of Science degree in Economics with a minor in Decision Sciences from George Mason University in 1989. Mr. Despard was employed by L.E. Peabody & Associates, Inc. from 1987 through 1997 and rejoined the Firm in 2013.

Mr. Despard has over 25 years of experience solving economic and marketing challenges related to transportation and energy. He has experience forecasting railroad revenues and operating expenses in support of stand-alone rate cases. He also has experience studying and modeling energy markets and regulatory policy for electric utilities and independent power producers. Mr. Despard has submitted testimony in cases before the Surface Transportation Board (and its predecessor, the Interstate Commerce Commission) and has been involved in settlement proceedings before the Federal Energy Regulatory Commission.

Mr. Despard has been involved with optimizing value around electric generating assets both as a consultant and as a manager, having assessed and managed value around coal-fired generation and natural gas-fired generation. He has specific experience with, and held oversight responsibility for unit bidding and dispatch, trading, origination, fuel supply and transportation, contract management, regulatory affairs and strategic analysis. Mr. Despard has also led economic studies of power asset options available for meeting compliance with existing and potential SO2, NOX and CO2 emissions requirements.

As an economic consultant, Mr. Despard provided electric utilities with coal supply and coal transportation contract valuation, structuring and negotiation support through the modeling of contract value and risk. He also assessed coal and natural gas markets for electric utility clients. In addition, he supported electric utilities and petrochemical companies in litigation through the economic valuation of fuel supply agreements, rail transportation contracts and regulatory standards.

Prior to rejoining L.E. Peabody & Associates, Inc. in 2013, Mr. Despard was Vice President, Asset Management at Dynegy, Inc. where he managed commercial staff with responsibility for optimizing gross margin from up to 4,000 MW of electric generation assets, including base load coal, natural gas combined-cycle and natural gas peaking assets. His key responsibilities included meeting profitability targets for the portfolio of generating assets through asset optimization and hedging, reporting region profits/losses to senior management, identifying and implementing strategic actions to increase long-term asset values and monitoring/interpreting regulatory policy impacts on profitability. Prior to his work at Dynegy, Mr. Despard was Manager, Financial Analysis at Tennessee Valley Authority ("TVA"), where he managed a team of analysts within the CFO organization that supported corporate decision making through financial analysis of contracts, assets and capital additions. As a fuel supply analyst at TVA, he supported natural gas procurement with evaluation of markets for supply and pipeline transport.

VERIFICATION

I, Brian A. Despard, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Brian A. Despard

Executed on October 31, 2015

9. JOHN W. ORRISON

Mr. Orrison is co-sponsoring the CERR system's configuration and facilities including its route, track and yard facilities, and traffic control system in Part III-B; the CERR's operating plan in Part III-C; and the operating personnel and their equipment needs as well as the CERR's outsourcing plan set forth in Part III-D.

Mr. Orrison has over 39 years of experience in the railroad industry, including many years of experience in senior management positions with CSXT and BNSF. Mr. Orrison holds a Masters of Business Administration from Harvard University, and a Bachelor Degree of Civil Engineering from Auburn University. He was also a White House Fellow where he served as a Special Assistant to the Vice President of the United Statement for Domestic Policy.

For CSXT, Mr. Orrison's served as Vice President – Network Planning, Vice President – Service Design, General Manager Field Operations Development, and Division Superintendent – Detroit Division, where he oversaw the portion of the lines that the CERR is replicating between Porter and West Olive, as well as many other lines in Michigan, Ohio and Ontario, Canada. Mr. Orrison also served as CSXT's primary operating plan witness in the Conrail acquisition proceeding.

As Vice President – Network Planning, Mr. Orrison directed the development of CSXT's strategic network plans, focusing particularly on the post-Conrail acquisition integration and modernization. During this time, he designed significant revisions to CSXT's core route resulting in a restructuring of over 30 percent of the network.

While serving as Vice President – Network Planning, Mr. Orrison was elected Co-Chairman of the AAR Committee charged with improving operations in Chicago. He was then appointed Chairman Corridor Development team, which designed the plans for 11 major Chicago corridors that were eventually integrated into the larger Chicago Create Program. Mr. Orrison was also involved in the establishment of the CTCO.

As Vice President – Service Design, Mr. Orrison developed and managed the CSXT train profiles, freight car blocks and freight car disposition rules. The system he developed is still in use by CSXT. Mr. Orrison also developed plans for new intermodal hubs between Chicago and New York City.

As Division Superintendent – Detroit Division, Mr. Orrison oversaw all of the operations in Michigan, Ohio and Ontario, Canada. As noted above, he was responsible for the CSXT line between Porter and West Olive, which the CERR replicates. He also oversaw a staff of 2,000 employees and managed a $200 million annual budget. He developed a prototype short haul intermodal train service between Chicago and Detroit, and he also increased train performance, yard operations and employee safety during his tenure. These improvements resulted in his Division being award the Best Improved Division for Safety.

Mr. Orrison held a number of other key position at CSXT, including Assistant Vice President – Operations Research, Assistant Vice President –

Operations Development, Assistant Director – Service Quality & Control, Manager – Strategic Planning, and Assistant Train Master in Hamlet, NC.

Following his time with CSXT, Mr. Orrison worked for one of the largest intermodal shippers in the United States as Executive Vice President – Strategic Planning. From there, Mr. Orrison joined BNSF Railway, where he served as Assistant Vice President – Service Design & Performance. In that role, he directed BNSF's Merchandise Service Design & Performance Team. This team was responsible for the development of train plans for over 500 daily trains operating over BNSF's 32,000-mile network in 28 states and two provinces of Canada. He also directed the Velocity Program designed to improve car transit times and trains speeds. This program ultimately improved velocity by 30 percent over five years.

Mr. Orrison is currently a consultant to rail systems across the United States as well as other parts of the world. Currently, he is assisting the Massachusetts Bay Transit Authority and Commuter Rail system with a complete overhaul of many of its operations. He also served as Director of Operating Planning for the system.

VERIFICATION

I, John W. Orrison, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

JW Orrison

John W. Orrison

Executed on October 23, 2015

10. ROBERT T. HOLMSTROM

Mr. Holmstrom is co-sponsoring the CERR system's configuration and facilities including its route, track and yard facilities, and traffic control system in Part III-B. He is also the co-sponsor of the CERR's operating plan in Part III-C. Mr. Holmstrom is also co-sponsoring the operating personnel and their equipment needs, and the CERR's outsourcing plan set forth in Part III-D.

Mr. Holmstrom is one of the foremost experts on Chicago-area railroad operations owing to his extensive knowledge gained through his 42 years of service in Chicago. Indeed, Mr. Holmstrom's entire railroad career was spent in Chicago. Mr. Holmstrom began his career in 1968 with the Grand Trunk Western as a yard and clerical assistant. In 1974, Mr. Holmstrom became the yard master for the CN's Elsdon Yard in Chicago. This position required management of all relevant yard operations and acting as a first line supervisor for those under him. In 1975, he was promoted to Trainmaster, a management position with CN. In 1984, Mr. Holmstrom became a certified locomotive engineer, and the next year he was promoted to Supervisor Locomotive Engineers. In that position, he supervised approximately 200 locomotive engineers operating in Chicago and the six county areas surrounding the city.

In 1994, Mr. Holmstrom was promoted to Assistant Superintendent Operations for Chicago – the most senior level position in CN's Chicago-area staffing. Mr. Holmstrom was responsible for training all of the engineers and conductors on the rules and physical layouts of all the lines and rail yards where

CN operated in Chicago. This position required an extensive and detailed understanding of all Chicago-area railroad operations.

Mr. Holmstrom's duties also extended beyond CN operations. Mr. Holmstrom was part of an inter-railroad team tasked with developing a single regional operating guide for Chicago. This group assembled the first edition of the Chicago Operating Rules Association guidebook. To develop this publication, Mr. Holmstrom reviewed and checked the accuracy of the rail operations descriptions and maps for the entire rail infrastructure within a 45-mile radius of Midway Airport.

In 1999, when CN acquired the Illinois Central, Mr. Holmstrom was selected by CN's Executive Vice President Operations to serve as CN's Superintendent-level representative to the CTCO. Mr. Holmstrom wore many hats at the CTCO. For example, he was involved in handling various complaints that came in the CTCO. He was part of the team that investigated root causes of traffic flow issues and which recommended various projects that became part of the CREATE project plans. He was also part of the eight-member team that directed and assisted with the RTC analysis of the Chicago-area operations, and these simulations were used to validate many of the infrastructure enhancement plans developed by the CTCO and CREATE.

VERIFICATION

I, Robert T. Holmstrom, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Robert T. Holmstrom

Robert Holmstrom

Executed on October 30, 2015

11. JOSEPH A. KRUZICH

Mr. Kruzich is President of J&A Business Consulting, Inc., a firm specializing in information technology and communications. His business address is 209 Violet Drive, Sanibel, FL 33957. Mr. Kruzich is sponsoring evidence related to Transportation Management Systems, and Information Technology personnel and hardware/software in Part III-D.

Mr. Kruzich has over 40 years of experience in railroad accounting, executive administration and information technology. He began his railroad career with the Chicago, Burlington and Quincy Railroad ("CB&Q") in 1963 as a tax accountant and was promoted to an internal auditor in 1965. In June of 1968, he joined the Atchison, Topeka and Santa Fe Railroad ("ATSF") as a manager of work control procedures. His job responsibilities included reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a high degree of efficiency. This position provided him an opportunity to become very familiar with various work processes involved in running a railroad.

From 1973 through 1994, Mr. Kruzich held various positions of increasing responsibility at ATSF and its parent. As Acting Controller of Santa Fe Air Freight Company and head of industrial engineering at ATSF he performed various efficiency studies in the operating, engineering and mechanical departments. Mr. Kruzich also held the position of Director of Budgets for the entire ATSF operating department including engineering, mechanical, transportation and all support groups, and as such was responsible for coordination of all information technology issues with the Information Systems Department that related to the Operating Department. He was responsible for all administration duties related to the Vice President of Operations office as General Director of Administration and as Assistant to the President of ATSF and Assistant Vice President of Administration in the Information Technology Group he was oversaw all budget, administration, special studies and the corporate measurements systems. These positions provided him with the opportunity to manage a complete process in developing new systems from beginning to end.

In 1995, Mr. Kruzich joined the Kansas City Southern Railway ("KCS") as Vice President of Administration, where he designed profitability, corporate measurement, revenue forecasting and corporate policy systems. In January 1997, he was promoted to Vice President Telecommunications and CIO. As CIO, Mr. Kruzich led the effort in developing the state-of-the-art railroad transportation system known as MCS ("Management Control System"). This system uses some of the most advanced technology such as MQ workflow, Citrix Metaframe, the latest version of Visual Basic and many other technologies and is designed around the business process.

In January 2000, Mr. Kruzich left KCS and formed Forging Ahead Associates, LLC, renamed J&A Business Consulting, Inc. This company provides state-of-the-art services in the areas of strategic planning and the development of web sites and e-business initiatives, evaluates the benefits of outsourcing information technology and business processes, and works with clients to make the initial contacts in developing global market opportunities.

Mr. Kruzich graduated from Northeast Missouri State University (Truman University) in 1962 with a Bachelor of Science degree in Business. In 1984, he received a Masters of Business Administration degree in Finance from the Keller Graduate School of Management in Chicago, Illinois.

VERIFICATION

I, Joseph A. Kruzich, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Joseph A. Kruzich

Joseph A. Kruzich

Executed on October 26, 2015

12. R. LEE MEADOWS, JR.

Mr. Meadows is Director, Transportation Engineering for R.L. Banks & Associates, Inc. His business address is 2107 Wilson Blvd. Suite 750, Arlington, VA 22201. Mr. Meadows is sponsoring the maintenance of way plan, personnel and costs evidence found in Part III-D.

Mr. Meadows earned an AS degree in Civil Engineering Technology from Bluefield State College in 1970; he then earned a BS degree in Civil Engineering Technology from Bluefield State College in 1972. In 1980, he earned an MS degree in Civil Construction Management from Wayne State University. He is also a Registered Professional Civil Engineer.

Mr. Meadows has 41 years of transportation experience. Mr. Meadows joined R.L. Banks & Associates several years go after working more than three decades at Norfolk Southern Corporation and its predecessor, the Norfolk & Western Railway, during which he held positions with increasing responsibility within the Engineering Department spanning management and engineering of railroad track structure, bridge and building inspection, condition assessment, maintenance, rehabilitation, design and construction. Mr. Meadows participated in redesigning the track layout to eliminate the westbound hump at the Norfolk Southern dual hump yard at Conway, PA and the final construction of the project; he has also participated in numerous design projects as an independent consultant. Mr. Meadows has experience with switching and yard operations, train performance, customer service, FRA rules, regulations and labor agreements.

VERIFICATION

I, R. Lee Meadows, Jr., verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

R. Lee Meadows, Jr.

R. Lee Meadows, Jr.

Executed on October 26, 2015

13. THOMAS D. CROWLEY

Mr. Crowley is an economist and President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, fuel supply and transportation issues. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Suite 150, Tucson, AZ 85737 and 7 Horicon Avenue, Glens Falls, NY 12801. Mr. Crowley is co-sponsoring Part III-G and Part III-H with Witness Daniel L. Fapp.

Mr. Crowley is a graduate of the University of Maine from which he obtained a Bachelor of Science degree in Economics. He has also taken graduate courses in transportation at The George Washington University in Washington, D.C. He spent three years in the United States Army and has been employed by L.E. Peabody & Associates, Inc. since February, 1971. He is a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering Association.

As an economic consultant, Mr. Crowley has organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, shippers, associations, and state governments and other public bodies dealing with transportation and related economic and financial matters. Examples of studies in which he has participated include organizing and directing traffic, operational and cost analyses in connection with multiple car movements, unit train operations for coal and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from both eastern and western origins to various destinations in the United States. The nature of these studies has enabled Mr. Crowley to become familiar with the operating and accounting procedures utilized by railroads in the normal course of business.

Additionally, Mr. Crowley has inspected both railroad terminal and line-haul facilities used in handling general freight, intermodal and unit train movements of coal and other commodities in all portions of the United States. The determination of the traffic and operating characteristics for specific movements was based, in part, on these field trips.

In addition to utilizing the methodology for developing a maximum rail rate based on stand-alone costs, Mr. Crowley also presented testimony before the Interstate Commerce Commission ("ICC") in Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines - Nationwide*, the proceeding that established this methodology and before the Surface Transportation Board ("STB") in Ex Parte No. 657 (Sub-No. 1), *Major Issues In Rail Rate Cases*, the proceeding that modified the application of the stand-alone cost test. Mr. Crowley also presented testimony in a number of the annual proceedings at the STB to determine the railroad industry current cost of capital, *i.e.*, STB Ex Parte No. 558, *Railroad Cost of Capital*. He has submitted evidence applying ICC (now the STB) stand-alone cost procedures in numerous rail rate cases. He has also developed and presented numerous calculations utilizing the various formulas employed by the ICC and

STB (both Rail Form A and Uniform Railroad Costing System ("URCS")) to develop variable costs for rail common carriers. In this regard, Mr. Crowley was actively involved in the development of the URCS formula, and presented evidence to the ICC analyzing the formula in Ex Parte No. 431, *Adoption of the Uniform Railroad Costing System for Determining Variable Costs for the Purposes of Surcharge and Jurisdictional Threshold Calculations*. Mr. Crowley also presented written testimony to the STB in Docket No. Ex Parte 706, *Reporting Requirements for Positive Train Control Expenses and Investments* and oral testimony before the Federal Railroad Administration concerning Docket No. FRA-2011-0028 – *Positive Train Control Systems.*

As a result of his extensive economic consulting practice since 1971 and his participating in maximum-rate, rail merger, and rule-making proceedings before the ICC and the STB, Mr. Crowley has become thoroughly familiar with the operations, practices and costs of the rail carriers that move traffic over the major rail routes in the United States.

VERIFICATION

I, Thomas D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Thomas D. Crowley

Executed on October 31, 2015

14. STUART I. SMITH

Mr. Smith is the president of Stuart I. Smith Realty Advisors LLC, a real estate appraisal and consulting firm with offices at 1710 Glastonberry Road, Rockville, MD 20854. The specific portion of Consumers' Opening Evidence that Mr. Smith is sponsoring relate to land valuation costs (Part III-F-1).

Mr. Smith is a Licensed Certified General Appraiser for the District of Columbia, Virginia, and Maryland. He has also received temporary licenses from Illinois, Indiana, and Michigan for work on this project. He also holds the MAI designation from the Appraisal Institute and is a member of the Royal Institution of Chartered Surveyors (MRICS).

Mr. Smith has over 30 years of experience in public and private real estate. Mr. Smith has provided market value appraisals of commercial office buildings, shopping centers, time-share projects, apartments, hotels, mixed-use projects, congregate housing, industrial properties and special use properties. He has also conducted market studies and highest and best use analyses. Additionally, Mr. Smith has consulted with both private sector clients and Federal agencies regarding a variety of real estate matters.

From 1986 to 1993, Mr. Smith was the Co-Manager of the Appraisal Division at the Washington, D.C. office of Cushman & Wakefield. As Manager, Mr. Smith conducted market value appraisals and offered consulting services.

Mr. Smith was Executive Director of the GSA/Public Building Service from 1984 to 1986. In this position, he was responsible for nation-wide activities regarding financial reporting, the GSA-rent program, capital budgeting, performance management, and administration. Prior to that, from 1983 to 1984, Mr. Smith was Director of the Office of Budget and Finance of the U.S. Customs Service. In his capacity as Director, Mr. Smith was responsible for Service-wide financial activities.

From 1977 to 1983, Mr. Smith served as Senior Examiner, Office of Management and Budget, Executive Office of the President of the United States. As Senior Examiner, Mr. Smith was responsible for government-wide civilian real estate issues and for reviewing and making recommendations on the nationwide operations of the General Services Administration. Prior to working at the Office of Management and Budget, Mr. Smith held various positions with the U.S. Treasury Department.

In addition to his valuation experience, Mr. Smith received a Bachelor of Science in Business and Economics from the University of Maryland. He also did some graduate work in Economics at Georgetown University and received his Masters in Business Administration, specializing in Corporate Finance, from The American University.

VERIFICATION

I, Stuart I. Smith, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Stuart I. Smith

Executed on October 27, 2015

15. VICTOR F. GRAPPONE

Mr. Grappone is President of Grappone Technologies P.E. P.C., a consulting firm that specializes in rail signaling and communications including train control systems, technical support and systems integration. His business address is 20 Jerusalem Avenue, Suite 201, Hicksville, NY 11801. Mr. Grappone is sponsoring the signals and communications plan and cost evidence in Part III-F-6.

Mr. Grappone obtained a B.S. degree in Electrical Engineering from Rensselaer Polytechnic Institute in 1978. Mr. Grappone has over 32 years of experience with railroad and transit signal and communications systems. His career in this field began in 1978, when he was hired by the Long Island Rail Road ("LIRR") as a Junior Engineer. In early 1981, Mr. Grappone was appointed Assistant Supervisor-Signals for the LIRR, where he was involved in the direct supervision of approximately 50 signal construction employees engaged in the installation and revision of signal systems as part of the LIRR's capital program. His responsibilities included task scheduling, personnel evaluation, on-site supervision and material ordering.

In mid-1984, Mr. Grappone was named Staff Engineer-Projects for the LIRR. In this position he was responsible for providing technical support for signal projects. In early 1987 Mr. Grappone was appointed to the position of Signal Circuit Designer for the LIRR, a position he held until late 1995. As Signal Circuit Designer, Mr. Grappone managed the technical aspects of the LIRR's recently-completed computer-based system that controlled the signal system at Penn Station (New York) and in the adjacent territory. This position also involved the direct supervision of a design team consisting of Signal Circuit Designers, Assistant Signal Circuit Designers and Draftsmen. In this position, Mr. Grappone was also responsible for the application of new technology to signal systems. Specific tasks included:

- Development of specifications for vital microprocessor-based systems for signal applications;
- Implementation of formalized procedures for performing FRA-mandated tests for signal systems;
- Development of a PC-based graphical control system; and
- Implementation of the first use of programmable logic controllers (PLC's) for the supervisory control functions.

From late 1995 to early 2001, Mr. Grappone held other positions involving signal and communications controls systems at the LIRR, including Acting Engineer – Signal Design, Project Manager responsible for developing and implementing a corporate signal strategy to direct all LIRR signaling efforts over a 20-year period, Principal Engineer – Signal Maintenance and Construction, and Principal Engineer – CBTC. In the latter position Mr. Grappone was responsible for the management and technical direction of the LIRR's Communications Based Train Control (CBTC) program. In all of these positions, Mr. Grappone was responsible for signal and communications matters involving LIRR's lines that had heavy volumes of both passenger and freight rail traffic.

In May of 2001, Mr. Grappone left the LIRR and formed his own consulting firm, Grappone Technologies, Inc. GTI was reincorporated as Grappone Technologies PE PC in 2007. Major projects Mr. Grappone and his firm have undertaken include:

- Signal design for the New York City Transit Canarsie Line CBTC project, Auxiliary Wayside System.
- Design of office route verification logic for New York City's ATS (Automatic Train Supervision) project.
- Signal circuit checking for the reconfiguration of Harold interlocking on the Long Island Rail Road under the East Side Access project.
- Preparation of specifications and provision of technical and field support for other signal and communications projects for heavy rail and light rail transit systems in the Northeast.
- Circuit design for signal system revisions associated with the reconstruction of five stations on New York City Transit's Brighton Line.
- Signal engineering for Long island Rail Road's Divide Tower Supervisory Control System.
- Signal engineering for Long island Rail Road's Atlantic Yard Supervisory Control System.
- Signal circuit checking the Long Island Rail Road's Great Neck Pocket Track project.

During the course of his consulting work Mr. Grappone, has applied for and obtained two patents involving train control systems, including U.S. Patent #6,381,506 for a programmable logic controller-based vital interlocking system (issued April 30, 2002), and U.S. Patent #6,655,639 for a broken rail detector for

Positive Train Control (PTC)/CBTC applications (issued December 2, 2003), and U.S. Patent #9,150,228 for Track Circuit Providing Enhanced Broken Rail Detection (issued October 6, 2015).

Mr. Grappone has been a member of the Eastern Signal Engineers association since June 1999 (inactive member since June 2001). He is presently a member of the Institute of Electrical and Electronics Engineers, Rapid Transit Vehicle Interface Committee Working Group 2: CBTC; the Communications-Based Train Control User Group; and the FRA's Rail Safety Advisory Committee, Positive Train Control Working Group.

VERIFICATION

I, Victor F. Grappone, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Victor F. Grappone

Executed on October 23, 2015

16. HARVEY H. STONE

Mr. Stone is founder and President of Stone Consulting, Inc., with offices at 324 Pennsylvania Avenue West, Warren, PA 16365. Mr. Stone is co-sponsoring the CERR system's configuration and facilities including its route, and track and yard facilities, in Part III-B. He is also co-sponsoring Consumers' Opening Evidence in Part III-F regarding SARR construction costs.

Stone Consulting is a consulting firm providing comprehensive engineering design services to railroad and other industries on a nationwide basis. Mr. Stone began his career working for the U.S. Army Corps of Engineers in permitting, design and construction inspection. He then worked for two years for a construction contractor and 28 years for a regional engineering firm. He was president of that firm for 16 years. He formed Stone Consulting & Design, Inc., a national firm specializing in railroad design and operations in 1996. Mr. Stone sold the company to TranSystems Corporation in 2007 and was employed by TranSystems until repurchasing the company in 2010.

Mr. Stone and his firm have handled large projects involving railroad freight and passenger feasibility studies, railroad track and structure design, and civil works projects in more than 20 states. He is frequently called upon to prepare preliminary engineering feasibility studies for industrial development and rail construction projects involving federal and state grants; most of the projects he has recommended as feasible have been funded and constructed. Stone Consulting, Inc. recently assisted in the start-up of the Saratoga & North

Creek Railroad, under passenger compliance FRA 238 and 239 standards. Mr. Stone was responsible for all track inspections and repairs as the chief engineer for the railroad.

Mr. Stone has a Bachelor of Science degree in civil engineering from Rensselaer Polytechnic Institute. He is a registered Professional Engineer in 31 states. He is a member of the American Council of Engineering Companies (ACEC), the American Railway Engineering and Maintenance of Way Association (AREMA) and the American Society of Highway Engineers through which he has obtained invaluable exposure to the many changes in engineering technology and standards over the years. Mr. Stone is the former chairman of ACEC's Quality Management Committee and a past president of the Bucktails Chapter of the Pennsylvania Society of Professional Engineers.

VERIFICATION

I, Harvey H. Stone, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

HHStone

Harvey H. Stone

Executed on October 26, 2015

17. <u>JOHN M. LUDWIG, P.E.</u>

Mr. Ludwig, P.E., is Vice President, Engineering at Stone Consulting with offices at 324 Pennsylvania Avenue West, Warren, PA 16365. He is sponsoring testimony on bridge design and costs set forth in Part III-F-5.

Mr. Ludwig joined Stone Consulting & Design, Inc. in 2003. His primary function is to provide expertise in the area of structural design and analysis for bridges and building structures. Prior to joining SC&D, Mr. Ludwig was self-employed, offering engineering services to building contractors, building industry suppliers, and western New York industry.

During his many years as a Professional Engineer, he has obtained diverse experience in project management, design, manufacturing, and construction. Most of his extensive structural experience was gained while employed for ten years as the Senior Engineer for one of the country's largest bleacher and stadium contractors. Mr. Ludwig is a registered Professional Engineer in 25 states.

VERIFICATION

I, John M. Ludwig, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

John M Ludwig

John M. Ludwig

Executed on October 23, 2015

18. WALTER H. SCHUCHMANN

Mr. Schuchmann is Vice President, Operations Planning for R.L. Banks & Associates, Inc. His business address is 2107 Wilson Blvd. Suite 750, Arlington, VA 22201. Mr. Schuchmann is co-sponsoring the simulation and validation of the CERR's infrastructure and operating plan, as well as development of certain operating statistics discussed in Part III-C.

Mr. Schuchmann has led a freight rail capacity on behalf of the Port Authority of New York and New Jersey and participated in coal, intermodal and solid waste operations and cost analyses as well as contributing to short line and regional railroad due diligence evaluations. He has conducted operations planning and simulation in three STB stand-alone coal rate cases using the Rail Traffic Controller program. Mr. Schuchmann participated in passenger rail service implementation on behalf of Metrolink, Virginia Railway Express, Baltimore's Central Light Rail Line and NJT's River Light Rail Line. He also has advised public bodies evaluating the initiation or expansion of intercity passenger or commuter rail services in Kansas City, Nashville, Fort Worth, Orlando, Vermont, South Carolina, Seattle and the north, east and west quadrants of the San Francisco Bay area with respect to service planning, shared passenger-freight line use, access arrangements and railroad institutional issues. He has over 25 years of experience in the railroad industry including eight as an operating and safety office with Norfolk Southern Railway.

VERIFICATION

I, Walter H. Schuchmann, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Walter H. Schuchmann

Walter H. Schuchmann

Executed on October 28, 2015

19. RICHARD C. BALAS

Mr. Balas is a railroad designer at Stone Consulting with more than 20 years of rail design experience. His business address is 324 Pennsylvania Avenue West, Warren, PA 16365. He is co-sponsoring Consumers' Opening Evidence in Part III-F regarding SARR construction costs.

Mr. Balas has designed several hundred rail projects during his career. Dick's list of design projects covers all facets of the railroad industry from industrial and shortline spur tracks, to Class I mainlines and leads, to streetcar and light rail transit. In addition to his expert rail design, Mr. Balas has also been an integral part of assisting clients in obtaining grant funding for rail projects.

Mr. Balas joined the staff of a consulting engineering firm upon graduation from Triangle Tech in 1991. He began learning track design in 1992 and has had continuing education by attending a number of track design programs through the years. In 1996 he joined Stone Consulting & Design which became part of TranSystems Corporation and is now Stone Consulting. Mr. Balas left Stone in 2011 to work for D&I Silica, designing frac sand transload and storage facilities. He rejoined the firm in 2014.

VERIFICATION

I, Richard C. Balas, verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

R C Balas

Richard C. Balas

Executed on October 25, 2015

20. JOHN F. HENNIGAN, Ph.D.

Dr. Hennigan is an Associate Director at Navigant Economics LLC, a subsidiary of Navigant Consulting, Inc. with offices at 1200 19th Street N.W., Suite 700, Washington D.C. 20036. Dr. Hennigan is sponsoring the revenue adequacy evidence in Part IV.

Dr. Hennigan is an experienced former government executive, economic analyst, and policymaker on aviation and other transportation industries, government budgeting and finance, and infrastructure financing. He has testified on economic and regulatory matters, has been a contributing member of critical national or global transportation and environmental policy studies, and has served as an expert to the U.S. Congress on financial matters related to transportation modes. Dr. Hennigan holds a B.A. degree in Economics from Xavier University in Cincinnati, Ohio, and a Ph.D. in Economics from West Virginia University.

Dr. Hennigan's first professional assignment after graduate school was from 1973 to 1976 as an economic consultant with Van Scoyoc & Wiskup Inc., in Washington, D.C. He conducted economic analysis and prepared testimony on electric, gas and telephone rate cases before State and Federal Regulatory Commissions.

Dr. Hennigan joined the Interstate Commerce Commission ("ICC"), in Washington, D.C. in 1976, initially as a staff economist in the Bureau of Economics and subsequently as a staff advisor to ICC Chairman Marcus Alexis. From 1981 to 1982, he was detailed to the U.S. House, Committee on Public

Works and Transportation, Surface Transportation Subcommittee to provide legislative and oversight support for the Subcommittee. Dr. Hennigan returned to the ICC in June 1982 and served as a staff advisor to Commissioner (and later Chairman) Heather Gradison until he was appointed as the Director of the ICC Office of Economics, and served in that position until 1990.

In 1991, after a one-year executive exchange assignment with the Transportation Marketing Division of the IBM Corporation, Dr. Hennigan became Deputy Director of the Office of Aviation Policy and Plans at the Federal Aviation Administration ("FAA") in Washington, D.C. In 1999, he accepted a position as the Deputy CFO of the FAA, where he assisted the CFO in decision-making in accounting, finance, budget, and related FAA policy matters.

From 2006 to 2008, Dr. Hennigan was detailed to the U.S. Senate, Committee on Commerce, Science, and Transportation to assist in the drafting and passage of the FAA Reauthorization Bill and to help provide policy guidance and oversight on aviation issues. He returned to the FAA in 2008 to serve as the coordinator of external liaison and business development functions for the FAA's Air Traffic Organization.

In 2011, Dr. Hennigan was detailed to the Department of Transportation (DOT), Office of Assistant Secretary for Budget and Programs, to assist, among other things, in setting up the Credit Program Oversight Office for the DOT's loan and loan guarantee programs for the surface transportation and maritime industries. He also served on the DOT team that prepared the analysis review memorandum to the Secretary on the U.S. Airways/American Airlines merger proposal.

Dr. Hennigan joined Microeconomic Consulting & Research Associates, Inc. ("MiCRA") in June of 2014 as a Senior Economic Advisor specializing in transportation and competition issues such as railroad rate regulation, price fixing in the air cargo industry, and bundling of telecommunication services. In July 2015, MiCRA merged with Navigant Economics LLC, where Dr. Hennigan is currently an Associate Director.

VERIFICATION

I, John F. Hennigan, Ph.D., verify under penalty of perjury that I have read the Opening Evidence of Consumers Energy Company in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

John F. Hennigan

John F. Hennigan, Ph.D.

Executed on October 28, 2015

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY Complainant, v. CSX TRANSPORTATION, INC. Defendant.	)	Docket No. NOR 42142

OPENING EVIDENCE OF COMPLAINANT

EXHIBITS

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(202) 347-7170

OF COUNSEL:

SLOVER & LOFTUS LLP
1224 Seventeenth St., N.W.
Washington, D.C. 20036

Dated: November 2, 2015

LIST OF EXHIBITS

Part I – Counsel's Argument

Exhibit I-1
Redacted

Exhibit I-2

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN

UNITED STATES OF AMERICA, Plaintiff v. CONSUMERS ENERGY COMPANY, Defendant.	Civil Action No.: 14-13580

CONSENT DECREE

TABLE OF CONTENTS

WHEREAS, Plaintiff, the United States of America ("the United States"), on behalf of the United States Environmental Protection Agency ("EPA"), is concurrently filing a Complaint and a Consent Decree, for injunctive relief and civil penalties pursuant to Sections 113(b)(2) and 167 of the Clean Air Act ("CAA" or the "Act"), 42 U.S.C. §§ 7413(b)(2) and 7477, alleging that Defendant, Consumers Energy Company ("Consumers") violated the Prevention of Significant Deterioration ("PSD") provisions of Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, the requirements of Title V of the Act, 42 U.S.C. §§ 7661-7661f, and the PSD and opacity provisions of the federally enforceable Michigan State Implementation Plan ("Michigan SIP");

WHEREAS, on March 30, 2007, and October 17, 2008, EPA issued Notices of Violation and Findings of Violation ("NOV/FOV") to Consumers with respect to alleged violations of the CAA;

WHEREAS, the United States provided Consumers and the State of Michigan with actual notice pertaining to Consumers' alleged violations, in accordance with Section 113 of the Act, 42 U.S.C. § 7413;

WHEREAS, in the Complaint, Plaintiff alleges, *inter alia,* that Consumers made major modifications to major emitting facilities, failed to obtain the necessary permits and install and operate the controls necessary under the Act to reduce sulfur dioxide ("SO_2"), oxides of nitrogen ("NO_x"), and/or particulate matter ("PM") emissions, and failed to meet established opacity standards, at certain electricity generating stations located in Michigan, and that such emissions can damage human health and the environment;

WHEREAS, in the Complaint, Plaintiff alleges claims upon which relief can be granted against Consumers under Sections 113 and 167 of the Act, 42 U.S.C. §§ 7413 and 7477;

WHEREAS, the United States and Consumers (collectively, the "Parties") have agreed that settlement of this action is in the best interest of the Parties and in the public interest, and that entry of this Consent Decree without further litigation is the most appropriate means of resolving this matter;

WHEREAS, the Parties anticipate that the installation and operation of pollution control equipment and practices pursuant to this Consent Decree, refueling of certain facilities with natural gas and/or the retirement of certain facilities required by this Consent Decree, will achieve significant reductions of SO_2, NO_x, and PM emissions and improve air quality;

WHEREAS, the Parties have agreed, and this Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in good faith and at arm's length and that this Consent Decree is fair, reasonable, in the public interest, and consistent with the goals of the Act;

WHEREAS, the Parties agree that the United States' filing of the Complaint and entry into this Consent Decree constitute diligent prosecution by the United States, under Section 304(b)(1)(B) of the CAA, 42 U.S.C. § 7604(b)(1)(B), of all matters alleged in the Complaint and addressed by this Consent Decree through the Date of Lodging of this Consent Decree;

WHEREAS, Consumers has cooperated in the resolution of these matters;

WHEREAS, Consumers denies the violations alleged in the Complaint, and nothing herein shall constitute an admission of liability; and

WHEREAS, the Parties have consented to entry of this Consent Decree without trial of any issues;

NOW, THEREFORE, without any admission of fact or law, it is hereby ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over this action, the subject matter herein, and the Parties consenting hereto, pursuant to 28 U.S.C. §§ 1331, 1345, 1355, and 1367, and pursuant to Sections 113 and 167 of the Act, 42 U.S.C. §§ 7413 and 7477. Venue is proper under Section 113(b) of the Act, 42 U.S.C. § 7413(b), and under 28 U.S.C. § 1391(b) and (c), because violations alleged in the Complaint are alleged to have occurred in, and Consumers conducts business in, this judicial district. Consumers consents to and shall not challenge entry of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree. Except as expressly provided for herein, this Consent Decree shall not create any rights in or obligations of any party other than the Parties to this Consent Decree. Except as provided in Section XXVI (Public Comment) of this Consent Decree, the Parties consent to entry of this Consent Decree without further notice.

II. APPLICABILITY

2. Upon entry, the provisions of this Consent Decree shall apply to and be binding upon the United States, and upon Consumers and any successors, assigns, or other entities or persons otherwise bound by law.

3. Consumers shall provide a copy of this Consent Decree to all vendors, suppliers, consultants, contractors, agents, and any other company or other organization retained as of or after the Date of Entry to perform any of the work required by this Consent Decree. Notwithstanding any retention of contractors, subcontractors, or agents to perform any work required under this Consent Decree, Consumers shall be responsible for ensuring that all work is performed in accordance with the requirements of this Consent Decree. In any action to enforce

this Consent Decree, Consumers shall not assert as a defense the failure of its officers, directors, employees, servants, agents, or contractors to take actions necessary to comply with this Consent Decree, unless such failure is determined to be a Force Majeure Event in accordance with Section XV (Force Majeure) of this Consent Decree.

III. DEFINITIONS

4. For the purposes of this Consent Decree, every term expressly defined by this Section shall have the meaning given that term herein. Every other term used in this Consent Decree that is also a term used under the Act or in a federal regulation implementing the Act shall mean in this Consent Decree what such term means under the Act or those regulations.

5. A "30-Day Rolling Average Emission Rate" for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the total pounds of NO_x or SO_2 emitted from the Unit during the current Unit Operating Day and the previous 29 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the current Unit Operating Day and the previous 29 Unit Operating Days; and third, divide the total number of pounds of NO_x or SO_2 emitted during the 30 Unit Operating Days by the total heat input during the 30 Unit Operating Days. A new 30-Day Rolling Average Emission Rate shall be calculated for each new Unit Operating Day. Each 30-Day Rolling Average Emission Rate shall include all emissions that occur during all periods within any Unit Operating Day, including emissions from startup, shutdown, and Malfunction, except as otherwise provided by Section XV (Force Majeure).

6. A "90-Day Rolling Average Emission Rate" for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the total

pounds of NO_x or SO_2 emitted from the Unit during the current Unit Operating Day and the previous 89 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the current Unit Operating Day and the previous 89 Unit Operating Days; and third, divide the total number of pounds of NO_x or SO_2 emitted during the 90 Unit Operating Days by the total heat input during the 90 Unit Operating Days. A new 90-Day Rolling Average Emission Rate shall be calculated for each new Unit Operating Day. Each 90-Day Rolling Average Emission Rate shall include all emissions that occur during all periods within any Unit Operating Day, including emissions from startup, shutdown, and Malfunction, except as otherwise provided by Section XV (Force Majeure).

7. A "365-Day Rolling Average Emission Rate" for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the pounds of the pollutant in question emitted from the Unit during the most recent Unit Operating Day and the previous 364 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the most recent Unit Operating Day and the previous 364 Unit Operating Days; and third, divide the total number of pounds of the pollutant emitted during the 365 Unit Operating Days by the total heat input during the 365 Unit Operating Days. A new 365-Day Rolling Average Emission Rate shall be calculated for each new Unit Operating Day. Each 365-Day Rolling Average Emission Rate shall include all emissions that occur during all periods of operation, including startup, shutdown, and Malfunction, except as otherwise provided by Section XV (Force Majeure).

8. "Baghouse" means a full stream (fabric filter or membrane) particulate emissions control device. Full stream is defined as capturing the entire stream of exhaust gas with no concurrent by-pass.

9. "Boiler Island" means a Unit's (a) fuel combustion system (including bunker, coal pulverizers, crusher, stoker, and fuel burners); (b) combustion air system; (c) steam generating system (firebox, boiler tubes, and walls); and (d) draft system (excluding the stack), all as further described in "Interpretation of Reconstruction," by John B. Rasnic, U.S. EPA (November 25, 1986) and attachments thereto.

10. "Campbell" means Consumers' J.H. Campbell Generating Plant consisting of three electric utility steam-generating units designated as Unit 1 (260 MW), Unit 2 (360 MW), and Unit 3 (835 MW) and related equipment, located in West Olive, Ottawa County, Michigan. Campbell Unit 3 is co-owned by Consumers (approximately 93%) along with Wolverine Power Supply Cooperative and the Michigan Public Power Association.

11. "Capital Expenditures" means all capital expenditures, as defined by Generally Accepted Accounting Principles ("GAAP"), as those principles exist at the Date of Entry of this Consent Decree, excluding the cost of installing or upgrading pollution control devices.

12. "CEMS" or "Continuous Emission Monitoring System," means, for obligations involving the monitoring of NO_x and SO_2 emissions under this Consent Decree, the devices defined in 40 C.F.R. § 72.2 and installed and maintained as required by 40 C.F.R. Part 75.

13. "Clean Air Act" or "CAA" or "Act" means the federal Clean Air Act, 42 U.S.C. §§ 7401-7671q, and its implementing regulations.

14. "Cobb" means, for purposes of this Consent Decree, Consumers' B.C. Cobb Generating Plant consisting of two electric utility steam-generating units designated as Unit 4 (160 MW) and Unit 5 (160 MW) and related equipment, located in Muskegon, Muskegon County, Michigan.

15. "Consent Decree" means this Consent Decree and the Appendices hereto, which are incorporated into the Consent Decree.

16. "Consumers" or "Defendant" means Consumers Energy Company.

17. "Consumers System" means the Campbell, Cobb, Karn, Weadock, and Whiting facilities as defined herein.

18. "Continuously Operate" or "Continuous Operation" means that when a pollution control technology or combustion control is required to be used at a Unit pursuant to this Consent Decree (including, but not limited to, SCR, FGD, DSI, ESP, Baghouse, or Low NO_x Combustion System), it shall be operated at all times that the Unit it serves is in operation (except (a) the SCRs on Campbell Units 2 and 3 need not be operated during scheduled maintenance on the applicable Unit's Urea Based Ammonia System and (b) as otherwise provided by Section XV (Force Majeure)), consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices (including Campbell Unit 2 and Unit 3 scheduled Urea Based Ammonia System outages), and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)), as applicable, for such equipment and the Unit.

19. "Date of Entry" means the date this Consent Decree is approved or signed by the United States District Court Judge.

20. "Date of Lodging" means the date this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the Eastern District of Michigan.

21. "Day" means calendar day unless otherwise specified in this Consent Decree.

22. "Dry Sorbent Injection" or "DSI" means a process in which a sorbent is pneumatically injected into the ducting downstream of where the coal is combusted and flue gas is produced, and upstream of the PM Control Device.

23. "Electrostatic Precipitator" or "ESP" means a device for removing particulate matter from combustion gases by imparting an electric charge to the particles and then attracting them to a metal plate or screen of opposite charge before the combustion gases are exhausted to the atmosphere.

24. "Emission Rate" for a given pollutant means the number of pounds of that pollutant emitted per million British Thermal Units of heat input (lb/mmBTU), calculated in accordance with this Consent Decree.

25. "Environmental Mitigation Projects" or "Projects" means the projects set forth in Section IX (Environmental Mitigation Projects) and Appendix A of this Consent Decree.

26. "EPA" means the United States Environmental Protection Agency.

27. "Flue Gas Desulfurization System" or "FGD" means a pollution control device that employs flue gas desulfurization technology, including an absorber or absorbers utilizing lime or limestone, or a sodium based material, for the reduction of SO_2 emissions.

28. "Force Majeure" means Force Majeure as defined in Section XV (Force Majeure) of this Consent Decree.

29. "Fossil Fuel" means any hydrocarbon fuel, including coal, petroleum coke, petroleum oil, or natural gas.

30. "Full Stream Operation" is defined as the design configuration of a control device such that it captures the entire stream of exhaust gas with no concurrent by-pass.

31. "Greenhouse Gases" means the air pollutant defined at 40 C.F.R. § 86.1818-12(a) as of the Date of Lodging of this Consent Decree as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This definition continues to apply even if 40 C.F.R. § 86.1818-12(a) is subsequently revised, stayed, vacated or otherwise modified.

32. "Improved Unit" for NO_x means a Consumers System Unit equipped with an SCR or scheduled under this Consent Decree to be equipped with an SCR. A Unit may be an Improved Unit for one pollutant without being an Improved Unit for another pollutant.

33. "Improved Unit" for SO_2 means a Consumers System Unit equipped with an FGD or scheduled under this Consent Decree to be equipped with an FGD. A Unit may be an Improved Unit for one pollutant without being an Improved Unit for another pollutant.

34. "Karn," for purposes of this Consent Decree, means Consumers' D.E. Karn Generating Plant consisting of two electric utility steam-generating units designated as Unit 1 (255 MW) and Unit 2 (260 MW) and related equipment, located in Essexville, Bay County, Michigan. Karn does not include the oil-fired electricity generating units designated as Karn Units 3 and 4, also located in Essexville, Bay County, Michigan.

35. "Karn Units 3 and 4" means Consumers' oil-fired Units 3 and 4, in Essexville, Bay County, Michigan.

36. "KW" means Kilowatt or one thousand watts net.

37. "lb/mmBTU" means one pound per million British Thermal Units.

38. "Low NO_x Combustion System" means burners and associated combustion air control equipment, including Over Fire Air if specified, which control mixing characteristics of Fossil Fuel and oxygen, thus restraining the formation of NO_x during combustion of fuel in the boiler.

39. "Malfunction" means a failure to operate in a normal or usual manner by any air pollution control equipment, process equipment, or a process, which is sudden, infrequent, and not reasonably preventable. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions.

40. "Michigan SIP" means the Michigan State Implementation Plan, and any amendments thereto, as approved by EPA pursuant to Section 110 of the Act, 42 U.S.C. § 7410.

41. "MW" means a megawatt or one million watts net.

42. "National Ambient Air Quality Standards" or "NAAQS" means national ambient air quality standards promulgated pursuant to Section 109 of the Act, 42 U.S.C. § 7409.

43. "Natural Gas" means natural gas received directly or indirectly through a connection to an interstate pipeline transporting natural gas governed by a tariff approved by the Federal Energy Regulatory Commission. The Parties recognize that Natural Gas is expected to contain no more than 0.5 grains of sulfur per 100 standard cubic feet of Natural Gas.

44. "Netting" shall mean the process of determining whether a particular physical change or change in the method of operation of a major stationary source results in a "net

emissions increase" or "net significant emissions increase" as those terms are defined at 40 C.F.R. § 52.21(b)(3)(i) and (ii) and in the Michigan SIP.

45. "NO_x" means oxides of nitrogen, measured in accordance with the provisions of this Consent Decree.

46. "NO_x Allowance" means an authorization to emit a specified amount of NO_x that is allocated or issued under an emissions trading or marketable permit program of any kind established under the Clean Air Act or the Michigan SIP; provided, however, that with respect to any such program that first applies to emissions occurring after December 31, 2011, a "NO_x Allowance" shall include an allowance created and allocated to a Consumers System Unit under such program only for control periods starting on or after the fourth anniversary of the Date of Entry of this Consent Decree.

47. "Nonattainment NSR" means the new source review program within the meaning of Part D of Subchapter I of the Act, 42 U.S.C. §§ 7501-7515 and 40 C.F.R. Part 51, and corresponding provisions of the federally enforceable Michigan SIP.

48. "Operational or Ownership Interest" means part or all of Consumers' legal or equitable operational or ownership interest in any operating, non-Retired Unit. The parties recognize that under this definition, Section XX (Sales or Transfers of Operational or Ownership Interests) of this Consent Decree does not apply to salvage, scrap, or demolition of a Retired Unit.

49. "Operating Day" means any calendar day on which a Unit fires Fossil Fuel.

50. "Other Unit" means any Unit within the Consumers System that is not an Improved Unit for the pollutant in question. A Unit may be an Improved Unit for NO_x and an Other Unit for SO_2, and vice versa.

51. "Over Fire Air" or "OFA" mean an in-furnace staged combustion control to reduce NO_x emissions.

52. "Parties" means the United States of America on behalf of EPA, and Consumers. "Party" means one of the named "Parties."

53. "PM" means total filterable particulate matter, measured in accordance with the provisions of this Consent Decree.

54. "PM Continuous Emission Monitoring System" or "PM CEMS" means, for obligations involving the monitoring of PM emissions under this Consent Decree, the equipment that samples, analyzes, measures, and provides, by readings taken at frequent intervals, an electronic and/or paper record of PM emissions.

55. "PM Control Device" means any device, including an ESP or Baghouse, which reduces emissions of PM.

56. "PM Emission Rate" means the number of pounds of PM emitted per million BTU of heat input (lb/mmBTU).

57. "Prevention of Significant Deterioration" or "PSD" means the new source review program within the meaning of Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492 and 40 C.F.R. Part 52, and corresponding provisions of the federally enforceable Michigan SIP.

58. "Project Dollars" means Consumers' expenditures and payments incurred or made in carrying out the Environmental Mitigation Projects identified in Section IX

(Environmental Mitigation Projects) of this Consent Decree to the extent that such expenditures or payments both: (a) comply with the requirements set forth in Section IX (Environmental Mitigation Projects) and Appendix A of this Consent Decree, and (b) constitute Consumers' direct payments for such projects (or in the case of land acquisition or donation projects required by Appendix A, the EPA-approved assessed value of real estate contributed for such projects), or Consumers' external costs for contractors, vendors, and equipment.

59. "Refuel to Natural Gas" or "Refueled to Natural Gas" means, solely for purposes of this Consent Decree, the modification of a Unit such that the modified unit generates electricity solely through the combustion of Natural Gas. Nothing herein shall prevent the reuse of any equipment at any existing Unit provided that Consumers applies for, and obtains, all required permits, including, if applicable, a PSD or Nonattainment NSR permit.

60. "Retire" or "Retirement" means that Consumers shall permanently shut down and cease to operate the Unit such that the Unit cannot physically or legally burn Fossil Fuel, and that Consumers shall comply with applicable state and federal requirements for permanently ceasing operation of the Unit as a Fossil Fuel-fired electric generating Unit, including removing the Unit from Michigan's air emissions inventory, and amending all applicable permits so as to reflect the permanent shutdown status of such Unit. Consumers can only subsequently operate such a Unit if it is Refueled to Natural Gas within the meaning of this Consent Decree, and Consumers obtains any and all required CAA permit(s) for the Refueled to Natural Gas Unit, including but not limited to an appropriate permit pursuant to CAA Subchapter I, Parts C and D, and pursuant to the applicable Michigan SIP provisions implementing CAA Subchapter I.

61. "Selective Catalytic Reduction" or "SCR" means an air pollution control device for reducing NO_x emissions in which ammonia ("NH_3") is added to the flue gas and then passed through layers of a catalyst material. The ammonia and NO_x in the flue gas stream react on the surface of the catalyst, forming nitrogen ("N_2") and water vapor.

62. "SO_2" means sulfur dioxide, measured in accordance with the provisions of this Consent Decree.

63. "SO_2 Allowance" means an authorization to emit a specified amount of SO_2 that is allocated or issued under an emissions trading or marketable permit program of any kind established under the Clean Air Act or the Michigan SIP; provided, however, that with respect to any such program that first applies to emissions occurring after December 31, 2011, an "SO_2 Allowance" shall include an allowance created and allocated to a Consumers System Unit under such program only for control periods starting on or after the fourth anniversary of the Date of Entry of this Consent Decree.

64. "State" means the State of Michigan.

65. "State Implementation Plan" or "SIP" means regulations and other materials promulgated by a state for purposes of meeting the requirements of the Act that have been approved by EPA pursuant to Section 110 of the Act, 42 U.S.C. § 7410.

66. "Surrender" or "Surrender of Allowances" means, for purposes of SO_2 or NO_x Allowances, permanently surrendering allowances from the accounts administered by EPA and Michigan for all Units in the Consumers System, so that such allowances can never be used thereafter to meet any compliance requirements under the Act, a SIP, or this Consent Decree.

67. "System-Wide Annual NO_x Tonnage Limitation" means the limitations, as specified in this Consent Decree, on the number of tons of NO_x that may be emitted from Campbell, Cobb, Karn, Weadock, and Whiting, collectively, during the relevant calendar year (i.e., January 1 through December 31), and shall include all emissions of NO_x during all periods of operations, including startup, shutdown, and Malfunction.

68. "System-Wide Annual SO_2 Tonnage Limitation" means the limitations, as specified in this Consent Decree, on the number of tons of SO_2 that may be emitted from Campbell, Cobb, Karn, Weadock, and Whiting, collectively, during the relevant calendar year (i.e., January 1 through December 31), and shall include all emissions of SO_2 during all periods of operations, including startup, shutdown, and Malfunction.

69. "Title V Permit" means the permit required of Consumers' major sources pursuant to Subchapter V of the Act, 42 U.S.C. §§ 7661-7661e.

70. "Unit" means collectively, the coal pulverizer, stationary equipment that feeds coal to the boiler, the boiler that produces steam for the steam turbine, the steam turbine, the generator, the equipment necessary to operate the generator, steam turbine, and boiler, and all ancillary equipment, including pollution control equipment and systems necessary for production of electricity. An electric steam generating station may comprise one or more Units.

71. "Urea Based Ammonia System" or "UBAS" means a type of ammonia feed system for SCRs where solid urea pellets are stored in a silo. Upon use, the solid urea is heated to liquid, thermally decomposed to ammonia, and injected into the SCR as the reagent for the NO_x reduction reaction.

72. "Weadock" means, for purposes of this Consent Decree, Consumers' J.C. Weadock Generating Plant consisting of two electric utility steam-generating Units designated as Unit 7 (155 MW) and Unit 8 (155 MW) and related equipment, located in Essexville, Bay County, Michigan.

73. "Whiting" means, for purposes of this Consent Decree, Consumers' Whiting Generation Station consisting of three electric utility steam-generating Units designated as Unit 1 (102 MW), Unit 2 (102 MW), and Unit 3 (124 MW) and related equipment, located in Luna Pier, Monroe County, Michigan.

74. "Wind Power" means capacity installed by Consumers or Power Purchase Agreements ("PPAs") entered into by Consumers for capacity using wind turbines.

IV. <u>NO_x EMISSION REDUCTIONS AND CONTROLS</u>

A. Unit-Specific NOx Requirements at Campbell Units 1, 2 and 3

75. Commencing upon the Date of Entry, Consumers shall Continuously Operate the existing Low NO_x Combustion System (including OFA) at Campbell Unit 1.

76. Commencing no later than 365 Operating Days after the Date of Entry and continuing thereafter, Consumers shall Continuously Operate the Low NO_x Combustion System (including OFA) at Campbell Unit 1 so that it achieves and maintains a 365-Day Rolling Average Emission Rate for NO_x of no greater than 0.220 lb/mmBTU.

77. Commencing upon the Date of Entry and continuing thereafter, Consumers shall Continuously Operate an SCR at Campbell Unit 2.

78. Commencing no later than 60 Operating Days after the Date of Entry and continuing thereafter, Consumers shall continuously achieve and maintain a 30-Day Rolling Average Emission Rate for NO_x of no greater than 0.100 lb/mmBTU at Campbell Unit 2.

79. Commencing no later than 180 Operating Days after the Date of Entry and continuing thereafter, Consumers shall continuously achieve and maintain a 90-Day Rolling Average Emission Rate for NO_x of no greater than 0.080 lb/mmBTU at Campbell Unit 2.

80. Commencing upon the Date of Entry and continuing thereafter, Consumers shall Continuously Operate an SCR at Campbell Unit 3.

81. Commencing no later than 60 Operating Days after the Date of Entry and continuing thereafter, Consumers shall continuously achieve and maintain a 30-Day Rolling Average Emission Rate for NO_x of no greater than 0.100 lb/mmBTU at Campbell Unit 3.

82. Commencing no later than 180 Operating Days after the Date of Entry and continuing thereafter, Consumers shall continuously achieve and maintain a 90-Day Rolling Average Emission Rate for NO_x of no greater than 0.080 lb/mmBTU at Campbell Unit 3.

83. Campbell Unit 1 and Unit 2 exhaust to a common stack where all mass emissions are monitored. Accordingly, so long as the two Units exhaust to a common stack, the procedures of Appendix B shall be used for purposes of apportionment of the common stack NO_x mass emissions and heat input to individual Campbell Units 1 and 2 for purposes of determining NO_x lb/mmBtu emission rates. Consumers reserves the right to monitor NO_x mass emissions at each unit individually if it becomes technically feasible to do so.

B. **Unit-Specific NO_x Requirements at Karn Units 1 and 2**

84. Commencing upon the Date of Entry, Consumers shall Continuously Operate the existing SCR at Karn Unit 1.

85. Commencing no later than 60 Operating Days after the Date of Entry and continuing thereafter, Consumers shall Continuously Operate the SCR at Karn Unit 1 so as to achieve and maintain a 30-Day Rolling Average Emission Rate for NO_x of no greater than 0.080 lb/mmBTU.

86. Commencing upon the Date of Entry, Consumers shall Continuously Operate the existing SCR at Karn Unit 2.

87. Commencing no later than 60 Operating Days after the Date of Entry and continuing thereafter, Consumers shall Continuously Operate the SCR at Karn Unit 2 so as to achieve and maintain a 30-Day Rolling Average Emission Rate for NO_x of no greater than 0.080 lb/mmBTU.

C. **Unit-Specific NO_x Requirements at Cobb Units 4 and 5**

88. Commencing upon the Date of Entry, and continuing until the Unit is Retired or Refueled to Natural Gas pursuant to this Consent Decree, Consumers shall Continuously Operate the existing Low NO_x Combustion System (including OFA) at Cobb Unit 5.

89. Commencing no later than 365 Operating Days after the Date of Entry, and continuing until the Unit is Retired or Refueled to Natural Gas pursuant to this Consent Decree, Consumers shall Continuously Operate the Low NO_x Combustion System (including OFA) at Cobb Unit 5 so that it achieves and maintains a 365-Day Rolling Average Emission Rate for NO_x of no greater than 0.220 lb/mmBTU.

90. By no later than April 15, 2016, Consumers shall (a) either Retire or Refuel to Natural Gas Cobb Unit 4 and (b) either Retire or Refuel to Natural Gas Cobb Unit 5. No later than one year from the Date of Entry, Consumers shall notify Plaintiff in writing which option – Retire or Refuel to Natural Gas – it elects for Cobb Units 4 and 5. If Consumers Refuels to Natural Gas Cobb Units 4 and/or 5, Consumers shall permanently cease burning coal at the unit(s) and shall continuously achieve and maintain a 365-Day Rolling Average Emission Rate for NO_x of no greater than 0.200 lb/mmBTU. Furthermore, each such Refueled Unit shall not exceed a capacity factor of 20.0 percent in any single calendar year, and shall not exceed a three-year rolling average capacity factor of 10.0 percent, based on an electrical output capacity of 135 MW gross per Unit.

D. <u>Unit-Specific NO_x Requirements at Weadock Units 7 and 8</u>

91. Commencing upon the Date of Entry, and continuing until the Unit is Retired pursuant to this Consent Decree, Consumers shall Continuously Operate the existing Low NO_x Combustion Systems at Weadock Units 7 and 8.

92. Commencing no later than 365 Operating Days after the Date of Entry, and continuing until the Unit is Retired pursuant to this Consent Decree, Consumers shall Continuously Operate the Low NO_x Combustion Systems at Weadock Units 7 and 8 so that each Unit achieves and maintains a 365-Day Rolling Average Emission Rate for NO_x of no greater than 0.340 lb/mmBTU.

93. Weadock Units 7 and 8 exhaust through a common duct to a common stack. Accordingly, so long as the two Units exhaust to a common duct, notwithstanding any other provision, any NO_x Emission Rates set forth under this Consent Decree as applicable to each of

Weadock Unit 7 and Unit 8 shall be measured and calculated for the two Units together as if they were a single Unit (e.g., where the Consent Decree specifies that Consumers shall operate Weadock Unit 7 and Unit 8 to achieve and maintain a 365-Day Rolling Average Emissions Rate for NO_x of 0.34 lb/mmBTU at each Unit, the emissions rate calculation for the Weadock Units will be based on the total NO_x emissions and heat input for the two Units together measured at the common duct). A violation of any such rate based on common duct measurements shall be presumed to be two violations, unless Consumers proves to EPA's satisfaction that the violation is due solely to the mal-performance of one of the two Units. The procedures in Appendix B are an acceptable means of demonstrating that a violation based on the common duct measurements is due solely to the mal-performance of one of the two Units.

94. By no later than April 15, 2016, Consumers shall Retire Weadock Units 7 and 8.

E. Unit-Specific NO_x Requirements at Whiting Units 1, 2, and 3

95. Commencing upon the Date of Entry, and continuing until the Unit is Retired pursuant to this Consent Decree, Consumers shall Continuously Operate the existing Low NO_x Combustion Systems at Whiting Units 1, 2, and 3.

96. Commencing no later than 365 Operating Days after the Date of Entry, and continuing until the Unit is Retired pursuant to this Consent Decree, Consumers shall Continuously Operate the Low NO_x Combustion Systems at Whiting Units 1, 2, and 3 so that each Unit achieves and maintains a 365-Day Rolling Average Emission Rate for NO_x of no greater than 0.280 lb/mmBTU.

97. By no later than April 15, 2016, Consumers shall Retire Whiting Units 1, 2, and 3.

F. System-Wide Annual NO_x Tonnage Limitations

98. The Consumers System, collectively, shall operate so as not to exceed the following System-Wide Annual NO_x Tonnage Limitations:

For the Calendar Year Specified Below:	System-Wide Annual NOx Tonnage Limitation:
2015	15,245
2016	9,319
2017 and continuing each calendar year thereafter	6,912 [cap shall adjust to 6,600 if Consumers elects to Retire Cobb 4 and 5]

G. Monitoring of NO_x Emissions

99. In determining a 30-Day Rolling Average Emission Rate for NO_x, a 90-Day Rolling Average Emission Rate for NO_x, or a 365-Day Rolling Average Emission Rate for NO_x, Consumers shall use CEMS in accordance with the procedures of 40 C.F.R. Part 75, except that the NO_x emissions data need not be bias adjusted and the missing data substitution procedures of 40 C.F.R. Part 75 shall not apply. If applicable, diluent capping (*i.e.*, 5% CO_2) will be applied to the NO_x emission rate for any hours where the measured CO_2 concentration is less than 5% following the procedures in 40 C.F.R. Part 75, Appendix F, Section 3.3.4.1.

100. For purposes of calculating the System-Wide Annual NO_x Tonnage Limitations, Consumers shall use CEMS in accordance with the procedures specified in 40 C.F.R. Part 75, which includes the requirements associated with the concepts of bias adjustments and missing data substitution.

H. Use and Surrender of NO_x Allowances

101. Except as may be necessary to comply with Section XIV (Stipulated Penalties), Consumers shall not use NO_x Allowances to comply with any requirement of this Consent

Decree, including by claiming compliance with any emission limitation required by this Consent Decree by using, tendering, or otherwise applying NO_x Allowances to offset any excess emissions.

102. Except as provided in this Consent Decree, Consumers shall not sell, bank, trade, or transfer any NO_x Allowances allocated to the Consumers System Units. Nothing in this Consent Decree shall restrict Consumers' ability to transfer NO_x Allowances among its own facility or general accounts.

103. Beginning with the year 2014 compliance period, and continuing each year thereafter, Consumers shall Surrender all NO_x Allowances allocated to the Consumers System for that year's compliance period that Consumers does not need in order to meet its own federal and/or state CAA regulatory requirements for the Consumers System Units. However, NO_x Allowances allocated to the Consumers System may be used by Consumers to meet its own federal and/or state CAA regulatory requirements for such Units.

104. Nothing in this Consent Decree shall prevent Consumers from purchasing or otherwise obtaining NO_x Allowances from another source for purposes of complying with federal and/or state CAA regulatory requirements to the extent otherwise allowed by law.

105. The requirements of this Consent Decree pertaining to Consumers' use and Surrender of NO_x Allowances are permanent injunctions not subject to any termination provision of this Consent Decree.

I. Super-Compliant NO_x Allowances

106. Notwithstanding Section IV.H (Use and Surrender of NO_x Allowances) of this Consent Decree, beginning with the year 2014 and continuing in each year thereafter, Consumers

may sell, bank, use, trade, or transfer NO_x Allowances allocated to the Consumers System that are made available in that year's compliance period solely as a result of:

a. the installation and operation of any NO_x pollution control that is not otherwise required by, or necessary to maintain compliance with, any provision of this Consent Decree, and is not otherwise required by law;

b. the use of SCR prior to the date established by this Consent Decree; or

c. achievement and maintenance of an Emission Rate below a 365-Day Rolling Average Emission Rate for NO_x at the following Units: (i) at Campbell Unit 1: 0.200 lb/mmBTU; (ii) at Campbell Unit 2: 0.070 lb/mmBTU; (iii) at Campbell Unit 3: 0.070 lb/mmBTU; (iv) at Cobb Unit 5: 0.200 lb/mmBTU; (v) at Karn Unit 1: 0.070 lb/mmBTU; (vi) at Karn Unit 2: 0.070 lb/mmBTU;

provided that Consumers is also in compliance for that calendar year with all emission limitations for NO_x set forth in this Consent Decree. Consumers shall timely report the generation of such super-compliant Allowances in accordance with Section XII (Periodic Reporting) of this Consent Decree.

J. **Method for Surrender of NO_x Allowances**

107. Consumers shall Surrender, or transfer to a non-profit third-party selected by Consumers for Surrender, all NO_x Allowances required to be Surrendered pursuant to Section IV.H (Use and Surrender of NO_x Allowances) of this Consent Decree by June 30 of the immediately following calendar year. Such Surrender need not include the specific NO_x Allowances that were allocated to Consumers System Units, so long as Consumers Surrenders

NO_x Allowances that are from the same year or an earlier year and that are equal to the number required to be Surrendered under this Consent Decree.

108. If any NO_x Allowances required to be Surrendered under this Consent Decree are transferred directly to a non-profit third-party, Consumers shall include a description of such transfer in the next report submitted to EPA pursuant to Section XII (Periodic Reporting) of this Consent Decree. Such report shall: (a) identify the non-profit third-party recipient(s) of the NO_x Allowances and list the serial numbers of the transferred NO_x Allowances; and (b) include a certification by the third-party recipient(s) stating that the recipient(s) will not sell, trade, or otherwise exchange any of the NO_x Allowances and will not use any of the NO_x Allowances to meet any obligation imposed by any environmental law. No later than the third periodic report due after the transfer of any NO_x Allowances, Consumers shall include a statement that the third-party recipient(s) Surrendered the NO_x Allowances for permanent Surrender to EPA in accordance with the provisions of the following Paragraph 109 within one year after Consumers transferred the NO_x Allowances to them. Consumers shall not have complied with the NO_x Allowance Surrender requirements of this Paragraph 108 until all third-party recipient(s) have actually Surrendered the transferred NO_x Allowances to EPA.

109. For all NO_x Allowances required to be Surrendered, Consumers or the third-party recipient(s) (as the case may be) shall first submit a NO_x Allowance transfer request to EPA's Office of Air and Radiation's Clean Air Markets Division directing the transfer of such NO_x Allowances to the EPA Enforcement Surrender Account or to any other EPA account that EPA may direct in writing. Such NO_x Allowance transfer requests may be made in an electronic manner using EPA's Clean Air Markets Division Business System or similar system provided by

EPA. As part of submitting these transfer requests, Consumers or the third-party recipient(s) shall irrevocably authorize the transfer of these NO_x Allowances and identify – by name of account and any applicable serial or other identification numbers or station names – the source and location of the NO_x Allowances being Surrendered.

V. SO_2 EMISSION REDUCTIONS AND CONTROLS

A. Unit-Specific SO_2 Requirements at Campbell Units 1, 2, and 3

110. Commencing no later than 60 Operating Days after the Date of Entry, Consumers shall Continuously Operate Campbell Units 1 and 2 so that the Units achieve and maintain a combined 30-Day Rolling Average Emission Rate for SO_2 of no greater than 1.00 lb/mmBTU.

111. Commencing no later than 60 Operating Days after the Date of Entry, Consumers shall Continuously Operate Campbell Unit 3 so that the Unit achieves and maintains a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 1.00 lb/mmBTU.

112. Consumers shall install an FGD at Campbell Unit 3 and, commencing on December 31, 2016, Consumers shall Continuously Operate such FGD. Commencing no later than 60 Operating Days thereafter, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 0.085 lb/mmBTU. Commencing no later than 365 Operating Days after December 31, 2016, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 0.070 lb/mmBTU.

113. Consumers shall install DSI at Campbell Unit 1 and, commencing on June 30, 2016, Consumers shall Continuously Operate such DSI. Commencing no later than 60 Operating Days after June 30, 2016, Consumers shall Continuously Operate DSI at Campbell

Unit 1 so as to achieve and maintain a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 0.350 lb/mmBTU. Commencing no later than 180 Operating Days after June 30, 2016, Consumers shall Continuously Operate DSI at Campbell Unit 1 so as to achieve and maintain a 90-Day Rolling Average Emission Rate for SO_2 of no greater than 0.290 lb/mmBTU.

114. Consumers shall install DSI at Campbell Unit 2 and, commencing on June 30, 2016, Consumers shall Continuously Operate such DSI. Commencing no later than 365 Operating Days after June 30, 2016, Consumers shall Continuously Operate DSI at Campbell Unit 2 so as to achieve and maintain a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 0.320 lb/mmBTU.

115. Campbell Unit 1 and Unit 2 exhaust to a common stack where all mass emissions are monitored. Prior to June 30, 2016, so long as the two Units exhaust to a common stack, notwithstanding any other provision, any SO_2 Emission Rates set forth under this Consent Decree as applicable to each of Campbell Unit 1 and Unit 2 shall be measured and calculated for the two Units together as if they were a single Unit. For example, where the Consent Decree specifies Campbell Unit 1 and Unit 2 shall achieve and maintain a 30-Day Rolling Average Emissions Rate for SO_2 of 1.00 lb/mmBTU, the emissions rate calculation for the Campbell Units will be based on the total SO_2 emissions and heat input for the two Units together measured at the common stack. A violation of any such rate based on common stack measurements shall be presumed to be two violations, unless Consumers proves to EPA's satisfaction that the violation is due solely to the mal-performance of one of the two units.

116. By June 30, 2016, Consumers shall either (a) install, certify, and operate unit level SO_2 CEMS on Campbell Units 1 and 2 and follow the procedures in Appendix B to calculate

unit level SO_2 mass emissions or (b) install, certify, and operate unit level SO_2 CEMS and flow CEMS on Campbell Units 1 and 2 to allow the direct determination of unit level SO_2 mass emissions. Installation and certification of the SO_2 CEMS and flow CEMS, as applicable, shall follow the procedures of 40 C.F.R. Part 75, Appendix A.

B. Unit-Specific SO_2 Requirements at Karn Units 1 and 2

117. Consumers shall install an FGD at Karn Unit 1 and, commencing on December 31, 2014, Consumers shall Continuously Operate such FGD. Commencing no later than 60 Operating Days thereafter, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 0.090 lb/mmBTU. Commencing no later than 365 Operating Days after December 31, 2014, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 0.075 lb/mmBTU.

118. Consumers shall install an FGD at Karn Unit 2 and, commencing on April 15, 2015, Consumers shall Continuously Operate such FGD. Commencing no later than 60 Operating Days thereafter, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 0.090 lb/mmBTU. Commencing no later than 365 Operating Days after April 15, 2015, Consumers shall Continuously Operate such FGD so as to achieve and maintain a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 0.075 lb/mmBTU.

C. Unit-Specific SO_2 Requirements at Cobb Units 4 and 5

119. Commencing no later than 60 Operating Days after the Date of Entry, and continuing until the Unit is Retired or Refueled to Natural Gas pursuant to this Consent Decree,

Consumers shall Continuously Operate Cobb Units 4 and 5 so that each Unit achieves and maintains a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 1.40 lb/mmBTU.

120. Commencing no later than 365 Operating Days after the Date of Entry, and continuing until the Unit is Retired or Refueled to Natural Gas pursuant to this Consent Decree, Consumers shall Continuously Operate Cobb Units 4 and 5 so that each Unit achieves and maintains a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 1.20 lb/mmBTU.

121. By no later than April 15, 2016, Consumers shall either Retire or Refuel to Natural Gas Cobb Units 4 and 5. No later than one year from the Date of Entry, Consumers shall notify Plaintiff in writing which option – Retire or Refuel to Natural Gas – it elects for Cobb Units 4 and 5.

D. <u>Unit-Specific SO_2 Requirements at Weadock Units 7 and 8</u>

122. Commencing no later than 60 Operating Days after the Date of Entry, Consumers shall Continuously Operate Weadock Units 7 and 8 so that each Unit achieves and maintains a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 1.40 lb/mmBTU.

123. Commencing no later than 365 Operating Days after the Date of Entry, Consumers shall Continuously Operate Weadock Units 7 and 8 so that each Unit achieves and maintains a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 1.20 lb/mmBTU.

124. Weadock Units 7 and 8 exhaust through a common duct to a common stack. Accordingly, so long as the two Units exhaust to a common duct, notwithstanding any other provision, any SO_2 Emission Rates set forth under this Consent Decree as applicable to each of Weadock Unit 7 and Unit 8 shall be measured and calculated for the two Units together as if they were a single Unit (e.g., where the Consent Decree specifies that Consumers shall operate

Weadock Unit 7 and Unit 8 to achieve and maintain a 30-Day Rolling Average Emissions Rate for SO_2 of 1.40 lb/mmBTU at each Unit, the emissions rate calculation for the Weadock Units will be based on the total SO_2 emissions and heat input for the two Units together measured at the common duct). A violation of any such rate based on common duct measurements shall be presumed to be two violations, unless Consumers proves to EPA's satisfaction that the violation is due solely to the mal-performance of one of the two Units.

125. By no later than April 15, 2016, Consumers shall Retire Weadock Units 7 and 8.

E. Unit-Specific SO_2 Requirements at Whiting Units 1, 2, and 3

126. Commencing no later than 60 Operating Days after the Date of Entry, Consumers shall Continuously Operate Whiting Units 1, 2, and 3 so that each Unit achieves and maintains a 30-Day Rolling Average Emission Rate for SO_2 of no greater than 1.40 lb/mmBTU.

127. Commencing no later than 365 Operating Days after the Date of Entry, Consumers shall Continuously Operate Whiting Units 1, 2, and 3 so that each Unit achieves and maintains a 365-Day Rolling Average Emission Rate for SO_2 of no greater than 0.90 lb/mmBTU.

128. By no later than April 15, 2016, Consumers shall Retire Whiting Units 1, 2, and 3.

F. System-Wide Annual SO_2 Tonnage Limitation.

129. The Consumers System, collectively, shall operate so as not to exceed the following System-Wide Annual SO_2 Tonnage Limitations:

For the Calendar Year Specified Below:	System-Wide Annual SO_2 Tonnage Limitation:
2015	57,900
2016	34,000
2017 and continuing each calendar year thereafter	10,900

G. Monitoring of SO_2 Emissions

130. In determining a 30-Day Rolling Average Emission Rate for SO_2, a 90-Day Rolling Average Emission Rate for SO_2, or a 365-Day Rolling Average Emission Rate for SO_2, Consumers shall use CEMS in accordance with the procedures of 40 C.F.R. Part 75, except that the SO_2 emissions data need not be bias adjusted and the missing data substitution procedures of 40 C.F.R. Part 75 shall not apply. If Consumers elects to install unit level SO_2 CEMS on Campbell Units 1 and 2 (in lieu of installing both unit level SO_2 and flow CEMS) and calculates unit level SO_2 mass emission according to the procedures in Appendix B, diluent capping (*i.e.*, 5% CO_2) will be applied to the SO_2 emission rate for any hours where the measured CO_2 concentration is less than 5% following the procedures in 40 C.F.R. Part 75, Appendix F, Section 3.3.4.1.

131. For purposes of calculating the System-Wide Annual SO_2 Tonnage Limitation, Consumers shall use CEMS in accordance with the procedures specified in 40 C.F.R. Part 75, which includes the requirements associated with the concepts of bias adjustments and missing data substitution.

H. Use and Surrender of SO_2 Allowances

132. Except as may be necessary to comply with Section XIV (Stipulated Penalties), Consumers shall not use SO_2 Allowances to comply with any requirement of this Consent Decree, including by claiming compliance with any emission limitation required by this Consent Decree by using, tendering, or otherwise applying SO_2 Allowances to offset any excess emissions.

133. Except as provided in this Consent Decree, Consumers shall not sell, bank, trade, or transfer any SO_2 Allowances allocated to the Consumers System Units. Nothing in this Consent Decree shall restrict Consumers' ability to transfer SO_2 Allowances among its own facility or general accounts.

134. Beginning with the year 2014 compliance period, and continuing each year thereafter, Consumers shall Surrender all SO_2 Allowances allocated to the Consumers System for that year's compliance period that Consumers does not need in order to meet its own federal and/or state CAA regulatory requirements for the Consumers System Units. However, SO_2 Allowances allocated to the Consumers System Units may be used by Consumers to meet its own federal and/or state CAA regulatory requirements for such Units.

135. Nothing in this Consent Decree shall prevent Consumers from purchasing or otherwise obtaining SO_2 Allowances from another source for purposes of complying with federal and/or state CAA regulatory requirements to the extent otherwise allowed by law.

136. The requirements of this Consent Decree pertaining to Consumers' use and Surrender of SO_2 Allowances are permanent injunctions not subject to any termination provision of this Consent Decree.

I. <u>Super-Compliant SO_2 Allowances</u>

137. Notwithstanding Section V.H (Use of Surrender of SO_2 Allowances) of this Consent Decree, beginning with the year 2014 and continuing in each calendar year thereafter, Consumers may sell, bank, use, trade, or transfer SO_2 Allowances made available in that year's compliance period solely as a result of:

a. the installation and operation of any SO_2 pollution control that is not otherwise required by, or necessary to maintain compliance with, any provision of this Consent Decree, and is not otherwise required by law;

b. the use of FGD or DSI prior to the date established by this Consent Decree; or

c. achievement and maintenance of an Emission Rate below a 365-Day Rolling Average Emission Rate for SO_2 at the following Units: (i) at Campbell Units 1 and 2: 0.260 lb/mmBTU; (ii) at Campbell Unit 3: 0.060 lb/mmBTU; (iii) at Karn Unit 1: 0.075 lb/mmBTU, (iv) at Karn Unit 2: 0.075 lb/mmBTU;

provided that Consumers is also in compliance for that calendar year with all emission limitations for SO_2 set forth in this Consent Decree. Consumers shall timely report the generation of such super-compliant Allowances in accordance with Section XII (Periodic Reporting) of this Consent Decree.

J. <u>Method for Surrender of SO_2 Allowances.</u>

138. Consumers shall Surrender, or transfer to a non-profit third party selected by Consumers for Surrender, all SO_2 Allowances required to be Surrendered pursuant to Section V.H (Use and Surrender of SO_2 Allowances) of this Consent Decree by June 30 of the immediately following calendar year. Such Surrender need not include the specific SO_2 Allowances that were allocated to Consumers System Units, so long as Consumers Surrenders SO_2 Allowances that are from the same year or an earlier year and that are equal to the number required to be Surrendered under this Consent Decree.

139. If any SO_2 Allowances required to be Surrendered under this Consent Decree are transferred directly to a non-profit third party, Consumers shall include a description of such

transfer in the next report submitted to EPA pursuant to Section XII (Periodic Reporting) of this Consent Decree. Such report shall: (a) identify the non-profit third party recipient(s) of the SO_2 Allowances and list the serial numbers of the transferred SO_2 Allowances; and (b) include a certification by the non-profit third party recipient(s) stating that the recipient(s) will not sell, trade, or otherwise exchange any of the allowances and will not use any of the SO_2 Allowances to meet any obligation imposed by any environmental law. No later than the third periodic report due after the transfer of any SO_2 Allowances, Consumers shall include a statement that the non-profit third party recipient(s) Surrendered the SO_2 Allowances for permanent Surrender to EPA in accordance with the provisions of the following Paragraph 140 within one year after Consumers transferred the SO_2 Allowances to them. Consumers shall not have complied with the SO_2 Allowance Surrender requirements of this Paragraph 139 until all third party recipient(s) have actually Surrendered the transferred SO_2 Allowances to EPA.

140. For all SO_2 Allowances required to be Surrendered, Consumers or the third party recipient(s) (as the case may be) shall first submit an SO_2 Allowance transfer request to EPA's Office of Air and Radiation's Clean Air Markets Division directing the transfer of such SO_2 Allowances to the EPA Enforcement Surrender Account or to any other EPA account that EPA may direct in writing. Such SO_2 Allowance transfer requests may be made in an electronic manner using EPA's Clean Air Markets Division Business System or similar system provided by EPA. As part of submitting these transfer requests, Consumers or the third party recipient(s) shall irrevocably authorize the transfer of these SO_2 Allowances and identify – by name of account and any applicable serial or other identification numbers or station names – the source and location of the SO_2 Allowances being Surrendered.

VI. PM EMISSION REDUCTIONS AND CONTROLS

A. Optimization of Baghouses and ESPs

141. By no later than 60 Operating Days from Entry of this Consent Decree and continuing thereafter, Consumers shall Continuously Operate each PM Control Device on each Unit in the Consumers System and use good air pollution control practices to maximize the PM emission reductions at all times when the Unit is in operation. Consumers shall:

(a), at a minimum, to the extent practicable: (i) fully energize each section of the ESP for each Unit, where applicable; operate each compartment of the Baghouse as designed for Full Stream Operation for each Unit, where applicable (regardless of whether those actions are needed to comply with opacity limits); (ii) operate automatic control systems on each ESP to maximize PM collection efficiency, where applicable; (iii) maintain and replace bags on each Baghouse as needed to maximize collection efficiency, where applicable; (iv) maintain power levels delivered to the ESPs, consistent with manufacturers' specifications, the operational design of the Unit, and good engineering practices; and (v) evaluate and restore the plate-cleaning and discharge-electrode-cleaning systems for the ESPs at each Unit by varying the cycle time, cycle frequency, rapper-vibrator intensity, and number of strikes per cleaning event; and

(b) during the next planned Unit outage (or unplanned outage of sufficient length), optimize the PM controls on that Unit by inspecting for and repairing any failed ESP section or Baghouse compartment and any openings in ESP casings, ductwork and expansion joints to minimize air leakage.

B. **Unit-Specific PM Requirements at Campbell Units 1, 2, and 3**

142. Commencing no later than 60 Operating Days after the Date of Entry, and continuing through May 1, 2016, Consumers shall Continuously Operate the PM Control Devices being vented to a combined stack at Campbell Units 1 and 2 so as to achieve and maintain a PM Emission Rate of no greater than 0.030 lb/mmBTU at the common stack.

143. Commencing no later than 60 Operating Days after the Date of Entry, and continuing through December 30, 2016, Consumers shall Continuously Operate the existing ESP at Campbell Unit 3 so as to achieve and maintain a PM Emission Rate of no greater than 0.030 lb/mmBTU.

144. Consumers shall install a Baghouse at Campbell Unit 1 and, commencing on April 1, 2016, and continuing thereafter, Consumers shall Continuously Operate such Baghouse so that it achieves and maintains a PM Emission Rate of no greater than 0.015 lb/mmBTU.

145. Consumers shall install a Baghouse at Campbell Unit 2 and, commencing no later than 30 Operating Days after the Date of Entry, and continuing thereafter, Consumers shall Continuously Operate such Baghouse so that it achieves and maintains a PM Emission Rate of no greater than 0.015 lb/mmBTU.

146. Consumers shall install a Baghouse at Campbell Unit 3 and, commencing on December 31, 2016, and continuing thereafter, Consumers shall Continuously Operate such Baghouse so that it achieves and maintains a PM Emission Rate of no greater than 0.015 lb/mmBTU.

C. Unit-Specific PM Requirements at Karn Units 1 and 2

147. Commencing no later than 30 Operating Days after the Date of Entry, and continuing thereafter, Consumers shall Continuously Operate the existing Baghouse at Karn Unit 1 so as to achieve and maintain a PM Emission Rate of no greater than 0.015 lb/mmBTU.

148. Commencing no later than 30 Operating Days after the Date of Entry, and continuing thereafter, Consumers shall Continuously Operate the existing Baghouse at Karn Unit 2 so as to achieve and maintain a PM Emission Rate of no greater than 0.015 lb/mmBTU.

D. Unit-Specific PM Requirements at Cobb Units 4 and 5

149. By no later than April 15, 2016, Consumers shall either Retire or Refuel to Natural Gas Cobb Units 4 and 5. No later than one year from the Date of Entry, Consumers shall notify Plaintiff in writing which option – Retire or Refuel to Natural Gas – it elects for Cobb Units 4 and 5.

E. Unit-Specific PM Requirements at Weadock Units 7 and 8, and Whiting Units 1, 2, and 3

150. By no later than April 15, 2016, Consumers shall Retire Weadock Units 7 and 8, and Whiting Units 1, 2, and 3.

F. Opacity Limits

151. Subject to and consistent with provisions of the Michigan SIP, by no later than 60 Operating Days after the date of the initial Continuous Operation of the Baghouses at Campbell Unit 1, Campbell Unit 2, Campbell Unit 3, Karn Unit 1, and Karn Unit 2 as required by Section VI (PM Emission Reductions and Controls) of this Consent Decree and continuing thereafter, Consumers shall Continuously Operate each such Unit so as to maintain compliance with the opacity limit set forth in the Michigan SIP and Title V Permit for each Unit.

152. Subject to and consistent with provisions of the Michigan SIP, by no later than 60 Operating Days after the date of optimization of PM controls on Cobb Unit 4, Cobb Unit 5, Weadock Unit 7, Weadock Unit 8, Whiting Unit 1, Whiting Unit 2, and Whiting Unit 3 as required by Paragraph 141(b) of this Consent Decree and continuing thereafter, Consumers shall Continuously Operate each such Unit and the oil-fired Karn Units 3 and 4 so as to maintain compliance with the opacity limit set forth in the Michigan SIP and Title V Permit for each Unit.

G. PM Emissions Testing and Monitoring Requirements

153. Within 12 months of the Date of Entry, and continuing annually thereafter (unless a Unit is Retired or Refueled to Natural Gas), Consumers shall conduct a stack test for PM pursuant to Paragraphs 154, 155, and 156. The annual performance test requirement imposed on Consumers by this Paragraph 153 may be satisfied by stack tests conducted by Consumers as may be required by its permits from the State of Michigan for any year that such stack tests are required under the permits. Consumers may perform testing every other year, rather than every year, provided that two of the most recently completed test results from tests conducted in accordance with the methods and procedures specified in this Consent Decree demonstrate that the PM emissions are equal to or less than 0.015 lb/mmBTU if the applicable rate is 0.030 lb/mmBTU, and 0.010 lb/mmBTU if the applicable rate is 0.015 lb/mmBTU. Consumers shall perform testing every year, rather than every other year, beginning in the year immediately following any test result demonstrating that the PM emissions are greater than 0.015 lb/mmBTU if the applicable rate is 0.030 lb/mmBTU, and 0.010 lb/mmBTU if the applicable rate is 0.015 lb/mmBTU.

154. To determine compliance with the PM Emission Rate established in Subsections VI.B and (Unit-Specific PM Requirements at Campbell Units 1, 2 and 3) and C (Unit-Specific PM Requirements at Karn Units 1 and 2), Consumers shall use the applicable reference methods and procedures (filterable portion only) specified in its CAA permits and the Michigan SIP for Campbell Units 1 and 2 (combined stack testing or individual unit testing), Campbell Unit 3, and Karn Units 1 and 2. Each test shall consist of three separate runs performed under representative operating conditions not including periods of startup, shutdown, or Malfunction. The sampling time for each run associated with a Unit controlled by a Baghouse shall be at least 120 minutes and the volume of each run shall be at least 1.70 dry standard cubic meters (60 dry standard cubic feet). The sampling time for each run associated with a Unit controlled by an ESP shall be at least 60 minutes and the volume of each run shall be at least 30 dry standard cubic feet. Consumers shall calculate the PM Emission Rate from the stack test results in accordance with 40 C.F.R. § 60.8(f). The results of each PM stack test shall be submitted to EPA within 60 Days of completion of each test.

155. Consumers shall use the applicable reference methods and procedures (filterable portion only) for compliance demonstrations with the PM emission rates specified in its CAA permits and the Michigan SIP for Cobb Units 4 and 5, Weadock Units 7 and 8 and Whiting Units 1, 2 and 3. Each test shall consist of three separate runs performed under representative operating conditions not including periods of startup, shutdown, or Malfunction. Unless otherwise specified in its CAA permit, the sampling time for each run shall be at least 60 minutes and the volume of each run shall be at least 30 dry standard cubic feet. The results of each PM stack test shall be submitted to EPA within 60 Days of completion of each test.

156. Within 12 months of the Date of Entry, and continuing annually thereafter in accordance with the testing frequency established in Paragraph 153, Consumers shall also conduct a PM stack test for condensable PM at Campbell Units 1 and 2 (combined stack testing or individual unit testing), Campbell Unit 3, and Karn Units 1 and 2 using the reference methods and procedures set forth at 40 C.F.R. Part 51, Appendix M, Method 202. Each test shall consist of three separate runs performed under representative operating conditions not including periods of startup, shutdown, or Malfunction. The sampling time for each run shall be at least 120 minutes and the volume of each run shall be at least 1.70 dry standard cubic meters (60 dry standard cubic feet). Consumers shall calculate the number of pounds of condensable PM emitted per million BTU of heat input (lb/mmBTU) from the stack test results in accordance with 40 C.F.R. § 60.8(f). The results of the PM stack test conducted pursuant to this Paragraph 156 shall not be used for the purpose of determining compliance with the PM Emission Rates required by this Consent Decree. The results of each PM stack test shall be submitted to EPA within 60 Days of completion of each test.

157. As an alternative to the PM testing required in this Section VI.G (PM Emissions Testing and Monitoring Requirements) of this Consent Decree, following the installation and operation of PM CEMS as required by Section VI.H of this Consent Decree, Consumers, at its sole discretion, may seek EPA approval pursuant to Section XIII (Review and Approval of Submittals) of this Consent Decree to forego stack testing and instead demonstrate continuous compliance with an applicable filterable PM Emission Rate by using the PM CEMS data on a 3-hour rolling average basis. If EPA approves a request to demonstrate continuous compliance with an applicable PM Emission Rate at a Unit using PM CEMS under this Paragraph 157, stack

testing for condensable PM pursuant to this Consent Decree using the reference methods and procedures set forth at 40 C.F.R. Part 51, Appendix M, Method 202 is not required for that Unit.

158. When Consumers submits the application for modification of its Title V Permit pursuant to Section XVII (Permits) of this Consent Decree, that application shall include a Compliance Assurance Monitoring ("CAM") plan, under 40 C.F.R. Part 64, for any applicable PM Emission Rate in Subsections VI.B (Unit-Specific PM Requirements at Campbell Units 1, 2 and 3) and C (Unit-Specific PM Requirements at Karn Units 1 and 2). The PM CEMS required under Paragraph 159 may be used in that CAM plan.

H. PM CEMS

159. Consumers shall install, correlate, maintain, and operate three PM CEMS as specified below. The PM CEMS shall comprise a continuous particle mass monitor measuring particulate matter concentration, directly or indirectly, on an hourly average basis and a diluent monitor used to convert the concentration to units expressed in lb/mmBTU. The PM CEMS installed at each Unit must be appropriate for the anticipated stack conditions and capable of measuring PM concentrations on an hourly average basis. Consumers shall maintain, in an electronic database, the hourly average emission values of all PM CEMS in lb/mmBTU. Except for periods of monitor malfunction, maintenance, calibration, or repair, Consumers shall continuously operate the PM CEMS at all times when the Unit it serves is operating.

160. By no later than six (6) months from the Date of Entry of this Consent Decree, Consumers shall submit to EPA for review and approval pursuant to Section XIII (Review and Approval of Submittals) of this Consent Decree a plan for the installation and correlation of three PM CEMS at Campbell Unit 3, Karn Unit 1, and Karn Unit 2.

161. By no later than six months from the submittal of plans in the prior Paragraph 160, Consumers shall submit to EPA for review and approval pursuant to Section XIII (Review and Approval of Submittals) of this Consent Decree a proposed Quality Assurance/Quality Control ("QA/QC") protocol that shall be followed for such PM CEMS.

162. In developing both the plan for installation and correlation of the PM CEMS and the QA/QC protocol, Consumers shall use the criteria set forth in 40 C.F.R. Part 60, Appendix B, Performance Specification 11, and Appendix F, Procedure 2. Following EPA's approval of the plan described in Paragraph 160 and the QA/QC protocol described in Paragraph 161, Consumers shall thereafter operate the PM CEMS in accordance with the approved plan and QA/QC protocol. Notwithstanding any other provision of this Consent Decree, exceedances of the PM Emission Rate that occur as a result of de-optimizing emission controls and/or spiking the exhaust gas with excess particulate required to achieve the high level PM test runs during the correlation testing shall not be a violation of the requirements of this Consent Decree (or credible evidence thereof) and shall not be subject to stipulated penalties; provided, however, that Consumers shall make best efforts to keep the high level PM test runs during such correlation testing below the applicable PM Emission Rate.

163. By no later than eighteen (18) months after the date that EPA approves the plan described in Paragraph 160, Consumers shall install, correlate, maintain, and commence Continuous Operation of the PM CEMS approved by EPA at Karn Units 1 and 2, conduct performance specification tests on the PM CEMS, and demonstrate compliance with the PM CEMS installation and correlation plans submitted to and approved by EPA. By March 31, 2017, Consumers shall install, correlate, maintain, and commence Continuous Operation of the

PM CEMS approved by EPA at Campbell Unit 3, conduct performance specification tests on the PM CEMS, and demonstrate compliance with the PM CEMS installation and correlation plans submitted to and approved by EPA. Consumers shall report, pursuant to Section XII (Periodic Reporting), the data recorded by the PM CEMS, expressed in lb/mmBTU on a rolling average 3-hour basis in electronic format to EPA and identify in the report any PM emission rates in excess of the applicable PM Emission Rate and any concentrations measured by the PM CEMS that are greater than 125% of the highest PM concentration level used in the most recent correlation testing performed pursuant to Performance Specification 11 in 40 C.F.R. Part 60, Appendix B.

I. <u>General PM Provisions</u>

164. Except as approved pursuant to Paragraph 157, stack testing shall be used to determine compliance with the PM Emission Rates established by this Consent Decree. Data from PM CEMS shall be used, at a minimum, to provide information to operators on PM emissions rate trends on a continuous basis.

165. Nothing in this Consent Decree is intended to, or shall, alter or waive any applicable law (including but not limited to any defenses, entitlements, challenges, or clarifications related to the Credible Evidence Rule, 62 Fed. Reg. 8314 (Feb. 24, 1997)) concerning the use of data for any purpose under the Act.

VII. <u>PROHIBITION ON NETTING CREDITS OR OFFSETS</u>

166. Emission reductions that result from actions to be taken by Consumers after the Date of Entry of this Consent Decree to comply with the requirements of this Consent Decree shall not be considered as a creditable contemporaneous emission decrease for the purpose of obtaining a Netting credit or offset under the CAA's Nonattainment NSR and PSD programs,

and shall not be used in any way to determine whether or not a project would result in either a "significant emissions increase" or a "significant net emissions increase" under the Nonattainment NSR and PSD programs.

167. The limitations on the generation and use of Netting credits and offsets set forth in the previous Paragraph 166 do not apply to emission reductions achieved by a particular Consumers System Unit that are greater than those required under this Consent Decree for that particular Consumers System Unit. For purposes of this Paragraph, emission reductions from a Consumers System Unit are greater than those required under this Consent Decree if they result from such Unit's compliance with federally-enforceable emission limits that are more stringent than those limits imposed on the Unit under this Consent Decree and under applicable provisions of the CAA or the Michigan SIP.

168. Nothing in this Consent Decree is intended to preclude the emission reductions generated under this Consent Decree from being considered by the applicable state regulatory agency or EPA for the purpose of attainment demonstrations submitted pursuant to § 110 of the Act, 42 U.S.C. § 7410, or in determining impacts on National Ambient Air Quality Standards, PSD increment, or air quality related values, including visibility, in a Class I area.

VIII. WIND POWER COMMITMENT

169. Consumers shall install and operate, or enter long-term power purchase agreements ("PPAs") with a duration of at least 20 years from the date of the PPA, for 400 MW (nameplate) of new Wind Power generating capacity. To satisfy this requirement, Consumers must contract for or commence operation of such new Wind Power generating capacity between June 10, 2009 and December 31, 2015.

IX. ENVIRONMENTAL MITIGATION PROJECTS

170. Consumers shall implement the Environmental Mitigation Projects ("Projects") described in Appendix A to this Consent Decree in compliance with the approved plans and schedules for such Projects and other terms of this Consent Decree. In implementing the Projects, Consumers shall spend no less than $7.7 million in Project Dollars. Consumers shall not include its own personnel costs in overseeing the implementation of the Projects as Project Dollars.

171. Consumers shall maintain, and present to EPA upon request, all documents to substantiate the Project Dollars expended to implement the Projects described in Appendix A, and shall provide these documents to EPA within 30 Days of such request.

172. All plans and reports prepared by Consumers pursuant to the requirements of this Section IX (Environmental Mitigation Projects) of the Consent Decree and required to be submitted to EPA shall be publicly available from Consumers without charge.

173. Consumers shall certify, as part of each plan submitted to EPA for any Project, that Consumers is not otherwise required by law to perform the Project described in the plan, that Consumers is unaware of any other person who is required by law to perform the Project, and that Consumers will not use any Project, or portion thereof, to satisfy any obligations that it may have under other applicable requirements of law, including but not limited to any applicable renewable or energy efficiency portfolio standards.

174. Consumers shall use good faith efforts to secure as much environmental benefit as possible for the Project Dollars expended, consistent with the applicable requirements and limits of this Consent Decree.

175. If Consumers elects (where such an election is allowed) to undertake a Project by contributing funds to another person or entity that will carry out the Project in lieu of Consumers, but not including Consumers' agents or contractors, that person or instrumentality must, in writing: (a) identify its legal authority for accepting such funding; and (b) identify its legal authority to conduct the Project for which Consumers contributes the funds. Regardless of whether Consumers elects (where such election is allowed) to undertake a Project by itself or to do so by contributing funds or real estate to another person or instrumentality that will carry out the Project, Consumers acknowledges that it will receive credit for the expenditure of such funds or real estate contributed as Project Dollars only if Consumers demonstrates that the funds or real estate transfer have been spent/completed by either Consumers or by the person or instrumentality receiving them, and that such expenditures meet all requirements of this Consent Decree.

176. Consumers shall comply with the reporting requirements described in Appendix A.

177. In connection with any communication to the public or to shareholders regarding Consumers' actions or expenditures relating in any way to the Environmental Mitigation Projects in this Consent Decree, Consumers shall include prominently in the communication the information that the actions and expenditures were required by this Consent Decree.

178. Within 60 Days following the completion of each Project required under this Consent Decree (including any applicable periods of demonstration or testing), Consumers shall submit to the United States a report that documents the date that the Project was completed, the results achieved by implementing the Project, including the emission reductions or other

environmental benefits, and the Project Dollars expended by Consumers in implementing the Project.

X. CIVIL PENALTY

179. Within 30 Days after the Date of Entry of this Consent Decree, Consumers shall pay to the United States a civil penalty in the amount of $2.75 million dollars. The civil penalty shall be paid by Electronic Funds Transfer ("EFT") to the United States Department of Justice, in accordance with current EFT procedures, referencing USAO File Number 2014V00933, DOJ Case Number 90-5-2-1-09771, and the civil action case name and case number of this action. The costs of such EFT shall be Consumers' responsibility. Payment shall be made in accordance with instructions provided to Consumers by the Financial Litigation Unit of the U.S. Attorney's Office for the Eastern District of Michigan. Any funds received after 2:00 p.m. EDT shall be credited on the next business day. At the time of payment, Consumers shall provide notice of payment, referencing the USAO File Number, the DOJ Case Number, and the civil action case name and case number, to the Department of Justice and to EPA in accordance with Section XIX (Notices) of this Consent Decree.

180. Failure to timely pay the civil penalty shall subject Consumers to interest accruing from the date payment is due until the date payment is made at the rate prescribed by 28 U.S.C. § 1961, and shall render Consumers liable for all charges, costs, fees, and penalties established by law for the benefit of a creditor or of the United States in securing payment.

181. Payments made pursuant to this Section are penalties within the meaning of Section 162(f) of the Internal Revenue Code, 26 U.S.C. § 162(f), and are not tax-deductible expenditures for purposes of federal law.

XI. RESOLUTION OF CIVIL CLAIMS

A. Resolution of U.S. Civil Claims

182. Claims of the United States Based on Modifications Occurring Before the Date of Lodging of this Consent Decree. Entry of this Consent Decree shall resolve all civil claims of the United States against Consumers that arose from any modifications commenced at any Consumers System Unit prior to the Date of Lodging of this Consent Decree, including but not limited to those claims alleged in the Complaint in this action and the NOVs issued by EPA to Consumers on March 30, 2007 and October 17, 2008, under any or all of: (a) Parts C or D of Subchapter I of the CAA, 42 U.S.C. §§ 7470-7492, 7501-7515, and the implementing PSD and Nonattainment NSR provisions of the Michigan SIP; (b) Section 111 of the Act, 42 U.S.C. § 7411, and 40 C.F.R. § 60.14; and (c) Title V of the Act, 42 U.S.C. § 7661-7661f, but only to the extent that such Title V claims are based on Consumers' failure to obtain an operating permit that reflects applicable requirements imposed under Parts C or D of Subchapter I of the Clean Air Act. Entry of this Consent Decree shall also resolve the civil claims of the United States for any opacity claims at any Consumers System Unit and at Karn Units 3 and 4 that occurred prior to the Date of Lodging of this Consent Decree.

183. Claims of the United States Based on Modifications after the Date of Lodging of this Consent Decree. Entry of this Consent Decree also shall resolve all civil claims of the United States that arise from a modification commenced before December 31, 2017, for pollutants regulated under Parts C or D of Subchapter I of the Act and under regulations promulgated thereunder as of the Date of Lodging except as provided below, and:

a. where such modification is commenced at any Consumers System Unit after the Date of Lodging of this Consent Decree, or

b. where such modification is one this Consent Decree expressly directs Consumers to undertake.

The term "modification" as used in this Paragraph 183 shall have the meaning that term is given under the CAA and under the regulations in effect as of the Date of Lodging of this Consent Decree. The claims resolved by this Paragraph 183 shall not include claims based upon Greenhouse Gases and sulfuric acid mist.

184. Reopener. The resolution of the United States' civil claims against Consumers, as provided by this Section XI.A (Resolution of U.S. Civil Claims), is subject to the provisions of Section XI.B (Pursuit of Civil Claims Otherwise Resolved by Section XI.A).

B. Pursuit of Civil Claims Otherwise Resolved by Section XI.A

185. Bases for Pursuing Resolved Claims for the Consumers System. If Consumers violates a System-Wide Annual NO_x Tonnage Limitation or System-Wide Annual SO_2 Tonnage Limitation; or fails by more than 90 Days to Retire any Unit as required by this Consent Decree; or fails by more than 90 Days to install, upgrade, or commence Continuous Operation of any emission control device or achieve any Emission Rate or limitation required pursuant to this Consent Decree, then the United States may pursue any claim at any Consumers System Unit that is otherwise resolved under Section XI.A (Resolution of U.S. Civil Claims), subject to subparagraphs (a) and (b) below.

a. For any claims based on modifications undertaken at an Other Unit (i.e., any Unit of the Consumers System that is not an Improved Unit for the pollutant in question), claims may be pursued only where the modification(s) on which such claim is based was commenced within the five (5) years preceding the violation or failure specified in this Paragraph 185a.

b. For any claims based on modifications undertaken at an Improved Unit, claims may be pursued only where the modification(s) on which such claim is based was commenced: (1) after the Date of Lodging of this Consent Decree, and (2) within the five (5) years preceding the violation or failure specified in this Paragraph 185.b.

186. Additional Bases for Pursuing Resolved Claims for Modifications at an Improved Unit: Solely with respect to Improved Units, the United States may also pursue claims arising from a modification (or collection of modifications) at an Improved Unit that have otherwise been resolved under Section XI.A (Resolution of U.S. Civil Claims), if the modification (or collection of modifications) at the Improved Unit on which such claim is based (a) was commenced after the Date of Lodging, and (b) individually (or collectively) increased the maximum hourly emission rate of that Unit for NO_x or SO_2 (as measured by 40 C.F.R. § 60.14(b) and (h)) by more than 10%.

187. Additional Bases for Pursuing Resolved Claims for Modification at an Other Unit: Solely with respect to Other Units, the United States may also pursue claims arising from a modification (or collection of modifications) at an Other Unit that have otherwise been resolved under Section XI.A (Resolution of U.S. Civil Claims), if the modification (or collection of modifications) at the Other Unit on which such claim is based was commenced within the five years preceding any of the following events:

a. a modification (or collection of modifications) at such Other Unit commenced after the Date of Lodging of this Consent Decree increases the maximum hourly emission rate for such Other Unit for the relevant pollutant (NO_x or SO_2), as measured by 40 C.F.R. § 60.14(b) and (h);

b. the aggregate of all Capital Expenditures made at such Other Unit exceed $150/KW on the Unit's Boiler Island (based on the generating capacities identified in this Consent Decree) during the period from the Date of Entry of this Consent Decree through December 31, 2017 (Capital Expenditures shall be measured in calendar year 2013 constant dollars, as adjusted by the McGraw-Hill Engineering News-Record Construction Cost Index); or

c. a modification (or collection of modifications) at such Other Unit commenced after the Date of Lodging of this Consent Decree results in an emissions increase of NO_x and/or SO_2 at such Other Unit, and such increase: (1) presents, by itself, or in combination with other emissions or sources, "an imminent and substantial endangerment" within the meaning of Section 303 of the Act, 42 U.S.C. § 7603; (2) causes or contributes to violation of a NAAQS in any Air Quality Control Area that is in attainment with that NAAQS; (3) causes or contributes to violation of a PSD increment; or (4) causes or contributes to any adverse impact on any formally-recognized air quality and related values in any Class I area. The introduction of any new or changed NAAQS shall not, standing alone, provide the showing needed under this Subparagraph 187.c. to pursue any claim for a modification at an Other Unit resolved under Section XI.A (Resolution of U.S. Civil Claims).

XII. PERIODIC REPORTING

188. After entry of this Consent Decree, Consumers shall submit to the United States a periodic report, within 75 Days after the end of each half of the calendar year (January through June and July through December). The report shall include the following information:

a. all information necessary to determine compliance with the requirements of the following provisions of this Consent Decree: Section IV (NO_x Emission Reductions and Controls) concerning NO_x emissions and monitoring, and the Use and Surrender of NO_x Allowances; Section V (SO_2 Emission Reductions and Controls) concerning SO_2 emissions and monitoring, and the Use and Surrender of SO_2 Allowances; and Section VI (PM Emission Reductions and Controls) concerning PM emissions and monitoring. Such information includes but it not limited to (1) summaries of all 30-Day Rolling Average Emission Rates, 90-Day Rolling Average Emission Rates, and 365-Day Rolling Average Emission Rates, (2) calculations of System-Wide Annual NO_x and SO_2 Tonnage Limitations, and (3) specific calculations demonstrating the basis and specific amounts of NO_x Allowances and SO_2 Allowances to be Surrendered;

b. 3-hour rolling average PM CEMS data as required by Paragraph 157, identifying all periods of monitor malfunction, maintenance, and/or repair as provided in Paragraph 159;

c. all information relating to super-compliant NO_x and SO_2 Allowances that Consumers claims to have generated in accordance with Sections IV.I (Super-Compliant NO_x Allowances) and V.I (Super-Compliant SO_2 Allowances) through compliance beyond the requirements of this Consent Decree, including a detailed description of the basis for such claim and the specific amount of super-compliant NO_x and SO_2 Allowances generated at each Unit;

d. subject to the provisions of the Michigan SIP, a report of all 6-minute average opacity measurements in excess of the requirements of Paragraphs 151 and 152, and the reasons for any such exceedances and a description of corrective actions undertaken;

e. documentation of any Capital Expenditures at an Other Unit's Boiler Island made during the reporting period and cumulative Boiler Island Capital Expenditures to date;

f. all information indicating that the installation or upgrade and commencement of operation of a new or upgraded pollution control device may be delayed, including the nature and cause of the delay, and any steps taken by Consumers to mitigate such delay;

g. all affirmative defenses asserted pursuant to Paragraphs 208 through 213 during the reporting period;

h. an identification of all periods when any pollution control device required by this Consent Decree to Continuously Operate was not operating, the reason(s) for the equipment not operating, and the basis for Consumers' compliance or non-compliance with the Continuous Operation requirements of this Consent Decree;

i. a summary of actions implemented pursuant to implementation of the Wind Power Commitment pursuant to Section VIII (Wind Power Commitment); and

j. a summary of actions implemented and expenditures made pursuant to implementation of the Environmental Mitigation Projects required pursuant to Section IX. (Environmental Mitigation Projects)

189. In any periodic report submitted pursuant to this Section, Consumers may incorporate by reference information previously submitted under its Title V permitting requirements, provided that Consumers attaches the Title V Permit report (or the pertinent portions of such report) and provides a specific reference to the provisions of the Title V Permit report that are responsive to the information required in the periodic report.

190. In addition to the reports required pursuant to this Section XII (Periodic Reporting), if Consumers violates or deviates from any provision (excluding emissions which will be reported pursuant to Paragraph 188.d) of this Consent Decree, Consumers shall submit to the United States a report on the violation or deviation within 10 business days after Consumers knew or should have known of the event. In the report, Consumers shall explain the cause or causes of the violation or deviation and any measures taken or to be taken by Consumers to cure the reported violation or deviation or to prevent such violation or deviation in the future. If at any time, the provisions of this Consent Decree are included in Title V Permits, consistent with the requirements for such inclusion in this Consent Decree, then the semiannual deviation reports required under applicable Title V regulations shall be deemed to satisfy all the requirements of this Paragraph 190.

191. Each Consumers report shall be signed by a Responsible Official as defined in Title V of the Clean Air Act for Campbell, Karn, Karn Units 3 and 4, Cobb, Weadock, and Whiting, as appropriate, and shall contain the following certification:

> *This information was prepared either by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my evaluation, or my inquiry of the person(s) who manage(s) the system, or the person(s) directly responsible for gathering the information, I hereby certify under penalty of law that, to the best of my knowledge and belief, this information is true, accurate,*

> *and complete. I understand that there are significant penalties for submitting false, inaccurate, or incomplete information to the United States.*

192. If any NO_x or SO_2 Allowances are Surrendered to any non-profit third party pursuant to Paragraphs 108 and/or 139, the non-profit third party's certification shall be signed by a managing officer of the non-profit third party and shall contain the following language:

> *I certify under penalty of law that ____________ [name of non-profit third party] will not sell, trade, or otherwise exchange any of the allowances and will not use any of the allowances to meet any obligation imposed by any environmental law. I understand that there are significant penalties for making misrepresentations to or misleading the United States.*

XIII. REVIEW AND APPROVAL OF SUBMITTALS

193. Consumers shall submit each plan, report, or other submission required by this Consent Decree to the United States whenever such a document is required to be submitted for review or approval pursuant to this Consent Decree. EPA may approve the submittal or decline to approve it and provide written comments explaining the bases for declining such approval as soon as reasonably practicable. Within 60 Days of receiving written comments from EPA, Consumers shall either: (a) revise the submittal consistent with the written comments and provide the revised submittal to EPA; or (b) submit the matter for dispute resolution, including the period of informal negotiations, under Section XVI (Dispute Resolution) of this Consent Decree.

194. Upon receipt of EPA's final approval of the submittal, or upon completion of the submittal pursuant to dispute resolution, Consumers shall implement the approved submittal in accordance with the schedule specified therein or another EPA-approved schedule.

XIV. STIPULATED PENALTIES

195. For any failure by Consumers to comply with the terms of this Consent Decree, and subject to the provisions of Sections XV (Force Majeure) and XVI (Dispute Resolution), Consumers shall pay, within 30 Days after receipt of written demand to Consumers by the United States, the following stipulated penalties to the United States:

Consent Decree Violation	Stipulated Penalty
a. Failure to pay the civil penalty as specified in Section X (Civil Penalty) of this Consent Decree	$10,000 per Day
b. Failure to comply with any applicable 30-Day Rolling Average Emission Rate	$2,500 per Day per violation where the violation is less than 5% in excess of the lb/mmBTU limits $5,000 per Day per violation where the violation is equal to or greater than 5% but less than 10% in excess of the lb/mmBTU limits $10,000 per Day per violation where the violation is equal to or greater than 10% in excess of the lb/mmBTU limits

c. Failure to comply with any applicable 90-Day Rolling Average Emission Rate	\$1,000 per Day per violation where the violation is less than 5% in excess of the lb/mmBTU limits \$1,750 per Day per violation where the violation is equal to or greater than 5% but less than 10% in excess of the lb/mmBTU limits \$2,500 per Day per violation where the violation is equal to or greater than 10% in excess of the lb/mmBTU limits
d. Failure to comply with any applicable 365-Day Rolling Average Emission Rate, where the violation is less than 5% in excess of the limits set forth in this Consent Decree	\$350 per Day per violation for a 365-Day Rolling Average Emission Rate violation, plus \$4,000 for each subsequent 365-Day Rolling Average Emission Rate violation that includes any day in a previously assessed 365-Day Rolling Average Emission Rate violation (e.g., if a violation of the 365-Day Rolling Average Emission Rate for a Unit first occurs on June 1, 2013, occurs again on June 2, 2013, and again on May 31, 2014, the total stipulated penalty assessed for these three violations would equal \$135,750)

e. Failure to comply with any applicable 365-Day Rolling Average Emission Rate, where the violation is equal to or greater than 5% but less than 10% in excess of the limits set forth in this Consent Decree	$450 per Day per violation for a 365-Day Rolling Average Emission Rate violation, plus $5,000 for each subsequent 365-Day Rolling Average Emission Rate violation that includes any day in a previously assessed 365-Day Rolling Average Emission Rate violation (e.g., if a violation of the 365-Day Rolling Average Emission Rate for a Unit first occurs on June 1, 2013, occurs again on June 2, 2013, and again on May 31, 2014, the total stipulated penalty assessed for these three violations would equal $174,250)
f. Failure to comply with any applicable 365-Day Rolling Average Emission Rate, where the violation is equal to or greater than 10% in excess of the limits set forth in this Consent Decree	$600 per Day per violation for a 365-Day Rolling Average Emission Rate violation, plus $6,000 for each subsequent 365-Day Rolling Average Emission Rate violation that includes any day in a previously assessed 365-Day Rolling Average Emission Rate violation (e.g., if a violation of the 365-Day Rolling Average Emission Rate for a Unit first occurs on June 1, 2013, occurs again on June 2, 2013, and again on May 31, 2014, the total stipulated penalty assessed for these three violations would equal $231,000)

g. Failure to comply with the applicable System-Wide Annual Tonnage Limitations established by this Consent Decree	5,000 per ton for first 100 tons, $10,000 per ton for each additional ton above 100 tons, plus the Surrender of NO_x or SO_2 Allowances in an amount equal to two times the number of tons of NO_x or SO_2 emitted that exceeded the System-Wide Annual Tonnage Limitation
h. Failure to comply with any applicable PM Emission Rate specified in Section VI.B (Unit-Specific PM Requirements at Campbell Units 1, 2 and 3) or C (Unit-Specific PM Requirements at Karn Units 1 and 2) of this Consent Decree, where the violation is less than five percent (5%) in excess of the lb/mmBTU limit	$2,500 per Operating Day per violation, starting on the day a stack test result demonstrates a violation and continuing each day thereafter until and excluding such day on which a subsequent stack test* demonstrates compliance with the applicable PM Emission Rate
i. Failure to comply with any applicable PM Emission Rate specified in Section VI.B or C of this Consent Decree, where the violation is equal to or greater than 5% but less than 10% in excess of the lb/mmBTU limit	$5,000 per Operating Day per violation, starting on the day a stack test result demonstrates a violation and continuing each day thereafter until and excluding such day on which a subsequent stack test* demonstrates compliance with the applicable PM Emission Rate
j. Failure to comply with any applicable PM Emission Rate specified in Section VI.B or C of this Consent Decree, where the violation is equal to or greater than 10% in excess of the lb/mmBTU limit	$10,000 per Operating Day per violation, starting on the day a stack test result demonstrates a violation and continuing each day thereafter until and excluding such day on which a subsequent stack test* demonstrates compliance with the applicable PM Emission Rate

k. Failure to install, commence Continuous Operation, or Continuously Operate a NO_x, SO_2, or PM control device as required under this Consent Decree	$10,000 per Day per violation during the first 30 Days; $37,500 per Day per violation thereafter
l. Failure to Retire a Unit as required under this Consent Decree	$10,000 per Day per violation during the first 30 Days; $37,500 per Day per violation thereafter
m. Failure to conduct a stack test for PM as required by subsection VI.G PM Emissions Testing and Monitoring Requirements) of this Consent Decree	$5,000 per Day per violation
n. Failure to install or operate NO_x, SO_2, and/or PM CEMS as required in this Consent Decree	$1,000 per Day per violation
o. Failure to apply for any permit required by Section XVII (Permits)	$1,000 per Day per violation
p. Failure to timely submit, modify, or implement, as approved, the reports, plans, studies, analyses, protocols, or other submittals required by this Consent Decree	$750 per Day per violation during the first 10 Days; $1,000 per Day per violation thereafter
q. Failure to Surrender NO_x Allowances as required under this Consent Decree	$37,500 per Day, plus $1,000 per NO_x Allowance not Surrendered
r. Failure to Surrender SO_2 Allowances as required under this Consent Decree	$37,500 per Day, plus $1,000 per SO_2 Allowance not Surrendered
s. Using, selling, banking, trading, or transferring NO_x Allowances or SO_2 Allowances except as permitted under this Consent Decree	The Surrender of Allowances in an amount equal to four times the number of Allowances used, sold, banked, traded, or transferred in violation of this Consent Decree
t. Failure to demonstrate the third-party Surrender of a NO_x or SO_2 Allowance in accordance with Paragraphs 108 and 139	$2,500 per Day per violation
u. Failure to optimize ESPs and Baghouses as required by Paragraph 141	$1,000 per Day per violation

v. Failure to undertake and complete any of the Environmental Mitigation Projects in compliance with Section IX (Environmental Mitigation Projects) and Appendix A of this Consent Decree	$1,000 per Day per violation during the first 30 Days; $5,000 per Day per violation thereafter
w. A violation of the opacity standard under Paragraph 151 or 152	$1,000 per Day per violation
x. Any other violation of this Consent Decree	$1,000 per Day per violation

*Consumers shall not be required to make any submission, including any notice or test protocol, or to obtain any approval to or from EPA in advance of conducting such a subsequent stack test, provided that Consumers uses the test methods and procedures specified within Paragraphs 154, 155, and 156 or test protocols otherwise previously approved by EPA.

196. Violations of any limit based on a 30-Day Rolling Average Emission Rate constitute 30 Days of violation but where such a violation (for the same pollutant and from the same Unit) recurs within periods less than 30 Operating Days, Consumers shall not be obligated to pay a daily stipulated penalty for any Day of the recurrence for which a stipulated penalty has already been paid.

197. Violations of any limit based on a 90-Day Rolling Average Emission Rate constitute 90 Days of violation but where such a violation (for the same pollutant and from the same Unit) recurs within periods less than 90 Operating Days, Consumers shall not be obligated to pay a daily stipulated penalty for any Day of the recurrence for which a stipulated penalty has already been paid.

198. Violations of any limit based on a 365-Day Rolling Average Emission Rate constitute 365 Days of violation but where such a violation (for the same pollutant and from the same Unit) recurs within periods less than 365 Operating Days, Consumers shall not be obligated to pay a daily stipulated penalty for any Day of the recurrence for which a stipulated penalty has already been paid.

199. Consumers shall not be subject to stipulated penalties for a failure to comply with any 30-Day Rolling Average Emission Rate for NO_x, or any 30-Day Rolling Average Emission Rate for SO_2 that will be met through the use of FGD as required by Paragraphs 112, 117, and 118, due to a startup or shutdown event provided that (a) Consumer's emissions do not exceed the 30-Day Rolling Average NO_x or SO_2 Emission Rate by more than 0.015 lb/mmBTU, (b) in the next periodic reporting period, Consumers provides EPA with data and calculations to demonstrate a startup or shutdown event occurred and but for the startup or shutdown event, Consumers would have achieved and maintained compliance with the applicable 30-Day Rolling Average Emission Rate for NO_x or SO_2, and (c) Consumers identifies the time period of the event, provides EPA with data regarding the flue gas temperature entering each applicable control device during the startup or shutdown event and provides a brief description of why such startup/shutdown conditions limited or impeded the operation of applicable pollution control device(s). For all Units other than those at the Campbell plant, Consumers may only invoke this provision in relation to five startup or shutdown events per calendar year per Unit during the term of this Consent Decree. For Units at the Campbell plant, Consumers may only invoke this provision in relation to seven startup or shutdown events per calendar year per Unit during the term of this Consent Decree. For purposes of this Paragraph 199, a startup or shutdown event may not extend more than 72 hours. This provision applies only to the calculation of stipulated penalties, and shall not be included in any permit.

200. In addition, only for purposes of the 90-Day Rolling Average Emission Rate for NO_x required by Paragraphs 79 and 82 for Campbell Units 2 and 3, Consumers shall not be subject to stipulated penalties for a failure to comply with the 90-Day Rolling Average Emission

Rate for NO_x due to a startup or shutdown event provided that (a) Consumer's emissions do not exceed the 90-Day Rolling Average NO_x Emission Rate by more than 0.015 lb/mmBTU, (b) in the next periodic reporting period, Consumers provides EPA with data and calculations to demonstrate a startup or shutdown event occurred and but for the startup or shutdown event, Consumers would have achieved and maintained compliance with the applicable 90-Day Rolling Average Emission Rate for NO_x, and (c) Consumers identifies the time period of the event, provides EPA with data regarding the flue gas temperature entering each applicable control device during the startup or shutdown event and provides a brief description of why such startup/shutdown conditions limited or impeded the operation of applicable pollution control device(s). For all Units other than those at the Campbell plant, Consumers may only invoke this provision in relation to five startup or shutdown events per calendar year per Unit during the term of this Consent Decree. For Units at the Campbell plant, Consumers may only invoke this provision in relation to seven startup or shutdown events per calendar year per Unit during the term of this Consent Decree. For purposes of this Paragraph 200, a startup or shutdown event may not extend more than 72 hours. This provision applies only to the calculation of stipulated penalties, and shall not be included in any permit.

201. All stipulated penalties shall begin to accrue on the Day after the performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases, whichever is applicable. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate stipulated penalties for separate violations of this Consent Decree.

202. For purposes of the stipulated penalty Surrender of Allowances required pursuant to subparagraphs 195(g) and (s), Consumers shall make the Surrender of any Allowances required by such subparagraphs by June 30 of the immediately following calendar year.

203. Consumers shall pay all stipulated penalties to the United States within 30 Days of receipt of written demand to Consumers from the United States, and shall continue to make such payments every 30 Days thereafter until the violation(s) no longer continues, unless Consumers elects within 20 Days of receipt of written demand to Consumers from the United States to dispute the accrual of stipulated penalties in accordance with the provisions in Section XVI (Dispute Resolution) of this Consent Decree.

204. Stipulated penalties shall continue to accrue as provided in accordance with Paragraph 201 during any dispute, with interest on accrued stipulated penalties payable and calculated at the rate established by the Secretary of the Treasury, pursuant to 28 U.S.C. § 1961, but need not be paid until the following:

a. If the dispute is resolved by agreement, or by a decision of the United States pursuant to Section XVI (Dispute Resolution) of this Consent Decree that is not appealed to the Court, accrued stipulated penalties agreed or determined to be owing, together with accrued interest, shall be paid within 30 Days of the effective date of the agreement or of the receipt of the United States' decision;

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, Consumers shall, within 30 Days of receipt of the Court's decision or order, pay all accrued stipulated penalties determined by the Court to be owing, together with interest accrued on such penalties determined by the Court to be owing, except as provided in subparagraph c, below;

c. If the Court's decision is appealed by either Party, Consumers shall, within 15 Days of receipt of the final appellate court decision, pay all accrued stipulated penalties determined by the appellate court to be owing, together with interest accrued on such stipulated penalties.

Notwithstanding any other provision of this Consent Decree, the accrued stipulated penalties agreed by the United States and Consumers, or determined by the United States through Dispute Resolution, to be owing may be less than the stipulated penalty amounts set forth in Paragraph 195.

205. All monetary stipulated penalties shall be paid in the manner set forth in Section X (Civil Penalty) of this Consent Decree and all Surrender of Allowances stipulated penalties shall comply with the Surrender of Allowances procedures of Paragraphs 107-109 and 138-140.

206. Should Consumers fail to pay stipulated penalties in compliance with the terms of this Consent Decree, the United States shall be entitled to collect interest on such penalties, as provided for in 28 U.S.C. § 1961.

207. The stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States by reason of Consumers' failure to comply with any requirement of this Consent Decree or applicable law, except that for any violation of the Act (including the Act's implementing regulations and permits) for which this Consent Decree provides for payment of a stipulated penalty, Consumers shall be allowed a credit for stipulated penalties paid against any statutory penalties also imposed for such violation.

208. Affirmative Defense as to Stipulated Penalties for Excess Emissions Occurring During Malfunctions: If any of Consumers' Units exceed an applicable 30-Day or 90-Day Rolling Average Emission Rate for NO_x or 30-Day or 90-Day Rolling Average Emission Rate for SO_2 set forth in this Consent Decree due to Malfunction, Consumers, bearing the burden of proof, has an affirmative defense to stipulated penalties under this Consent Decree, if Consumers has complied with the reporting requirements of Paragraphs 210 and 211 and has demonstrated all of the following:

a. the excess emissions were caused by a sudden, unavoidable breakdown of technology, beyond Consumers' control;

b. the excess emissions (1) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (2) could not have been avoided by better operation and maintenance practices;

c. to the maximum extent practicable, the air pollution control equipment and processes were maintained and operated in a manner consistent with good practice for minimizing emissions;

d. repairs were made in an expeditious fashion when Consumers knew or should have known that an applicable 30-Day or 90-Day Rolling Average Emission Rate was being exceeded. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;

e. the amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions;

f. all possible steps were taken to minimize the impact of the excess emissions on ambient air quality;

g. all emission monitoring systems were kept in operation if at all possible;

h. Consumers' actions in response to the excess emissions were documented by validated, contemporaneous operating logs, or other relevant evidence;

i. the excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

j. Consumers properly and promptly notified EPA as required by this Consent Decree.

209. To assert an affirmative defense for Malfunction under Paragraph 208, Consumers shall submit all data demonstrating the actual emissions for the Day the Malfunction occurs and the 29-Day or 89-Day period, as applicable, following the Day the Malfunction occurs. Consumers may, if it elects, submit emissions data for the same 30-Day or 90-Day period but that excludes the excess emissions.

210. For an affirmative defense under Paragraph 208, Consumers, bearing the burden of proof, shall demonstrate, through submission of the data and information under the reporting provisions of this Section, that all reasonable and practicable measures within Consumers' control were implemented to prevent the occurrence of the excess emissions.

211. Consumers shall provide notice to Plaintiff in writing of Consumers' intent to assert an affirmative defense for Malfunction under Paragraph 208, in Consumers' semi-annual progress reports as required by Paragraph 188. This notice shall be submitted pursuant to the provisions of Section XIX (Notices). The notice shall contain:

a. The identity of each stack or other emission point where the excess emissions occurred;

b. The magnitude of the excess emissions expressed in lb/mmBTU and the operating data and calculations used in determining the magnitude of the excess emissions;

c. The time and duration or expected duration of the excess emissions;

d. The identity of the equipment from which the excess emissions emanated;

e. The nature and cause of the excess emissions;

f. The steps taken to remedy the Malfunction and the steps taken or planned to prevent the recurrence of the Malfunction;

g. The steps that were or are being taken to limit the excess emissions; and

h. If applicable, a list of the steps taken to comply with permit conditions governing Unit operation during periods of Malfunction.

212. A Malfunction shall not constitute a Force Majeure Event unless the Malfunction also meets the definition of a Force Majeure Event, as provided in Section XV (Force Majeure).

213. The affirmative defense provided herein is only an affirmative defense to stipulated penalties for violations of this Consent Decree, and not a defense to any civil or administrative action for injunctive relief.

XV. FORCE MAJEURE

214. For purposes of this Consent Decree, a "Force Majeure Event" shall mean an event that has been or will be caused by circumstances beyond the control of Consumers, its contractors, or any entity controlled by Consumers that delays compliance with any provision of this Consent Decree or otherwise causes a violation of any provision of this Consent Decree

despite Consumers' best efforts to fulfill the obligation. "Best efforts to fulfill the obligation" include using the best efforts to anticipate any potential Force Majeure Event and to address the effects of any such event (a) as it is occurring and (b) after it has occurred, such that the delay and any adverse environmental effect of the delay or violation is minimized to the greatest extent possible.

215. Notice of Force Majeure Events. If any event occurs or has occurred that may delay compliance with or otherwise cause a violation of any obligation under this Consent Decree, as to which Consumers intends to assert a claim of Force Majeure, Consumers shall notify Plaintiff in writing as soon as practicable, but in no event later than 21 Days following the date Consumers first knew, or by the exercise of due diligence should have known, that the event caused or may cause such delay or violation. In this notice, Consumers shall reference this Paragraph 215 of this Consent Decree and describe the anticipated length of time that the delay or violation may persist, the cause or causes of the delay or violation, all measures taken or to be taken by Consumers to prevent or minimize the delay and any adverse environmental effect of the delay or violation, the schedule by which Consumers proposes to implement those measures, and Consumers' rationale for attributing a delay or violation to a Force Majeure Event. Consumers shall adopt all reasonable measures to avoid or minimize such delays or violations. Consumers shall be deemed to know of any circumstance which Consumers, its contractors, or any entity controlled by Consumers knew or should have known.

216. Failure to Give Notice. If Consumers fails to comply with the notice requirements of this Section, the United States may void Consumers' claim for Force Majeure as to the specific event for which Consumers has failed to comply with such notice requirement.

217. United States' Response. The United States shall notify Consumers in writing regarding Consumers' claim of Force Majeure as soon as reasonably practicable. If the United States agrees that a Force Majeure Event has delayed or prevented, or will delay or prevent, compliance with any provision of this Consent Decree, or has otherwise caused or will cause noncompliance with any provision of this Consent Decree, the United States and Consumers shall stipulate to an extension of deadline(s) for performance of the affected compliance requirement(s) by a period equal to the delay or period of noncompliance actually caused by the event. In such circumstances, an appropriate modification shall be made pursuant to Section XXIII (Modification) of this Consent Decree.

218. Disagreement. If the United States does not accept Consumers' claim of Force Majeure, or if the United States and Consumers cannot agree on the length of the delay actually caused by the Force Majeure Event, the matter shall be resolved in accordance with Section XVI (Dispute Resolution) of this Consent Decree.

219. Burden of Proof. In any dispute regarding Force Majeure, Consumers shall bear the burden of proving that any delay in performance or any other violation of any requirement of this Consent Decree was caused by or will be caused by a Force Majeure Event. Consumers shall also bear the burden of proving that Consumers gave the notice required by this Section XV (Force Majeure) and the burden of proving the anticipated duration and extent of any delay(s) attributable to a Force Majeure Event. An extension of one compliance date based on a particular event may, but will not necessarily, result in an extension of a subsequent compliance date.

220. Events Excluded. Unanticipated or increased costs or expenses associated with the performance of Consumers' obligations under this Consent Decree shall not constitute a Force Majeure Event.

221. Potential Force Majeure Events. The Parties agree that, depending upon the circumstances related to an event and Consumers' response to such circumstances, the kinds of events listed below are among those that could qualify as Force Majeure Events within the meaning of this Section: construction, labor, or equipment delays; Malfunction of a Unit or emission control device; unanticipated coal supply or pollution control reagent delivery interruptions; acts of God; acts of war or terrorism; and orders by a government official, government agency, other regulatory authority, or a regional transmission organization, acting under and authorized by applicable law, that directs Consumers to supply electricity in response to a system-wide (state-wide or regional) emergency or is necessary to preserve the reliability of the bulk power system. Depending upon the circumstances and Consumers' response to such circumstances, failure of a permitting authority to issue a necessary permit in a timely fashion may constitute a Force Majeure Event where the failure of the permitting authority to act is beyond the control of Consumers and Consumers has taken all steps available to it to obtain the necessary permit, including, but not limited to: submitting a complete permit application; responding to requests for additional information by the permitting authority in a timely fashion; and accepting lawful permit terms and conditions after expeditiously exhausting any legal rights to appeal terms and conditions imposed by the permitting authority.

222. As part of the resolution of any matter submitted to this Court under Section XVI (Dispute Resolution) regarding a claim of Force Majeure, the United States and Consumers by

agreement, or this Court by order, may in appropriate circumstances extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of any delay agreed to by the United States or approved by the Court. Consumers shall be liable for stipulated penalties pursuant to Section XIV (Stipulated Penalties) for its failure thereafter to complete the work in accordance with the extended or modified schedule (provided that Consumers shall not be precluded from making a further claim of Force Majeure with regard to meeting any such extended or modified schedule).

XVI. DISPUTE RESOLUTION

223. The dispute resolution procedure provided by this Section XVI (Dispute Resolution) shall be available to resolve all disputes arising under this Consent Decree, provided that the Party invoking such procedure has first made a good faith attempt to resolve the matter with the other Party.

224. The dispute resolution procedure required herein shall be invoked by one Party giving written notice to the other Party advising of a dispute pursuant to this Section. The notice shall describe the nature of the dispute and shall state the noticing Party's position with regard to such dispute. The Party receiving such a notice shall acknowledge receipt of the notice, and the Parties in dispute shall expeditiously schedule a meeting to discuss the dispute informally not later than 14 Days following receipt of such notice.

225. Disputes submitted to dispute resolution under this Section shall, in the first instance, be the subject of informal negotiations between the Parties. Such period of informal negotiations shall not extend beyond 30 Days from the date of the first meeting between the Parties' representatives unless they agree in writing to shorten or extend this period.

226. If the Parties are unable to reach agreement during the informal negotiation period, the United States shall provide Consumers with a written summary of their position regarding the dispute. The written position provided by the United States shall be considered binding unless, within 45 Days thereafter, Consumers seeks judicial resolution of the dispute by filing a petition with this Court. The United States may submit a response to the petition within 45 Days of filing.

227. The time periods set out in this Section XVI (Dispute Resolution) may be shortened or lengthened upon motion to the Court of one of the Parties to the dispute, explaining the Party's basis for seeking such a scheduling modification.

228. This Court shall not draw any inferences nor establish any presumptions adverse to either Party as a result of invocation of this Section XVI (Dispute Resolution) or the Parties' inability to reach agreement.

229. As part of the resolution of any dispute under this Section XVI (Dispute Resolution), in appropriate circumstances the Parties may agree, or this Court may order, an extension or modification of the schedule for the completion of the activities required under this Consent Decree to account for the delay that occurred as a result of dispute resolution. Consumers shall be liable for stipulated penalties pursuant to Section XIV (Stipulated Penalties) for its failure thereafter to complete the work in accordance with the extended or modified schedule, provided that Consumers shall not be precluded from asserting that a Force Majeure Event has caused or may cause a delay in complying with the extended or modified schedule.

230. The Court shall decide all disputes pursuant to applicable principles of law for resolving such disputes. In their filings with the Court under Paragraph 226, the Parties shall

state their respective positions as to the applicable standard of law for resolving the particular dispute.

XVII. PERMITS

231. Unless expressly stated otherwise in this Consent Decree, in any instance where otherwise applicable law or this Consent Decree requires Consumers to secure a permit to authorize construction or operation of any device, including all preconstruction, construction, and operating permits required under State law, Consumers shall make such application in a timely manner. EPA will use its best efforts to review expeditiously all permit applications submitted by Consumers in order to meet the requirements of this Consent Decree.

232. Notwithstanding the previous Paragraph 231, nothing in this Consent Decree shall be construed to require Consumers to apply for or obtain an NSR permit for physical changes in, or change in the method of operation of, any Consumers System Unit that would give rise to claims resolved by Paragraph 182 through 183, subject to Paragraphs 184 through 187 of this Consent Decree.

233. When permits are required, Consumers shall complete and submit applications for such permits to the applicable agency to allow sufficient time for all legally required processing and review of the permit request, including requests for additional information by the applicable agency. Any failure by Consumers to submit a timely permit application for a Consumers System Unit shall bar any use by Consumers of Section XV (Force Majeure) of this Consent Decree, where a Force Majeure claim is based on permitting delays.

234. Notwithstanding the reference to Consumers' Title V Permits in this Consent Decree, the enforcement of such permits shall be in accordance with their own terms and the Act

and its implementing regulations. Consumers' Title V Permits shall not be enforceable under this Consent Decree, although any term or limit established by or under this Consent Decree shall be enforceable under this Consent Decree regardless of whether such term has or will become part of a Title V Permit, subject to the terms of Section XXVII (Termination) of this Consent Decree.

235. Within 180 Days after the Date of Entry of this Consent Decree, Consumers shall modify any applicable Title V Permit application(s) for the Campbell and Karn plants, or apply for modifications of its Title V Permits, to include a schedule for all Unit-specific, plant-specific, and system-specific performance, operational, maintenance, and control technology requirements established by this Consent Decree including, but not limited to, any (a) 30-Day, 90-Day and 365-Day Rolling Average Emission Rates, (b) System-Wide Annual NO_x and SO_2 Tonnage Limitations, (c) the requirements pertaining to the Surrender of NO_x and SO_2 Allowances, (d) PM Emission Rate and annual stack test requirements, and (e) PM CEMS monitoring requirements.

236. Within one year from the Date of Entry of this Consent Decree, Consumers shall either apply to permanently include the requirements and limitations enumerated in Paragraph 235 of this Consent Decree into a federally enforceable non-Title V permit or request a site-specific revision to the Michigan SIP to include such requirements and limitations.

237. Consumers shall provide the United States with a copy of each application for a federally enforceable permit or Michigan SIP amendment, as well as a copy of any permit proposed as a result of such application, to allow for timely participation in any public comment opportunity.

238. Prior to termination of this Consent Decree, Consumers shall obtain enforceable provisions in its Title V permits that incorporate all Unit-specific, plant-specific, and system-specific performance, operational, maintenance, and control technology requirements enumerated in Paragraph 235 of this Consent Decree.

239. If Consumers proposes to sell or transfer to an entity unrelated to Consumers ("Third Party Purchaser") part or all of its Operational or Ownership Interest covered under this Consent Decree, Consumers shall comply with the requirements of Section XX (Sales or Transfers of Operational or Ownership Interests) of this Consent Decree with regard to that Operational or Ownership Interest prior to any such sale or transfer.

XVIII. INFORMATION COLLECTION AND RETENTION

240. Any authorized representative of the United States, including its attorneys, contractors, and consultants, upon presentation of credentials, shall have a right of entry upon the premises of a Consumers System Unit at any reasonable time for the purpose of:

a. monitoring the progress of activities required under this Consent Decree;

b. verifying any data or information submitted to the United States in accordance with the terms of this Consent Decree;

c. obtaining samples and, upon request, splits of any samples taken by Consumers or its representatives, contractors, or consultants; and

d. assessing Consumers' compliance with this Consent Decree.

241. Consumers shall retain, and instruct its contractors and agents to preserve, all non-identical copies of all records and documents (including records and documents in electronic form) now in its or its contractors' or agents' possession or control, and that directly relate to

Consumers' performance of its obligations under this Consent Decree for the following periods: (a) until December 31, 2023, for records concerning physical or operational changes undertaken in accordance with Section IV (NO_x Emission Reductions and Controls), Section V (SO_2 Emission Reductions and Controls), and Section VI (PM Emission Reductions and Controls); and (b) until December 31, 2019, for all other records. This record retention requirement shall apply regardless of any corporate document retention policy to the contrary.

242. All information and documents submitted by Consumers pursuant to this Consent Decree shall be subject to any requests under applicable law providing public disclosure of documents unless (a) the information and documents are subject to legal privileges or protection or (b) Consumers claims and substantiates in accordance with 40 C.F.R. Part 2 that the information and documents contain confidential business information.

243. Nothing in this Consent Decree shall limit the authority of EPA to conduct tests and inspections at Consumers' facilities under Section 114 of the Act, 42 U.S.C. § 7414, or any other applicable federal law, regulation, or permit.

XIX. NOTICES

244. Unless otherwise provided herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States of America:

(if by mail service)
Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20044-7611

DJ# 90-5-2-1-09771

(if by commercial delivery service)
Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
ENRD Mailroom, Room 2121
601 D Street, NW
Washington, DC 20004
DJ# 90-5-2-1-09771

and

(if by mail service)
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Mail Code 2242A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

(if by commercial delivery service)
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Ariel Rios South Building, Room 1119
1200 Pennsylvania Avenue, NW
Washington, DC 20004

and

Director, Air Division
U.S. EPA Region 5
77 W. Jackson Blvd. (AE-17J)
Chicago, IL 60604

<u>As to Consumers</u>:

Catherine M. Reynolds
General Counsel
Consumers Energy Company
One Energy Plaza
Jackson, MI 49201

and

Kevin J. Finto
Hunton & Williams LLP
Riverfront Plaza, East Tower
951 East Byrd Street
Richmond, VA 23219

245. All notifications, communications, or submissions made pursuant to this Section shall be sent either by: (a) overnight mail or overnight delivery service with signature required for delivery, or (b) certified or registered mail, return receipt requested. All notifications, communications, and submissions (a) sent by overnight, certified, or registered mail shall be deemed submitted on the date they are postmarked, or (b) sent by overnight delivery service shall be deemed submitted on the date they are delivered to the delivery service.

246. Either Party may change either the notice recipient or the address for providing notices to it by serving the other Party with a notice setting forth such new notice recipient or address.

XX. SALES OR TRANSFERS OF OPERATIONAL OR OWNERSHIP INTERESTS

247. If Consumers proposes to sell or transfer an Operational or Ownership Interest to a Third Party Purchaser, Consumers shall advise the Third Party Purchaser in writing of the existence of this Consent Decree prior to such sale or transfer, and shall send a copy of such written notification to the Plaintiff pursuant to Section XIX (Notices) of this Consent Decree at least 60 Days before such proposed sale or transfer.

248. No sale or transfer of an Operational or Ownership Interest shall take place before the Third Party Purchaser and the United States have executed, and the Court has approved, a modification pursuant to Section XXIII (Modification) of this Consent Decree making the Third

Party Purchaser a party to this Consent Decree and jointly and severally liable with Consumers for all the requirements of this Consent Decree that may be applicable to the transferred or purchased Operational or Ownership Interests.

249. This Consent Decree shall not be construed to impede the transfer of any Operational or Ownership Interests between Consumers and any Third Party Purchaser so long as the requirements of this Consent Decree are met. This Consent Decree shall not be construed to prohibit a contractual allocation – as between Consumers and any Third Party Purchaser of Operational or Ownership Interests – of the burdens of compliance with this Consent Decree, provided that both Consumers and such Third Party Purchaser shall remain jointly and severally liable to the United States for the obligations of this Consent Decree applicable to the transferred or purchased Operational or Ownership Interests.

250. If the United States agrees, the United States, Consumers, and the Third Party Purchaser that has become a party to this Consent Decree pursuant to Paragraph 248 may execute a modification that relieves Consumers of its liability under this Consent Decree for, and makes the Third Party Purchaser liable for, all obligations and liabilities applicable to the purchased or transferred Operational or Ownership Interests. Notwithstanding the foregoing, however, Consumers may not assign, and may not be released from, any obligation under this Consent Decree that is not specific to the purchased or transferred Operational or Ownership Interests, including the obligations set forth in Sections IX (Environmental Mitigation Projects) and X (Civil Penalty). Consumers may propose and the United States may agree to restrict the scope of the joint and several liability of any purchaser or transferee for any obligations of this

Consent Decree that are not specific to the transferred or purchased Operational or Ownership Interests, to the extent such obligations may be adequately separated in an enforceable manner.

251. Paragraphs 248 through 250 of this Consent Decree do not apply if an Ownership Interest is transferred solely as collateral security in order to consummate a financing arrangement (not including a sale-leaseback), so long as Consumers: (a) remains the operator (as that terms is used and interpreted under the Act) of the subject Unit(s); (b) remains subject to and liable for all obligations and liabilities of this Consent Decree; and (c) supplies the United States with the following certification within 30 Days after the transfer:

> Certification of Change in Ownership Interest Solely for Purpose of Consummating Financing. We, the Chief Executive Officer and General Counsel of Consumers Energy Company ("Consumers"), hereby jointly certify under Title 18 U.S.C. Section 1001, on our own behalf and on behalf of Consumers, that any change in Consumer's Ownership Interest in any Unit that is caused by the creation of a collateral security interest in such Unit(s) pursuant to the financing agreement consummated on [insert applicable date] between Consumers and [insert applicable entity]: a) is made solely for purpose of providing collateral security in order to consummate a financing arrangement; b) does not impair Consumer's ability, legally or otherwise, to comply timely with all terms and provisions of the Consent Decree entered in *United States v. Consumers Energy Company,* Civil Action______; c) does not affect Consumers' operational control of any Unit covered by that Consent Decree in a manner that is inconsistent with Consumers' performance of its obligations under the Consent Decree; and d) in no way affects the status of Consumers' obligations or liabilities under that Consent Decree.

XXI. EFFECTIVE DATE

252. The effective date of this Consent Decree shall be the Date of Entry.

XXII. RETENTION OF JURISDICTION

253. This Court shall retain jurisdiction of this case after entry of this Consent Decree to enforce compliance with the terms and conditions of this Consent Decree and to take any action necessary or appropriate for the interpretation, construction, execution, or modification of

the Consent Decree, or for adjudication of disputes. During the term of this Consent Decree, either Party to this Consent Decree may apply to this Court for any relief necessary to construe or effectuate this Consent Decree.

XXIII. MODIFICATION

254. The terms of this Consent Decree may be modified only by a subsequent written agreement signed by the United States and Consumers. Where the modification constitutes a material change to any term of this Consent Decree, it shall be effective only upon approval by this Court.

XXIV. GENERAL PROVISIONS

255. When this Consent Decree specifies that Consumers shall achieve and maintain a 30-Day Rolling Average Emission Rate, the Parties expressly recognize that compliance with such 30-Day Rolling Average Emission Rate shall commence immediately upon the date specified and that compliance as of such specified date (e.g., December 30) shall be determined based on data from the specified compliance date and the 29 prior Unit Operating Days (e.g., December 1-30).

256. When this Consent Decree specifies that Consumers shall achieve and maintain a 90-Day Rolling Average Emission Rate, the Parties expressly recognize that compliance with such 90-Day Rolling Average Emission Rate shall commence immediately upon the date specified and that compliance as of such specified date (e.g., December 30) shall be determined based on data from the specified compliance date and the 89 prior Unit Operating Days (e.g., October 2 to December 30).

257. When this Consent Decree specifies that Consumers shall achieve and maintain a 365-Day Rolling Average Emission Rate, the Parties expressly recognize that compliance with such 365-Day Rolling Average Emission Rate shall commence immediately upon the date specified and that compliance as of such specified date (e.g., 365 Days from the Date of Entry) shall be determined based on data from the specified compliance date and the 364 prior Unit Operating Days (e.g., the 365 Days immediately following the Date of Entry). Similarly, if the specified date is June 30, 2015, compliance as of such specified date shall be determined based on data from July 1, 2014 to June 30, 2015.

258. This Consent Decree is not a permit. Compliance with the terms of this Consent Decree does not guarantee compliance with all applicable federal, state, or local laws or regulations. The emission rates and removal efficiencies set forth herein do not relieve Consumers from any obligation to comply with other state and federal requirements under the Clean Air Act, including Consumers' obligation to satisfy any State modeling requirements set forth in the Michigan SIP.

259. This Consent Decree does not apply to any claim(s) of alleged criminal liability.

260. In any subsequent administrative or judicial action initiated by the United States for injunctive relief or civil penalties relating to the facilities covered by this Consent Decree, Consumers shall not assert any defense or claim based upon principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, or claim splitting, or any other defense based upon the contention that the claims raised by the United States in the subsequent proceeding were brought, or should have been brought, in the instant case; provided, however,

that nothing in this Paragraph is intended to affect the validity of Section XI (Resolution of Civil Claims).

261. Nothing in this Consent Decree shall relieve Consumers of its obligation to comply with all applicable federal, state, and local laws and regulations, including, but not limited to, the Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) implementing regulations, National Ambient Air Quality Standards, the National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units (Utility MACT or MATS), Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial Commercial-Institutional Steam Generating Units (Utility NSPS). Nothing in this Consent Decree should be construed to provide any relief from the emission limits or deadlines specified in such regulations, including, but not limited to, deadlines for the installation of pollution controls required by any such regulations, nor shall this Consent Decree be construed as a pre-determination of eligibility for the one year extension that may be provided under 42 U.S.C. § 7412(i)(3)(B).

262. Subject to the provisions in Section XI (Resolution of Civil Claims), nothing contained in this Consent Decree shall be construed to prevent or limit the rights of the United States to obtain penalties or injunctive relief under the Act or other federal, state, or local statutes, regulations, or permits.

263. Each limit and/or other requirement established by or under this Consent Decree is a separate, independent requirement.

264. Performance standards, emissions limits, and other quantitative standards set by or under this Consent Decree must be met to the number of significant digits in which the standard or limit is expressed. For example, an Emission Rate of 0.100 is not met if the actual Emission Rate is 0.101. Consumers shall round the fourth significant digit to the nearest third significant digit, or the third significant digit to the nearest second significant digit, depending upon whether the limit is expressed to three or two significant digits. For example, if an actual Emission Rate is 0.1004, that shall be reported as 0.100, and shall be in compliance with an Emission Rate of 0.100, and if an actual Emission Rate is 0.1005, that shall be reported as 0.101, and shall not be in compliance with an Emission Rate of 0.100. Consumers shall report data to the number of significant digits in which the standard or limit is expressed.

265. This Consent Decree does not limit, enlarge, or affect the rights of any Party to this Consent Decree as against any third parties.

266. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Consent Decree, and supersedes all prior agreements and understandings among the Parties related to the subject matter herein. No document, representation, inducement, agreement, understanding, or promise constitutes any part of this Consent Decree or the settlement it represents, nor shall they be used in construing the terms of this Consent Decree.

267. Each Party to this action shall bear its own costs and attorneys' fees.

XXV. SIGNATORIES AND SERVICE

268. The undersigned representative of Consumers, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice, certifies that

he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind to this document the Party he or she represents.

269. This Consent Decree may be signed in counterparts, and such counterpart signature pages shall be given full force and effect.

270. Each Party hereby agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

271. Unless otherwise ordered by the Court, the Plaintiff agrees that Consumers will not be required to file any answer or other pleading responsive to the concurrently filed Complaint in this matter until and unless the Court expressly declines to enter this Consent Decree, in which case Consumers shall have no less than 30 days after receiving notice of such express declination to file an answer or other pleading in response to the Complaint

XXVI. PUBLIC COMMENT

272. The Parties agree and acknowledge that final approval by the United States and entry of this Consent Decree is subject to the procedures of 28 C.F.R. § 50.7, providing for notice of the lodging of this Consent Decree in the Federal Register, an opportunity for public comment, and the right of the United States to withdraw or withhold consent if the comments disclose facts or considerations that indicate that this Consent Decree is inappropriate, improper, or inadequate. Consumers shall not oppose entry of this Consent Decree by this Court or challenge any provision of this Consent Decree unless the United States has notified Consumers, in writing, that the United States no longer supports entry of this Consent Decree.

XXVII. TERMINATION

273. Once Consumers has:

a. completed the requirements of Sections IV (NO_x Emission Reductions and Controls), V (SO_2 Emission Reductions and Controls), VI (PM Emission Reductions and Controls), VIII (Wind Power Commitment), IX (Environmental Mitigation Projects);

b. maintained continuous compliance with this Consent Decree, including continuous operation of all pollution controls required by this Consent Decree, for a period of 24 months, and has successfully completed all actions necessary to Retire or Refuel to Natural Gas any Unit required or elected to be Retired or Refueled to Natural Gas as required by this Consent Decree;

c. paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree;

d. either included the requirements and limitations enumerated in this Consent Decree into a federally enforceable permit or obtained a site-specific amendment to the Michigan SIP for each plant in the Consumers System, as required by Section XVII (Permits) of this Consent Decree such that the requirements and limitations enumerated in this Consent Decree, including all Unit-specific, plant-specific, and system-specific performance, operational, maintenance, and control technology requirements established by this Consent Decree become and remain "applicable requirements" as that term is defined in 40 C.F.R. Part 70.2; and

e. certified that the date of Consumers' Request for Termination is later than December 31, 2019,

Consumers may serve upon the United States a Request for Termination, stating that Consumers has satisfied those requirements, together with all necessary supporting documentation.

274. Following receipt by the United States of Consumers' Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Consumers has complied with the requirements for termination of this Consent Decree. If the United States agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

275. If the United States does not agree that the Decree may be terminated, Consumers may invoke Dispute Resolution under Section XVI of this Decree. However, Consumers shall not seek Dispute Resolution of any dispute regarding termination, under Paragraph 224 of Section XVI, until 60 days after service of its Request for Termination or receipt of an adverse decision from the United States, whichever is earlier.

XXVIII. FINAL JUDGMENT

276. Upon approval and entry of this Consent Decree by this Court, this Consent Decree shall constitute a final judgment between the Parties.

Signature Page for *United States of America v. Consumers Energy Company* Consent Decree

FOR THE UNITED STATES DEPARTMENT OF JUSTICE

Respectfully submitted,

[redacted]

SAM HIRSCH
Acting Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

[redacted]

JASON A. DUNN
Senior Attorney
Environmental Enforcement Section
Environment and Natural Resources Division

Signature Page for *United States of America v. Consumers Energy Company* Consent Decree

FOR THE UNITED STATES DEPARTMENT OF JUSTICE

Respectfully submitted,

BARBARA L. McQuade
United States Attorney
Eastern District of Michigan

[redacted]

ELLEN CHRISTENSEN
Assistant United States Attorney
Eastern District of Michigan
211 W. Fort St., Suite 2001
Detroit, MI 48226

Signature Page for *United States of America v. Consumers Energy Company* Consent Decree

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Respectfully submitted,

[redacted]

CYNTHIA GILES
Assistant Administrator
Office of Enforcement and
Compliance Assurance
United States Environmental
Protection Agency

[redacted]

PHILLIP A. BROOKS
Director, Air Enforcement Division
United States Environmental
Protection Agency

[redacted]

MELANIE SHEPHERDSON
Attorney-Advisor
United States Environmental
Protection Agency

Signature Page for *United States of America v. Consumers Energy Company* Consent Decree

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Respectfully submitted,

[redacted]

SUSAN HEDMAN
Regional Administrator
United States Environmental
Protection Agency, Region 5

[redacted]

ROBERT A. KAPLAN
Regional Counsel
United Stated Environmental
Protection Agency, Region 5

[redacted]

SABRINA ARGENTIERI
Associate Regional Counsel
United States Environmental
Protection Agency, Region 5

Michael R. Berman

MICHAEL R. BERMAN
Associate Regional Counsel
United States Environmental
Protection Agency, Region 5

Signature Page for *United States of America v. Consumers Energy Company* Consent Decree

FOR CONSUMERS ENERGY COMPANY

By: [redacted]

Jackson Hanson
Senior Vice-President

APPENDIX A

ENVIRONMENTAL MITIGATION PROJECTS

Consumers shall spend no less than $ 7.7 million and shall comply with the requirements of this Appendix and with Section IX (Environmental Mitigation Projects) of the Consent Decree to implement and secure the environmental benefits of each Project. Nothing in the Consent Decree or in this Appendix shall require Consumers to spend any more than a total of $7.7 million on Environmental Mitigation Projects.

I. National Park Service Ecological Restoration ($500,000)

A. Within 45 Days from the Date of Entry of the Consent Decree, Consumers shall pay $500,000 to the National Park Service in accordance with 16 U.S.C. § 19jj for the restoration of land, watersheds, vegetation, and forests using techniques designed to improve ecosystem health and mitigate harmful effects from air pollution. Projects will focus on ecological restoration or invasive species remediation in the Cuyahoga Valley National Park and the Sleeping Bear Dunes National Lakeshore Park.

B. Payment of the amount specified in the preceding Paragraph shall be made to the Natural Resources Damage and Assessment Fund managed by the United States Department of the Interior. Instructions for transferring funds will be provided to Consumers by the National Park Service. Notwithstanding Section I.A of this Appendix, payment of funds is not due until ten (10) days after receipt of payment instructions. Upon payment of the required funds into the Natural Resource Damage and Assessment Fund, Consumers shall have no further responsibilities regarding the implementation of the ecological restoration or invasive species projects implemented by the National Park Service in connection with this provision.

II. Overall Schedule and Budget for Additional Environmental Mitigation Projects

A. Within 180 Days from the Date of Entry, unless otherwise specified by this Appendix, Consumers shall submit proposed plans (Project Plans) to EPA for review and approval pursuant to Section XIII of the Consent Decree (Review and Approval of Submittals) for spending $ 7.2 million in Project Dollars for the Projects specified in Sections III-VII of this Appendix. EPA reserves the right to disapprove any project after an analysis of its Project Plan.

B. Consumers may, at its election, consolidate the Project Plans required by this Appendix into one or more Project Plans.

C. Unless otherwise specified by this Appendix, Consumers may, at its election, spread its payments for Environmental Mitigation Projects over a five-year period commencing upon the Date of Entry. Consumers may also accelerate its payments to better effectuate a Project Plan, but Consumers shall not be entitled to any reduction in the nominal amount of the required payments by virtue of the early expenditures. Any funds designated for a specific Project that are left unspent, or are projected to be left unspent, at the Project's completion may be redirected by Consumers, after consultation with and approval by EPA, to one or more of the Projects listed in Sections III-VII below.

D. All proposed Project Plans shall include the following:

1. A plan for implementing the Project.

2. A summary-level budget for the Project.

3. A time line for implementation of the Project.

4. A description of the anticipated environmental benefits of the Project including an estimate of any emission reductions or mitigation expected to be realized, and the methodology and any calculations used in the derivation of such expected benefits, reductions, or mitigation.

5. An estimate of the cost-effectiveness of the proposed Project expressed in dollars per ton of pollutant reduction.

E. Upon approval by EPA of the Project Plan(s) required by this Appendix, Consumers shall complete the approved Projects according to the approved Project Plan(s). Nothing in the Consent Decree shall be interpreted to prohibit Consumers from completing the Projects ahead of schedule.

F. If Consumers opts not to perform a Project for which it has submitted a Plan that has been approved by EPA, then it shall indicate withdrawal from the Project in its next progress report due pursuant to Section XII (Periodic Reporting) of the Consent Decree. Consumers will not have any obligation for such Project pursuant to the Consent Decree, provided that Consumers is otherwise in compliance with the Environmental Mitigation Project requirements of the Consent Decree, which may include performing one or more Projects approved by EPA pursuant to Sections III-VII of this Appendix.

G. Nothing in this Appendix shall relieve Consumers of its obligation to comply with all applicable federal, state, and local laws and regulations, including, but not limited to, any obligations to obtain any permits pursuant to the Clean Water Act or Clean Air Act.

III. Vehicle Replacement, Retrofit and Fueling Infrastructure Projects (Up to $3.0 million)

A. Consistent with the requirements of the Consent Decree and Appendix, Consumers shall propose a Plan and shall spend up to $ 3.0 million on vehicle replacement and/or retrofit projects and/or fueling infrastructure projects.

B. Definitions:

1. "Alternative Fuel Vehicle" means a vehicle that runs exclusively or partially on a non-petroleum fuel (e.g., Compressed Natural Gas (CNG), Plug-in Extended Range Hybrid Vehicle (PHEV), or Plug-in Electric Vehicle (PEV)).

2. "Compressed Natural Gas (CNG) Vehicle" means a vehicle that runs exclusively on CNG.

3. "Plug-In Electric Vehicle (PEV)" means a vehicle that does not utilize an internal combustion engine and instead relies entirely on battery power for propulsion.

4. "Plug-in Extended Range Hybrid Vehicle (PHEV)" means a vehicle that can be charged from an external source and can generate, store, and utilize electric power to reduce the vehicle's consumption of fossil fuel. These vehicles typically operate exclusively under battery power for a designated range, switching to gasoline when battery power is depleted.

5. "Renewable Energy Credit" means a credit granted pursuant to MCL 460.1039 or the national Green-e Energy program that represents generated renewable energy.

C. <u>Vehicle Replacement and Retrofit Projects</u>

1. Vehicle Replacement Projects

   a. Consumers would replace existing gasoline and/or diesel powered vehicles (passenger cars, light trucks, and heavy duty service vehicles) with newly manufactured Alternative Fuel Vehicles and/or CNG Vehicles (collectively, Vehicle Replacement Project). Such vehicles may be owned by Consumers or shall be publicly owned motor vehicles.

   b. All Vehicle Replacement Project vehicles shall meet all applicable engine standards, certifications, and/or verifications and shall be retained and operated for their useful life.

   c. Consumers shall receive Project Dollar credit for only the incremental cost of a Vehicle Replacement Project vehicle, as compared to the cost of a newly manufactured, similar motor vehicle powered by conventional diesel or gasoline engines

d. Vehicles that are being replaced shall be permanently retired from use by Consumers or any other entity and shall be disposed of in accordance with all applicable laws. Consumers reserves the right to sell the vehicles for salvage.

e. Consumers may consider and implement additional options to enhance Alternative Fuel Vehicle and/or CNG vehicle usage, such as to:

1) Provide a purchase incentive for acquisition of PHEV, PEV, CNG vehicle;
2) Fund low-interest loans through banks and dealers for such vehicles; or
3) Provide direct cash incentives to consumers for such vehicle purchase.

2. Vehicle Retrofit Projects

a. Consumers would retrofit existing diesel engines with engines that have emission control equipment designed to reduce emissions of NO_x, particulates, and/or ozone precursors. Such engines may be owned by Consumers or shall be publicly owned motor vehicles.

b. Consumers must provide a mechanism for each replaced engine to be properly disposed of, which must include destruction of the engine block.

c. Consumers shall receive Project Dollar credit for only the cost of the new engine and the retrofit process of an engine for a Vehicle Retrofit Project.

d. For any third party whom Consumers might contract with to carry out any of the project, Consumers shall establish minimum standards that include prior experience in performing engine retrofits.

3. The following vehicles shall be prioritized for retrofit or replacement in the Project: (a) diesel vehicles (b) older model vehicles, (c) high use vehicles, (d) vehicles in areas with poor air quality, and (e) vehicles in areas with public health concerns related to vehicle pollution, which may include environmental justice communities.

4. In addition to the information required to be included in periodic reports submitted pursuant to Paragraph 188 of the Consent Decree, for each Vehicle Replacement Project, Consumers shall include the following information (unless such information has already been submitted in a prior report or plan): (a) identification of the vehicles replaced or retrofitted during the period covered by the periodic report, (b) the method to account for the amount of Project Dollars that will be credited for each Vehicle Replacement Project vehicle, (c) the per vehicle Project Dollars spent during the period covered by the periodic report, and (d) identification of any additional incentive option programs that will be administered to encourage vehicle replacements for Alternative Fuel Vehicles and/or CNG vehicles.

D. Fuel Infrastructure Projects

1. Fuel infrastructure projects shall be designed to enhance the electric vehicle charging infrastructure or compressed natural gas fueling infrastructure in Michigan.

2. Consumers may undertake enhancements to the electric vehicle charging or compressed natural gas fueling infrastructure by funding creation of one or more charging stations for electric vehicles or natural gas fueling stations. Prioritization shall be consistent with the Vehicle Replacement or Retrofit Projects and at locations in Bay, Monroe, Muskegon, Ottawa, Jackson and adjacent counties in Michigan, but may also be selected in accordance with Subsection 3 below.

3. If Consumers elects to undertake this Project, it may partner with third party organizations to handle funding and selection of locations in Michigan. Locations would be sought to maximize the number of vehicles that could utilize the chargers or natural gas fueling station while striving to expand the network of electric vehicle charging stations or natural gas fueling stations in Michigan. Potential sites could consist of locations that provide public access, including parking lots at mass transit terminals/stops, large industrial facilities or similar employers, residences, and shopping malls. Locations for charging stations could be targeted for areas where vehicles could be left for several hours to fully charge the electric vehicle's battery system or which meet the U.S. Department of Energy's Workplace Charging Initiative.

4. Emission reductions - overall emissions reductions would depend upon the number of vehicles utilizing the facilities and would be based upon the type of vehicle the Alternative Fuels Vehicle or CNG vehicle replaces in the general geographic area, the emissions characteristics and the annual vehicle miles traveled (VMT). For five years post-charging station installation, Consumers would commit to effectively off-set the electrical usage associated with the vehicle charging station(s) through the use of renewable energy credits (RECs), as defined.

E. In addition to the other requirements of this Appendix, the Project Plan required to be submitted pursuant to Section II of this Appendix shall include the following:

1. The process and criteria for selection of vehicles and locations to participate in a Vehicle Replacement or Retrofit Project or Fueling Infrastructure Project;

2. Any third party(ies) that Consumers proposes would have a coordination or management role in the Vehicle Replacement or Retrofit Project or Fueling Infrastructure Project(s), but not including vehicle manufacturers or dealers who would provide vehicles; and

3. The basis (including a discussion of cost) for selecting the make and model of the Vehicle Replacement Project or Vehicle Retrofit Project Vehicle chosen for this Project, including information about other available vehicles and why such vehicles were not selected.

4. The cost and anticipated emissions reductions from the Project.

IV. Renewable Energy (Wind Energy, Solar Photovoltaic (PV) or Anaerobic Digestion) Development or Installation Projects (Up to $ 4.0 million)

A. Consistent with the requirements of the Consent Decree, Consumers shall propose a Plan and shall spend up to $ 4.0 million on Wind Energy, Solar Photovoltaic (PV), or Anaerobic Digestion with Nutrient Recovery/Removal Development or Installation Projects.

B. Definitions:

1. "Anaerobic digestion" is a biological process in which microorganisms break down organic matter in the absence of oxygen. A biodigester or digester is an airtight chamber in which anaerobic digestion of manure, biosolids, food waste, other organic wastewater streams or a combination of these feedstocks occurs. This process produces commodities such as biogas (a blend of methane and carbon dioxide), animal bedding, and fertilizer.

2. "Development Projects" are projects that involve Consumers proposing to execute a long-term power purchase agreement ("PPA") with one or more third-party project developers (the "Project Developers") with respect to development of a new or an expansion of an existing "Renewable Energy System[1]" as defined by Michigan Public Act 295[2] and located within Michigan.

3. "Installation Projects" are projects that involve Consumers contributing monetary funds or equivalent equipment to Project Developers and/or Non-Profits for installation of a new or expansion to an existing Renewable Energy System located in Michigan and owned by Non-Profits or installed at local schools, government or municipality-owned (or co-owned) facilities/property, or facilities/property owned by non-profit groups, or at farm(s).

4. "Nutrient Recovery" is the recovery of stable and useful nutrient-containing products from wastewater and solids, including anaerobically digested manure.

5. "Nutrient Removal" is the reduction, elimination, or rendering insoluble of nutrient constituents in wastewater and solids, including anaerobically digested manure.

6. "Project Contract Beneficiary" is the party(s) who receives renewable energy system operation and maintenance funding and/or other related services or financial benefits

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[1] PA 295 defines a Renewable Energy System as a facility, electricity generation system, or set of electricity generation systems that use 1 or more renewable energy resources to generate electricity and defines renewable energy resource.

[2] Michigan Clean, Renewable, and Energy Efficiency Act of 2008, Public Act 295.

from Consumers and who owns the site upon which the renewable energy system is installed.

7. "Project Escrow" is the monetary fund or account that is separate from other site owner's project development funding and is set aside to support the operation and maintenance activities of the system.

8. "Project Service Contract" is the renewable energy system service contract that provides for operation and maintenance of the renewable energy system. Such Project Service Contract would include annual system checkups and normal component replacements, including installation of new system components as needed to ensure the ongoing operation and maintenance and performance of the system.

9. "Solar PV" involves Projects that generate electricity using a Solar Photovoltaic (PV) system.

10. "Wind Energy" involves Projects that generate electricity using a wind energy conversion system as defined by Michigan Public Act 295.

C. Development or Installation Project Plans

1. Consumers shall describe in the Plans submitted to EPA for review and approval, how Consumers shall maintain the emissions avoided or reduced by the Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal and/or Solar PV Project(s) it implements.

2. The Plan required to be submitted pursuant to this Section of this Appendix, shall also satisfy the following criteria:

   a Describe how the proposed Projects in the Plan are consistent with the requirements of this Section and the Consent Decree, and how the Projects will result in the emission reductions projected to be reduced pursuant to this Section.

   b. Include a budget and schedule for completing each Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal and/or Solar PV Project on a phased schedule (if applicable), and the supporting methodologies and calculations for the budget.

   c. Describe the methodology and include any calculations that Consumers proposes to use in order to document the emission reductions associated with any proposed Project to be implemented as part of this Section.

   d. Describe the process and criteria Consumers will use to select the potential Project Beneficiaries, including such factors as base electricity usage, wind or solar or anaerobic digester feedstock access availability, and other relevant criteria.

e. Provide the supporting costs and activities associated with the Project Service Contract, including the schedule and monetary installments for deposits to the Project Escrow to support the operation and maintenance activities of the system and a demonstration that the Project Escrow includes appropriate restrictions on the Project Contract Beneficiary's use of escrow funds in accordance with the requirements of this section.

f. Identify any person or entity, other than Consumers, that will be involved in the Project(s) and describe the third-party's role in the Project and the basis for asserting that such entity is able and suited to perform the intended role. Any proposed third-party must be legally authorized to perform the proposed role and to receive Project Dollars. This does not include contractors or installers who would complete the siting analysis and/or installation of the Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal, or Solar PV systems but does include any proposed affiliate or third party who would have a coordination or project management role in the Project.

g. Identify the expected nameplate capacity (kilowatts-ac for Wind Energy, kilowatts for Anaerobic Digestion with Nutrient Recovery/Removal, and kilowatts-dc for Solar PV) and energy output of each system.

3. Upon EPA's approval of the Plan, Consumers shall complete the Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal and/or Solar PV Project(s) according to the approved plan and schedule.

D. <u>Development Projects with Consumers (i.e., PPAs)</u>

1. Consistent with the requirements of this Appendix, Consumers may propose a Plan to execute a PPA with one or more Project Developers with respect to the development of a new or an expansion to an existing Wind Energy and/or Solar PV installation or installations in Michigan.

2. Consumers shall execute the PPA as quickly as practicable, but in any event, no later than 2 years after plan approval. Consumers shall only be credited Project Dollars on this Project within the first 5 years of performance (as measured from the day that power is first purchased under each PPA). For purposes of calculating the Project Dollars, Consumers shall only count the increment between the wholesale price of wind generated or solar generated electricity (including the cost of the Renewable Energy Credits ("RECs")[3]) that is charged under the PPA(s) with respect to any period, minus Consumers' average market clearing cost at the Midcontinent Independent System Operator ("MISO") system level for such period.

[3] RECs refer to a program in which credits are generated from the creation of Renewable Energy Systems, which include wind, solar, and biomass/anaerobic digestion developments. RECs are known as Renewable Energy Credits in Michigan and are further defined in PA 295.

3. The PPA will include a term of at least 10 years for which Consumers commits to purchase the power generated and, if generated, acquire associated RECs from the Wind Energy or Solar PV installations.

4. Consumers shall not use and will retire all RECs generated during the first 10 years of performance (as measured from the day the power is first purchased under each PPA) (the "Initial 10 Years") in accordance with all applicable rules, and shall identify these RECs as retired in the Michigan Renewable Energy Certification System ("MIRECS") or any other tracking system designated as acceptable by the program recognizing the RECs. Consumers shall not use the RECs generated during the Initial 10 Years of the PPA(s) for compliance with any renewable portfolio standard ("RPS") or for any other REC compliance purpose during the Initial 10 Years.

5. The Project shall be considered completed for purposes of the Consent Decree after the Initial 10 Years. Consumers may choose to continue to purchase power or otherwise continue the Project(s) following the Initial 10 Years, but will no longer be bound by the terms governing Environmental Mitigation Projects identified in Section IX of the Consent Decree and this Appendix, including but not limited to limitations of the use of RECs. RECs generated following the Initial 10 Years may be used for any purpose authorized by law, including but not limited to satisfying regulatory requirements or sales of RECs to help offset the additional costs of the PPA.

6. In addition to the other requirements of this Appendix, the Project Plan required to be submitted pursuant to this Section II of this Appendix shall include the following:

   a. Describe how the proposed Project in the Plan is consistent with the requirements of this Section and the Consent Decree, and how the Project will result in emissions reductions pursuant to this Section.

   b. Provide that Consumers will enter into a long-term PPA with one or more Project Developers by no later than 2 years after the date of Plan approval.

   c. Include an anticipated schedule for issuing Requests for Proposals ("RFPs") for Renewable Energy System development and an overall schedule for implementing this project.

   d. Describe the process that Consumers will use to select appropriate Renewable Energy System development(s) to participate in the Project.

   e. Identify the Project Developer that Consumers proposes for the PPA, including any proposed third-party who would have a coordination or project management role in the Project, but not including prospective developers who would respond to a RFP.

   f. In the case of Solar PV, provide that the development will have at least a combined aggregate 250 kW of generating capacity (direct current) and will be interconnected with the utility grid with appropriate metering and monitoring to track the net power output and identify the expected capacity (kW) and energy output of the development(s);

g. In the case of Wind Energy, provide that the development will have at least a combined aggregate 100 kW of generating capacity (alternating current) and will be interconnected with the utility grid with appropriate metering and monitoring to track the net power output and identify the expected capacity (kW) and energy output of the development(s);

h. Provide that Consumers shall report the actual kW hours generated each year for the initial 10 years in each report required by Paragraph 188 of the Consent Decree.

i. In addition to the information required to be included in each report required by Paragraph 188 of the Consent Decree, Consumers shall include in that report the identity of the details of the Wind Energy or Solar PV, including the total generating capacity (kW) of each system and development, components installed, total cost, expected energy output, environmental benefits, and the actual kW-hours generated for the Initial 10 Years.

E. <u>Installation Projects</u>

Consistent with the requirements of this Appendix, Consumers may propose a plan to install Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal or Solar PV Projects at federal, state, local, or Tribal government-owned buildings, facilities, property, schools, and/or buildings, facilities and/or property owned by nonprofit organizations or at a farm at any location within the State of Michigan.

1. Wind Energy

a. For a Wind Energy Project, the development(s) should consist, at a minimum, of: (1) installation of wind turbine(s) at a single location with unrestricted wind access, producing a total installed capacity of at least 10 kW alternating current; (2) appropriate wind turbine foundation or mounting equipment for the type of roof or Project site location; (3) wiring, conduit, and associated switch gear and metering equipment required for interconnecting the wind turbine(s) to the utility grid; (4) appropriate monitoring equipment and controls to enable staff tracking and monitoring of the total and hourly energy output of the system (kW hours), hourly ambient wind speed (m/s), and appropriate voltage, power, and current metrics.

b. The Wind Energy Project shall be installed on the customer side of the meter and ownership of the system, and any environmental benefits that result from the installation of the Wind Project(s), including associated RECs, shall be conveyed to the owner at the site (the "Project Beneficiary").

c. Consumers shall ensure that there is a manufacturer parts warranty ("Parts Warranty") in place for the major subcomponents of the Wind Energy Project, which, at a minimum, covers the wind turbine for 10 years.

d. Consumers also shall fund one or more service contracts ("Project Service Contract(s)") for the benefit of the Project Beneficiary that provides for operation and maintenance of the Wind Energy project for 20 years from the date of installation. The Project Service Contract shall, at a minimum, provide for annual system checkups and for normal component replacements, including installation of new system components as needed to ensure the ongoing maintenance and performance of the system for no less than 20 years for Wind Energy.

e. Consumers shall fund the cost of the Project Service Contract by depositing funds in an escrow account ("Project Escrow") that limits the use of the Project Escrow funds by the Project Beneficiary to use for purposes of maintaining the Wind Energy Project.

f. Services under the Parts Warranty and Project Service Contract may be performed by third-party provider(s) and administered by the Project Beneficiary by way of payment from the Payment Escrow. Other than with respect to its funding of the escrow, Consumers is not responsible for any repair and maintenance costs for the Wind Energy Project.

2. Anaerobic Digestion with Nutrient Recovery/Removal

a. For an Anaerobic Digestion with Nutrient Recovery/Removal Project(s), the Project(s), at a minimum, must consist, of: (1) the installation of the anaerobic digester system, which includes the digester, engine-generator set, and all related piping, pumps, and controls at a single location with planned biomass feedstock access, producing a total installed capacity of at least 150 kW alternating current; (2) the appropriate anaerobic digester system foundation and structural equipment for the project site location; (3) wiring, conduit, and associated switch gear and metering equipment required for interconnecting the anaerobic digester system generator(s) to the utility grid; (4) digestate storage and feedstock storage (if the project accepts off-site feedstocks) that minimizes, to the greatest extent practicable, any loss of feedstock or digestate to the environment; (5) technology for nutrient recovery or nutrient removal; (6) appropriate monitoring equipment and controls to enable staff tracking and monitoring of the total and hourly energy output of the system (kW hours), hourly digester temperature (°C), biogas production and appropriate voltage, power, and current metrics; (7) monitoring system and data collection to track and monitor nutrient recovery or removal effectiveness, including total volume of feedstock digested, total volume of digester outputs treated, nutrient recovery/removal efficiencies, and nutrient content ratio of generated products, and data shall be made available to the EPA; (8) a contingency plan for fate of nutrients in the event of system failure (i.e., enough crop-land on-site for agronomic application of digester outputs); and (9) a plan for the disposition or use of the digestate that ensures minimal migration of nutrients into any waters of the State or waters of the United States.

b. The Anaerobic Digestion with Nutrient Recovery/Removal Project(s) shall be installed on the customer side of the meter and ownership of the system, and any environmental benefits that result from the installation of the Anaerobic Digestion with Nutrient Recovery/Removal Project(s), including associated RECs, shall be conveyed to the Project Beneficiary.

c. Consumers shall ensure that there is a Parts Warranty in place for the major subcomponents of the Anaerobic Digestion with Nutrient Recovery/Removal Project(s), which, at a minimum, covers the digester design for 10 years, digester equipment for 3 years, and engine-generator set for 1 year.

d. Consumers also shall fund one or more Project Service Contract(s) for the benefit of the Project Beneficiary that provides for operation and maintenance of the Anaerobic Digestion with Nutrient Removal/Recovery Project(s) for 20 years from the date of operation. The Project Service Contract(s) shall, at a minimum, provide for annual system checkups and for normal component maintenance and replacements, including installation of new system components as needed to ensure the ongoing maintenance and performance of the system for no less than 20 years. Consumers shall fund the escrow in aggregate amount equal to 50% of the anticipated operation and maintenance of the Anaerobic Digestion with Nutrient Recovery/Removal Project(s) for 20 years. Consumers shall ensure that the Project Beneficiary has a binding obligation to fund or otherwise secure the funding for the remaining 50% of the operation and maintenance of the Anaerobic Digestion with Nutrient Recovery/Removal Project(s) from the date of operation.

e. Consumers shall fund the cost of the Project Service Contract by depositing funds in Project Escrow that limits the use of the Project Escrow funds by the Project Beneficiary to use for purposes of maintaining the Anaerobic Digestion with Nutrient Removal/Recovery Project(s).

f. Services under the Parts Warranty and Project Service Contract may be performed by third-party provider(s) and administered by the Project Beneficiary by way of payment from the Payment Escrow. Other than with respect to its funding of the escrow, Consumers is not responsible for any repair and maintenance costs for the Anaerobic Digestion with Nutrient Removal/Recovery Project(s).

g. In addition to the other requirements of this Appendix, the Project Plan required to be submitted pursuant to this Section of this Appendix shall also include a project feasibility study that analyzes the technical and financial viability of the proposed project and identifies any additional sources of project funding.

3. Solar PV Project

   a. For a Solar PV Project, the development(s) should consist, at a minimum, of: (1) the installation of conventional flat panel or thin film solar photovoltaics ("PV Projects") at a single location with unrestricted solar access, producing a total installed capacity of at least 10 kW direct current; (2) a grid-tie inverter, appropriately sized for the capacity of solar panels installed at the location; (3) the appropriate solar panel mounting equipment for the type of roof or project site location; (4) wiring, conduit, and associated switch gear and metering equipment required for interconnecting the solar generator(s) to the utility grid; and (5) appropriate monitoring equipment to enable the school students and/or staff to track and monitor the total and hourly energy output of the system (kW hours), environmental benefits delivered (e.g. approximate pounds of NO_x, SO_2, and CO_2 avoided), hourly ambient temperature and cell temperature (°C), irradiance (W/M^2), and appropriate voltage, power, and current metrics.

   b. The Solar PV Project shall be installed on the customer side of the meter and ownership of the system, and any environmental benefits that result from the installation of the Solar PV Project(s), including associated RECs, shall be conveyed to the Project Beneficiary.

   c. Consumers shall ensure that there is a Parts Warranty in place for the major subcomponents of the Solar PV Project(s), which, at a minimum, covers the solar panels (modules) for 25 years and the inverters for 10 years.

   d. Consumers also shall fund one or more Project Service Contract(s) for the benefit of the Project Beneficiary that provides for operation and maintenance of the Solar PV Project(s) for 25 years from date of installation. The Project Service Contract(s), at a minimum, provide for annual system checkups, solar panel (module) cleaning, and for normal component replacements, including installation of new system components as needed to ensure the ongoing maintenance and performance of the system for no less than 20 years.

   e. Consumers shall fund the cost of the Project Service Contract by depositing funds in Project Escrow that limits the use of the Project Escrow funds by the Project Beneficiary to use for purposes of maintaining the Solar PV Project(s).

   f. Services under the Parts Warranty and Project Service Contract may be performed by third-party provider(s) and administered by the Project Beneficiary by way of payment from the Payment Escrow. Other than with respect to its funding of the escrow, Consumers is not responsible for any repair and maintenance costs for the Solar PV Project(s).

4. In addition to the information required to be included in each report required by Paragraph 188 of the Consent Decree, Consumers shall include in that report the identity of the buildings/property where the Wind Energy, Anaerobic Digestion with Nutrient Recovery/Removal, or Solar PV system(s) are installed, the total capacity (kilowatts) of each system, components installed, total cost, expected energy output, actual kW-hours generated, and environmental benefits realized.

V. Wood Burning Appliances Project (No less than $1.0 million and up to $2.0 million)

A. Consistent with the requirements of Section II of this Appendix, Consumers shall propose a plan to spend no less than $1.0 million and up to $2.0 million in Project Dollars to sponsor a wood-burning appliance replacement and/or retrofit project (WBAR Project) that Consumers shall ensure shall be implemented by one or more state, local or tribal air pollution control agencies, or by one or more third-party non-profit organizations or entities.

B. The WBAR Project shall replace or retrofit inefficient, higher-polluting wood-burning or coal appliances with cleaner-burning, more energy-efficient heating appliances and technologies, such as by: (1) retrofitting older hydronic heaters (a.k.a., outdoor wood boilers) to meet EPA Phase II hydronic heater standards; (2) replacing older hydronic heaters with EPA Phase II hydronic heaters, or with EPA-certified wood stoves, other cleaner-burning, more energy-efficient hearth appliances (e.g., wood pellet, gas, or propane appliances), or EPA Energy Star qualified heating appliances; (3) replacing non-EPA-certified wood stoves with EPA-certified wood stoves or cleaner-burning, more energy-efficient hearth appliances; and (4) replacing or retrofitting wood-burning fireplaces with EPA Phase II qualified retrofit devices or cleaner-burning natural gas fireplaces. The appliances that are replaced under the WBAR Project shall be permanently removed from use and appropriately disposed.

C. The WBAR Project shall provide incentives for the wood-burning appliance replacements and retrofits through rebates, vouchers, discounts, and for income-qualified residential homeowners, full replacement costs. A wood moisture meter shall be provided to every WBAR Project participant that receives a new wood-burning appliance or retrofits an existing wood-burning appliance.

D. To qualify for the WBAR Project, the wood-burning appliance or fireplace must be in regular use in a primary residence or in a frequently used non-residential building (e.g., churches, greenhouses, schools) during the heating season, and preference shall be given to those appliances that are a primary or a significant source of heat.

E. The WBAR Project shall be implemented within the Lower Peninsula of the State of Michigan. In determining the specific areas to implement this project within the aforementioned geographic areas, Consumers shall give priority to: (1) areas with high amounts of air pollution (e.g., non-attainment areas); (2) areas located within a geography and topography that make them susceptible to high levels of particle pollution; (3) areas that have a significant number of older and/or higher-polluting wood or coal-burning appliances; and/or (4) areas with dense residential populations.

F. No greater than 15% of the Project Dollars provided to the Implementing Entity shall go towards administrative support and outreach costs associated with implementation of the WBAR Project.

G. Each WBAR Project participant shall receive information related to proper operation of their new appliance and the benefits of proper operation (e.g., lower emissions, better efficiency), including, if applicable, the importance of burning dry seasoned wood. The costs associated with this element of the WBAR Project shall not be considered part of the 15% administrative costs, and shall be marginal as compared to the total Project Dollars attributed to the WBAR Project.

H. Consumers shall ensure that the Implementing Entity consult with EPA's Residential Wood Smoke Reduction Team and implement the Wood Burning Appliances Project consistent with the materials available on EPA's Burn Wise website at http://www.epa.gov/burnwise.

I. Consumers shall complete the WBAR Project not later than three years after approval of the Project Plan(s), except that Consumers may request an extension of time to complete the Project if it appears likely that all Project Dollars designated under the Plan will not be spent within such three year period despite Consumers' best efforts to implement the WBAR Project.

J. In addition to the information required to be included in periodic reports submitted pursuant to Paragraph 188 of the Consent Decree, Consumers shall include the following information with respect to the WBAR Project for each period covered by the periodic report: (1) a description of the proposed outreach to raise awareness within the geographic area of the WBAR Project, and (2) the number and type of appliances made available through the WBAR Project, the cost per unit, and the value of the rebate or incentive per unit.

K. In addition to the information required to be included in the Project completion report submitted pursuant to Paragraph 178 of the Consent Decree, Consumers shall include the following information with respect to the WBAR Project: (1) the number and type of appliances made available through the WBAR Project, (2) the cost per unit, and (3) the value of the rebate or incentive per unit.

L. Consumers shall describe how the proposed Project in the plan required to be submitted pursuant to Section II of this Appendix is consistent with the requirements of this Section and of the Consent Decree. In that plan, Consumers shall also include the following information: (1) identification of the proposed Implementing Entity, (2) identification of any other entities with which the Implementing Entity proposes to partner to implement the WBAR Project (e.g., the Hearth, Patio, and Barbecue Association of America, the Chimney Safety Institute of America, the American Lung

Association, weatherization offices, individual stove retailers, entities that will dispose of the old appliances), (3) a description of the schedule and the budgetary increments in which Consumers shall provide the Project Dollars to implement the WBAR Project, (4) an estimate of the number and type of appliances Consumers intends to subsidize or make available through the WBAR Project, the cost per unit, and the value of the rebate or incentive per unit, (5) the criteria the Implementing Entity will use to determine which income-qualified owners shall be eligible for full cost replacement, and (6) a description of proposed outreach to raise awareness within the geographic area of the WBAR Project.

M. Performance: Upon approval of the WBAR Project Plan by EPA, Consumers shall complete the Project according to the approved plan and schedule.

VI. Energy Efficiency Projects (Up to $500,000)

A. Consistent with the requirements of Section II of this Appendix, Consumers shall propose a plan to spend up to $500,000 in Project Dollars on Energy Efficiency Projects for low income residents and/or public schools to reduce or avoid emissions of criteria pollutants.

B. Consumers shall submit a Plan to EPA for review and approval consistent with Section II of this Appendix. Consumers shall describe in the Plan submitted to EPA how Consumers shall achieve and maintain the emission reductions associated with the Energy Efficiency Projects.

C. The Plan required to be submitted pursuant to this Section of this Appendix shall also satisfy the following criteria:

1. Describe how the proposed Projects in the Plan are consistent with the requirements of this Section and the Consent Decree, and how the Projects will result in the emission reductions projected to be reduced pursuant to this Section.

2. Include a budget and schedule for completing the Energy Efficiency Projects and the supporting methodologies and calculations for the budget.

3. Describe the methodology and include any calculations that Consumers proposes to use in order to document the emission reductions associated with any proposed Project to be implemented as part of this Section.

D. Upon EPA's approval of the Plan, Consumers shall complete the Projects according to the Plan and schedule.

E. For purposes of this Section, Energy Efficiency Projects include but are not limited to: "Extreme Energy Makeovers" for communities of homes or public schools located in Michigan. This Project would retrofit a community of low-income housing residences or public schools, with the most cost-effective energy-reduction packages on actual homes or school buildings and monitor the results, with a goal to achieve 25% energy use reduction.

VII. Land Acquisition, Donation and Ecological Restoration Project (Up to $ 2.0 million)

A. Consistent with the requirements of Section II of this Appendix, Consumers must submit a Plan to EPA for review and approval for the use of up to $ 2.0 million in Project Dollars for acquisition, donation, and/or restoration of ecologically significant lands, watersheds, vegetation, and/or forests that are part of, adjacent to, or near the Consumers service territories (Land Acquisition and Restoration Project). The Project Dollars for this Project are in addition to the funding described in Section I of this Appendix (National Park Service Ecological Restoration). The goal of this Project is the protection through acquisition, donation, and/or restoration of ecologically significant land, watersheds, vegetation, and forests using adaptive management techniques designed to improve ecosystem health and mitigate harmful effects from air pollution.

B. Definitions.

1. "Land Acquisition" means purchase of interests in land, including fee ownership, easements, or other restrictions that run with the land that provide for the perpetual protection of the acquired land.

2. "Land Donation" means transfer of ownership of Consumers land in fee or direct payment of funds to a non-profit organization or governmental agency to acquire and provide for perpetual protection of the land.

3. "Restoration" may include (but is not limited to) reforestation or revegetation (using plants native to the area) and/or removal of non-native invasive plant species, as well as land restoration work for supporting such vegetative restorations.

C. Land Acquisition, Donation, and Restoration Project(s) shall apply to land that is ecologically and/or environmentally significant. Prioritization shall be considered in Bay, Monroe, Muskegon, or Ottawa Counties in the state of Michigan, but may be considered for any ecologically and/or environmentally significant property in the State

D. Land Acquisition, Donation, and Restoration Project(s) must also incorporate sufficient provisions to ensure the perpetual protection of the acquired, donated and/or restored land, unless the land is already under the ownership of a governmental entity or non-profit that has a legal duty to conserve the land in perpetuity. Any proposal for acquisition or donation of land must identify fully all owners of the interests in the land. Every proposal for acquisition or transfer of land must identify the ultimate holder of the interests and provide a basis for concluding that the proposed holder of title is appropriate for long-term protection of the ecological and/or environmental benefits sought to be achieved through the acquisition or donation.

E. Consumers shall submit a Plan to acquire, donate, and/or restore ecologically significant land that includes:

1. A general description of the area proposed to be acquired, donated, and/or restored, including a map clearly identifying the location of the land relative to the Units addressed in the Consent Decree. The map should also clearly identify all city, state or federal publicly protected lands/parks in the area surrounding the proposed land to be acquired, donated, or restored.

2. A justification of why the area should be considered ecologically and/or environmentally significant and warrants preservation and/or restoration.

3. A description of the projected cost of the land acquisition, donation, and/or restoration.

4. Identification of any person or entity, other than Consumers, that will be involved in the Land Acquisition, Donation, or Restoration project. Consumers' plan shall describe the third-party's role in the action and the basis for asserting that such entity is able and suited to perform the intended role, including any proposed third party who would have a coordination or project management role.

5. A schedule for completing and funding each portion of the Land Acquisition, Donation, or Restoration Project.

F. Upon EPA's approval of the Project Plan, Consumers may transfer up to $2,000,000 of Project Dollars to one or more land acquisition funds or non-profit organization(s), for partial or full implementation of the land acquisitions and/or restoration described in the Project Plan.

G. Performance: All Project Dollars shall be expended in accordance with subsections A through F above.

H. Project Completion Report: In addition to the information required by Section II of this Appendix, Consumers' project completion report for this Project shall include any reports related to this Project that any applicable third party fund or organization provide to Consumers.

APPENDIX B

Determination of Unit Specific NO_x or SO_2 Mass Emissions for Those Units Where 40 CFR Part 75 NO_x or SO_2 Mass Emissions Are Measured at a Common Stack

For JH Campbell Units 1 and 2 and JC Weadock Units 7 and 8, as of the Date of Entry, NO_x mass emission rates are monitored at the associated common stacks via the use of NO_x concentration and flow CEMS. In addition, each of the preceding individual units are equipped with duct-level NO_x and diluent (i.e., CO_2) concentration CEMS to permit the determination of unit specific NO_x lb/mmBtu emission rates. The following procedures shall be used to calculate unit level NO_x mass emission rates for purposes of conducting rolling average NO_x lb/mmBtu calculations. If Campbell Units 1 and 2 elect to install unit level SO_2 CEMS only in lieu of installing both unit level SO_2 CEMS and Flow CEMS, the same procedure shall be followed for calculating unit level SO_2 mass emissions except that the value of K in Paragraph c. shall equal 1.660×10^{-7} (lb/scf)/ppm.

a. From 40 C.F.R. Part 75, Appendix F, equation F-15 (already calculated and reported under Part 75), common stack heat input shall be calculated as follows:

$$HI = Q_w \times \frac{1}{F_c} \times \frac{\%CO_{2w}}{100}$$

Where,

HI	=	*Common stack hourly heat input rate during unit operation, mmBtu/hr*
Q_w	=	*Hourly average volumetric flow rate during unit operation, wet basis, scfh*
F_c	=	*Carbon-based F-factor, listed in 40 CFR 75, Appendix A, Section 3.3.5 for each fuel, scf/mmBtu*
$\% CO_{2w}$	=	*Hourly concentration of CO_2 during unit operation, percent CO_2*

b. From 40 C.F.R. Part 75, Appendix F, Equation F-21a (already calculated and reported under Part 75), individual unit heat input shall be calculated as follows:

$$HI_i = HI_{CS} \times \frac{T_{CS}}{t_i} \times \left[\frac{MW_i \times t_i}{\sum_{i=1}^{n} MW_i \times t_i}\right]$$

Where,

HI_i	=	*Heat input rate for a unit, mmBtu/hr*
HI_{CS}	=	*Heat input rate at the common stack, mmBtu/hr*
MW_i	=	*Gross electrical output, MWe*
t_c	=	*Unit operating time, hour or fraction of an hour*
t_{CS}	=	*Common stack or common pipe operating time, hour or fraction of an hour*
n	=	*Total number of units using the common stack*
i	=	*Designation of a particular unit*

c. From 40 C.F.R. Part 75, Appendix F, Equation F-6 (already calculated and reported under Part 75), individual unit NO_x lb/mmBtu emission rates shall be calculated as follows:

$$E = K \times C_h \times F_c \times \frac{100}{\%CO_2}$$

Where,

E	=	*Pollutant emission rate during unit operation, lb/mmBtu*
K	=	*1.194×10^{-7} for NO_x (lb/scf)/ppm*
C_h	=	*Hourly average NO_x concentration during unit operation, ppm*
F_c	=	*Carbon-based F-factor, listed in 40 CFR 75, Appendix A, Section 3.3.5 for each fuel, scf/mmBtu*
$\% CO_2$	=	*Hourly concentration of CO_2 during unit operation, percent CO_2*

d. To calculate unit level NO_x mass emissions in each operating hour (not calculated or reported under Part 75), the following calculation shall be performed:

$$E_{(NOx)h} = E \times HI_i$$

Where,

$E_{(NOx)h}$	=	*NO_x mass emission rate for hour "h", in lbs/hr*
E	=	*Pollutant emission rate during unit operation, lb/mmBtu*
HI_i	=	*Heat input rate for a unit, mmBtu/hr*

$$M_{(NOx)h} = E_{(NOx)h} \times t_h$$

Where,

$M_{(NOx)h}$	=	*NO_x mass emissions for hour "h", lbs*
$E_{(NOx)h}$	=	*NO_x mass emission rate for hour "h", in lbs/hr*
t_h	=	*Unit operating time for hour "h", in hours or fraction of an hour*

e. The preceding unit specific NO_x mass emissions data shall then be used in accordance with Paragraphs 5, 6, and 7 to calculate 30-day rolling, 90-day rolling and 365-day rolling NO_x lb/mmBtu emission rates, respectively (as applicable).

Exhibit I-3
Redacted

Part II – Market Dominance

Exhibit II-1

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

CONSUMERS ENERGY COMPANY Complainant, v. CSX TRANSPORTATION, INC. Defendant.	))))))))))))	Docket No. NOR 42142

Assessment of the Feasibility of Shipping PRB Coal To the J.H. Campbell Power Plant Using Lake Vessels

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October 29, 2015

Table of Contents

1. Introduction

1.1 Scope of Work and Background

Energy Research Company LLC ("ERC") was asked by Consumers Energy Company ("Consumers") to assess the practical feasibility and cost to ship PRB coal to the J.H. Campbell Generating Station near West Olive, MI using vessels operating on the Great Lakes, under a variety of scenarios. Currently, all PRB coal is transported to Campbell by rail by CSX Transportation, Inc. ("CSXT"), from an interchange with BNSF Railway ("BNSF"), at Cicero near Chicago, Illinois. BNSF originates the coal from mines in the Southern PRB[1].

The rail contract between Consumers and CSXT that applied to Campbell deliveries { } (CSXT-C-84720) expired on December 31, 2014, and Consumers and CSXT were unable to agree on a new contract. At Consumers' request, CSXT provided Consumers with Tariff CSXT-13952, which established a common carrier rate for PRB coal delivery service from the Chicago area to Campbell in shipper-supplied railcars in the amount of $14.95 per ton. The rate is subject to a fuel surcharge, which applies if the published price for Highway Diesel Fuel according to the U.S. Energy Information Administration exceeds $3.00 per gallon. No fuel surcharge applied as of the date of this report.

Currently, BNSF transports Consumers' coal about 1,145 miles from the mines in Wyoming to Chicago, and CSXT delivers the coal the remaining 161 miles to the Campbell power plant. The BNSF[2] rail rate to Chicago as of January 1, 2015 { } The new CSXT tariff rate to haul the coal 161 miles from Chicago to Campbell as of January 1, 2015 was $14.95 per ton, or 9.26 cents per ton-mile. The new CSXT rate is { } higher than the BNSF rate on a cents per ton-mile basis.

[1] Consumers Energy Company v. CSX Transportation, Original Complaint Before the Surface Transportation Board, Docket No. NOR-42142, January 13, 2015.

[2] { }

1.2 Summary of Conclusions

ERC's assessment of the feasibility of shipping PRB coal to the Campbell power plant with lake vessels has determined the following:

1. The Campbell power plant does not have a coal unloading dock and currently does not have any ability to receive coal delivered by water.
2. { } so PRB coal would have to be stockpiled at a loading dock during the winter when the Great Lakes are frozen.
3. Since coal cannot be delivered by vessel during the winter, the Campbell plant also would have to stockpile coal during the shipping season, to have sufficient coal to supply the plant during the winter.
4. Adding a dock in Lake Michigan near the Campbell plant raises significant environmental impact issues that most likely would mean it could not qualify for the necessary construction and operation permits.
5. Adding a dock in Pigeon Lake near the Campbell Plant (Option E) that could unload Class I vessels is not physically feasible.
6. A Pigeon Lake dock (Option E) for Class II vessels may not be able to deliver the 5.5 million tons of PRB coal that Consumers projects to be burned at the Campbell Plant during the 2016 to 2030 period, given the significant operating restrictions that likely are required to address safety, noise, lighting and other impacts. This option will have significant permitting issues, and also may not be permittable.
7. A Pigeon Lake dock (Option E) for Class III vessels would not have sufficient capacity to deliver the expected 5.5 million tons of PRB coal annually. In addition, this option may not be permittable.

8. The proposed coal unloading facilities were for a direct conveyor to the existing coal handling facilities, which would limit the lake vessel unloading rate to the existing coal handling facility capability of 2,726 tons per hour ("tph") (see Figure 3-11). The unloading rate of self-unloading lake vessels is typically 6,000 tph[3] when able to dump the coal directly on the ground at the vessel's maximum rate. The slower unloading rates at the Campbell plant would increase the vessel unloading time, and thus, would increase the lake vessel freight rates because of the increased cycle time per trip.
9. The large volume of dredging required for Option E, Pigeon Lake dock, may create serious environmental as well as logistical issues. Dredging capacity is not unlimited, and combined with potential limits to dredging to certain times of the year, it may take much longer to dredge Pigeon Lake channel and Pigeon Lake than previous studies conducted for Consumers estimated. Furthermore, there may not be sufficient areas to deposit the dredged material locally, in which case the material would have to be hauled to a confined disposal facility at a higher cost.
10. Unloading coal from vessels at Consumers' Cobb station (which presently has an operational vessel dock) and moving it by rail to Campbell using the Michigan Shore Railroad (MSRR) has the following problems:
    a. It would require the active cooperation of the MSRR, which is unlikely given its parent company's extensive business relationship with CSXT;
    b. MSRR leases the track between the Cobb and Campbell plant from CSXT, {

    } and
    c. In anticipation of the closure of the Cobb Plant in 2016, Consumers has engaged for several years with state and local community and economic development entities about utilizing the dock for non-coal purposes, and a feasibility study to convert the Cobb port facility into a container port was done by Rockford-Berge. If Consumers was to reverse course and propose continuing to use the Cobb port

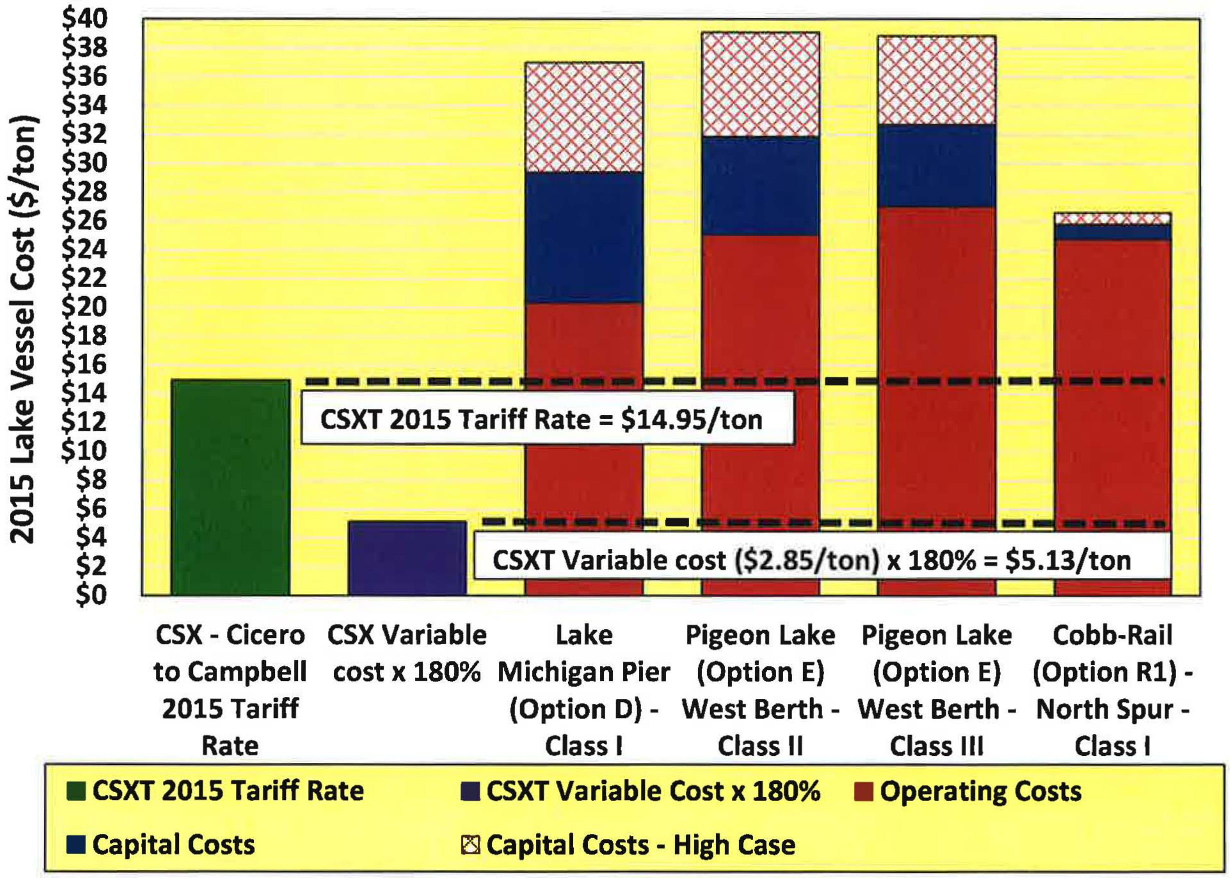
[3] Class I and Class II lake vessels typically have a rated unloading capacity of 10,000 tph for iron ore, and 6,000 tph for coal. Boatnerd.com reports American Steamship's Walter J. McCarthy Jr. lake vessel's unloading capacity is 6,000 tph, http://www.boatnerd.com/pictures/fleet/mccarthy.htm.

to transload coal to supply the Campbell plant, the required permitting effort likely would meet significant public opposition.

11. Even if the environmental and community impact issues can be resolved and a dock can be permitted, the operating costs of all of the water delivery options are significantly higher than CSXT's $14.95 per ton tariff rate.
12. In 2014, WorleyParsons and Spicer Group evaluated the capital and operating costs for various potential options to deliver PRB coal to the Campbell power plant by lake vessels. However, their estimates did not include all of the permitting and mitigation costs, nor did they include all costs for litigation or the additional stockpile requirements necessary because of the seasonal delivery of the coal. These additional costs are accounted for in the base cost estimates used in this report.
13. Figure 1-1 shows a stacked bar chart of the operating costs (blue bar) and capital costs (red bar) for the principal, hypothetical lake vessel options to the Campbell power plant, adjusted to the equivalent CSXT rate of $14.95 per ton. As shown, all of the lake vessel options have net higher operating costs than CSXT's $14.95 per ton rate tariff rate for 2015. Including the minimum acceptable capital costs only increases the cost of the lake vessel options, making the water delivery options even less of an effective competitive alternative to rail deliveries by CSXT rail. Figure 1-2 summarizes the base costs components for Option D (Lake Michigan pier/dock), the lowest cost option for Option E (Pigeon Lake dock-West Berth) for Class II and Class III vessels, and the lowest cost option for Option R (Cobb/rail, Option R1).
14. Shipping coal by lake vessel to the Cobb plant and then railing the coal to the Campbell plant has the highest cost of all of the lake vessel options, and like the other options, does not provide an economic alternative to the CSXT rail delivery. Furthermore, this option may not even be feasible since the Michigan Shore Railroad may not be independent of CSXT, and may be unable or unwilling even to provide alternative rail service.

None of the hypothetical lake vessel options to transport PRB coal to the Campbell Plant that have been considered by Consumers or its consultants offer an effective competitive alternative to CSXT service from the BNSF interchange.

Figure 1-1. Operating and capital cost of various lake vessel delivery options to the Campbell power plant.[4]



[4] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 1-1").

Figure 1-2. {

[5] e-workpaper { }

2. Prior Studies Of Water Delivery Options To Campbell

Consumers evaluated delivering coal to the Campbell power plant using lake vessels in 2007 and in 2014. In 2007, ERM Group examined the feasibility of a potential water option to deliver coal to the Campbell power plant, and in 2014, WorleyParsons and the Spicer Group independently studied the feasibility of several hypothetical water delivery alternatives.

2.1 2007 ERM Study

In October 2007, ERM Group prepared a report[6] that evaluated four options to deliver coal by lake vessel to the Campbell plant:

1. Option A – Barge with shore unloading in lake barges from the KCBX Terminal at Chicago
2. Option B – Self-unloading barge with shore unloading
3. Option C – Self-unloading Class II vessel with shore unloading
4. Option D – Lake Michigan pier

The considered location of the unloading dock for Options A, B and C was on the west side of the existing coal stockpile in the Unit 1&2 cooling water intake channel, which would have to be widened to accommodate lake vessels. Subsequently, the Environmental Protection Agency proposed cooling water regulations under Section 316(b) of the Clean Water Act, which Consumers determined would not allow a widening of the cooling water intake channel as proposed in Options A, B and C. As a result, they no longer were viewed as potentially feasible options[7].

Figure 2-1 provides a summary of ERM's comparison of certain costs, specifications and environmental impacts for the four options. ERM concluded:

6 { }

7 { }

1. Options A and B were the lower cost, but they only could deliver 2.4 and 2.7 million tons annually.
2. Option D was the only lake transportation alterative that could deliver all of the coal required at Campbell, but also was the most environmentally intrusive and might not be permittable.

Figure 2-1. {

	Option A	Option B	Option C	Option D

}

because the ERM study was updated in 2014 by WorleyParsons and the Spicer Group. However, it is worth noting that the ERM operating cost estimates were missing some key components, including:

1. The maintenance cost in the ERM study only included the cost to dredge 10,000 cubic yards ("cy") annually, and did not include any maintenance costs for the new coal handling facility that would have to be built.

2. The only operating expense included in the study was the E-Crane operator for Option A. No operating costs were included for the other ERM options.
3. The operating costs in the ERM study omitted all of the other operating, maintenance, taxes, insurance, and other costs associated with the coal dock/pier and associated coal handling facilities.
4. The ERM evaluation did not include costs for additional stockpile capacity required at the Campbell plant.
5. ERM did not include consideration of stockpile capacity limitations and stockpile costs at KCBX and/or the Midwest Energy Resources Company ("MERC") dock at Superior, WI.
6. ERM did not include the interest during construction costs associated with the capital expenditures prior to commercial operation.

2.2 2014 WorleyParsons Study

In 2014, WorleyParsons prepared a report[8] that studied the feasibility of three hypothetical coal delivery options by vessel to the Campbell power plant:

1. Option D – Coal pier in Lake Michigan (Figure 4-1)
    a. 3,500-foot pier in Lake Michigan with the ability to accept Class I (70,000 ton), Class II (27,000 ton) and Class III (15,000 ton) self-unloading vessels.
2. Option E – Coal dock in Pigeon Lake
    a. South Berth (Figure 5-1) – Class I (70,000 ton), Class II (27,000 ton), and Class III (15,000 ton) self-unloading vessels.
    b. West Berth (Figure 5-4) – Class II (27,000 ton) and Class III (15,000 ton) self-unloading vessels. This is a modified design of Option C in the 2007 ERM study which moved the dock further south so that it is outside the Unit 1&2 cooling water intake channel. The west berth location was not evaluated for Class I vessels because of insufficient space.
3. Option R - Vessel transportation of coal to the Cobb power plant site for transfer to rail and delivery to the Campbell plant using the MSRR, a subsidiary of Genesee &

[8] {

}

Wyoming, Inc. WorleyParsons also evaluated the following four sub-options to load the coal onto rail at the Cobb plant and three sub-options to deliver the coal to the Campbell plant:

a. Cobb Rail Option 1 (Figure 6-1) – Stub track directly off the MSRR on the north side of the Cobb plant.
b. Cobb Rail Option 2 (Figure 6-2) - Load cars on south side of the dock. This alternative was constrained by the narrow footprint of the property and limited track space. Railcar loading would take longer because of limited space and the need to load rail cars in smaller segments.
c. Cobb Rail Option 3 (Figure 6-3) – Unload vessels at another location about 3.5 miles southwest of the Cobb plant not owned by Consumers, and upgrade the MSRR track that it leases from CSXT.
d. Cobb Conveyor Option (Figure 6-4) – An elevated, enclosed conveyor extending south from the Cobb coal yard to the MSRR rail yard. This option would not require MSRR track upgrades.

WorleyParsons evaluated the following three sub-options to deliver the coal to the Campbell plant:

a. Campbell Rail Option 1 – MSRR to CSXT for delivery to Campbell. This option would utilize the current rail infrastructure, but requires CSXT agreeing to short haul itself and to provide a rate to transport the coal over the last two miles to the plant. This option did not provide a competitive option to CSXT's current delivery from Chicago to the Campbell plant, and was not considered further.
b. Campbell Rail Option 1A – This scenario assumed that MSRR would acquire trackage rights from CSXT. WorleyParsons commented that "this scenario is highly unlikely because CSXT would be giving up all portions of freight rate revenues." In reality, it too would not be a realistic option.
c. Campbell Rail Option 2 (Figure 6-5) – MSRR Direct to Campbell. This option would bypass CSXT's track by building two miles of new track to connect the MSRR rail track near Fillmore Street to the boundary limits of the Consumers rail track entrance.

Figure 2-2 provides a summary of WorleyParsons' estimates of the capital and operating costs to deliver PRB coal to the Campbell power plant using the various studied alternatives. {

} While WorleyParsons included an estimate for Class I vessels in Pigeon Lake, that alternative is not operationally feasible due to the size of the vessels and the maneuvering limits in the lake. The capital cost estimate to unload the coal at the Cobb power plant and rail the coal to the Campbell plant {

}

Figure 2-2. {

	Option D Lake Michigan Pier	Option E Pigeon Lake Dock	Option R Unload at Cobb

}

The WorleyParsons study raised at least the following issues:

1. Permitting costs did not include litigation costs during the permitting process, which are likely and substantial. For example, CSXT intervened in Mirant's 2005 filing to the Maryland PSC to build a proposed coal unloading facility at the Morgantown power plant in order to argue that the project might "have negative economic and environmental consequences for the other businesses located along the affected lines of railroad".[9] CSXT's consultant, Mr. Schwartz, filed testimony[10] in the same hearing in opposition to the proposed coal barge unloading facility on the same basis. It is reasonable to assume that CSXT, the Sierra Club and other environmental groups would attempt to block the construction of a new coal unloading pier in Lake Michigan or a dock in Pigeon Lake, on the basis of environmental concerns.
2. The lake vessel loading and shipping costs estimates used by WorleyParsons were significantly lower than Consumers' actual vessel costs for transportation to the Cobb and Karn/Weadock plants.
3. WorleyParsons did not assess the availability of lake vessels to ship PRB coal to the Campbell power plant, and the potential impact of higher lake vessel rates due to the increased demand for self-unloading bulk vessels.
4. WorleyParsons' dredging cost estimates were based on {

   } The large volumes of dredge material associated with all of the hypothetical vessel transportation options could require remote placement of the dredged material at substantially higher rates, which WorleyParsons did not consider.

[9] Petition Of CSX Transportation, Inc. For Leave To Intervene Before The Public Service Commission of Maryland, In the Matter of the Applicant of Mirant Mid-Atlantic, LLC For Approval To Modify The Morgantown Generating Station, Case No. 9031, http://webapp.psc.state.md.us/Intranet/casenum/submit_new.cfm?DirPath=C:\Casenum\9000-9099\9031\Item_015\&CaseN=9031\Item_015.

[10] Testimony of Seth Schwartz Before The Maryland Public Service Commission on Behalf of Intervenor CSX Transportation, Inc., PSC Case No. 9031, http://webcache.googleusercontent.com/search?q=cache:6t06ufn_oJYJ:webapp.psc.state.md.us/Intranet/casenum/NewIndex3_VOpenFile.cfm%3Ffilepath%3DC:%255CCasenum%255C9000-9099%255C9031%255CItem_041%255C%255CEx.2_Schwartz_Testimony.PDF+&cd=2&hl=en&ct=clnk&gl=us.

5. WorleyParsons' annual operating cost estimate only included maintenance dredging/littoral drift costs. It did not include labor, maintenance, power, insurance, taxes, etc. associated with operating the docks.
6. WorleyParsons did not take into account the following additional costs:
   a. { }
   b. Capacity of KCBX or MERC to transload additional PRB coal.
   c. Cost of stockpiling coal during the winter at MERC.
   d. Cost of stockpiling additional coal at Campbell during the lake shipping season to provide sufficient coal to supply the Campbell plant during the winter when the lakes are frozen.
   e. Carrying cost of additional coal stockpiled.
   f. Consumers' cost of capital and required internal return on investment to justify major capital expenditures.
   g. Interest during construction associated with the capital expenditures prior to commercial operation.

2.3 2014 Spicer Group Study

The Spicer Group prepared a report[11] dated October 10, 2014 that evaluated two potential dock locations and three potential ship size options:

1. Option D – Offshore Delivery (Lake Michigan pier/dock) (Figure 4-2)
   a. Class I self-unloading ships
   b. Class II self-unloading ships
   c. Class III self-unloading ships
2. Option E - Port Sheldon (Pigeon Lake dock)
   a. Class I self-unloading ships (Figure 5-2)
   b. Class II self-unloading ships (23,000 to 27,000 tons) (Figure 5-3)

[11] { }

The Spicer Group study did not evaluate the potential option of unloading the coal at the Cobb plant and railing it to the Campbell plant on the MSRR.

The Spicer Group study noted the following difficulties with developing a dock at the Campbell plant:

1. For Option E, Consumers would have to obtain a bottom land easement from the State of Michigan for the Pigeon Lake channel improvements, dredging and coal dock construction, since it is an extension of Lake Michigan bottom land.
2. Easements are held by Mountain Beach Association and Port Sheldon Beach Association along the Pigeon Lake channel. Pleasure boat slips would need to be retained and protected on the Mountain Beach side, and any impacts of the new channel would need to be mitigated.
3. Option E (Pigeon Lake dock) for Class I vessels was "likely not" a feasible alternative for permitting,[12] in view of vessel size, channel and lake widening requirements, and the related impacts on shoreline properties and recreational structures.
4. Option D (Lake Michigan pier/dock) would face significant community and environmental group opposition, and would require a land easement from the State of Michigan, which likely would be very difficult to obtain.

[12] {
}

The key results of the Spicer Group are summarized in Figure 2-3.

Figure 2-3. {

	Option D Lake Michigan Pier	Option E Pigeon Lake Dock Class I	Option E Pigeon Lake Dock Class II

}

The issues left open by the Spicer Group study include the following:

1. Permitting costs did not include any dollars for Environmental Impact Statements or litigation costs during the permitting process, both of which are nearly certain. It is reasonable to assume that at a minimum, the Sierra Club and other environmental groups would seek to block the construction of a pier in Lake Michigan or a dock in Pigeon Lake to handle millions of tons of coal shipments each year, on the basis of environmental impacts. The many owners of lakefront homes would be their natural allies.
2. Spicer only focused on estimating the capital costs, and did not include most of the operating costs associated with the water delivery facilities such as labor, maintenance, power, insurance, taxes, etc. associated with operating the docks. The only operating cost included by the Spicer Group {

   }
3. Spicer did not estimate any of the lake vessel loading and shipping costs.

4. Spicer did not examine the availability of lake vessels to ship PRB coal to the Campbell Plant, and the potential impact on lake vessel rates of increased demand for self-unloading bulk vessels.
5. The Spicer dredging costs estimates were based on {

   } The large volumes of dredge material may require remote placement of the dredged material at substantially higher rates.
6. Spicer Group did not take into account the following additional costs:
   a. {

      }
   b. The capacity of KCBX or MERC to transload additional PRB coal
   c. Cost of stockpiling coal during the winter at MERC
   d. Cost of stockpiling additional coal at Campbell during the lake shipping season to provide sufficient coal to supply the Campbell plant during the winter when the lakes are frozen
   e. Carrying cost of additional coal stockpiled
   f. Consumers' cost of capital and required annual return on investment for new capital projects
   g. Interest during construction costs associated with the capital expenditures prior to commercial operation

3. Great Lake Coal Shipment Issues

There are several critical issues that would affect the ability of Consumers to transport coal to the Campbell power plant using water vessels, regardless of which of the previously studied "options" is considered: These include:

1. Great Lake loading facilities limitations and their capacity to transload up to six million new tons of PRB coal and stockpile up to three million new tons of PRB coal during the winter, and the associated fees;
2. Inability to ship coal during the winter because of ice on the lakes;
3. Availability of lake vessels to ship up to six million tons during the shipping season and the associated costs; and
4. Ability to stockpile up to three million tons of coal at the Campbell plant prior to the winter, so the plant has sufficient coal to run throughout the winter period when coal cannot be delivered to the plant by lake vessel.

3.1 PRB Shipments To The Campbell Plant

The expected annual deliveries of PRB coal to the Campbell power plant are estimated to average 5.5 million tons from 2016 to 2030, based Consumers' projections[13]. Deliveries of PRB coal to the Campbell power plant ranged between 4.2 and 4.9 million tons annually from 2008 to 2014, but those burns are expected to increase based on electricity demand growth and the need to replace lost generation from the planned retirement of the Cobb 4-5, Weadock 7-8, and Whiting 1-3 units early in 2016.

3.2 Great Lake Loading Facilities For PRB Coal

There are two loading docks available to transload PRB coal from rail into lake vessels: (1) KCBX in Chicago, Illinois, and (2) MERC terminal in Superior, Wisconsin. Figure 3-1 shows the location of the KCBX and MERC terminals, the location of Consumers' Campbell, Cobb and Karn/Weadock power plants, and the location of the Soo locks, which connect Lake Superior and Lake Huron and allow vessels to pass from the former through the latter and into Lake Michigan.

[13] Consumers' 2015_0+12 MISO Only 2045 Run.

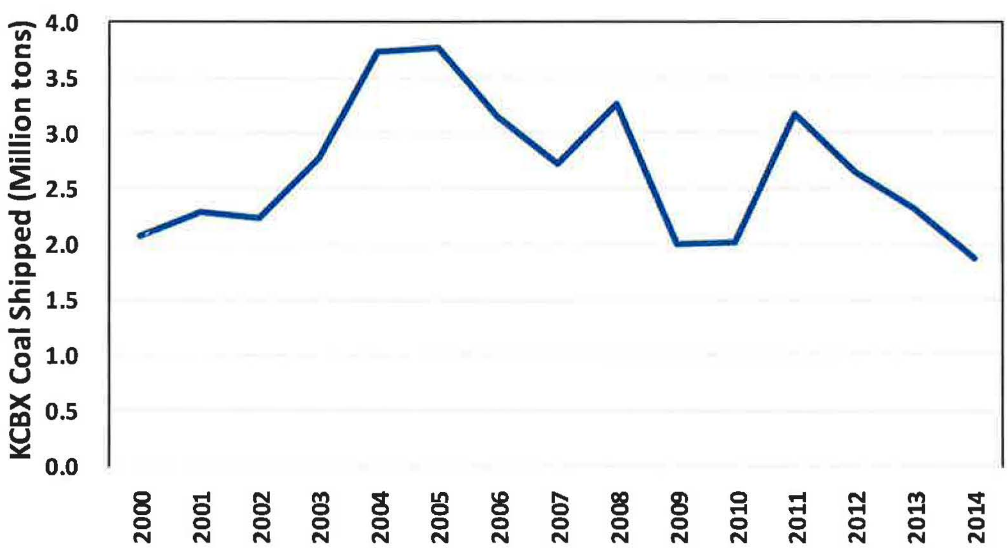
Figure 3-1. Location of KCBX and MERC coal docks and Consumer's power plants.

3.2.1 KCBX Terminal

The KCBX terminal, which is owned by Koch Carbon, transloads coal and coke into lake vessels and is located on the Calumet River in Chicago, about two miles from the mouth of Lake Michigan.

As shown in Figure 3-2, volume of coal shipped by U.S. flagged ships through the KCBX terminal (including the historical shipments from the Chicago Fuels Terminal) over the past 15 years has been two to four million tons per year, although coal shipments dropped below two million tons in 2014.

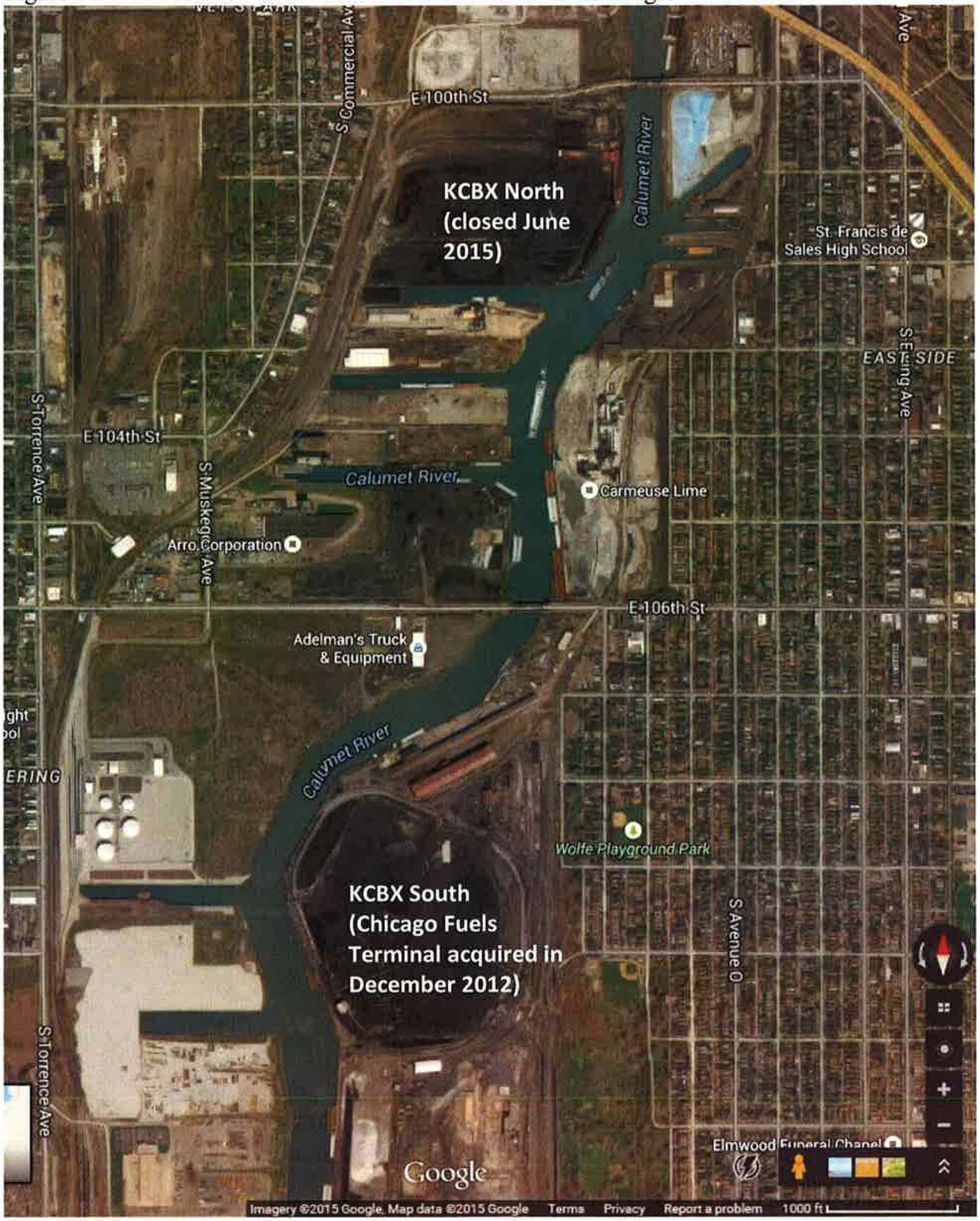
Figure 3-2. KCBX U.S. flag coal shipments, 2000 to 2014[14].



The KCBX terminal actually is two terminals, (1) KCBX North, and (2) KCBX South, as shown in Figure 3-3. Koch Carbon acquired the KCBX North facility from Calumet Terminal in 1990, and purchased the Chicago Fuels Terminal from DTE Energy in December 2012, renaming it KCBX South.

[14] Lake Carrier's Association, U.S. Flag Bulk Shipments for Lake Michigan; e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-2").

Figure 3-3. KCBX-North and KCBX-South Terminals in Chicago.



The KCBX terminal had been dealing with fugitive dust problems for several years, as local citizens and property owners' complaints have grown. KCBX worked to reduce the dust coming from the site, spending $10 million to install a dust suppression system, but this did not resolve the problems with the neighboring community.

On March 13, 2014, the City of Chicago Department of Public Health issued new rules for the control of emissions from the handling and storage of bulk material piles[15]. Among the new rules was the requirement that coal and coke facilities install covered conveyors within six months, and enclose coal and coke stockpiles within two years. By themselves, these new rules made it very difficult for KCBX to continue operating as a coal transloading dock without significant investments, and would drastically limit the ability of KCBX to transload an additional five to six million tons of PRB coal each year for the Campbell plant. However, subsequent developments only compounded the problem.

On June 10, 2014, KCBX issued a press release announcing that it "submitted a plan to the City of Chicago to enclose its product piles and consolidate operations at a single location at the company's existing terminal located at 10730 South Burley Avenue[16]." This would involve closing the KCBX-North terminal. Then, on December 16, 2014, KCBX announced plans to build a $120 million enclosed 125,000 ton stockpile at KCBX South, and expressed the hope that it would receive city approval to begin construction in the fall of 2015[17].

In February 2015, Chicago denied KCBX a permit to install covered conveyor at the KCBX North facility in an attempt to reduce the dust. Because of the permit denial, KCBX made the decision to close the North Site by June 2015[18].

[15] City Of Chicago Department of Public Health – Rules and Regulations for Bulk Material Storage, March 13, 2014.

[16] KCBX Plans To Consolidate Chicago Terminals Into Single Location, KOCH-KCBX Terminals Company Press Release, June 10, 2014.

[17] Warehouse To Store Petcoke To Be Built On Southeast Side, ABC7 Eyewitness News, December 16, 2014, http://abc7chicago.com/news/warehouse-to-store-petcoke-to-be-built-on-southeast-side/439131/.

[18] Department of Public Health, City of Chicago, KCBX Terminals Company's Petition for Variance from Sections 6.0(5) and 6.0(6), Julie Morita, M.D., Acting Commissioner, February 13, 2015.

Finally, according to a February 19, 2015 news article,[19] KCBX said that in addition to ending operations at its North Terminal by June 2015, it will eliminate all stockpiles of coal and petcoke at the KCBX South Terminal by the City's June 2016 deadline. Thus, KCBX South cannot stockpile any PRB coal, and may even be unable to transload PRB coal into lake vessels after June 2016.

On May 18, 2015, the City of Chicago, Department of Planning and Development, sent a letter to KCBX informing it that an Administrative Order Pertaining to Coke & Coal Bulk Material Uses has been issued which prohibited the handling of coal and pet coke at the North Site effective June 30, 2015. This order made it impossible for KCBX to reopen the KCBX-North terminal, thus making the closure of the KCBX-North terminal permanent.

An article in Progress Illinois on August 15, 2015, reported that the Southeast Side Environmental Task Force and the Natural Resources Defense Council are pushing the City of Chicago to set a zero annual "throughput" rate for the KCBX-South terminal, and shut the terminal down even as a direct-loading facility. KCBX stated that it "is in compliance with all applicable clean air rules and regulations, [and that] removing the piles [in June 2016] will further decrease potential air emissions at the terminal by more than 90 percent." The Southeast Side Environmental Task Force responded that "we are still experiencing particulate matter in the air these days, especially on the windy days," ensuring a continuation of the controversy over the operation of KCBX-South[20].

More recently, { } and that the KCBX-South terminal will have to start operating as a direct-load facility in June 2016, when it will no longer be able to store coal or pet coke in open piles. The KCBX-South terminal continues to load coal and pet coke, and KCBX expects to load about a million tons of coal and a million tons of pet coke in 2015. {

[19] "KCBX to remove petcoke piles from city's southeast side," ABC7Chicago.com, February 19, 2015, http://abc7chicago.com/news/kcbx-to-remove-petcoke-piles-from-citys-southeast-side/525387/.
[20] Petcoke Battle Continues On Chicago's Southeast Side, Progress Illinois, August 15, 2015.
[21] { }

}

With the requirement that all stockpiles be covered at KCBX by June 2016 as well as continuing local opposition to the facility itself, the future operation of KCBX-South terminal is in jeopardy. Given that the City of Chicago denied a permit for a covered conveyor, the likelihood that the City of Chicago also will deny a permit for an enclosed storage facility is high.

Without a covered stockpile, it would be difficult to operate the terminal efficiently as a direct-load facility only. This is due to the difficulty matching the size of the train with the vessel size, and scheduling difficulties having an empty ship available whenever a train arrives. Operating the terminal as a direct-load terminal would likely result in significant demurrage charges for both rail and vessel delays, and the inability to load a ship to capacity without significant delays.

As discussed later in this report, the winter season on average shuts down vessel shipments from KCBX for 2.76 months of each year, or about 23%. {

} of coal at a vessel terminal during the winter, each year to avoid using CSXT rail service. However, as explained above, KCBX will have *no* continuing coal storage capacity after June 2016 (assuming it still will retain the ability to transload coal at all), which makes the use of the KCBX terminal for vessel shipments as an alternative to CSXT rail wholly infeasible.

In summary, KCBX is not a viable option to transload PRB coal for delivery to the Campbell plant because:

1. KCBX is unable to stockpile PRB coal in the winter.

[22] { }

[23] 6,096,000 tons per year maximum Campbell requirements for the maximum of 3.96 months lost since 1999.

2. Any PRB coal that was shipped would have to be direct-loaded into lake vessels, which would be inefficient and would expose Consumers to vessel and rail demurrage charges in the (likely) event that train arrivals cannot be coordinated precisely with vessel availability.
3. Even if KCBX could obtain a permit for the enclosed storage facility, the $120 million capital cost would { } assuming that every ton during the shipping season for Campbell was shipped through KCBX. The { } In either case, the added costs would make the "option" even less competitive with CSXT rail than the non-competitive MERC "option" discussed in Sections 3.7 and 3.8.
4. The significant risk that continued local opposition will be successful in closing the KCBX terminal altogether.

<u>KCBX South Transloading Fee Is Estimated { } per ton as of January 1, 2015</u>

If Consumers was to consider using the KCBX terminal, the transloading fee is { } which was to transload { } between March 15, 2015 and May 15, 2015 at KCBX- South.

3.2.2 MERC Terminal

MERC owns and operates the Superior Midwest Energy Terminal ("SMET"), which is located on the west end of Lake Superior in Superior, Wisconsin. MERC is a wholly-owned subsidiary of DTE Energy.

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24 { } The enclosed storage facility is only for active storage and could only store at most one week of Campbell's PRB shipments.

25 { }

26 { }

The MERC terminal[27] is served by the BNSF and UP railroads, and can load one vessel/barge at a time at rates of up to 11,500 tons per hour. MERC has a 1,200-foot dock and is capable of loading ships up to 1,105 feet long, 105 feet wide to a draft of 28 feet. The terminal has a rated annual capacity of 25.5 million tons and ground storage of 5.0 million tons. MERC unloads unit trains with rotary dump cars at a rate of 5,000 tons per hour.

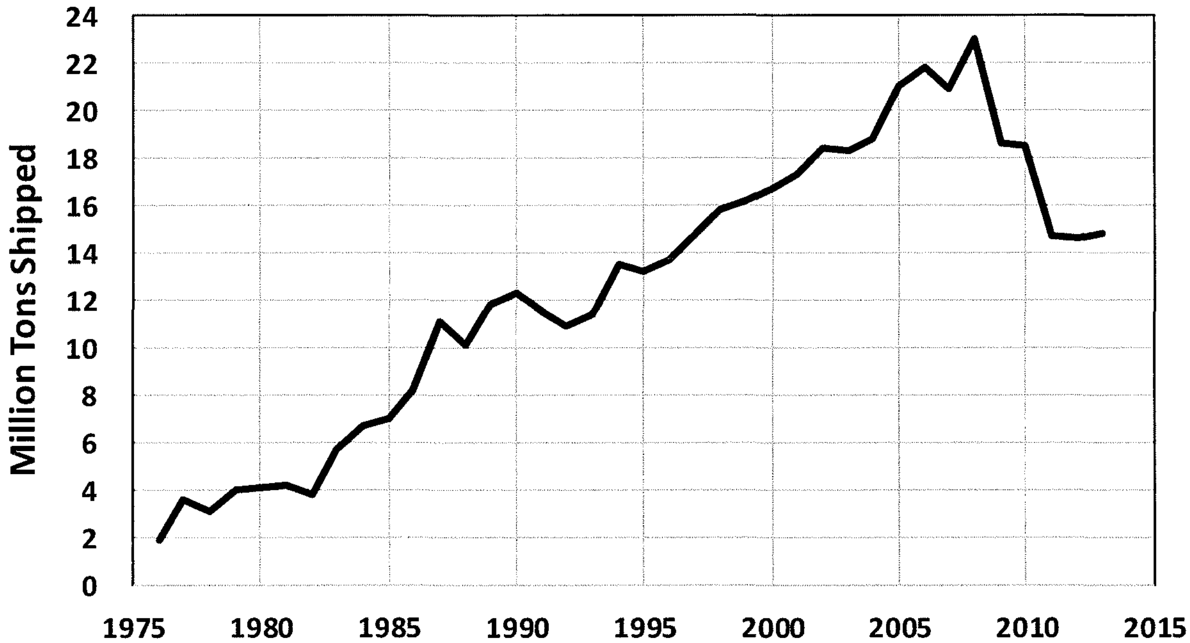
The aerial photo of the MERC terminal (Figure 3-4) shows the layout of the facility with the rail loop around the perimeter of the property, the rail unloader on the east side of the rail loop, the coal storage and handling facilities inside the rail loop, and the ship loading dock on the north side of the property. The rail cars are unloaded in the rotary car dumper and the coal is then dumped into the coal yard along a 2000-foot long active coal pile. MERC can segregate this pile into eight different coal types. Mobile equipment is used to move coal away from the 2000-foot long active pile for longer term storage. An underground reclaim conveyor runs underneath the 2000-foot long active pile, and can reclaim up to three different coal types in variable quantities for blending purposes. The underground reclaim conveyor is connected to the dock for loading into the vessels.

A plot of historic coal shipments through the MERC terminal[28] (Figure 3-5) shows that annual coal shipments grew steadily until the peak shipments of 23 million tons in 2008. The economic downturn in late 2008 and 2009 resulted in a decline to 14-15 million tons annually over the past few years.

[27] http://www.midwestenergy.com/terminal_info.php.
[28] Midwest Energy Resources Company website, Terminal Activity, Historical Transhipments, Tonnage Totals by Year, http://www.midwestenergy.com/cms_uploads/reports/Historical%20Transshipments/12-31-2013YTD.pdf

Figure 3-4. Aerial photo of the MERC terminal.

Figure 3-5. Annual coal shipments through the MERC terminal.[29]



<u>MERC Transloading Fee Is Estimated to be { } as of January 1, 2015</u>

There were {

} for storing the first month of coal for three months, the second month of coal for two months, and the third month of coal for one month during the winter.

[29] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-5").

[30] { }

[31] { }

Figure 3-6. Estimated MERC transloading rate as {

}

[32] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-6").

3.3 Inability to Ship Coal During the Winter Due to Ice

The Great Lakes freeze every winter, preventing lake vessels from delivering coal during the winter months. A satellite photo of the Great Lakes during the winter of 2014[33] is in Figure 3-7, which shows the extent of ice on the Great Lakes in 2014, which prevents the shipment of coal by lake vessels during the winter.

Figure 3-7. Satellite photo of the Great Lakes during the winter of 2014.

[33] Why it's a big deal that half of the Great Lakes are still covered in ice, Stepahnie Garlock April 16, 2014, http://grist.org/climate-energy/why-its-a-big-deal-that-half-of-the-great-lakes-are-still-covered-in-ice-2/?utm_source=outbrain&utm_medium=web&utm_campaign=outbrain-trending.

The average monthly shipments from the KCBX and MERC terminals over the past 15 years from 1999 to 2014 are shown in Figure 3-8. According to this table, coal shipments are sharply reduced in January and March due to the lakes freezing, with no shipments in February. Shipments in November, December, April and May are less than the average shipments during the main shipping season of June to October. To determine the effective months of lost shipments, first the average monthly tonnage from June to October was calculated. From this average tonnage for the summer months, the average tonnages reported from November to May were subtracted individually and these totals are reported in Figure 3-8 as the "Time Lost Due to Ice." Over the past 15 years, the average effective months of lost shipments during the winter were 2.76 months for vessels loading at the KCBX terminal and 3.20 months for vessels at the MERC terminal.

Figure 3-8. Average monthly coal shipments from MERC and KCBX from 1999 to 2014.[34]

Average Monthly Shipments 1999-2014				
	KCBX		MERC	
Month	Monthly Tonnage	Time Lost Due to Ice (Months)	Monthly Tonnage	Time Lost Due to Ice (Months)
Jan	95,701	0.71	342,369	0.83
Feb	0	1.00	0	1.00
Mar	71,238	0.78	394,683	0.80
Apr	273,254	0.16	1,550,274	0.22
May	313,789	0.03	1,945,260	0.02
Jun	336,206		1,941,442	
Jul	324,385		2,114,395	
Aug	309,945		2,093,509	
Sep	311,227		1,941,354	
Oct	343,170		1,879,156	
Nov	309,080	0.05	1,753,391	0.12
Dec	314,365	0.03	1,600,307	0.20
Jun-Oct Avg.	**324,987**	**2.76**	**1,993,971**	**3.20**

Source: Lake Carriers' Association, Monthly Coal From Ports tables.[35]

[34] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-8").
[35] www.lcaships.com/reports.

The Soo Locks facility (including the Poe Lock) at Sault Ste. Marie, Michigan, which connects Lake Superior with Lake Huron and Lake Michigan, (see Figure 3-1) closes from approximately January 16 to March 24[36] every year for major repairs, inspection and maintenance projects that cannot be done while the locks are in operation. The closure of the Soo Locks prevents all lake shipments, including coal, from leaving or entering Lake Superior during this period. Thus, coal shipments from the MERC terminal, which is located on the western end of Lake Superior, could not be moved to the Campbell plant (or anywhere else outside of Lake Superior) during this period.

Not surprisingly, lake vessels are idled during winter while the lakes are frozen. For example, the American Steamship vessels, which are the major shippers of coal on the Great Lakes, were idled last winter between January 6 and January 20, 2015, and returned to service between April 9 and April 21, 2015[37]. Thus, these ships were unavailable to ship coal for about three months last winter.

3.4 Additional Stockpiling Required At The Campbell Power Plant

The inability to deliver coal by lake vessels continuously throughout the year requires greater stockpiling than is the case when coal is delivered by rail, which can be delivered throughout the year. For Consumers, this would be true both at the Campbell Plant and at the origin lake terminal.

The amount of PRB coal that would need to be stockpiled at the Campbell power plant to supply the plant during the winter when lake vessels cannot deliver coal is dependent on the maximum burn rate at the Campbell power plant, and the maximum duration of the winter when lake vessels cannot operate.

The maximum burn rate for the Campbell power plant was estimated to be about six million tons per year, based on a cold winter with high electricity prices and higher natural gas prices, which

[36] http://www.lre.usace.army.mil/Missions/Recreation/SooLocksVisitorCenter/FrequentlyAskedSooLocksQuestions.aspx (see response under "Do the locks close for winter?").
[37] Great Lakes & Seaway Shipping Online, 21st Annual Winter Lay-up List: 2014 - 2015.

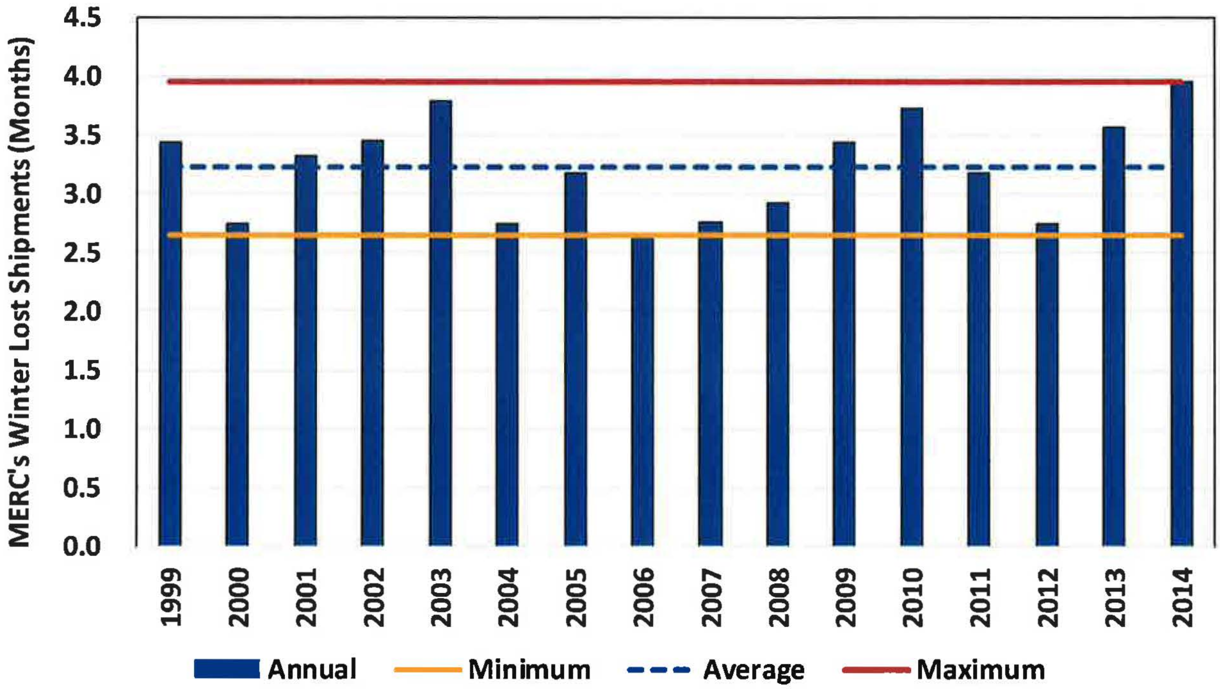
would increase the capacity factor to an estimated 85%. Over the past few years, the Campbell power plant has been run at about 65% capacity factor, but its capacity factor is projected to increase to 73 to 82% after the Cobb, Weadock and Whiting coal units are retired in 2016.[38]

The maximum duration of the winter season when lake vessels cannot deliver PRB coal from MERC is based on the actual shipments from the MERC terminal over the past 15 years from 1999 to 2014. Figure 3-9 shows the number of months that were lost at the MERC terminal during the period between October and May during the winter season, based on the average shipments during each June to September period for the corresponding year. As shown, the number of months lost during the winter season at the MERC terminal ranged from 2.64 months to as many as 3.96 months. Based on this historical data, it would be prudent for Consumers to plan to stockpile at least four months of PRB coal at the Campbell plant in addition to its normal stockpile levels prior to the winter season. In addition, {

}

[38] { }

Figure 3-9. Average months lost during the winter at MERC from 1999 to 2014.[39]



Source: Lake Carriers' Association, Monthly Coal From Ports tables.[40]

Lake shipment data for the Cobb plant near Muskegon from 2012 to 2014 show that the latest shipment to the Cobb plant was December 8th (in 2014 from Toledo/Sandusky docks) and the earliest shipment was March 24th (in 2012 from KCBX). However, from MERC, which is the only terminal that hypothetically would be available to transload and stockpile PRB coal for Campbell, the latest shipment to the Cobb or Karn/Weadock plants was December 26th (in 2014) and the earliest shipment was May 7th (in 2014). This indicates that a more accurate estimate of the time when PRB coal could not move by vessel for delivery to Campbell would be 131 days (from December 26th to May 7th), or 4.4 months.

The Campbell power plant would have to plan to stockpile 2.5 million tons of PRB coal prior to the winter to insure that the plant would have four months of coal, assuming the high case burn rate of 6.1 million tons annually, and still not have the stockpile drop below the minimum inventory level of 30 days of burn. The calculation for the stockpile requirement of the 2.5

[39] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-9").
[40] www.lcaships.com/reports.

million tons at the Campbell power plant is shown in Figure 3-10. {

} to meet the required PRB stockpile capacity of 2.5 million tons.

Figure 3-10. {

}

A schematic of the existing coal handling facility at the Campbell plant is shown in Figure 3-11. The conveyor from the dock would tie into the exiting coal handling facility at the top of the Transfer House, allowing the coal to be delivered directly to the plant, or to the long-term stockpile, or the stacker-reclaimer. {

}

During the same site visit it was observed that there is no space to readily expand the stockpile capacity at the Campbell plant. The existing stockpile is bounded by the rail spur, which is a fixed barrier. Figure 3-12 is a view of the existing long-term stockpile as seen from the top of the Transfer Tower. Figure 3-13 shows the area to the east of the existing stockpile is the coal ash disposal area. Figure 3-14 shows the area to the north of the coal stockpile is occupied by

[41] {
}

[42] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-10").

the switchyard and other buildings. There are no readily available areas to expand the Campbell { }

Because of the lack of available space to readily expand the { } the estimated capital cost to expand the PRB stockpile capacity is estimated to be $75 million, based on We Energy's $75 million cost to expand its stockpile from 0.75 to 1.5 million tons at the Elm Road plant in 2017,[43] which also did not have readily available space and had to relocate an electric transmission line on the property.[44]

[43] Platt's Coal Trader, "We Energies granted Wisconsin approval to modify Elm Road for more PRB coal," May 14, 2015, p.2.

[44] We Energies plans $62M coal storage expansion in Oak Creek, [note Oak Creek and Elm Road are at the same site], Milwaukee Business Journal, September 22, 2014, http://www.bizjournals.com/milwaukee/news/2014/09/22/we-energies-plans-62-million-coal-storage.html.

Figure 3-11. Campbell power plant coal handling facilities.

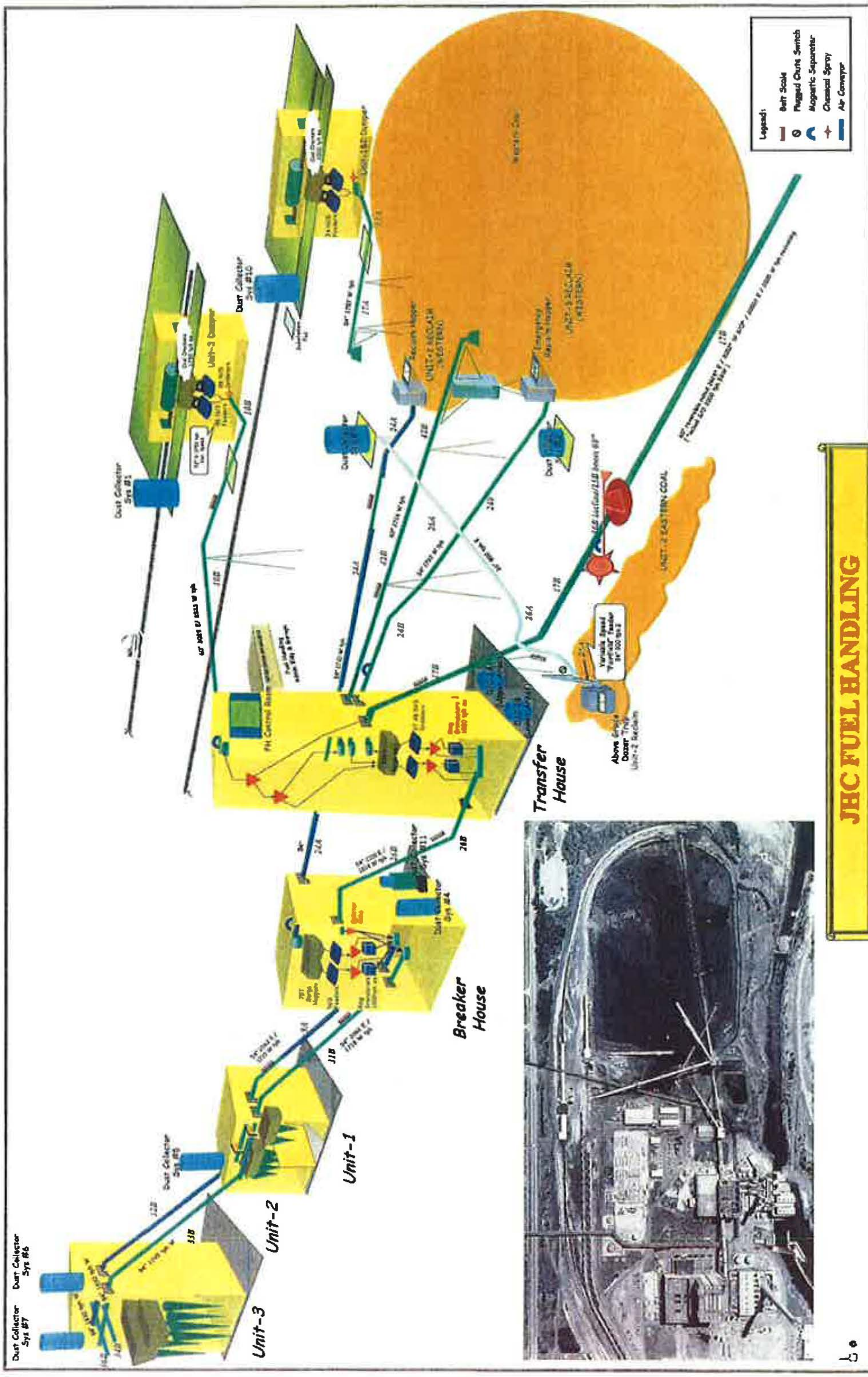


Figure 3-12. Existing Campbell long-term stockpile area.

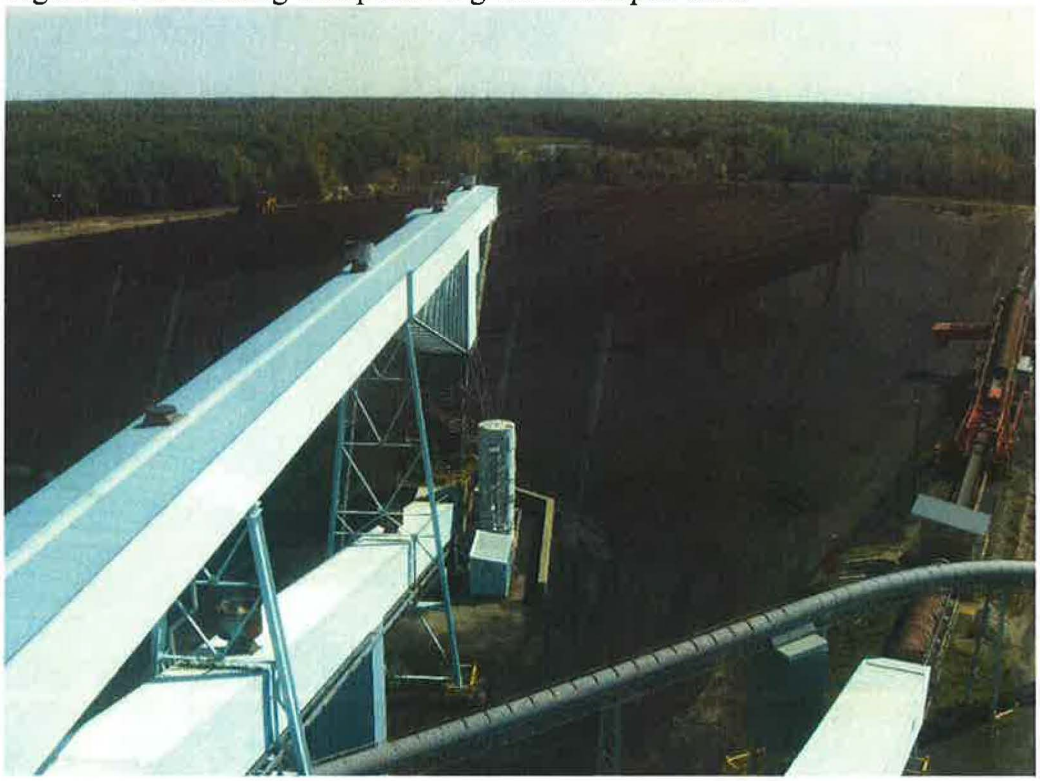


Figure 3-13. Area east of the rail spur is currently an ash disposal site.

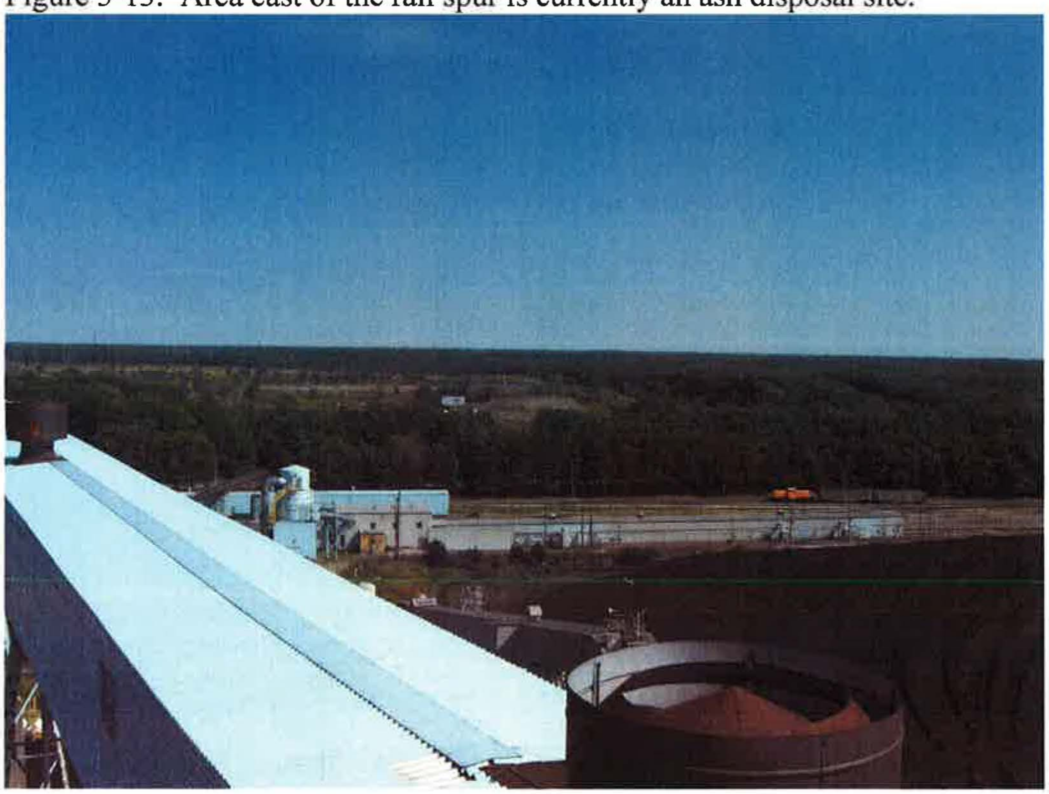


Figure 3-14. Area north of existing stockpile would require relocating switch yard and other facilities.

3.5 Stockpiling At The MERC Terminal

Since KCBX can no longer stockpile coal after June 2016, the only alternate terminal that could potentially be used for PRB coal transportation to Campbell is the MERC terminal.

In addition to the { } required at the Campbell plant, PRB coal that is railed to the lake terminal during the winter when Lake Superior is frozen would have to be stockpiled for an average of 3.2 months, and as much as four months during a particularly cold winter.

As shown in Figure 3-15, Consumers would have to stockpile an average of 1.7 million tons, and as much as 2.3 million tons at the MERC terminal over the winter. The average stockpile estimate of 1.7 million tons is based on an annual burn of 5.5 million tons, Lake Superior freezing for 3.2 months, and a base inventory level of 15 days. The higher stockpile estimate of 2.3 million tons is based on an annual burn of 6.1 million tons (85% capacity factor), Lake Superior freezing for 3.96 months, and a base inventory level of 15 days.

Figure 3-15. MERC stockpile requirements.[45]

MERC Stockpile Requirement For All Lake Vessel Delivery Case			
	Base Case 1000 Tons	High Case 1000 Tons	Source
Annual PRB burn	5,500	6,096	2015_0+15 Forecast Model, average PRB burn 2016-2030
Monthly PRB shipments	458	508	Annual burn / 12 months
Non-delivery period (months)	3.20	3.96	Max non-delivery period from MERC between 1999-2014
Tons shipped during non-delivery period	1,467	2,012	Monthly shipments times non-delivery period in months
Minimum Inventory level	226	251	15 days of burn
Total PRB Storage At MERC	**1,693**	**2,262**	Base inventory level plus shipments during non-delivery period

While MERC has stockpile capacity, there is a serious question whether it could store 1.7 to 2.3 million tons over the winter for Consumers. MERC only has the ability to stockpile 5.0 million tons for all customers. It may not be feasible for MERC to store up to 2.3 million tons of PRB coal for just the Campbell power plant, which would consume up to half of the storage and may not leave enough stockpile capacity to handle all of MERC's other customers.

[45] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-15").

3.6 Carrying Cost of Increased Stockpile Tonnages

Because of the inability to ship coal to Campbell during the winter, the Campbell plant would have to significantly increase its stockpile levels to insure that it does not run out of coal. The carrying cost associated with the additional coal stockpile levels at MERC and Campbell is { } with the calculation shown in Figure 3-16.

3.7 Great Lakes Bulk Shipments and Availability of Lake Vessels

Because of the Jones Act,[46] all shipments of coal on the Great Lakes between two U.S. ports must be shipped by U.S.-owned and operated vessels.

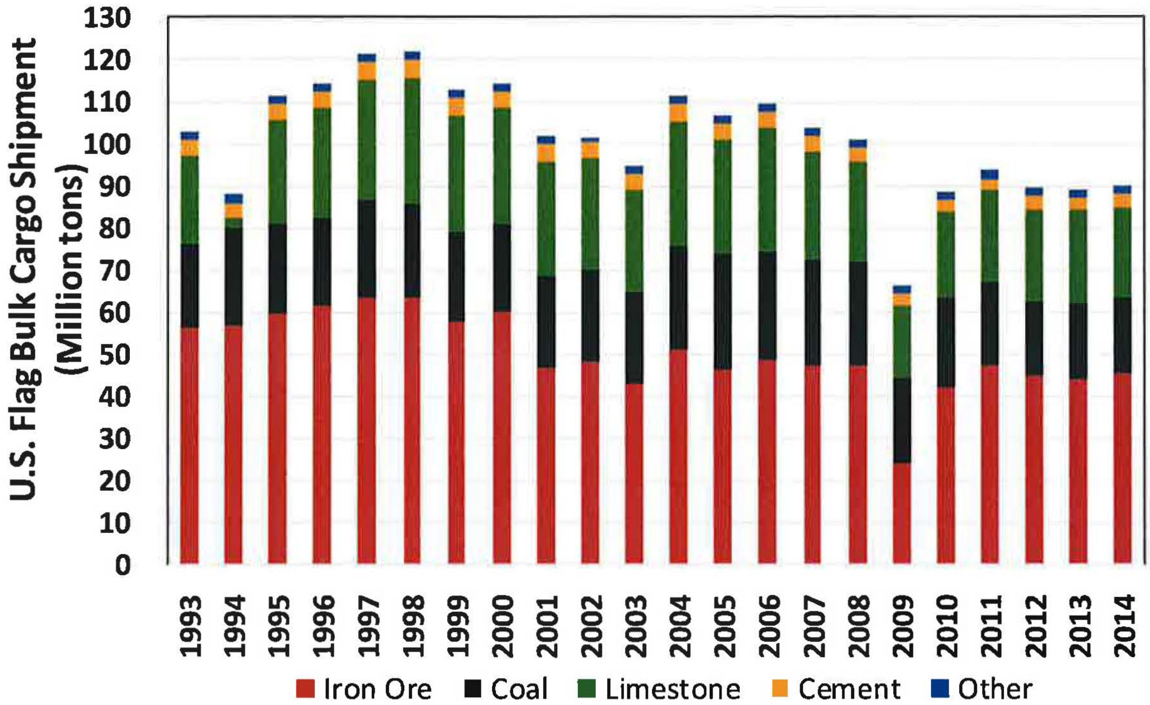
The major bulk commodities shipped by U.S. flagged cargo ships on the Great Lakes are iron ore, limestone, coal, cement, salt, sand and grain. The bar chart in Figure 3-17 shows the trend in annual shipments of U.S. flag bulk cargo by commodity from 1993 to 2014. Annual shipments of bulk cargo on the Great Lakes shipped by U.S. flag vessels have been about 90 million tons over the past few years, which is down from a peak of around 120 million tons in 1997 and 1998. Iron ore has accounted for about half of the U.S. flag bulk shipments, averaging around 45 million tons annually. Limestone is the second largest commodity, averaging around 22 million tons. Coal is the third largest commodity, averaging around 18 million tons.

[46] The Jones Act is named for Senator Wesley Jones who introduced the Merchant Marine Act of 1920 (P.L 66-261), which is a federal statute that requires that all goods transported by water between U.S. ports be carried on U.S.-flag ships, constructed in the U.S, at least 75% owned by U.S. citizens, and crewed by U.S. citizens and U.S. permanent residents.

Figure 3-16. {

[47] { }

Figure 3-17. U.S. Flag bulk cargo s, 1993 to 2014.[48]



[48] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-17").

[49] 2013 Statistical Annual Report of Lake Carrier's Association, 2014 Vessel and Capacity Utilization Rates – U.S.-Flag Great Lakes Fleet Self-Propelled Vessels and Tug/Barge Units, www.lcaships.com.

[50] American Steamship, http://www.americansteamship.com/fleet/mv-american-century.php.

Figure 3-18. U.S. Flag Great Lake Dry-Bulk Fleet - May to October 2013 utilization.

Available U.S. Flag Dry-Bulk Vessels					May-Oct 2013 Utilization				Available Capacity	
Class	COE Vessel Class	Vessel Length (ft)	Vessels In Class	Capacity (gross tons)	Vessels In Service	Unit Utilization	Gross Tons in Service	Tonnage Utilization	Gross Tons	% Available
I	X	950-1099	13	1,035,776	13	100%	1,035,776	100%	0	0%
II	IX	850-949	1	49,168	1	100%	49,168	100%	0	0%
II	XIII	731-849	13	441,672	10	77%	348,992	79%	92,680	21%
II	XII	700-730	9	294,813	7	78%	234,109	79%	60,704	21%
II	VI	650-699	5	148,848	2	40%	51,856	35%	96,992	65%
III	V	600-649	8	193,292	7	88%	171,004	88%	22,288	12%
III	II	400-499	2	16,750	1	50%	5,750	34%	11,000	66%
Total			51	2,180,319	41	80%	1,896,655	87%	283,664	13%

In 2013, 86 million tons of dry-bulk material (excluding cement) was shipped in U.S. flag vessels. Based on the reported 87% utilization in 2013, the dry-bulk capacity of U.S. flag vessels was 99 million tons, with the available capacity at 13 million tons. However, this available capacity was limited to Class II and Class III ships.

The addition of up to 5.5 million "new" tons of PRB coal bound for the Campbell plant would seriously test the capabilities of the U.S. flag fleet, as it would represent a 33 percent increase in coal shipments in U.S. flag coal vessels. Furthermore, because the Class I vessel fleet has been fully utilized, the 5.5 million additional tons would have to be transported by smaller vessels, most likely the five 700-849 foot vessels, which would increase costs. Alternatively, if Consumers were to ship some or all of its PRB coal to Campbell in Class I vessels (1000-foot ships) to a hypothetical dock on Lake Michigan, then Consumers would have to outbid other customers, thus driving up Class I lake vessel rates. To free up the Class I vessels, other customers would have to switch delivery from Class I vessels to smaller Class II vessels. The impact of the additional 5.5 million tons of PRB coal would firm the lake vessel market significantly, and would likely result in higher lake vessel freight rates. This impact on vessel rates is not reflected in the vessel transportation cost estimates used in this report, so those estimates should be considered conservative.

3.8 Lake Vessel Rates To The Campbell Power Plant

Lake vessel rates are a function of the size of the ship, the amount of coal that can be loaded without exceeding the maximum draft, the distance of the haul, and the load and unloading times. Also affecting the vessel rate is the Jones Act, which results in higher shipping rates than non-U.S. shipments because it precludes lower cost foreign vessels from competing with U.S. owned and operated vessels.

Because KCBX is not a feasible terminal to load and stockpile PRB coal, there are nine potential vessel rates to ship PRB coal to the Campbell power plant based on shipping coal through the MERC terminal to three unloading sites:

1. Lake Michigan pier,
2. Pigeon Lake dock, and
3. Cobb power plant;

and three vessels sizes:

1. Class I (1000-foot),
2. Class II (650-949 feet), and
3. Class III (400-649 feet).

Of these nine combinations, Class I vessels into Pigeon Lake is not a feasible alternative as discussed in Section 5.1, so only the Class II and Class III vessels into the Pigeon Lake dock options are considered.

The estimated lake vessel rates as of January 1, 2015 are summarized in Figure 3-19, based on actual lake vessel rates to Cobb with adjustments to either a Lake Michigan pier/dock, or to a Pigeon Lake dock. All physically feasible combinations are listed, even though none of these "options" are practical alternatives due to permitting and other obstacles, and/or the lack of essential expanded storage capacity at the Campbell Station.

The three adjustments to the MERC to Cobb lake vessel rate for delivery to the Lake Michigan pier and Pigeon Lake dock include:

1. Longer distance. The haul distance from MERC to the Lake Michigan pier and Pigeon Lake dock at the Campbell plant is 16 miles further than to the Cobb plant. At 15 mph, the cycle time to Lake Michigan pier would increase the round trip cycle time by 2.4 hours.
2. Slower unloading rate. The Campbell coal yard has a capacity to handle coal at 2,726 tph, which will slow the self-unloading rate of the lake vessels. The slower unloading rate at the Campbell plant would increase the unloading time, and hence cycle time, which would result in higher freight rates.
3. Pigeon Lake dock access time. Assuming Class II and Class III vessels could be permitted in Pigeon Lake, tug boats are expected to be required to maneuver the lake vessels within Pigeon Lake to minimize turbidity and assist in safely maneuvering the vessels[51]. In addition, it is likely that ship speeds will have to be as low as 1 mph within Pigeon Lake for safety issues and to minimize the impact on other structures. It is estimated that it will take four hours to enter and exit, and to maneuver within Pigeon Lake in addition to the unloading time.

[51] {

}

Figure 3-19. {

52 }

3.9 Tug Boat Harbor Assist Costs

Tug boats will be required to assist the lake vessels to maneuver in Pigeon Lake, because of (1) the small size of Pigeon Lake, (2) the turbidity that would result using bow thrusters in the lake, and (3) the need for better control of the ships moving in the channel at very slow speeds. It would be unsafe for lake vessels to attempt to navigate Pigeon Lake without tug boats to assist in maneuvering within the small lake. In addition, tug boats may be necessary to assist unloading lake vessels at a Lake Michigan pier/dock, particularly in the spring and late fall/early winter when the winds are higher and water rougher.

WorleyParsons also concluded[53] that "harbor tugs (typically two) will be required to escort and assist navigating and berthing" for a Pigeon Lake dock, and "larger and more tugboats may be required assisting berthing operation" for the Lake Michigan pier/dock.

The calculations of the costs of the tug boat assist are summarized in Figure 3-20. The net tug boat cost for Class I vessels to a Lake Michigan pier/dock is $0.72 per ton, based on an average 60,000 tons requiring two tugs for 50% of the shipping season due to the rough seas. The tug boat cost for Class II and Class III vessels to a Pigeon Lake dock is $1.97 per ton and $2.49 per ton, respectively, based on every lake vessel in Pigeon Lake requiring tug boat assistance. The tug boat costs are based on The Great Lakes Towing Company's contract rates[54], effective March 1, 2013 for the Holland/Ludington area, which includes the Campbell plant area, and assumes two tug boats would be required to assist each lake vessel. Because the tug boats would be fully utilized by, and dedicated to, the Campbell plant, it was assumed the tug boats would be based near Pigeon Lake to minimize the dock-to-dock fee. These rates are conservative because they are based on a diesel fuel cost of $0.60/gal, as compared to $1.53/gal[55] in January 2015,

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[53] { }

[54] The Great Lakes Towing Company, Fuel Service Lakes-Wide Towing Contract, Schedule of Contract Rates and Conditions, Effective March 1, 2013, Kenosha, Racine, Holland, Ludington areas, p. 8, 12 and 18.

[55] Table 12. Spot Prices of Ultra-Low Sulfur Diesel Fuel, Kerosene-Type Jet Fuel, and Propane, 2014 to Present, Weekly Petroleum Status Report, Data for Week Ended: October 15, 2015, Energy Information Administration, DOE/EIA-0208(2015-43), p. 25.

Figure 3-20. Tug boat harbor assists costs.[56]

[56] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-20").

3.10 Cost of Capital For Water Delivery Facilities

To justify the capital costs associated with building all of the facilities that would be needed in order to make the delivery of PRB coal to Campbell by lake vessels even possible, the expected savings must exceed Consumers' threshold return on investment. {

} The use of a MAR, also known as the minimum weighted average cost of capital ("WACC") is standard procedure for any large corporation when deciding the prudency of committing finite capital resources to a specific, proposed project.

The capital recovery factor ("CRF") for the Campbell power plant is {

}

As shown in Figures 3-21 and 3-22, the CRF calculation is based on:

1. Weighted average capital costs by capacity of the three Campbell power plant units
2. Consumers' after-tax minimum { }
3. Consumers' pre-tax minimum { }
4. 15-year life for Campbell 1-2 units
5. 25-year life for Campbell 3 unit
6. Start-up date of 2023 for the Lake Michigan pier/dock (Option D); 2023 for Pigeon Lake dock (Option E), and 2020 for Cobb/Rail (Option R) in the base case; and 2025 for the Lake Michigan pier/dock (Option D); 2026 for Pigeon Lake dock (Option E), and 2022 for Cobb/Rail (Option R) in the base case
7. Property tax rate { }
8. Insurance rate { }

[57] {

}

Figure 3-21. {

[58] { }

Figure 3-22. {

[59] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 3-22").}

3.10 Obtaining Federal/State Permits for Projects Associated With Coal Is Very Difficult

Since at least 2009, it has been very difficult to obtain Federal permits under the Clean Water Act and other statutes and regulations to develop any facility associated with sustaining or expanding the use of coal, whether as a generating fuel or an export commodity. The policy priorities of EPA and other federal executive agencies – as well as many of their state counterparts – strongly disfavor new projects that are designed to facilitate coal consumption.

Constructing an unloading dock in Lake Michigan or in Pigeon Lake will require several permits/approvals from the U.S. Army Corp of Engineers, which is under the EPA. The Federal regulations that would govern the construction of coal unloading facilities at either location include:

1. Code of Federal Regulation ("CFR") Section 10, which regulates any obstruction to the navigable waters of the U.S.
2. Clean Water Act Section 401, which requires certification from the State of Michigan to obtain approvals to construct and operate any facility that may result in any discharge into the navigable waters of Michigan.
3. Clean Water Act Section 404, which regulates the placement of fill in waters of the United States. Subpart B of 40 CFR Section 230.10(a), the regulations states: "Except as provided under Section 404(b)2 no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." This could be interpreted by the Corp of Engineers, and would likely be litigated by outside intervenors, to mean that the ability to deliver the coal by CSXT rail (regardless of cost) is a practicable alternative to the water delivery option, and would preclude a permit.

Coal Dock Permit Denials/Delays

The most visible coal terminal projects to be proposed over the past five years are new coal export terminals in the Pacific Northwest, none of which have been approved. Development of these export ports for PRB coal mostly started in 2010, when international coal prices were rising and domestic demand for PRB coal was declining. After five years of development, one project has had its permit denied, and the other two that are still actively pursuing permitting are still working on environmental impact studies, with each already having gone through several iterations. All of these projects have received intense opposition from environmental and community groups:[60]

- Morrow Pacific (Port of Morrow) – On August 18, 2014, the Oregon Department of State Lands denied Ambre Energy's permit application for 572 cubic yards of permanent fill (in the form of pilings) in the Columbia River on submerged land owned by the Port of Morrow, concluding that it conflicts with the state's policy of protecting its water resources and fisheries on the Columbia River. The permit was necessary for a nine million ton per year rail-to-barge facility in Boardman, Oregon on the Columbia River. The initial permit was filed February 1, 2012, and it took 30 months for Oregon to review the permit before denying it. An appeal hearing is scheduled for February 2016; thus, the permitting time is going to be over 48 months, not counting the time to prepare the permit, if the permit is not denied altogether.
- Millennium Bulk Terminals in Longview, Washington on the Columbia River expects to complete its draft EIS in the fourth quarter of 2015, with the final EIS in 2016.
- SSA Marine's Gateway Pacific terminal in Cherry Point, near Bellingham, Washington on the Puget Sound is working on the EIS, and expects to submit a draft EIS in the first half of 2016.
- Port Westward, Oregon – Kinder Morgan proposed in 2010 to build a 22 million ton per year coal terminal in Port Westward but the project was rejected by the Columbia County Planning Commissioners by a 5-1 vote that opposed the Port of St. Helens' request to

[60] "Politics, environmental worries threaten new coal ports in the Northwest," Longshore & Shipping News, June 28, 2013, http://www.longshoreshippingnews.com/2013/06/politics-environmental-worries-threaten-new-coal-ports-in-the-northwest/.

expand Port Westward by 957 acres to accommodate the coal terminal.[61] Kinder Morgan announced on May 8, 2013 that it was dropping its plans to build the Port Westward coal terminal.

- Coos Bay, Oregon – In October 2010, Mitsui Group and Metro Ports planned an eight million metric ton coal terminal in Coos Bay, Oregon, but withdrew its plan in early 2014.
- Grays Harbor, WA – In the spring of 2010, RailAmerica approached the Port of Grays Harbor about developing a five million ton coal export facility at Port of Grays Harbor's Terminal 3 in Hoquiam, Washington.[62] RailAmerica dropped its plan to develop this coal terminal on August 14, 2012 after its evaluation of the site determined that a "third party that has an interest in shipping something else from the terminal and thinks that would come to fruition more swiftly than the coal terminal." The Citizens for a Clean Harbor anti-coal group opposed any use of the terminal for coal shipments, and said "the company [RailAmerica] realized the possibility of "having multi-year delays" in the process to site a coal terminal in the Harbor because of potential lawsuits."

Section 404 Valley Fill Permits In Central Appalachia

Since 2009, it has become very difficult to obtain a Section 404 permit for coal development projects that would result in rock or fill being deposited in waters within the USACE's jurisdiction. For example, most operators of surface mines in Central Appalachia have modified their mine plans to avoid areas under Federal jurisdiction that would require a Section 404 permit, because they know that the likelihood of obtaining such a permit is poor.

[61] "Planning Commission opposes Port Westward expansion on Columbia River," Longshore & Shipping News, June 21, 2013, http://www.longshoreshippingnews.com/2013/06/planning-commission-opposes-port-westward-expansion-on-columbia-river/.
[62] "RailAmerica drops pursuit of coal terminal for Grays Harbor", TheDailyWorld.com, August 14, 2012, http://thedailyworld.com/sections/news/local/railamerica-drops-pursuit-coal-terminal-grays-harbor.html.

. Lake Vessel to Campbell - Lake Michigan Option

4.1 Overview

The hypothetical alternative referred to in the WorleyParsons and Spicer studies as "Option D" involves constructing a 3,500 to 3,700-foot pier and unloading dock in Lake Michigan, perpendicular to the Campbell power plant property, to deliver PRB coal directly using lake vessels. A map showing the layout of the Lake Michigan pier/dock option by WorleyParsons is shown in Figure 4-1 for a 3,500-foot pier. The Spicer Group's design was for a 3,700-foot pier, which is shown in Figure 4-2. The dock would be designed to handle the largest self-unloading lake vessels operating on the Great Lakes down to the 500-foot Class III self-unloading vessels. The self-unloading ships would tie up to the pier and unload the coal using the ships' self-unloading conveyor to dump the coal into a bin on the dock, where separate conveyors would transport the coal to the existing Campbell stockpile.

The proposed location for the Lake Michigan pier/dock is in a pristine area. A site visit to the proposed Lake Michigan pier/dock area was made on September 14, 2015. This visit included a boat ride from Pigeon Lake, through the Pigeon Lake channel and into Lake Michigan in order to view the proposed site from the water. Figures 4-3 through 4-6 show the pristine beach area for the proposed Lake Michigan pier/dock, and why it would be very difficult, if not impossible, to permit an industrial coal pier/dock in this area.

Figure 4-1. {

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}

Figure 4-2. {

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}

Figure 4-3. View of the Lake Michigan Pier/Dock site from about 2000 feet from the shore.

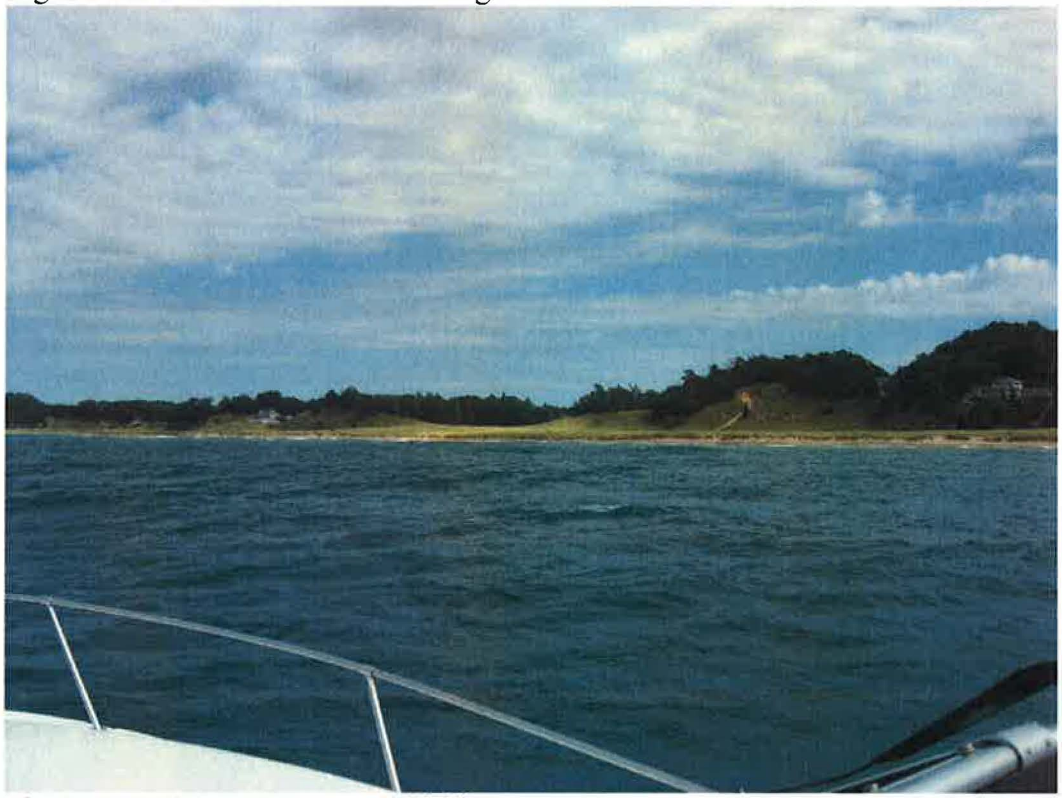

Figure 4-4. View of the Lake Michigan Pier/Dock site from the shore looking north.

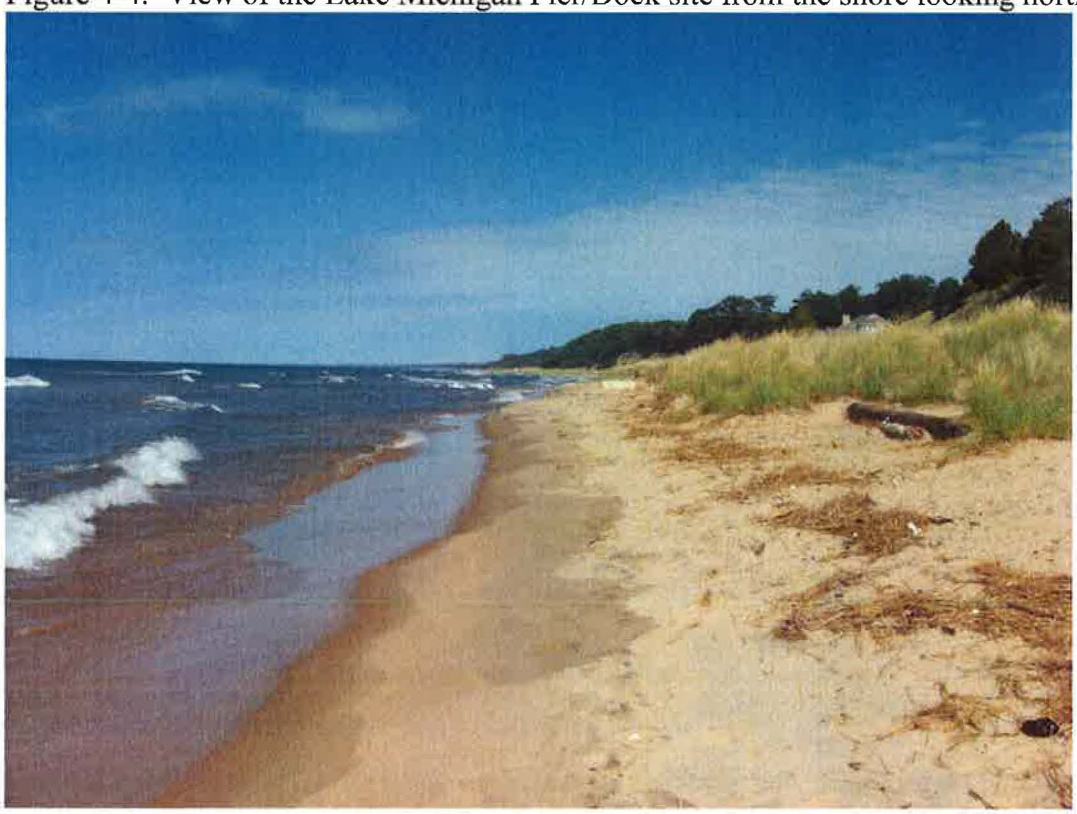

Figure 4-5. View of the Lake Michigan Pier/Dock site from the shore looking south

Figure 4-6. View of the Lake Michigan Pier/Dock site from the shore looking west.

4.2 Environmental/Permitting Issues

There are at least five major problems with a hypothetical Lake Michigan pier/dock that make this option not permittable, and not a viable option for water delivery to the Campbell plant.

1. ***Major visual/social impact.*** The photos in Figures 4-3 to 4-6 show the pristine nature of the area where a dock would be located. The Lake Michigan pier/dock option would have major visual/social impacts on the local community, which will draw the attention of local citizens as well as national environmental groups willing to invest significant resources to block any permits, both before the permitting agencies and later in court if the agencies don't deny the permits. Both WorleyParsons and Spicer noted these risks in their reports, but in view of open public and political hostility to any project that promotes the use of coal and the fact that the pier/dock would be the largest industrial facility constructed in Lake Michigan in over 100 years, ERC believes that the previous consultants greatly understated the risk.

2. ***Require EPA approval.*** A Lake Michigan pier/dock would require several permits/approvals from the U.S. Army Corp of Engineers. As discussed in Section 3.9, it is a very difficult, expensive and time consuming process to obtain Federal permits and State permits when there is strong local opposition.

   Additional environmental/permitting challenges associated with the Lake Michigan pier/dock option include:

   - Higher dune impact;
   - Difficult to find adequate areas to mitigate dune loss;
   - Visual impact which is very difficult to socially mitigate;
   - Requirement of an EIS, taking up to 30 months, or even much longer; and
   - Longer construction time (34-46 months).

3. ***Require bottom land easement.*** A Lake Michigan pier/dock would require { } It is likely that strong local and national opposition to a Lake Michigan pier/dock would make it politically difficult for the State of Michigan to grant such an easement.

4. ***Unprotected open waters.*** A new unloading dock in Lake Michigan would be unprotected from the open waters. This design would be the only unprotected, large open pier with an unloading dock on the Great Lakes. All of the other bulk loading and unloading terminals on the Great Lakes are in harbors, or have solid piers that protect the ship from the open waters. WorleyParsons concluded { } ERC agrees with this conclusion. During the site visit on September 14, 2015, Terry Decker, Campbell Plant Manager, took Dan Krieger with Consumers and Ralph Barbaro with ERC on his boat onto Lake Michigan to inspect the proposed pier site. The weather was clear with about 20 mph winds and still there were five foot waves in Lake Michigan. More severe weather, particularly in March, April, November and December, would make it difficult to safely unload lake vessels into a fixed hopper bin on the pier.

5. ***Lack of available space for PRB coal stockpile expansion.*** As discussed previously in this report, because of the unavailability of vessel service on Lake Michigan during the winter, shipping PRB coal by lake vessel to Campbell would require Consumers to store coal up to 2.3 million tons of coal at the MERC terminal and to stockpile { } so that the plant has sufficient fuel though the winter when it is not receiving any coal (see Section 3.4). However, securing that much storage space at MERC is a questionable proposition at best. If space can be found

[65] { }

[66] The Clean Water Act was enacted in 1948 and expanded in 1972.

[67] { }

to expand the PRB stockpile by { } at Campbell, which is far from certain, it would require relocating other facilities at a substantial cost. Because of the lack of available space, the cost to expand the PRB coal stockpile at Campbell is estimated to be similar to the $75 million that We Energy is budgeting to expand the coal stockpile at the Elm Road/Oak Creek plant from 0.75 to 1.5 million tons, which also did not have available space and moved transmission lines to free up room for the stockpile expansion.

4.3 Capital Cost

The capital cost estimates for the Michigan Lake pier/dock "option" are shown in Figure 4-7. WorleyParsons estimated { } The first column shows the capital cost estimates by WorleyParsons by major cost categories, while the second column shows the capital cost estimates made by the Spicer Group in the WorleyParsons cost categories.

The assignment of Spicer's costs into WorleyParsons costs categories as shown in Figure 4-7 was similar with the following exceptions:

1. Offshore Pier costs were assigned to the Dock cost category with the exception that the mobilization cost was included in the Mobilization/Demobilization category.
2. Material Handling costs for the Hopper & Enclosure through Transfer Chutes cost categories were assigned to the Material Handling Equipment cost category.
3. Material Handling costs for the Power, Grounding, Coordination and Protection through Lighting/Heat Trace/Controls cost categories were assigned to the Electrical & Instrumentation cost category.

Figure 4-7. {

68 }

The expected capital cost in the third column is the average of the WorleyParsons and Spicer Group capital cost estimates for the construction and engineering/contingencies cost categories. However, the permitting/mitigation cost estimates for both the WorleyParsons and Spicer Group were engineering studies only, so they included the costs for preparing the permits and basic mitigation, but nothing for litigation or delays.

The expected total capital cost for Option D to build a pier and unloading dock on Lake Michigan at the Campbell plant {

3.

4.

}

The high case capital cost estimate is {

[69] SSA Marine Welcomes the Crow Tribe and Cloud Peak Energy as Partners in the Gateway Pacific Terminal, Cloud Peak August 13, 2015 Press Release, which stated Cloud Peak "will pay all future permitting expenses up to $30 million, which is anticipated to cover expenses through 2019. The owners will then share any additional permitting expenses based on their ownership interest." The estimated litigation cost of $26.5 million is the difference between the $30 million anticipated cost at Gateway Pacific less the $3-4 million already identified by WorleyParsons.

[70] {

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}

4.4 Economic Analysis

The cost to ship PRB coal by vessel to the Campbell plant using the "Option D" Lake Michigan pier/dock, as of January 1, 2015, adjusted to the equivalent CSXT haul from Cicero Illinois to Campbell is estimated { } than the CSXT rate of $14.95 per ton. The costs associated with the comparative lake vessel rate for the Lake Michigan pier/dock option is shown in Figure 4-8.

The estimated Lake Michigan pier/dock water delivery cost is based on the following:

1. The Campbell plant burns 5.5 million tons of PRB coal annually (see Section 3.1).
2. All the PRB coal is loaded into lake vessels at the MERC terminal, because KCBX cannot stockpile PRB coal in the winter, and cannot efficiently load ships after June 2016 when it will become a direct-load facility. It simply is not economic to add the $120 million enclosed storage barn to allow KCBX to load lake vessels efficiently after June 2016.[71]
3. The MERC lake vessel rate is {

   } and $0.72 per ton for tug boat harbor assist for rough seas (see Section 3.9). If Class II or III vessels had to be used due to the unavailability of Class I capacity, vessel costs would be higher.
4. The operating cost of the unloading dock is { } based on Worley Parsons' estimate.
5. The operating cost of the expanded stockpile area at the Campbell power plant is $0.50 per ton based on typical operating costs for large coal stockpiles.

[71] {

}

6. The carrying cost of the additional coal stockpiles due to the inability to ship during the winter is $2.13 per ton (see Section 3.6).
7. The increased cost { } This is based on { }
8. A credit of $0.22 per ton was applied because of the avoided cost of owning railcars that CSXT uses for the shipment of coal from Chicago to the Campbell plant.
9. The capital cost for the Lake Michigan pier/dock is { } This is the minimum capital cost, and could be substantially higher when an appropriate risk premium is added to the WACC to reflect the risk associated with the investment, which is fraught with cost contingencies and regulatory uncertainty.
10. The capital cost for the Campbell power plant stockpile expansion is { } Again, this is the minimum capital cost and could be substantially higher when the appropriate risk premium is added to the WACC.

Figure 4-8. {

[72] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 4-8").}

5 *Lake Michigan Pier/Dock Conclusions*

ERC's conclusions regarding the Lake Michigan pier/dock alternative (Option D) are:

1. The Lake Michigan pier/dock is not a feasible option since it is not likely to be permittable because of expected strong opposition from local community groups and national environmental groups. This opinion is consistent with the conclusions in (1) the 2007 ERM report which stated {

   }
2. With an operating cost of {

   } CSXT's 2015 tariff rate of $14.95 per ton. Because the equivalent operating cost of the water option is higher than CSXT's tariff rate, it would be imprudent for Consumers to construct the Lake Michigan pier/dock.
3. With the addition of the minimum capital cost of {

   } than CSXT's 2015 tariff rate of $14.95 per ton.
4. The Lake Michigan pier/dock water delivery option does not provide effective competition with the CSXT tariff rate because (1) it is technically not feasible to build, (2) it is not economic to build, and (3) it is not economic to operate.

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[75] {
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5. Lake Vessel to Campbell - Pigeon Lake Option

5.1 Overview

This alternative, referred to by WorleyParsons and Spicer as Option E, involves the construction of a dock in Pigeon Lake, south of the Campbell Plant property. There were five sub-options considered for Option E based on the size and location of the dock. Pigeon Lake is a very small lake with a narrow access channel to Lake Michigan. The main portion of Pigeon Lake is only 2,000 feet long by 1,200 feet wide with the narrow part of the access channel being only 100 to 150 feet wide and 800 feet long. This provides little room to maneuver Class II and III ships that are 400 to 950 feet, and there is insufficient room to safely maneuver Class I ships that are up to 1,014 feet long.

There are two potential locations for the unloading facility, both of which are adjacent to the existing coal stockpile. The first location is the "south berth" where the Pigeon Lake unloading dock would be constructed south of the existing coal stockpile. Figure 5-1 shows WorleyParsons' design for the Pigeon Lake south berth dock for Class I vessels. Figure 5-2 shows the Spicer Group design for the Pigeon Lake south berth dock for Class I vessels. As discussed below, ERC has concluded that Class I vessels are not feasible for use in Pigeon Lake. Figure 5-3 shows the Spicer Group design for the Pigeon Lake south berth dock for Class II and III vessels.

The second location is the "west berth," where the Pigeon Lake unloading dock would be constructed west of the existing coal stockpile. Figure 5-4 shows WorleyParsons' design for the Pigeon Lake west berth dock for Class II and III vessels. This west berth location is just south of the Unit 1&2 intake channel. WorleyParsons' west berth location does not require widening the Unit 1&2 cooling water intake channel as proposed in ERM's 2007 study for Options A, B and C, which Consumers determined to not be feasible due to the pending CWA Section 316(b) cooling water intake regulations.[76] The Spicer Group did not evaluate a west berth option because of concerns related to having coal deliveries impact the Unit 1&2 inlet cooling channel.

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76 { }

Figure 5-1. {

[77] WorleyParsons Resources and Energy, Consumers Energy: JHC Coal Delivery Study, Appendix 2: Option E Drawings, October 22, 2014 (Consumers-001149).}

Figure 5-2. {

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}

Figure 5-3. {

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To provide access to a dock in Pigeon Lake, the Pigeon Lake channel would have to be widened and dredged to provide sufficient clearance and depth to accommodate lake vessels. Figure 5-5 shows the necessary channel width of 250 feet wide for Class I vessels (red line) and 180 feet wide for Class II vessels (green line). As shown, widening the Pigeon Lake channel will have a significant impact on the existing properties, boat slips and marinas in Pigeon Lake.

Figure 5-5. {

[81] {

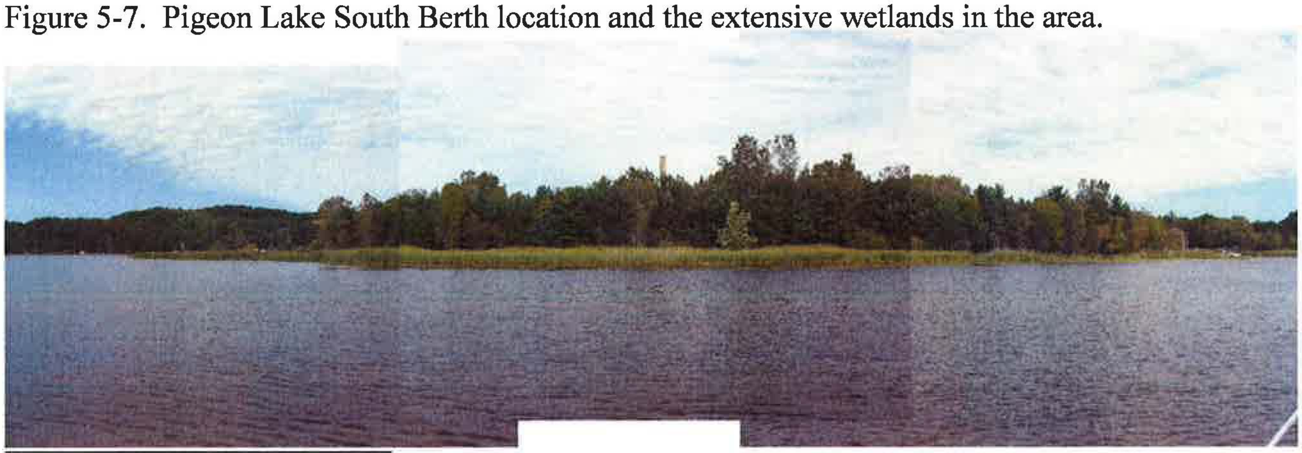
}

}

A site visit on September 14, 2015 confirmed that Pigeon Lake is extremely small to handle large lake vessels, and constructing a dock in Pigeon Lake would have a major environmental and social impact on Pigeon Lake and the residents that own property on and around Pigeon Lake. Figures 5-6 to 5-16 are photos of the Pigeon Lake and Pigeon Lake channel taken during the site visit.

Figure 5-6. Pigeon Lake West Berth location.

Figure 5-7. Pigeon Lake South Berth location and the extensive wetlands in the area.



82 {

}

Figure 5-8. Homes on southern shore of Pigeon Lake opposite of the South Berth location.

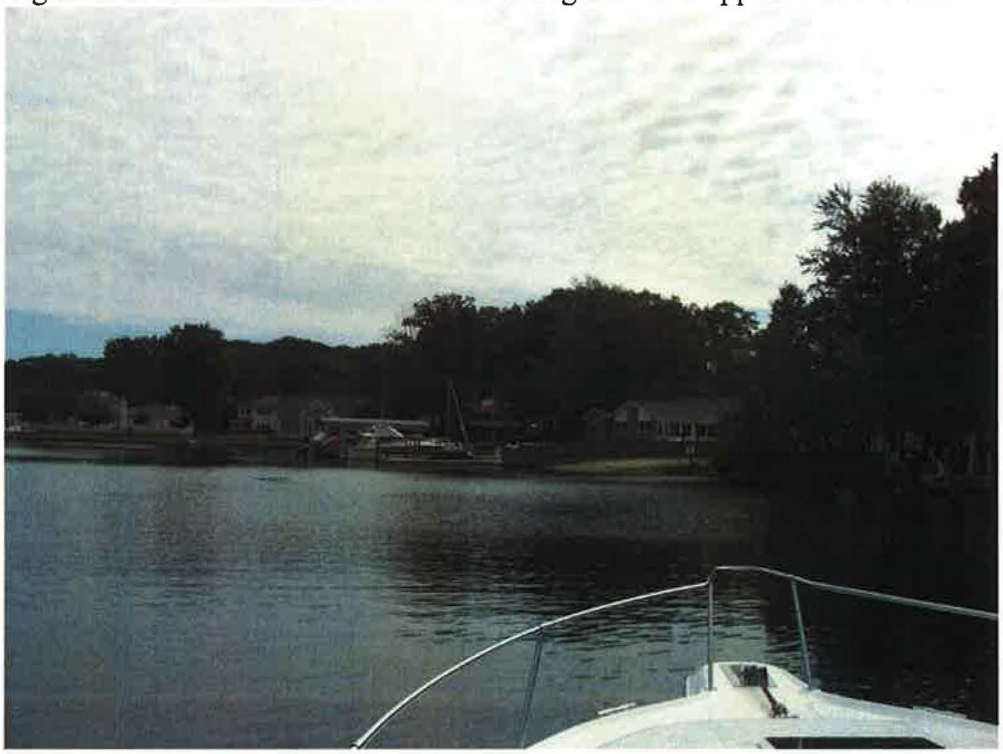


Figure 5-9. Homes on southern shore of Pigeon Lake view from approximate location of the end of a Class II vessel in the West Berth.

Figure 5-10. Homes on southern shore of Pigeon Lake.

Figure 5-11. View of Pigeon Lake channel from Pigeon Lake showing the marina on the southern shore of Pigeon Lake channel.

Figure 5-12. View of Pigeon Lake channel from Pigeon Lake looking west towards Lake Michigan.

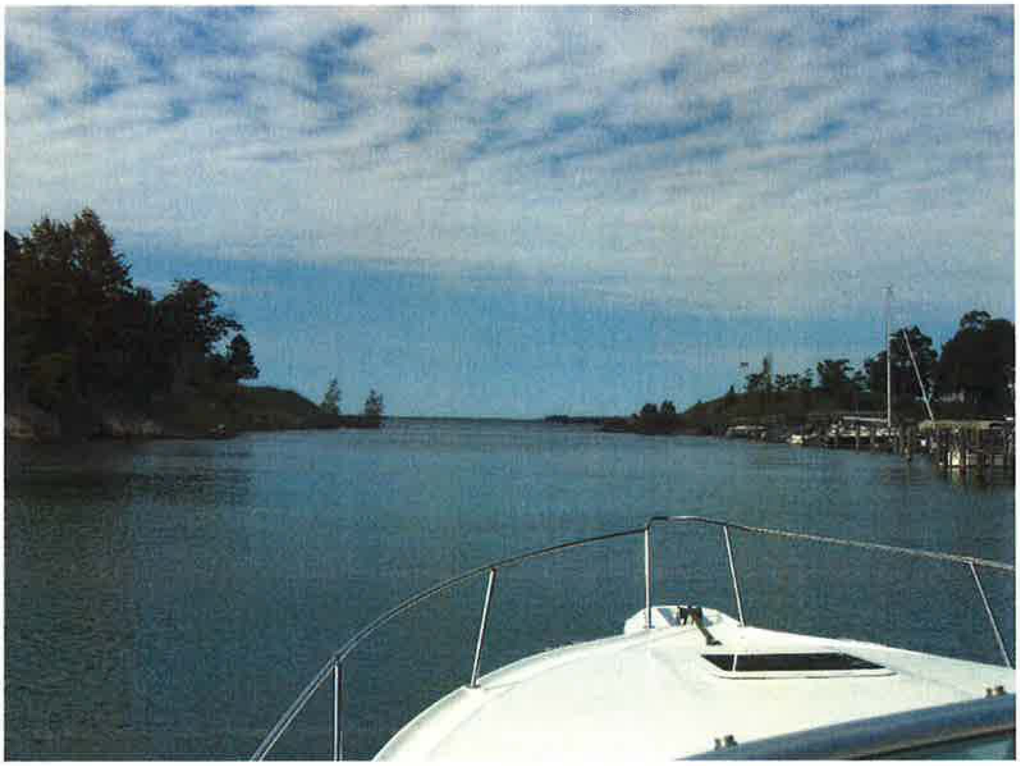


Figure 5-13. Homes and boat slips on northern shore of Pigeon Lake channel.

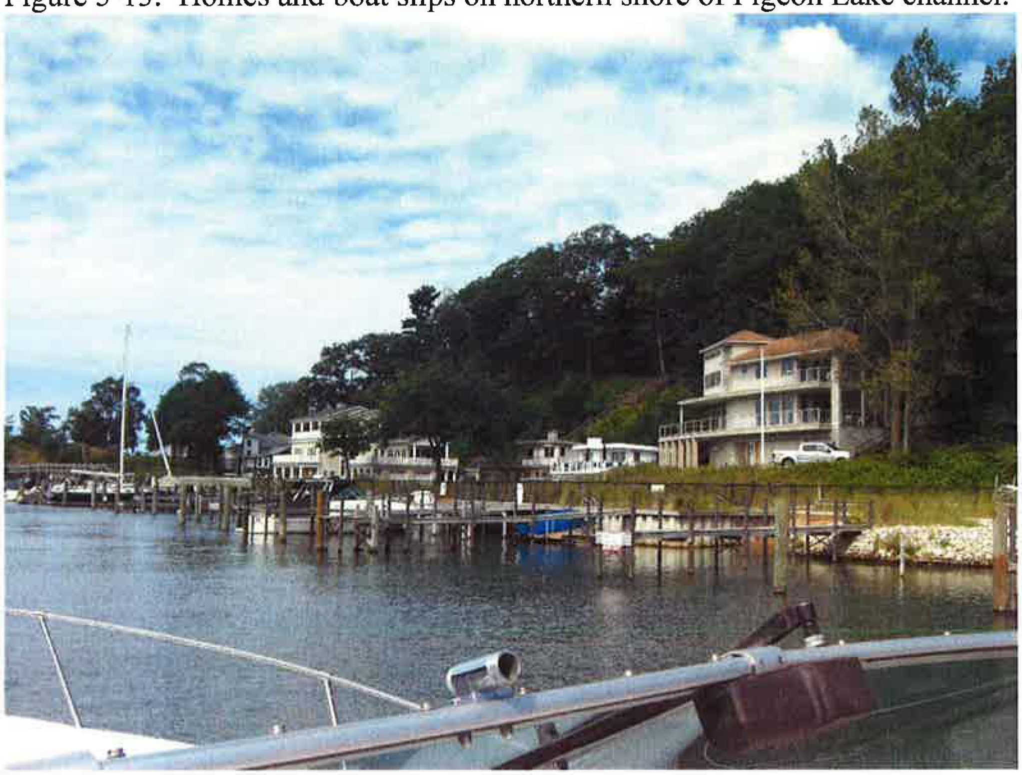


Figure 5-14. Homes and boat slips on southern shore of Pigeon Lake channel.

Figure 5-15. View of Pigeon Lake channel and jetty area.

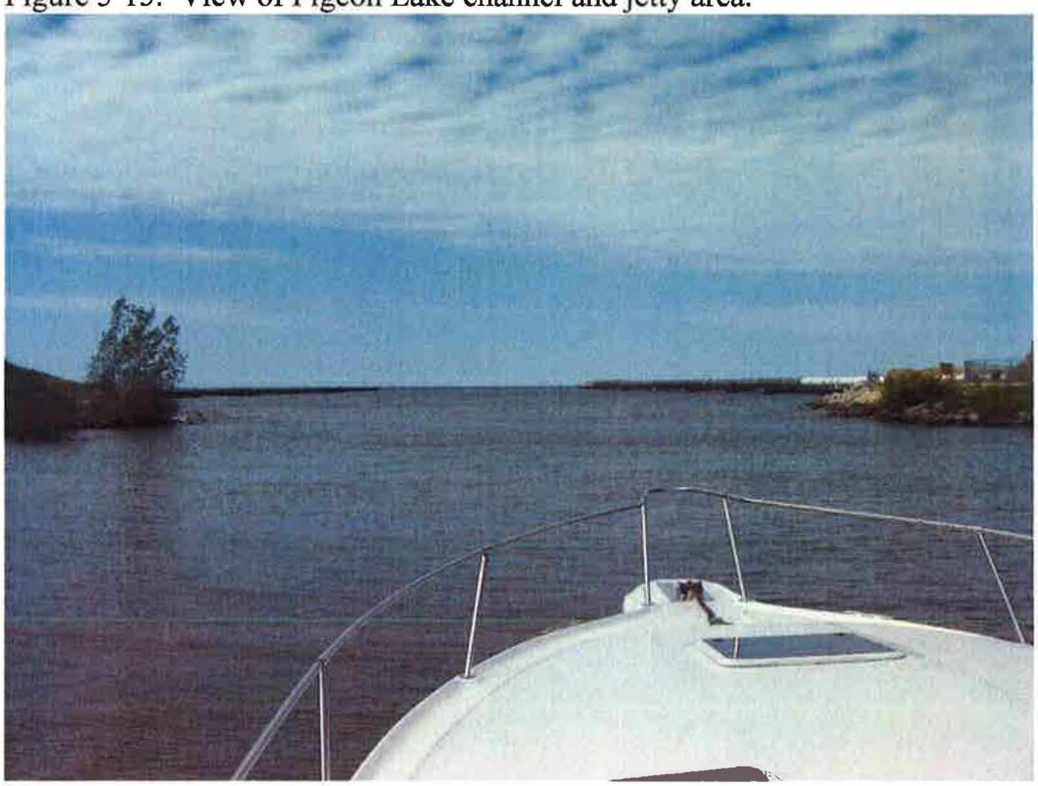
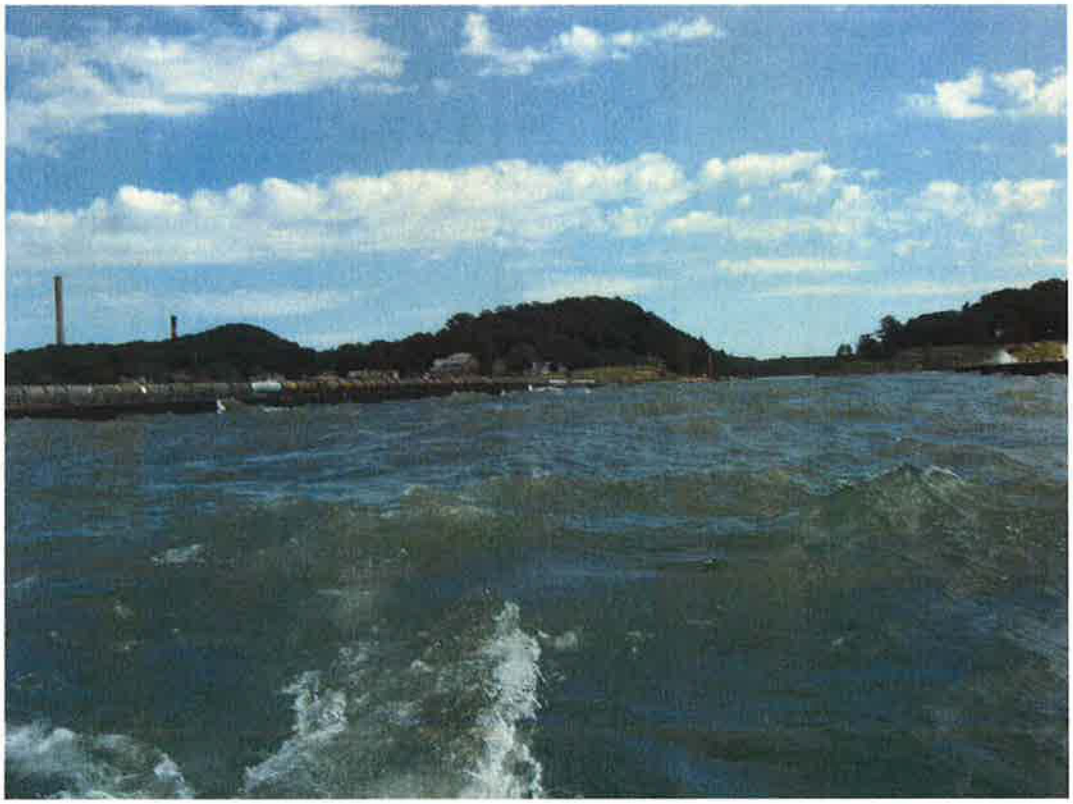


Figure 5-16. View of Pigeon Lake channel from Lake Michigan near end of jetties.



Even assuming only Class II and III vessels, there are a number of obstacles to the physical feasibility of Option E. They include:

- Significant amount of wetlands would be affected and would have to be mitigated.
- A 1,600-foot jetty extension would be required, interfering with littoral drift of the beaches.
- A significant amount of dredging is required to provide 28 foot depths for the ships, and on-going maintenance dredging will be required to maintain shipping depths.
- Channel widening – even Class II vessels will impact existing boat slips and marinas.
- Tug boats likely will be required to assist the lake vessels to maneuver in Pigeon Lake, because of (1) the small size of Pigeon Lake, (2) the turbidity that would result using bow thrusters in the lake, and (3) the need for better control of the ships moving in the channel at very slow speeds.
- Lake vessels will interfere with recreational boats, essentially closing the channel and lake to recreational use wherever a coal vessel is entering, unloading or exiting. Moving 5.5 million tons of coal during the shipping season (about 275 days at most, for

shipments from MERC) using 26,000 DWT Class II vessels would require 212 vessel calls at Pigeon Lake, or one call every 1.3 days. At this rate, coal vessel use would dominate the lake, and all but squeeze out any recreational traffic.

- The Pigeon Lake dock would be as close as 300 feet to existing homes, which would require significant restrictions on unloading the vessel to mitigate the impact of noise, lighting, dust and other issues on local residents. Given the number of vessel calls (see above), it is not unreasonable to expect that the impacts could not be mitigated practically, which would lead to a rejection of permits to build the dock.

The same coal storage needs and lack of capacity (both at MERC and Campbell) that negatively impact the feasibility of "Option D" discussed above, would constitute obstacles to the feasibility of the Pigeon Lake alternative as well.

5.2 Environmental/Permitting Issues

Constructing a dock in Pigeon Lake will have major impacts on the lake and will have significant permitting challenges. The challenges to permitting a dock in Pigeon Lake to handle Class I ships would be insurmountable in ERC's view, but even the smaller Class II and III vessels would present environmental impacts that affect the permitting process. These include:

- Permanent impact to about four acres of emergent wetlands.
- The need to dredge and dispose of potentially contaminated materials with significant environmental effects from WorleyParsons' 2014 Study:
    - South Berth – Class II vessels 1,500,000 cy (Consumers-001170)
    - South Berth – Class III vessels 1,000,000 cy (Consumers-001168)
    - West Berth – Class II vessels 1,000,000 cy (Consumers-001176)
    - West Berth – Class III vessels 450,000 cy (Consumers-001174)
- The likely requirement of an EIS, significantly increasing permitting time and costs.
- The major loss of beach caused by the jetty extension.
- Inadequate areas to mitigate dune loss.
- Noise, lighting, dust, and visual impacts that create significant permitting challenges and likely will result in significant operating restrictions to minimize the impact on the local community.

- Pigeon Lake is a spawning ground for salmon and other fish species, and other fish migrate in Pigeon Lake during the spring and fall, which may significantly restrict the amount of dredging and when dredging can occur, if a dredging permit even can be obtained. The Port of Morrow project was denied a permit for disturbing 573 cubic yards. The Pigeon Lake dock would require 450,000 to 1,500,000 million cubic yards to be dredged to facilitate Class II and Class III vessels.

5.3 Capital Cost

The capital cost estimates for the Pigeon Lake unloading facility are shown in Figure 5-17 for Class II vessels and Figure 5-18 for Class III vessels. {

}

Figure 5-17. {Capital cost for the Pigeon Lake (Option E) Class II vessels option.[83]

83 }

Figure 5-18. {

84 }

The assignment of Spicer's costs into WorleyParsons costs categories as shown in Figures 5-17 and 5-18 made the following adjustments:

1. The dredging costs in the coal dock, jetty improvements and channel widening categories were combined and reported in the dredging category.
2. The mobilization costs in the coal dock, jetty improvements and channel widening categories were combined and reported in the mobilization/demobilization category.

The expected base case capital cost for a potential Class II dock shown in Figure 5-17 is the average of the WorleyParsons and Spicer Group capital cost estimates for the construction and engineering/contingencies cost categories. The expected base capital cost for a potential Class III dock in Pigeon Lake shown in Figure 5-18 is the WorleyParsons capital cost estimate. However, the permitting/mitigation cost estimates for both the WorleyParsons and Spicer Group were engineering studies only, so they included the costs for preparing the permits and basic mitigation, but nothing for litigation or permit challenge costs and delays.

The expected total capital costs for a potential Class II dock {

} These capital costs estimates are based on:

1. The averages of WorleyParsons' and Spicer's 2014 Class II dock cost estimates {

}

2. Include $30 million estimate[85] for permitting/mitigation reflects the cost of litigation, EIS studies, and additional mitigation to reflect the likely cost to attempt to permit a pier/dock on Lake Michigan, which as noted previously may not even be permittable. WorleyParsons' { } for permitting, including an environmental impact statement, but this does not include the likely litigation cost for a project that will attract national attention and opposition.
3. Include $75 million to add { } at Campbell, which was not addressed in the WorleyParsons and Spicer studies.
4. Include the interest during construction costs, which are substantial at { } respectively, for the Class III South Berth and West Berth docks.

The high case capital cost estimates { }

5.4 Economic Analysis

The cost to ship PRB coal to the Campbell plant using the Pigeon Lake alternative as of January 1, 2015, adjusted to the equivalent CSXT haul from Cicero Illinois to the Campbell power plant, is estimated {

[85] SSA Marine Welcomes the Crow Tribe and Cloud Peak Energy as Partners in the Gateway Pacific Terminal, Cloud Peak August 13, 2015 Press Release, which stated Cloud Peak "will pay all future permitting expenses up to $30 million, which is anticipated to cover expenses through 2019. The owners will then share any additional permitting expenses based on their ownership interest." The estimated litigation cost of $26.5 million { }

[86] { }

} higher cost than the January 1, 2015 CSXT 2015 tariff rate of $14.95 per ton.

The costs associated with the comparative lake vessel rate for the Pigeon Lake dock option are shown in Figure 5-19 for Class II vessels and Figure 5-20 for Class III vessels.

The assumptions in this analysis of the lake vessel cost include:

1. The Campbell plant will burn 5.5 million tons of PRB coal annually (see Section 3.1).
2. All the PRB coal is loaded into lake vessels at the MERC terminal, because KCBX cannot stockpile PRB coal in the winter, and cannot efficiently load ships after June 2016 when it will become a direct-load facility. It is not economic to add the $120 million enclosed storage barn to allow KCBX to load ships efficiently after June 2016.[87]
3. The loading and lake vessel cost for Class II vessels loaded at MERC and shipped to dock in Pigeon Lake is {

   }
4. The operating cost of the unloading dock is { } based on WorleyParsons' estimate.
5. The operating cost of the expanded stockpile area at the Campbell power plant is $0.50 per ton.

[87] {

}

6. The carrying cost of the additional coal stockpiles due to the inability to ship during the winter is $2.13 per ton.
7. The cost under {

}
8. A credit of $0.22 per ton was applied because of the avoided cost of owning railcars that CSXT uses for the shipment of coal from Chicago to the Campbell Plant.
9. The capital cost for a potential Class II Pigeon Lake dock is {

}
10. The capital cost for the Campbell Plant stockpile expansion is {

}

Figure 5-19. {

88

}

Figure 5-20. {

[89] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 5-20").}

5.5 *Pigeon Lake Dock Conclusions*

ERC's conclusions with respect to the hypothetical shipment of coal to the Campbell Plant by vessel using a Pigeon Lake dock (Option E) are:

1. The Pigeon Lake option for Class I vessels is not a feasible option because the very small lake size cannot reasonably accommodate 1000-foot Class I vessels, and the option is likely not permittable. This is consistent with the conclusions in the Spicer Group 2014 report that stated "Class I Vessel impacts to the wider channel and turning basin will likely not be considered a feasible alternative for permitting."[90]
2. The operating costs for transloading, lake vessel and handling cost to deliver coal to the Pigeon Lake dock ranged { } which is not competitive with CSXT's 2015 tariff rate of $14.95 per ton. Because the equivalent operating cost of the water option is higher than CSXT's tariff rate, it would be imprudent for Consumers to construct the Pigeon Lake pier/dock.
3. With the addition of the minimum capital cost of { } per ton higher than CSXT's 2015 tariff rate of $14.95 per ton.
4. The Pigeon Lake dock water delivery option does not provide effective competition with the CSXT tariff rate because (1) it would be a long a difficult permitting process and may not be permittable, (2) it is not economic to build, and (3) it is not economic to operate.

[90] { }

6. Lake Vessel to Cobb – Rail to Campbell

6.1 Overview

Under what was referred to by WorleyParsons as Option R, coal would be transported by lake vessels to an existing dock used to serve Consumers' Cobb Station near Muskegon, Michigan, then loaded into rail cars and transported to the Campbell Plant by the MSRR. New connecting track both at Cobb and Campbell, as well as upgrades to the track that the MSRR currently operates, would be needed under this scenario. The four unloading options identified in the 2014 WorleyParsons study are:

Option R1 – North Spur Access

This option involves building a spur from the MSRR to a point north of the existing Cobb stockpile area. Figure 6-1 shows WorleyParsons' design for the Option R1 with the green line showing new track. This option would use all of the existing coal unloading and handling facilities at the Cobb power plant.

Figure 6-1. {

91

}

Figures 6-2 and 6-3 are photos take on a September 15, 2015 site visit of the area proposed by WorleyParsons to locate the rail tracks to store loaded and unloaded railcars in the R1 option. This area is primarily wetlands that would create significant permitting and mitigation challenges.

Figure 6-2. {

Figure 6-3. Wetlands in east area of proposed location of ladder tracks for R1 option.

Option R2 – South Pier Spur

This option is similar to Option R1 except that the rail spur would be built on the south side of the pier, as shown in Figure 6-4, with the PRB coal conveyed from the existing Cobb coal facilities on the north side of the harbor across the harbor to the south side, where it would be loaded into the railcars.

Figure 6-4. {

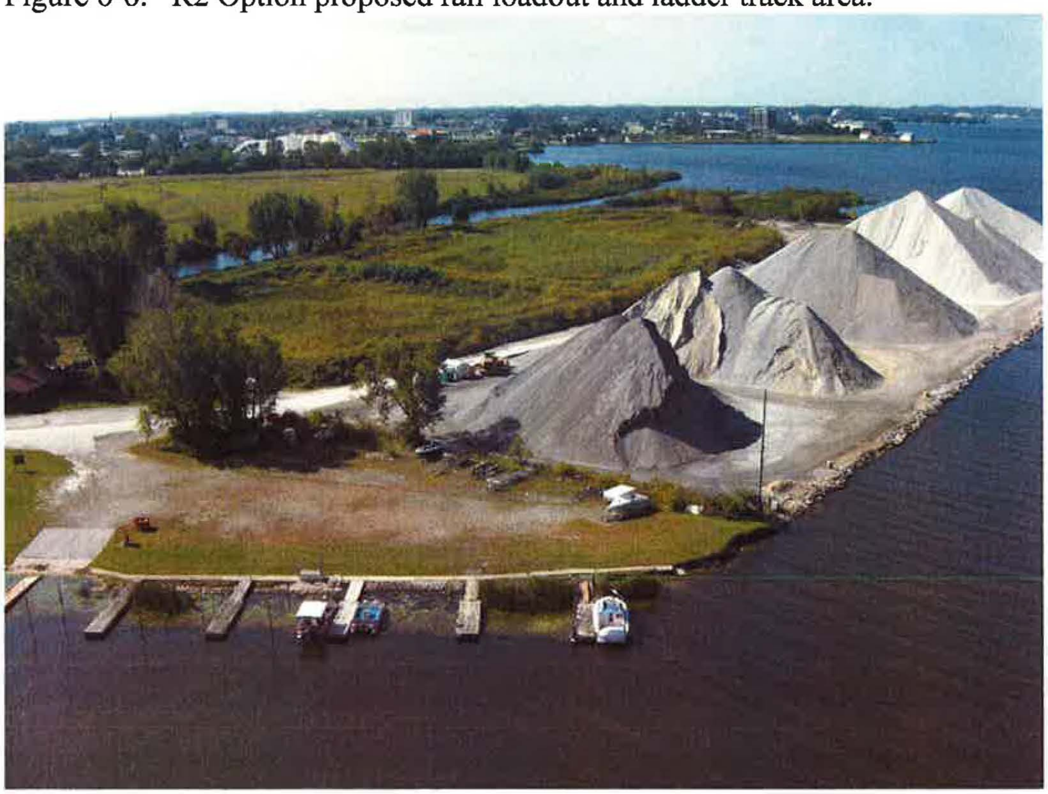
Figure 6-5 shows the proposed area where the rail spur from the MSRR to the rail load would be located under the R2 Option. Figure 6-6 shows the proposed area where the rail loadout and ladder tracks for the R2 Option would be located. This area is currently leased to the Verplank Dock Company to unload dry bulk commodities.

92

}

Figure 6-5. R2 Option proposed rail spur area

Figure 6-6. R2 Option proposed rail loadout and ladder track area.



Option R3 – Off Site Unloading

This option involved another site located about four miles southwest of the Cobb plant on the southern shore of Lake Muskegon. As shown in Figure 6-7, the coal would be unloaded at an old coal unloading area, which is the former dock site of the S D Warren Muskegon plant. This option would require all of the coal unloading infrastructure to be added as well as rehabilitation of the MSRR spur that runs along the southern shore of Lake Muskegon.

Figure 6-7. {

93

}

Figure 6-8. R3 Option site.

Figure 6-9. R3 Option site showing the remaining facilities.

Figure 6-10 shows the poor condition of the old rail spur to the Option R3 site. The existing rail spur would have to be replaced with new rail to handle 5.5 million tons annually.

Figure 6-10. Abandoned rail line to the Option R3 site.

The R3 Option site is a brown-field site and would require constructing the infrastructure for unloading lake vessels and loading railcars. When this was an operating site, it could only unload Class III vessels (15,000 tons), and handled 120 to 150 thousand tons annually. The cost to rehabilitate this site to unload Class I vessels and load the coal onto the MSRR would be significantly higher than estimated by WorleyParsons. This option is clearly inferior to the other Cobb rail options.

Option R4 – Conveyor to MSRR

This option adds a conveyor to transport the coal from the existing coal unloading and handling facility at the Cobb power plant across the harbor directly to the mainline of the MSRR. Figure 6-11 shows the location of WorleyParsons' proposed Option R4 conveyor from the existing coal handling facilities across the harbor to the MSRR rail line.

Figure 6-11. {

94

}

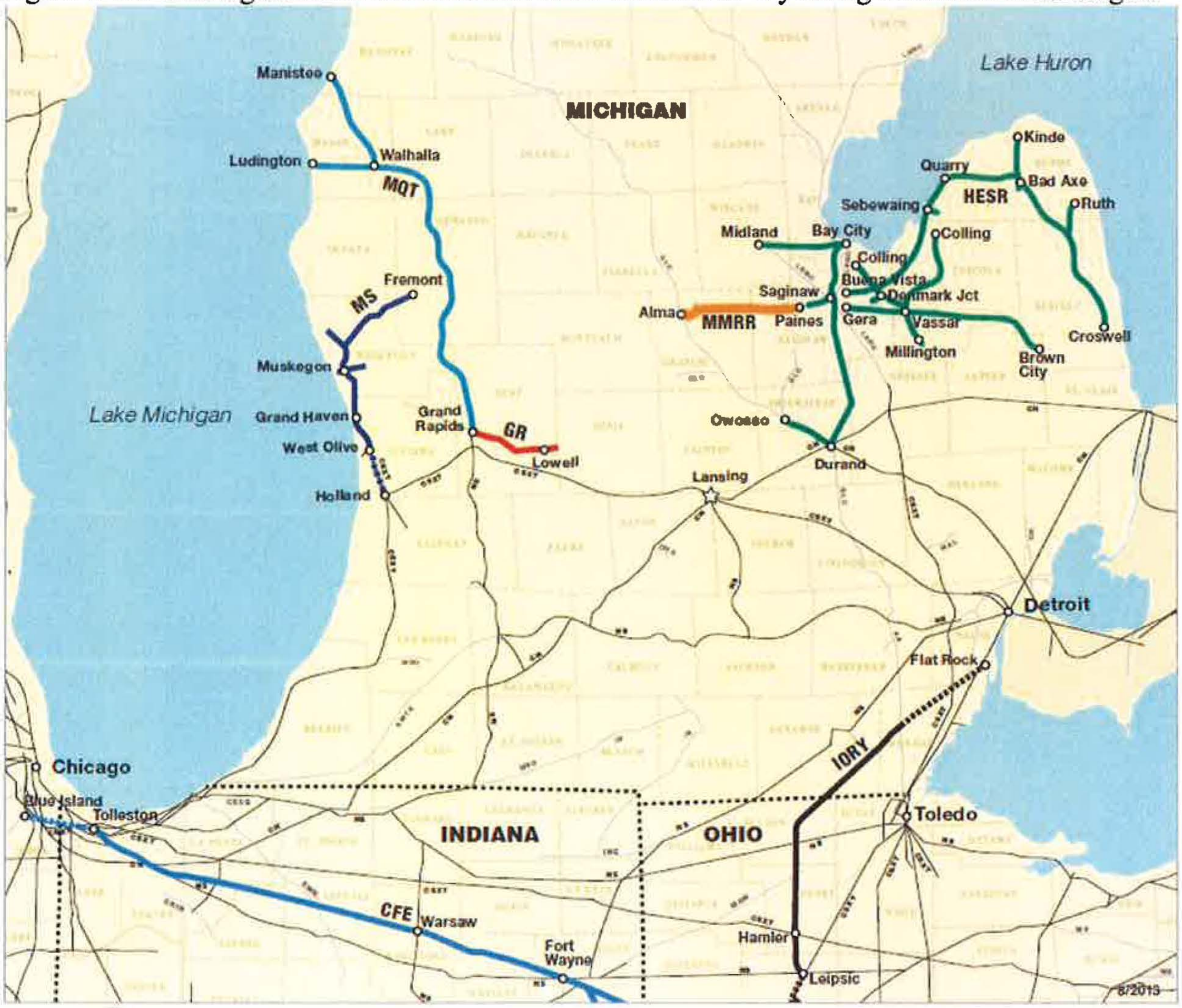
Michigan Shore Railroad

Option R would use the MSRR to haul the PRB coal approximately 29 miles from the Cobb power plant to the Campbell Plant. The MSRR leases the track that it operates between Muskegon and West Olive from CSXT { } A map of Genesee & Wyoming Inc.'s shortline railroads in Michigan is shown in Figure 6-12. The MSRR line runs from Muskegon, where the Cobb station is located, to West Olive, where it connects to the CSXT mainline that runs to the Campbell Plant.

The MSRR does not have access to the Campbell Plant, and would have to build a spur parallel to CSXT's existing spur as shown in Figure 6-13. WorleyParsons evaluated two other options to deliver the coal to the Campbell power plant by rail: (1) hand off the train to CSXT to haul the coal from West Olive into the plant (WorleyParsons Campbell Rail Option 1), and (2) have MSRR obtain trackage rights from CSXT to use the spur between Mt. Olive and the plant (Worley Parsons Campbell Rail Option 1A). However, these are not feasible and were not considered in this analysis because both require CSXT to deliver the coal or provide trackage rights, which CSXT has no obligation or incentive to do.

[95] { }

Figure 6-12. Michigan Shore Railroad and other Genesee & Wyoming Railroads in Michigan.



Mid-Michigan Railroad, Inc.
101 Enterprise Drive
Vassar, Michigan 48768
989-797-5100

Genesee & Wyoming Railroads - Midwest Region

GR	Grand Rapids Eastern Railroad Inc.
HESR	Huron and Eastern Railway Company, Inc.
MMRR	Mid-Michigan Railroad, Inc.
MS	Michigan Shore Railroad, Inc.
MQT	Marquette Rail, LLC
	G&W Nearby Railroads
CFE	Chicago, Fort Wayne & Eastern Railroad
IORY	Indiana & Ohio Railway Company

Dashed line indicates Trackage Rights

Figure 6-13. {

96 }

6.2 *MSRR Is Not An Effective Competitor for CSXT*

While technically it appears that {

} the MSRR is not likely to be an effective competitor for CSXT, for at least two reasons:

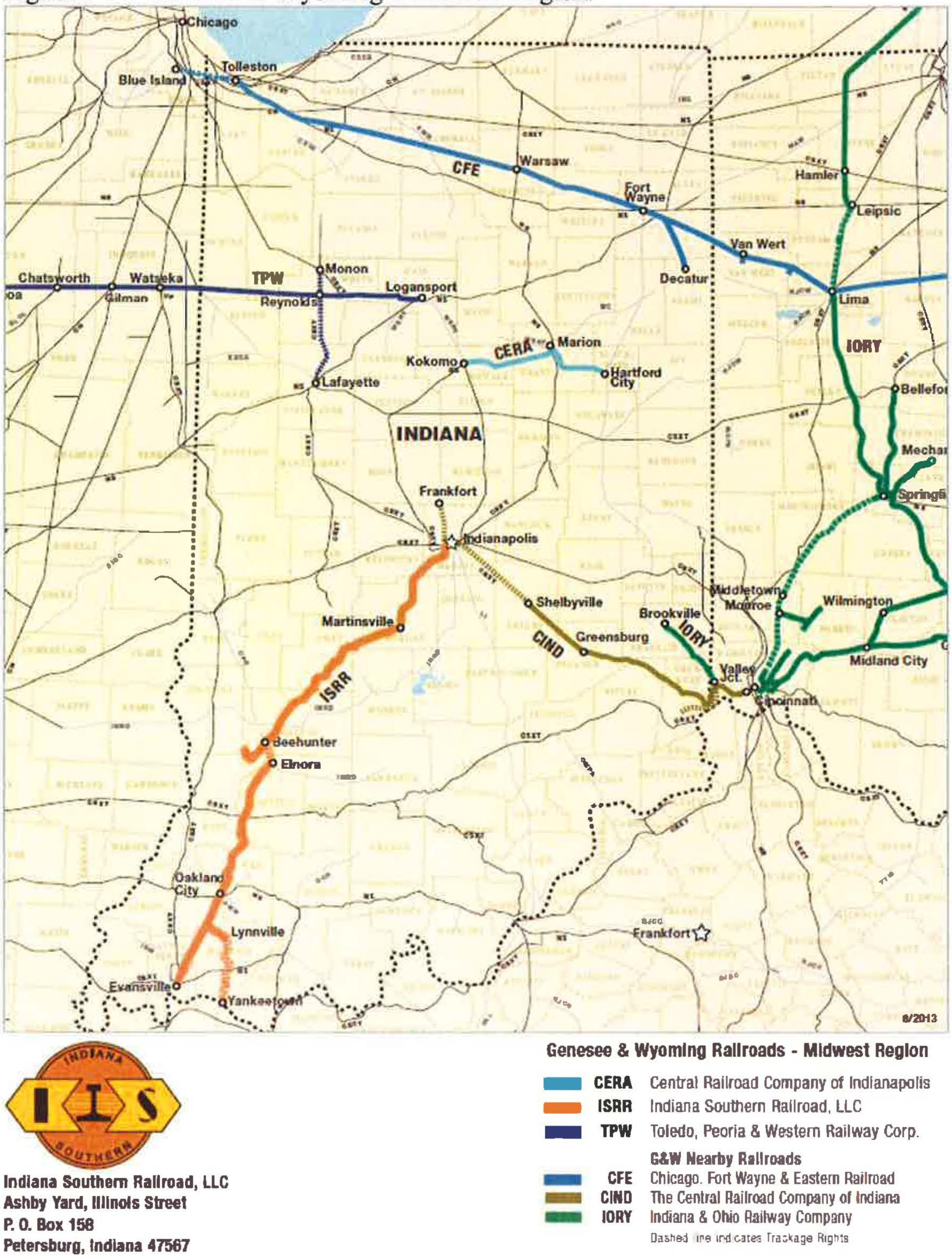
1. MSRR would have to build both a new connecting track at Cobb and a new spur to the Campbell Plant as shown in Figure 6-13, and would have to upgrade the CSXT track that it leases. {

} All of these factors would lead to higher costs for Consumers.
2. Even if MSRR could physically construct a new spur and improve the tracks to haul up to six million tons annually from Cobb to Campbell, MSRR is likely to be unwilling to compete with CSXT, given the corporate relationship between MSRR's parent company, Genesee & Wyoming, and CSXT. Figures 6-14 through Figure 6-21 show the extensive business relationships that Genesee & Wyoming has with CSXT, with numerous trackage rights and interchanges with CSXT in the eastern and midwestern U.S. It is quite likely that Genesse & Wyoming would not be willing to harm its larger commercial relationship with CSXT in order to divert coal volumes from CSXT at the Campbell plant.

[97] {

}

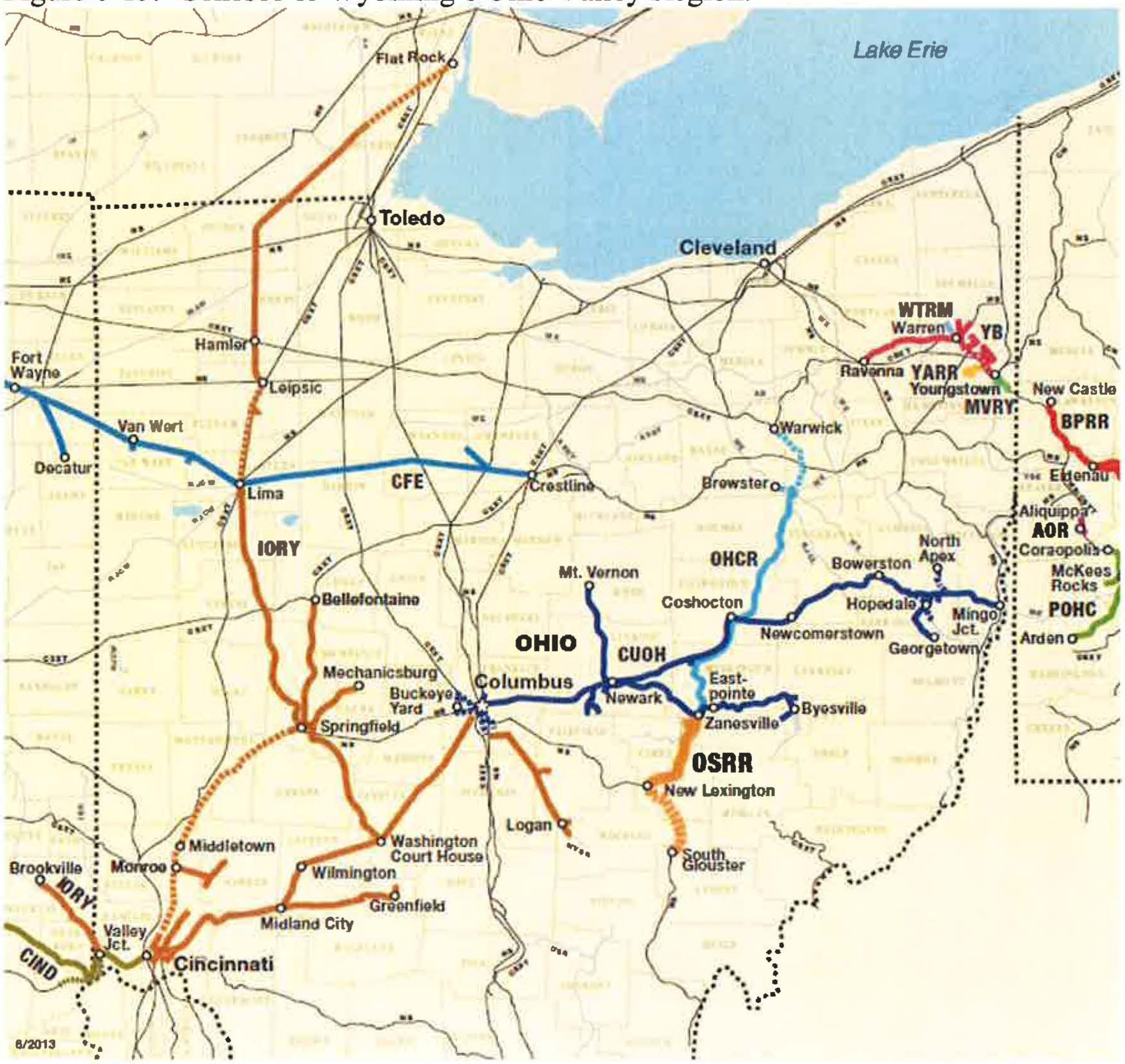
Figure 6-14. Genesee & Wyoming's Midwest Region.



INDIANA I S SOUTHERN

Indiana Southern Railroad, LLC
Ashby Yard, Illinois Street
P. O. Box 158
Petersburg, Indiana 47567
812-354-8080

Figure 6-15. Genesee & Wyoming's Ohio Valley Region.



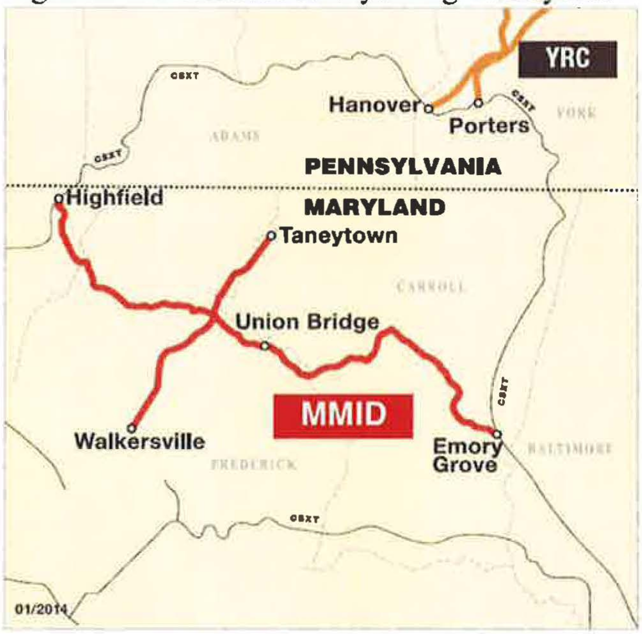
Ohio Southern Railroad, Inc.
47849 Papermill Road
Coshocton, Ohio 43812
740-622-8092

Genesee & Wyoming Railroads - Ohio Valley Region

AOR	The Aliquippa & Ohio River Railroad Company
CFE	Chicago, Fort Wayne & Eastern Railroad
CIND	The Central Railroad Company of Indiana
CUOH	The Columbus & Ohio River Rail Road Company
IORY	Indiana & Ohio Railway Company
MVRY	The Mahoning Valley Railway Company
OHCR	Ohio Central Railroad, Inc.
OSRR	Ohio Southern Railroad, Inc.
POHC	The Pittsburgh & Ohio Central Railroad Company
WTRM	The Warren & Trumbull Railroad Company
YARR	Youngstown & Austintown Railroad Inc.
YB	The Youngstown Belt Railroad Company
	G&W Nearby Railroads
BPRR	Buffalo & Pittsburgh Railroad, Inc

Dashed line indicates Trackage Rights.

Figure 6-16. Genesee & Wyoming's Maryland Midland Railway.



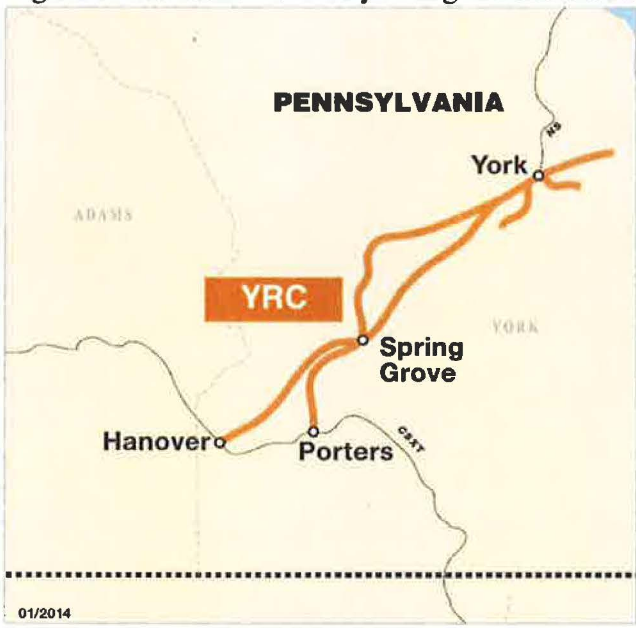
Maryland Midland Railway (MMID) is a 70-mile short line railroad that interchanges with CSX Transportation. Commodities transported include aggregates, brick and cement, chemicals, and forest products. The MMID was acquired by Genesee & Wyoming Inc. (G&W) in 2007, and is part of G&W's Coastal Region railroads. The region includes 21 short line railroads and serves 10 major U.S. ports.

Through G&W's contract rail services subsidiary, Rail Link, Inc., the region provides contracted railroad switching and related customer logistics services to major industrial customers throughout North America. Rail Link, Inc. offers customers a full range of rail-related services, including railcar switching, track maintenance, locomotive and railcar maintenance, in-plant trailer/container drayage, railcar loading/unloading and railcar tracking and monitoring.

Maryland Midland Railway, Inc.
40 N. Main St.
Union Bridge, Maryland 21791
(410) 775-7719

Nearby Genesee & Wyoming Railroads YRC
York Railway Company

Figure 6-17. Genesee & Wyoming's York Railway.



York Railway Company
2790 West Market St.
York, Pennsylvania 17404
(717) 771-1742

York Railway (YRC) is a 42-mile short line freight railroad that interchanges with Canadian Pacific Railway, CSX Transporta-tion and Norfolk Southern. Commodities transported include aggregates, brick and cement, chemicals, coal, food and feed products, forest products, and steel and scrap. The YRC was acquired by Genesee & Wyoming in 2002, and is part of G&W's Coastal Region railroads. The region includes 21 short line railroads and serves 10 major U.S. ports.

Through G&W's contract rail services subsidiary, Rail Link, Inc., the region provides contracted railroad switching and related customer logistics services to major industrial customers throughout North America. Rail Link, Inc. offers customers a full range of rail-related services, including railcar switching, track maintenance, locomotive and railcar maintenance, in-plant trailer/container drayage, railcar loading/ unloading and railcar tracking and monitoring.

Figure 6-18. Genesee & Wyoming's Commonwealth Railway.

Commonwealth Railway (CWRY) serves the Virginia Port Authority and interchanges with CSX Transportation and Norfolk Southern. Commodities transported include intermodal containers and chemicals. The CWRY was acquired by Genesee & Wyoming Inc. (G&W) in 1996, is part of G&W's Coastal Region railroads. The region includes 21 short line railroads and serves 10 major U.S. ports.

Through G&W's contract rail services subsidiary, Rail Link, Inc., the region provides contracted railroad switching and related customer logistics services to major industrial customers throughout North America. Rail Link, Inc. offers customers a full range of rail-related services, including railcar switching, track maintenance, locomotive and railcar maintenance, in-plant trailer/container drayage, railcar loading/unloading and railcar tracking and monitoring.

Nearby Genesee & Wyoming Railroads CA Chesapeake & Albemarle Railroad

Port Operations

Commonwealth Railway, Incorporated
1136 Progress Road
Suffolk, Virginia 23434
(757) 538-1200

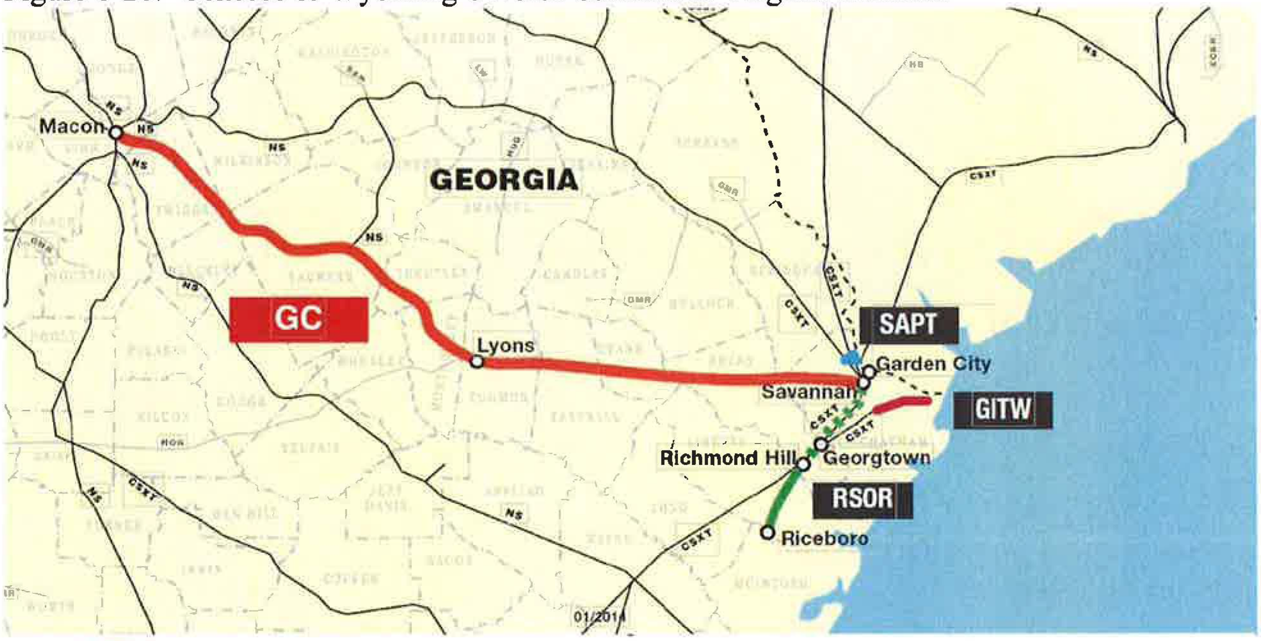
Figure 6-19. Genesee & Wyoming's North Carolina & Virginia Railroad.

North Carolina & Virginia Railroad (NCVA) is located in Eastern North Carolina and interchanges with the CSXT. The NCVA at Boykins, VA, provides services across 135 miles of track. Major commodities that move on the NCVA are steel plate, steel scrap, soybeans, chemicals and fertilizer. The NCVA is part of Genesee & Wyoming's (G&W) Coastal Region railroads. The region includes 21 short line railroads and serves 10 major U.S. ports.

Through G&W's contract rail services subsidiary, Rail Link, Inc., the region provides contracted railroad switching and related customer logistics services to major industrial customers throughout North America. Rail Link, Inc. offers customers a full range of rail-related services, including railcar switching, track maintenance, locomotive and railcar maintenance, in-plant trailer/container drayage, railcar loading/unloading and railcar tracking and monitoring.

North Carolina & Virginia
Railroad Company, LLC
214 Railroad St. N.
Ahoskie, North Carolina 27910
(252) 332-2778

Figure 6-20. Genesee & Wyoming's North Carolina & Virginia Railroad



Georgia Central Railway, L.P.
186 Winge Road
Lyons, Georgia 30436
(912) 526-6165

Nearby Genesee & Wyoming Railroads

- **GITW** Golden Isles Terminal Wharf
- **RSOR** Riceboro Southern Railway, LLC
- **SAPT** Savannah Port Terminal Railroad, Inc.

Figure 6-21. Genesee & Wyoming's North Carolina & Virginia Railroad

Genesee & Wyoming Railroads

Hilton & Albany Railroad, Inc.
78 Pulpwood Road
Dawson, Georgia 39842
229-698-2000

Port Operations

Dashed line indicates Trackage Rights; gray line indicates Out of Service

Southern Region Railroads

AGR	Alabama & Gulf Coast Railway LLC
AN	AN Railway, L.L.C.
BAYL	The Bay Line Railroad, L.L.C.
CAGY	Columbus and Greenville Railway Company
CCH	Columbus & Chattahoochee Railroad, Inc.
CCKY	Chattooga & Chickamauga Railway Co
CHAT	Chattahoochee Bay Railroad, Inc.
CIRR	Chattahoochee Industrial Railroad
COEH	Conecuh Valley Railway, L.L.C.
EARY	Eastern Alabama Railway, LLC
GSWR	Georgia Southwestern Railroad, Inc.
HAL	Hilton & Albany Railroad, Inc
KWT	KWT Railway, Inc
LDRR	Louisiana & Delta Railroad, Inc
LXVR	Luxapalila Valley Railroad, Inc
MNBR	Meridian & Bigbee Railroad, L.L.C
TNHR	Three Notch Railway, L.L.C.
VR	Valdosta Railway, L.P.
WGCR	Wiregrass Central Railway, L.L.C

6.3 The Cobb Station Dock May Not Be Available to Unload Coal Vessels

Independent of the serious questions about the feasibility of using the MSRR to move coal between Cobb and Campbell, the Cobb dock itself likely would not be available to receive vessel coal shipments. Since Consumers announced in late 2011 that it planned to retire the Cobb plant in order to comply with strict new clean air regulations, it has been working with the local community and regional economic development authorities on plans for post-closure use of the facility.

The port at Cobb can handle the largest ships that operate on the Great Lakes, and could serve as a mid-stage container port for shipments moving through the Lakes to or from international ports.[98] Muskegon Area First contracted with Rockford-Berge to study potential use for the site after the coal unit is retired, including container port development, and Consumers has cooperated with these efforts.

Most likely, it would not be well received in the community if Consumers not only reversed course to stop unloading coal at the Cobb site, but increased the coal volume by nearly 10 times current levels. Add to that the prospect of coal trains being loaded and running through the town of Muskegon an average of two trains a day, and conditions would be ripe for a major battle over construction permits both for expansion of the dock facilities and the new rail trackage.

6.4 Capital Cost

The estimated capital cost for the four loading options are provided in Figure 6-22 for Cobb rail options R1 and R2, and in Figure 6-23 for rail options R3 and R4. The capital cost for each option was based on the WorleyParsons estimates in the 2014 study plus the expected litigation cost that is likely to be incurred given the size of the project and the negative attention it will attract from local entities and national environmental groups opposed to new coal projects. {

[98] "Muskegon Area First Feasibility Study: Integration of Consumers Energy's DC Cobb Port Facility into a Community Port Infrastructure Enhancement Vision", RockfordBerge, 1090 36th Street SE Ste. 620, Grand Rapids, MI 49508.

}

ERC added interest during construction (IDC) to the capital cost to reflect that significant dollars would have to be spent prior to the commercial operation date. The IDC was calculated for three separate categories (engineering, permitting and construction) based on the capital costs time the average time the dollars would be spent prior to the commercial operation date times the pre-tax weighted average cost of capital { }

The high case capital cost was { } and the litigation cost in the high capital case was twice the base case cost.

6.5 Economic Analysis

The economic analysis of the costs of vessel delivery through the Cobb dock and a rail transload to the MSRR for shipment to the Campbell Plant is shown in Figure 6-24 for rail options R1 and R2, and in Figure 6-25 for rail options R3 and R4 to range from { } higher than the CSXT January 1, 2015 tariff rate of $14.95 per ton.

The assumptions in this analysis for the potential Cobb/rail options (Option R) costs include:

1. The Campbell plant will burn 5.5 million tons of PRB coal annually (see Section 3.1).
2. All the PRB coal is loaded into lake vessels at the MERC terminal, because KCBX cannot stockpile PRB coal in the winter, and cannot efficiently load ships after June 2016 when it will become a direct-load facility. It is not economic to add the $120 million enclosed storage barn to allow KCBX to load ships efficiently after June 2016[99].
3. The MERC lake vessel rate {

99 {

}

}

Figure 6-22. {

100 }

Figure 6-23. {

101 }

Figure 6-24. {

102 }

Figure 6-25. {

5.

[103] e-workpaper "ERC Report Tables.xlsx" (see Tab "Figure 6-24|25").}

6. { } It should be noted that this estimate was not based on an actual quote received from the MSRR. For the reasons discussed above, actual rates for the MSRR could be significantly higher, if that carrier would even agree to handle the traffic at all.
7. The carrying cost of the additional coal stockpiles due to the inability to ship during the winter is $2.13 per ton (see Section 3.6).
8. The increased cost { }
9. The capital cost to add rail loadout capability { } This is the minimum capital cost, and could be substantially higher when the appropriate risk premium is added to the WACC.
10. The capital cost for the new rail spur to connect the MSRR rail with the Campbell Plant track { } Again, this is the minimum capital cost and could be substantially higher when the appropriate risk premium is added to the WACC.

6.6 Cobb-MSRR Rail Conclusions

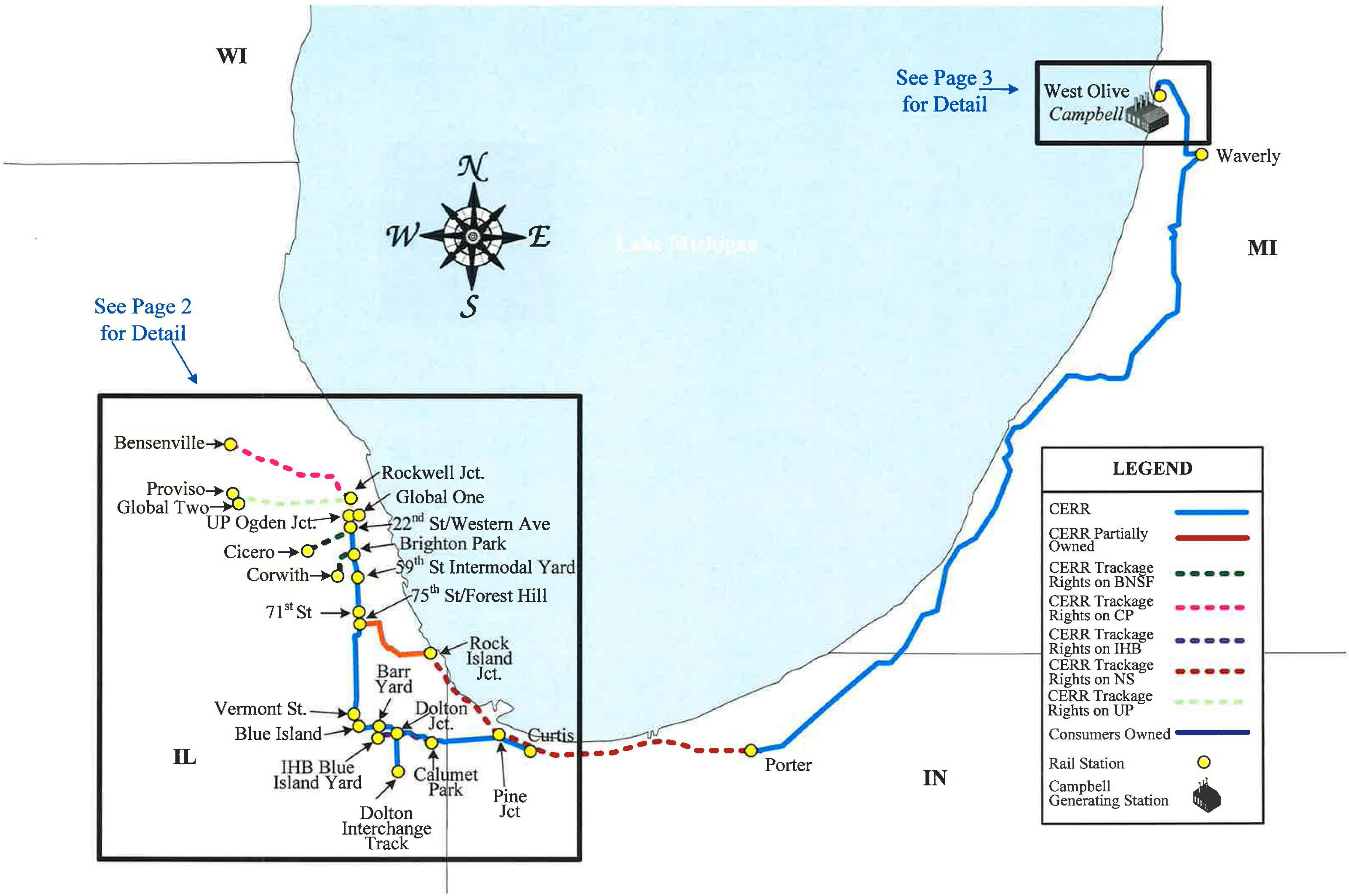
ERC's conclusions regarding the feasibility of unloading PRB coal at the Cobb plant and transporting it by rail via MSRR to the Campbell plant are:

1. This option is contingent on the MSRR having both the ability to and the willingness to offer competitive rates from Cobb to the Campbell plant. If MSRR is unable or unwilling to deliver PRB coal from Cobb to Campbell, Option R is not feasible regardless of cost.
2. Because MSRR's parent company, Genesee & Wyoming, has extensive business relationships with CSXT, it is quite possible that MSRR would be unable or unwilling to provide rail service to the Campbell plant.

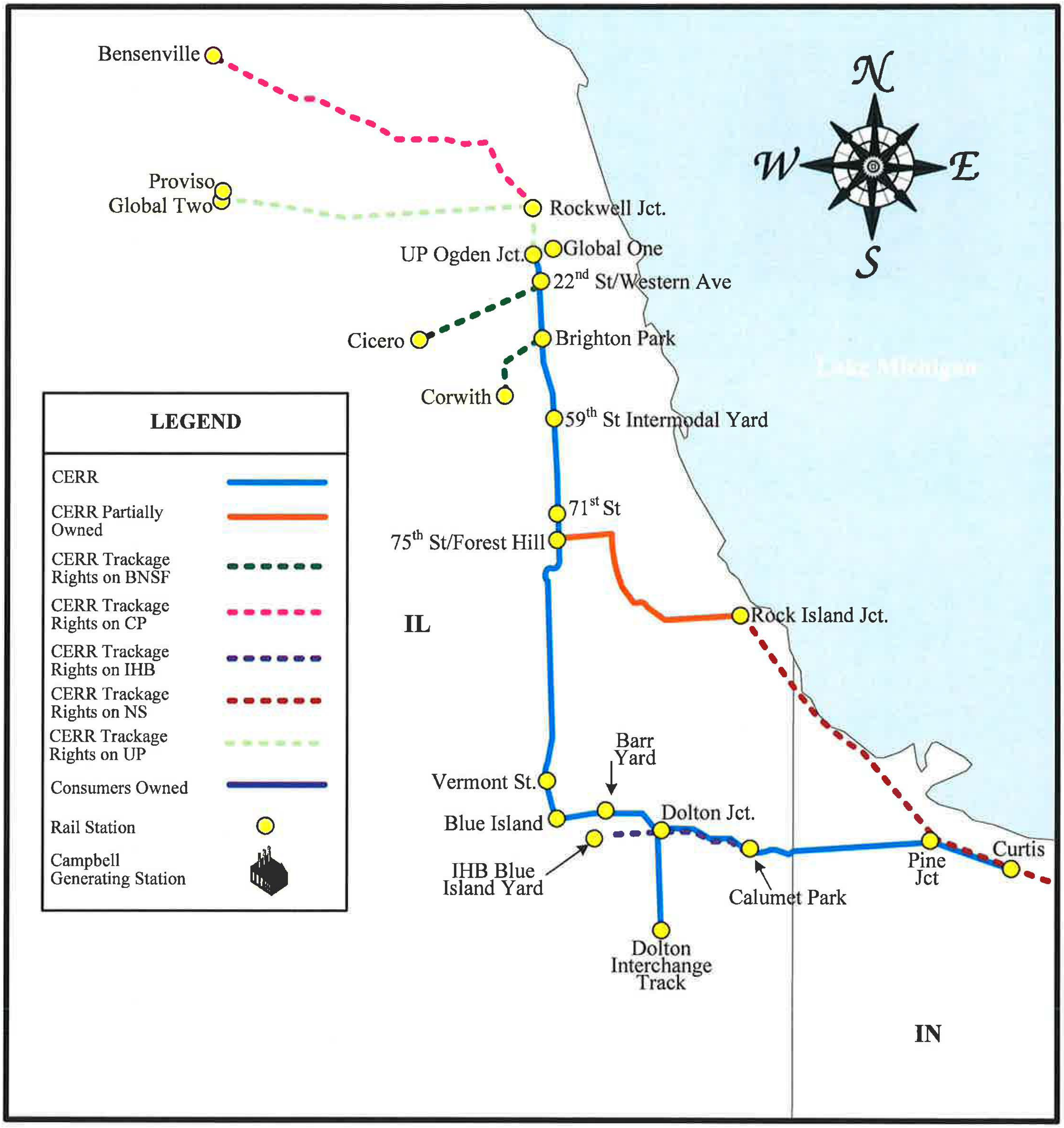
3. Local community and national environmental groups are likely to vigorously oppose the necessary permits for expansion of the Cobb facility and the construction of new rail trackage, which would increase the time to obtain the permits -- if not preclude them -- as well as increase the permitting and litigation costs.
4. The lowest estimated operating cost for transloading, lake vessel transportation, MSRR rail, and handling cost to deliver coal to the Campbell plant through the Cobb dock is { } which is not competitive with CSXT's January 1, 2015 tariff rate of $14.95 per ton. Because the equivalent operating cost of the water option is higher than CSXT's tariff rate, it would be imprudent for Consumers to commit the necessary capital for expansion of the Cobb dock and new rail construction.
5. With the addition of the minimum capital cost of { } higher than CSXT's 2015 tariff rate of $14.95 per ton.
6. The Cobb-MSRR rail option does not provide effective competition with the CSXT tariff rate because (1) it may face unavoidable obstacles to physical feasibility, and (2) it is not economic to build and operate.

Part III-A – Stand-Alone
Traffic Group

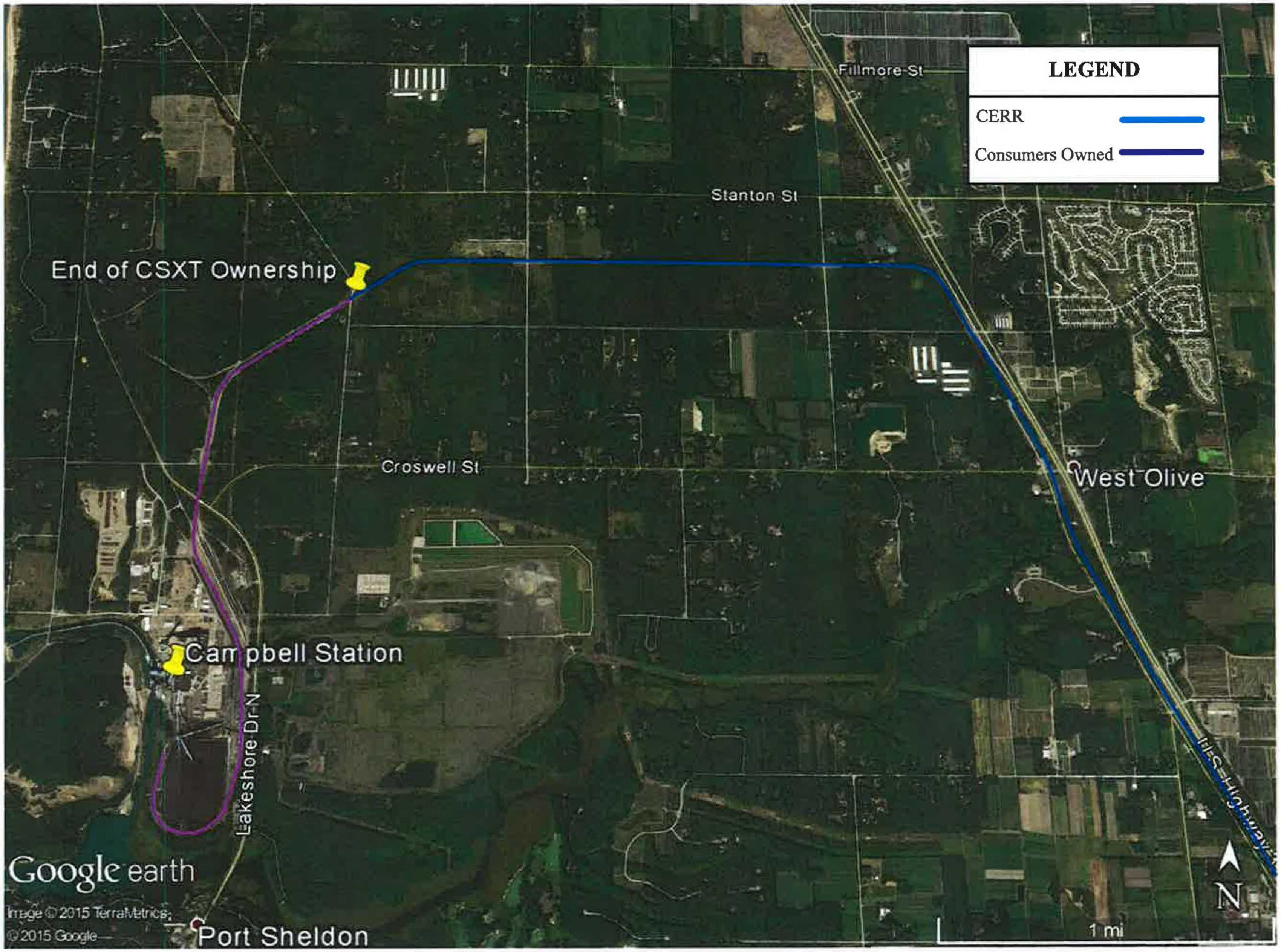
Consumers Energy Stand-Alone Railroad ("CERR")



Consumers Energy Stand-Alone Railroad ("CERR")



Consumers Energy Stand-Alone Railroad ("CERR")



SUMMARY OF CERR TRAFFIC VOLUMES AND REVENUES

		Ton_Miles				
	Year	Issue Coal Traffic 1/	Carload Traffic 2/	Container Traffic 3/	Total	
	(1)	(2)	(3)	(4)	(5)	
1.	2015	823,833,272	808,076,891	282,283,546	1,914,193,709	4/
2.	2016	690,912,620	718,762,108	302,285,355	1,711,960,084	
3.	2017	936,644,843	815,093,406	321,934,347	2,073,672,596	
4.	2018	879,532,353	815,993,659	339,017,989	2,034,544,000	
5.	2019	855,708,285	825,171,977	358,529,173	2,039,409,435	
6.	2020	924,569,631	837,199,702	381,979,824	2,143,749,157	
7.	2021	902,214,170	849,562,311	407,449,099	2,159,225,580	
8.	2022	940,071,592	862,480,669	435,146,737	2,237,698,998	
9.	2023	860,114,106	875,890,662	465,286,696	2,201,291,464	
10.	2024	941,540,199	889,803,593	498,104,170	2,329,447,963	
11.	Totals	8,755,141,071	8,298,034,979	3,792,016,936	20,845,192,986	

1/ "CERR Car Traffic Forecast.xlsx", sheet "CP_Forecast", cells AH32:AH41.

2/ "CERR Car Traffic Forecast.xlsx", sheet "CAR_Forecast", cells DR8420:DR8429 and sheet "CP_Forecast, cells AI32AI41.

3/ "CERR Container Traffic Forecast.xlsx", sheet "CONT_Forecast", cells DP40535:DP40544.

4/ The CERR traffic in 2015 is made up of 43.0% issue coal traffic (823,833,272 ÷ 1,914,193,709), 42.2% carload traffic (808,076,891 ÷ 1,914,193,709), and 14.8% container traffic (282,283,546 ÷ 1,914,193,709).

Exhibits III-A-3 and III-A-4
Redacted

SUMMARY OF 2015 CERR GENERL FREIGHT TRAFFIC VOLUMES - CARLOADS

	STCC (1)	COMMODITY (2)	2015 CARLOADS 1/ (3)	% TOTAL 2/ (4)
1.	13	Crude Petroleum, Natural Gas, or Gasoline	111,033.6	44.2%
2.	28	Chemicals or Allied Products	66,818.0	26.6%
3.	01	Farm Products	16,905.8	6.7%
4.	29	Petroleum or Coal Products	13,734.1	5.5%
5.	37	Transportation Equipment	10,597.0	4.2%
6.	10	Metallic Ores	10,016.3	4.0%
7.	20	Food or Kindred Products	7,731.9	3.1%
8.	14	Non-metallic Minerals	3,379.3	1.3%
9.	33	Primary Metal Products	2,820.1	1.1%
10.	26	Pulp, Paper, or Allied Products	2,414.9	1.0%
11.	24	Lumber or Wood Products, excluding Furniture	2,240.0	0.9%
12.	40	Waste or Scrap Materials	1,641.1	0.7%
13.	32	Clay, Concrete, Glass, or Stone Products	1,328.7	0.5%
14.	42	Containers, Carriers or Devices, Shipping, Retu	358.0	0.1%
15.	48	Waste Hazardous Materials or Waste Hazardou	73.7	0.0%
16.	35	Machinery, excluding Electrical	48.8	0.0%
17.	41	Miscellaneous Freight Shipments	30.1	0.0%
18.	22	Textile Mill Products	27.0	0.0%
19.	30	Rubber or Miscellaneous Plastics Products	13.5	0.0%
20.	49	Hazardous Materials	12.4	0.0%
21.	Other	All Other	19.7	0.0%
22.	Total		251,244.1	100.0%

1/ "CERR Car Traffic Forecast.xlsx", sheet "PIVOT".
2/ Column (3) ÷ Coluumn (3), Line 22.

SUMMARY OF CERR TRAFFIC VOLUMES AND REVENUES

		Issue Coal Traffic 1/		Carload Traffic 2/		Container Traffic 3/		Total	
	Year	Units	Revenue	Units	Revenue	Units	Revenue	Units	Revenue
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	2015	42,072	$75,551,563	306,896	$38,920,720	454,383	$24,947,820	803,350	$139,420,104
2.	2016	35,284	$64,883,688	281,288	$32,500,706	488,385	$26,917,344	804,958	$124,301,738
3.	2017	47,833	$90,107,861	314,384	$37,570,171	521,891	$30,019,931	884,108	$157,697,963
4.	2018	44,917	$87,223,053	315,185	$38,481,355	551,080	$33,032,448	911,182	$158,736,857
5.	2019	43,700	$87,630,122	319,431	$40,050,727	584,436	$36,335,048	947,566	$164,015,897
6.	2020	47,217	$97,258,920	324,532	$41,913,365	624,326	$40,481,325	996,075	$179,653,610
7.	2021	46,075	$97,665,254	329,796	$43,771,188	667,697	$44,837,352	1,043,568	$186,273,795
8.	2022	48,008	$104,890,623	335,278	$45,898,021	714,918	$50,093,216	1,098,204	$200,881,860
9.	2023	43,925	$98,830,474	340,932	$48,035,241	766,360	$55,780,501	1,151,217	$202,646,215
10.	2024	48,083	$111,318,815	346,775	$50,284,422	822,433	$62,153,893	1,217,291	$223,757,130
11.	Totals	447,115	$915,360,373	3,214,497	$417,425,917	6,195,908	$404,598,878	9,857,520	$1,737,385,169

1/ "CERR Car Traffic Forecast.xlsx", sheet "CP_Forecast", cells S32:T41.

2/ "CERR Car Traffic Forecast.xlsx", sheet "CAR_Forecast", cells AL8426:AL8435 (units), DD8420:DD8429 (Revenue) and sheet "CP_Forecast, cells V32:Z41.

3/ "CERR Container Traffic Forecast.xlsx", sheet "CONT_Forecast", cells AN40545:AN40553 (Units), DC40535:DC40544 (Revenue).

Fuel Price, Fuel Cost and RCAF Forecasts

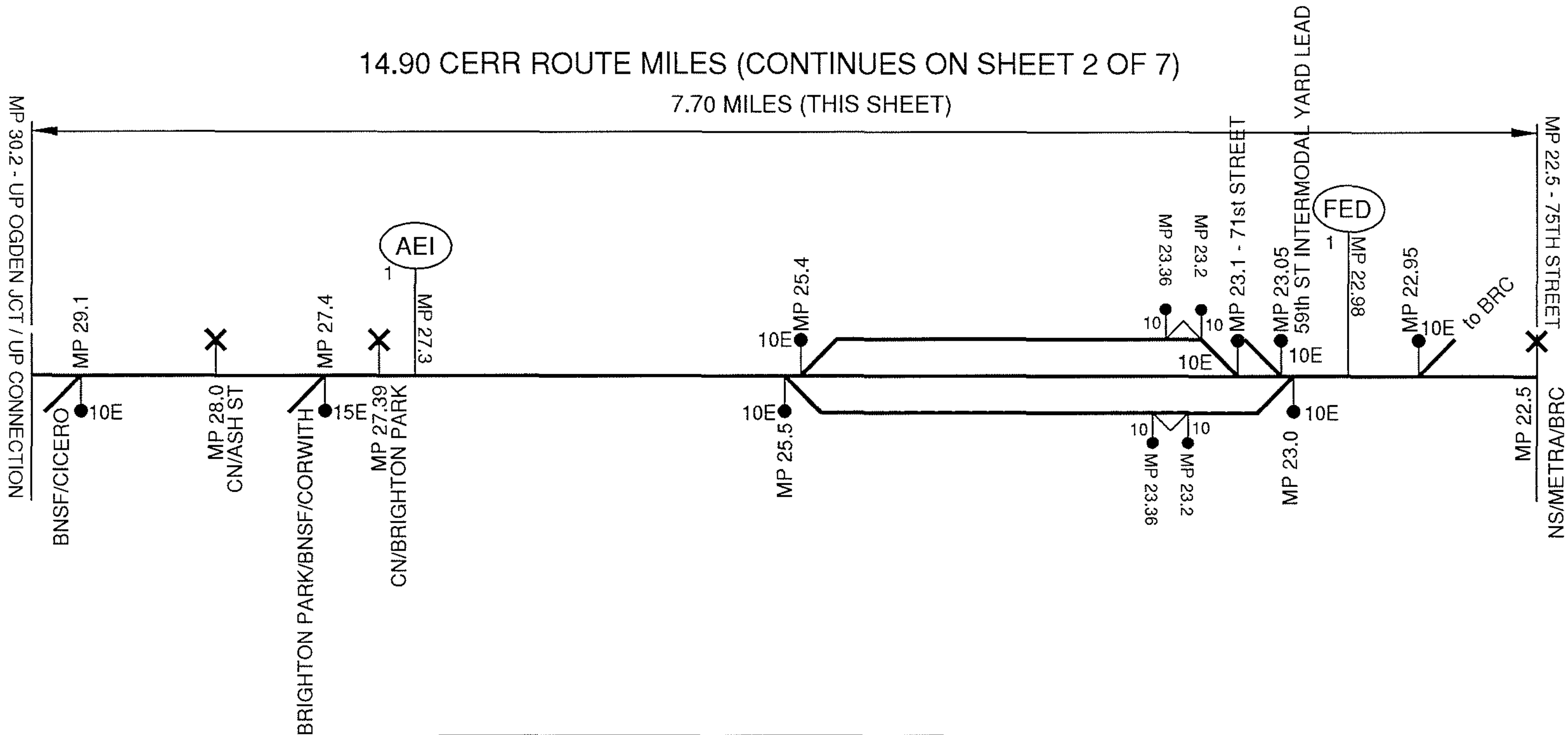
	Quarter	Hybrid RCAF 1/	IHS Global Insight Fuel Cost Forecast 2/	EIA HDF Fuel Forecast 3/
	(1)	(2)	(3)	(4)
1.	1Q 2015	100.00	100.00	100.00
2.	2Q 2015	93.01	107.77	97.58
3.	3Q 2015	87.62	119.52	90.17
4.	4Q 2015	91.10	102.38	85.96
5.	1Q 2016	90.37	90.04	90.35
6.	2Q 2016	91.41	95.48	94.86
7.	3Q 2016	93.32	104.03	96.63
8.	4Q 2016	94.98	114.42	97.40
9.	1Q 2017	95.65	115.10	98.22
10.	2Q 2017	96.46	117.34	99.05
11.	3Q 2017	97.83	123.99	99.88
12.	4Q 2017	99.67	133.66	100.72
13.	1Q 2018	100.86	135.95	101.29
14.	2Q 2018	102.04	138.28	101.87
15.	3Q 2018	103.24	140.65	102.45
16.	4Q 2018	104.45	143.06	103.03
17.	1Q 2019	105.58	147.18	103.87
18.	2Q 2019	106.70	151.42	104.71
19.	3Q 2019	107.83	155.79	105.56
20.	4Q 2019	108.98	160.27	106.42
21.	1Q 2020	109.36	156.04	107.28
22.	2Q 2020	109.73	151.93	108.15
23.	3Q 2020	110.09	147.92	109.02
24.	4Q 2020	110.46	144.01	109.90
25.	1Q 2021	111.17	148.45	110.85
26.	2Q 2021	111.85	153.03	111.81
27.	3Q 2021	112.55	157.75	112.78
28.	4Q 2021	113.25	162.62	113.75
29.	1Q 2022	114.31	166.20	114.93
30.	2Q 2022	115.35	169.87	116.11
31.	3Q 2022	116.41	173.61	117.30
32.	4Q 2022	117.48	177.44	118.51
33.	1Q 2023	118.69	183.21	119.53
34.	2Q 2023	119.88	189.16	120.55
35.	3Q 2023	121.09	195.30	121.59
36.	4Q 2023	122.31	201.64	122.63
37.	1Q 2024	123.39	204.73	123.68
38.	2Q 2024	124.45	207.86	124.74
39.	3Q 2024	125.53	211.04	125.80
40.	4Q 2024	126.61	214.26	126.88

1/ Hybrid RCAF based on actual values through 4Q 2015 and IHS October 2015 RCAF-U and RCAF-A Forecast thereafter.

2/ Actual AAR fuel cost index through 2Q 2015, and IHs October 2015 Fuel cost forecast thereafter.

3/ Actual HDF fuel prices through 2Q 2015 as reported to the EIA. EIA Short-Term Energy Outlook for 3Q 2015 through 4Q 2016. EIA 2015 Annual Energy Outlook thereafter.

Part III-B – Stand-Alone Railroad System



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	8
DERAILS	4
WHEEL STOPS	0
MP SIGN 1	0
MP SIGN 2	8
MP SIGN 3	0

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	4
#10E TURNOUTS	7
#15E TURNOUTS	1
FED	1
AEI	1
CROSSOVER	0
DIAMOND	3

SUBDIVISION: **BLUE ISLAND**

FROM: **UP OGDEN JCT** MP: **30.2**

TO: **75TH STREET** MP: **22.5**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

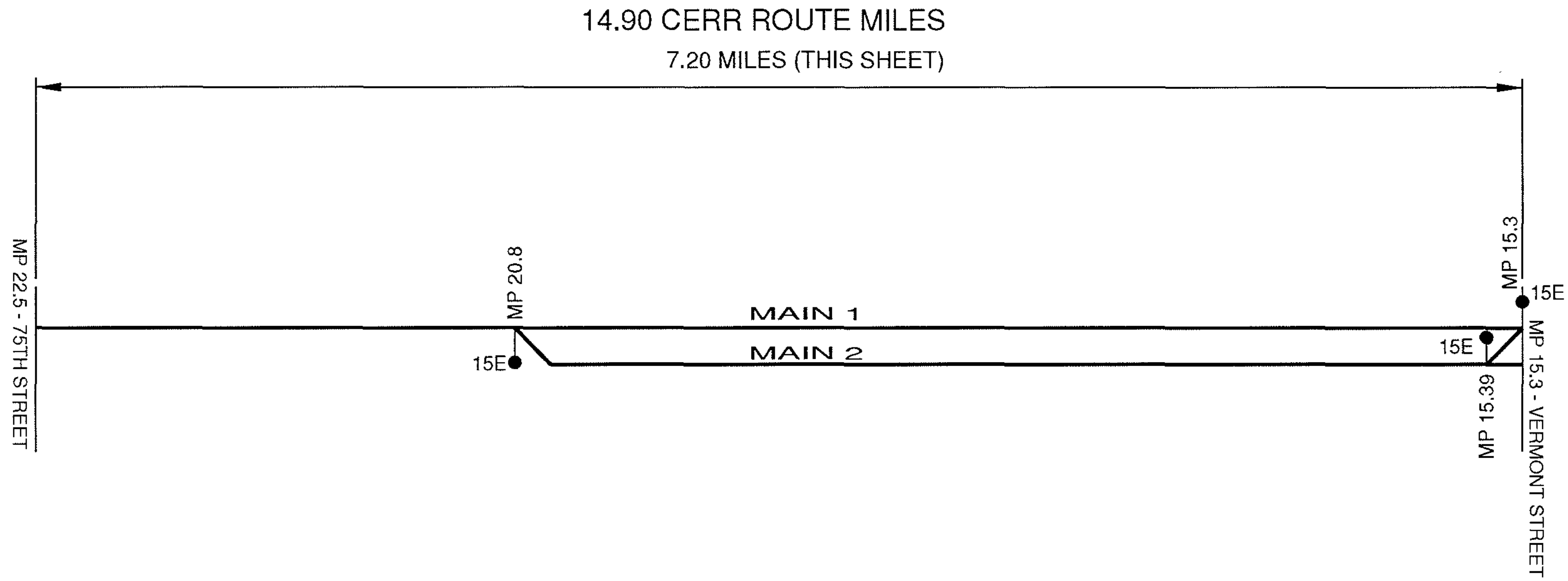
AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

X = DIAMOND CROSSING

20= TURNOUT TYPE*

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	0
DERAILS	0
WHEEL STOPS	0
MP SIGN 1	0
MP SIGN 2	8
MP SIGN 3	0

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	0
#10E TURNOUTS	0
#15E TURNOUTS	1
FED	0
AEI	0
CROSSOVER	1
DIAMOND	0

SUBDIVISION: **BLUE ISLAND**

DATE: **10/26/15**

FROM: **75TH STREET** MP: **22.5**

TO: **VERMONT STREET** MP: **15.3**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

X = DIAMOND CROSSING

20 = TURNOUT TYPE*

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

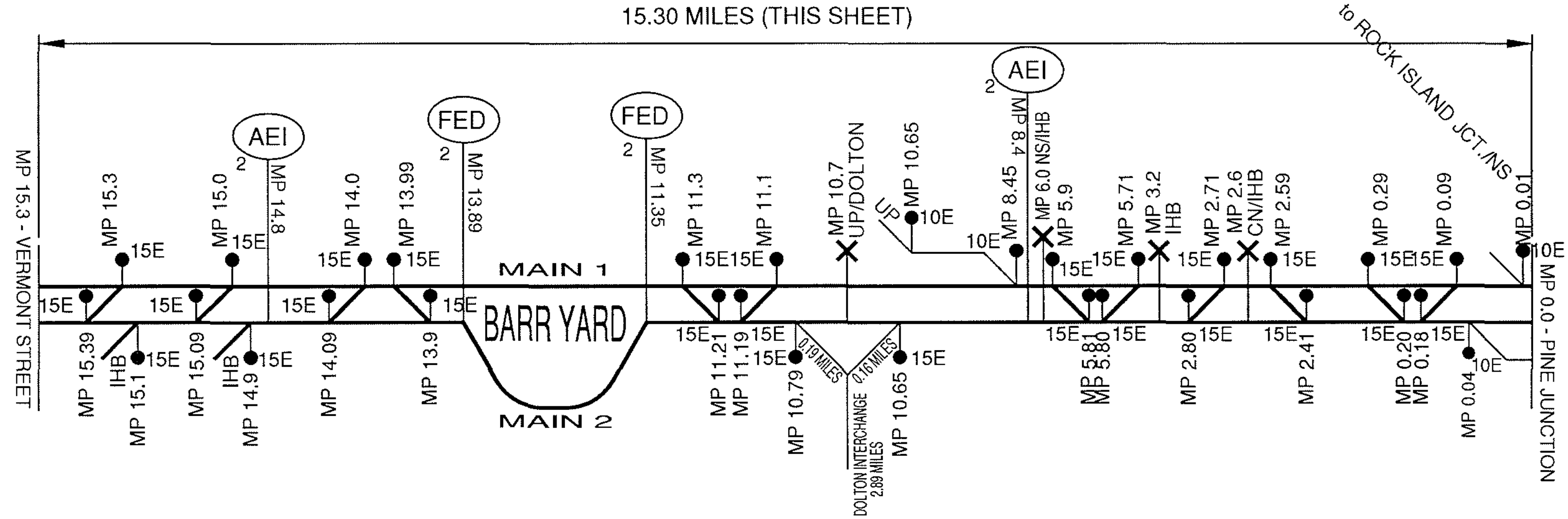
AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

17.80 CERR ROUTE MILES (CONTINUES ON SHEET 4 OF 7)

15.30 MILES (THIS SHEET)



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	8
DERAILS	0
WHEEL STOPS	0
MP SIGN 1	10
MP SIGN 2	6
MP SIGN 3	0

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	0
#10E TURNOUTS	4
#15E TURNOUTS	4
FED	4
AEI	4
CROSSOVER	12
DIAMOND	4

SUBDIVISION: **BARR**

FROM: **VERMONT STREET** MP: **15.3**

TO: **PINE JUNCTION** MP: **0.00**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

X = DIAMOND CROSSING

20 = TURNOUT TYPE*

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

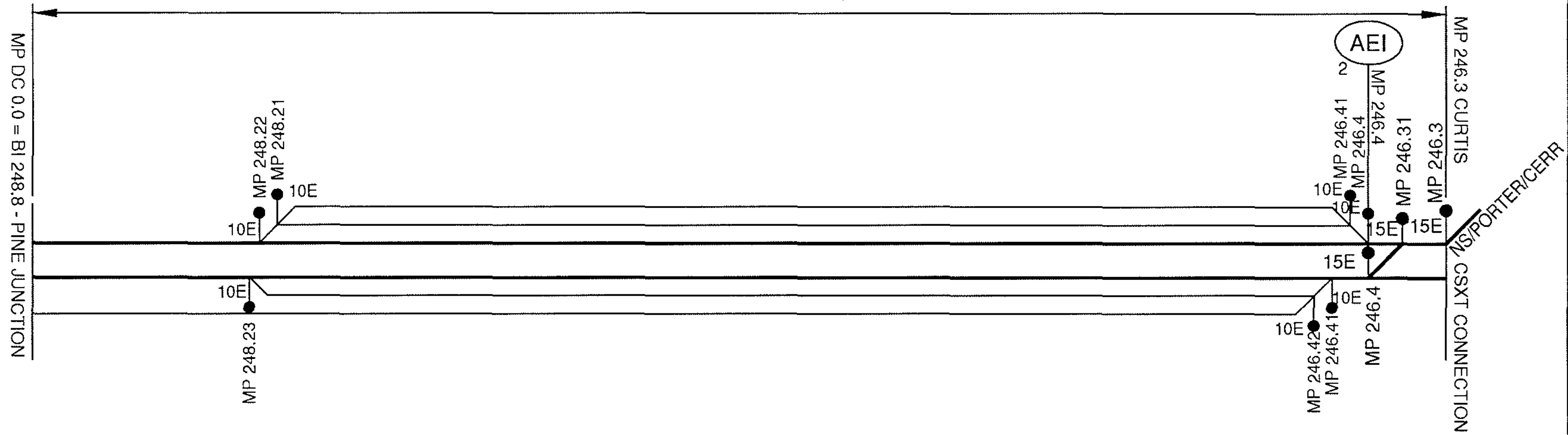
AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

17.80 CERR ROUTE MILES

2.50 MILES (THIS SHEET)



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	8
DERAILS	0
WHEEL STOPS	0
MP SIGN 1	0
MP SIGN 2	0
MP SIGN 3	2

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	0
#10E TURNOUTS	7
#15E TURNOUTS	1
FED	0
AEI	2
CROSSOVER	1
DIAMOND	0

SUBDIVISION: **BARR**

FROM: **PINE JUNCTION** MP: **248.8**

TO: **CURTIS/NS & CSXT CONNECTION** MP: **246.3**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

= DIAMOND CROSSING

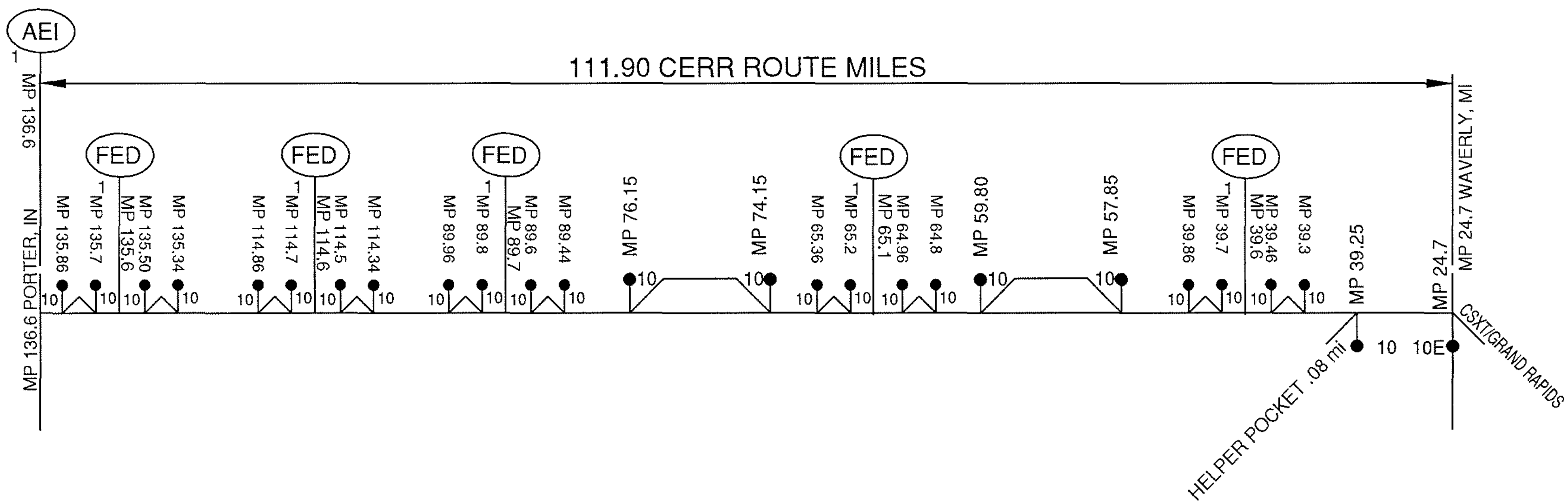
20 = TURNOUT TYPE*

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	0
DERAILS	21
WHEEL STOPS	1
MP SIGN 1	0
MP SIGN 2	75
MP SIGN 3	36

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	25
#10E TURNOUTS	1
#15E TURNOUTS	0
FED	5
AEI	1
CROSSOVER	0
DIAMOND	0

SUBDIVISION: **GRAND RAPIDS**

FROM: **PORTER** MP: **136.6**

TO: **WAVERLY, MI** MP: **24.7**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

= DIAMOND CROSSING

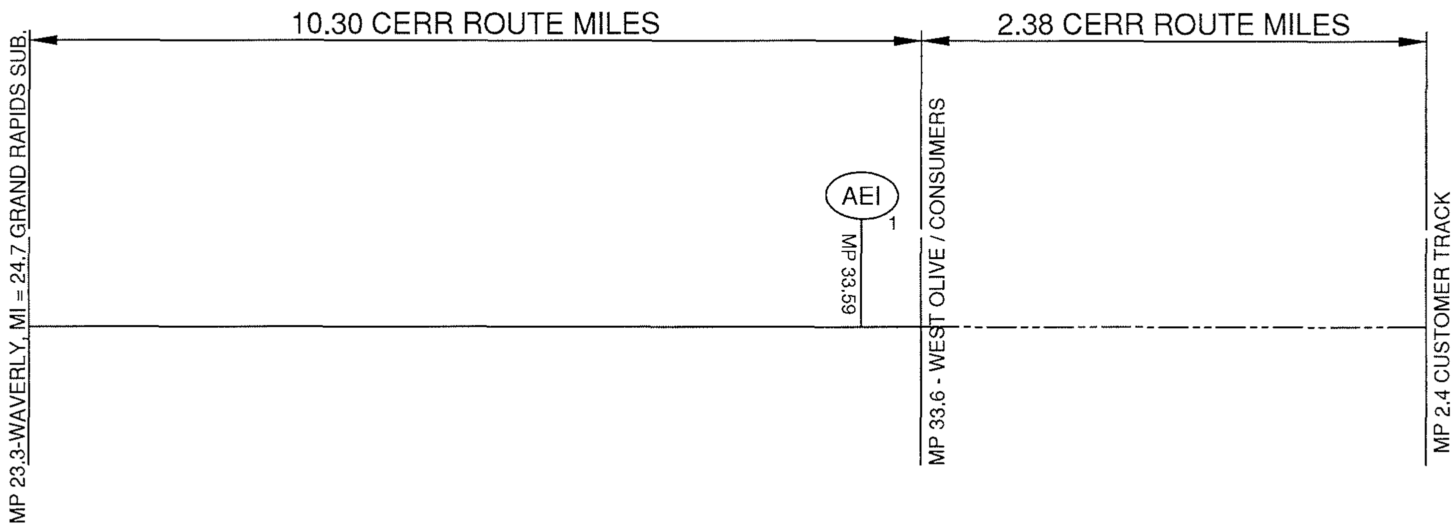
20 = TURNOUT TYPE*

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	0
DERAILS	0
WHEEL STOPS	0
MP SIGN 1	3
MP SIGN 2	10
MP SIGN 3	0

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	0
#10E TURNOUTS	0
#15E TURNOUTS	0
FED	0
AEI	1
CROSSOVER	0
DIAMOND	0

PAGE 6 OF 7

SUBDIVISION: **FREMONT**

FROM: **WAVERLY, MI** MP: **23.3**

TO: **WEST OLIVE / CONSUMERS** MP: **33.6**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

FED 1 — FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

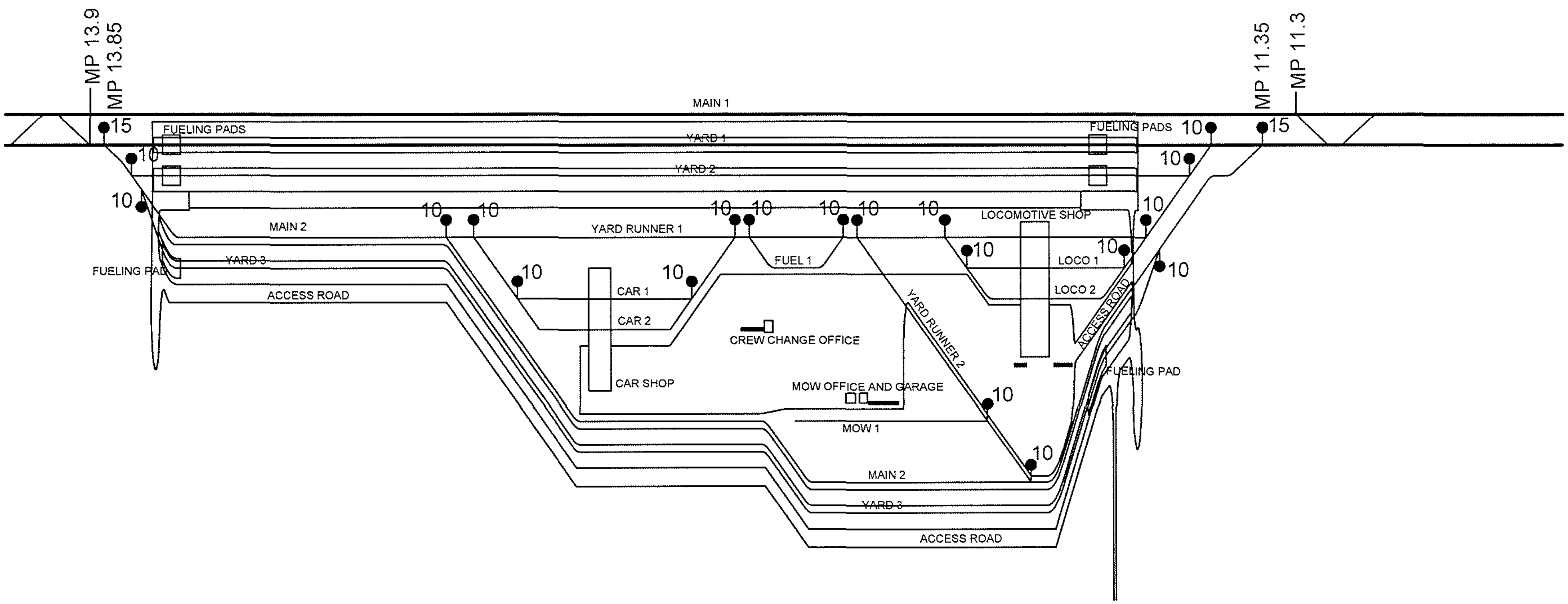
AEI 1 — AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

= DIAMOND CROSSING

20 = TURNOUT TYPE*

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**



WELDS, DERAILS, WHEELSTOPS AND MP SIGNS PER SUBDIVISION	
DESCRIPTION	**COUNT**
COMP. WELDS	4
DERAILS	2
WHEEL STOPS	1
MP SIGN 1	0
MP SIGN 2	0
MP SIGN 3	0

TURNOUTS, FED & AEI COUNTS PER SUBDIVISION	
DESCRIPTION	**COUNT**
#10H TURNOUTS	19
#10E TURNOUTS	0
#15E TURNOUTS	2
FED	0
AEI	0
CROSSOVER	0
DIAMOND	0

SUBDIVISION: **BARR YARD**

FROM: MP: **13.9**

TO: MP: **11.3**

DATE: **10/26/15**

NOT TO SCALE

LEGEND:

- 136# STANDARD CWR
- 115# CWR

= DIAMOND CROSSING

20 = TURNOUT TYPE*

FED 1 FAILED EQUIPMENT DETECTOR WITH NUMBER OF TRACKS COVERED
HB = HOT BEARING DETECTOR
DE OR DED= DRAGGING EQUIPMENT DETECTOR
HW= HOT WHEEL DETECTOR

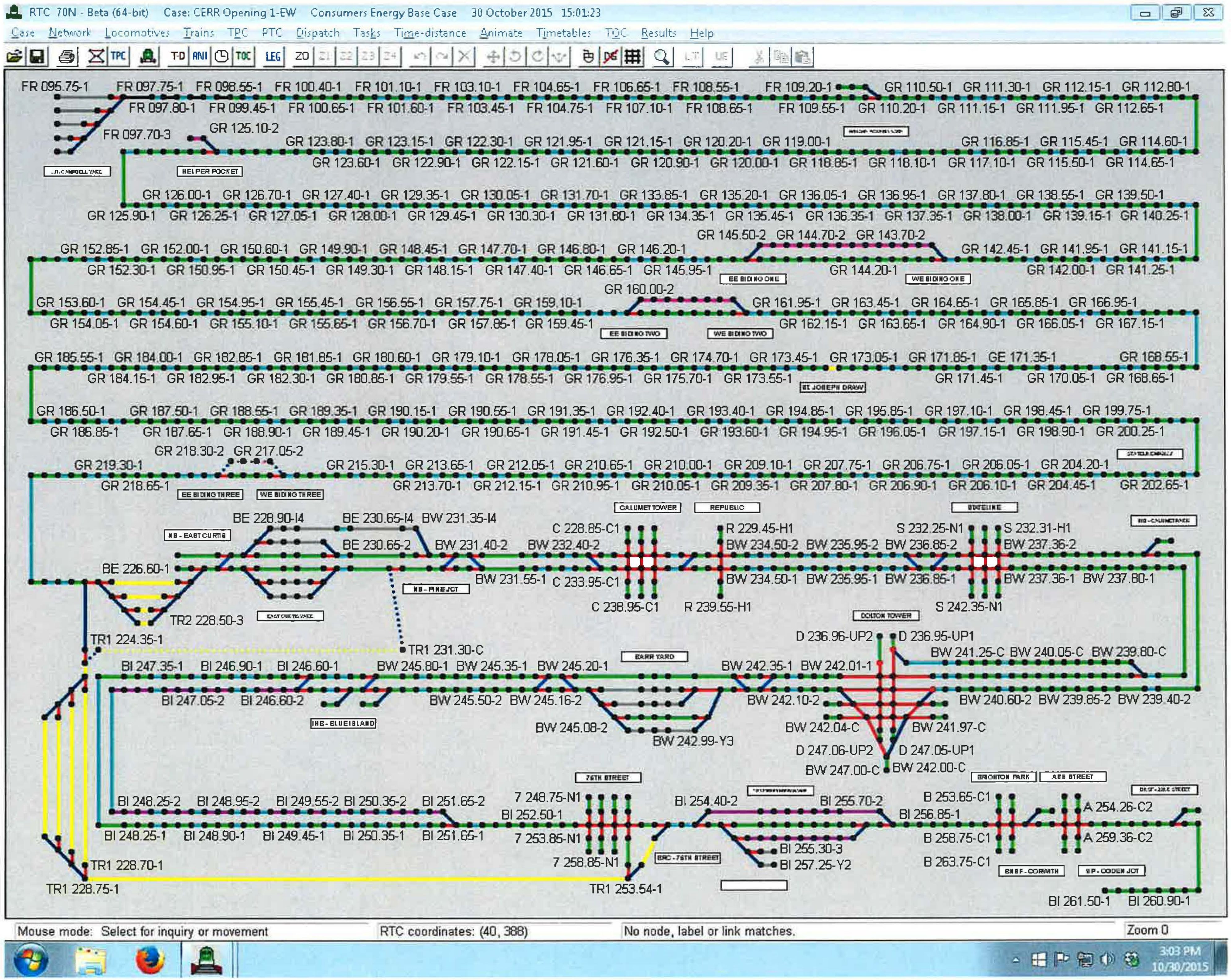
AEI 1 AUTOMATIC EQUIPMENT IDENTIFICATION SCANNER WITH NUMBER OF TRACKS COVERED

* TURNOUT TYPES
20 - #20 ELECTRIC
15E- #15 ELECTRIC
15- #15 HAND-THROWN
10S- #10 SPRING
10- #10 HAND-THROWN
10E- #10 ELECTRIC

EXHIBIT: **III-B-1**

Part III-C – Operating Plan

Exhibit III-C-1


RTC 70N - Beta (64-bit) Case: CERR Opening 1-EW Consumers Energy Base Case 30 October 2015 15:01:23
Case Network Locomotives Trains TPC PTC Dispatch Tasks Time-distance Animate Timetables TOC Results Help
FR 095.75-1 FR 097.75-1 FR 098.55-1 FR 100.40-1 FR 101.10-1 FR 103.10-1 FR 104.65-1 FR 106.65-1 FR 108.55-1 FR 109.20-1 GR 110.50-1 GR 111.30-1 GR 112.15-1 GR 112.80-1
FR 097.80-1 FR 099.45-1 FR 100.65-1 FR 101.60-1 FR 103.45-1 FR 104.75-1 FR 107.10-1 FR 108.65-1 FR 109.55-1 GR 110.20-1 GR 111.15-1 GR 111.95-1 GR 112.65-1
FR 097.70-3 GR 125.10-2
GR 123.80-1 GR 123.15-1 GR 122.30-1 GR 121.95-1 GR 121.15-1 GR 120.20-1 GR 119.00-1 GR 116.85-1 GR 115.45-1 GR 114.60-1
HELPER POCKET
GR 123.60-1 GR 122.90-1 GR 122.15-1 GR 121.60-1 GR 120.90-1 GR 120.00-1 GR 118.85-1 GR 118.10-1 GR 117.10-1 GR 115.50-1 GR 114.65-1
GR 126.00-1 GR 126.70-1 GR 127.40-1 GR 129.35-1 GR 130.05-1 GR 131.70-1 GR 133.85-1 GR 135.20-1 GR 136.05-1 GR 136.95-1 GR 137.80-1 GR 138.55-1 GR 139.50-1
GR 125.90-1 GR 126.25-1 GR 127.05-1 GR 128.00-1 GR 129.45-1 GR 130.30-1 GR 131.80-1 GR 134.35-1 GR 135.45-1 GR 136.35-1 GR 137.35-1 GR 138.00-1 GR 139.15-1 GR 140.25-1
GR 145.50-2 GR 144.70-2 GR 143.70-2
GR 152.85-1 GR 152.00-1 GR 150.60-1 GR 149.90-1 GR 148.45-1 GR 147.70-1 GR 146.80-1 GR 146.20-1 GR 142.45-1 GR 141.95-1 GR 141.15-1
GR 152.30-1 GR 150.95-1 GR 150.45-1 GR 149.30-1 GR 148.15-1 GR 147.40-1 GR 146.65-1 GR 145.95-1 GR 144.20-1 GR 142.00-1 GR 141.25-1
EE SIDING ONE
WE SIDING ONE
GR 160.00-2
GR 153.60-1 GR 154.45-1 GR 154.95-1 GR 155.45-1 GR 156.55-1 GR 157.75-1 GR 159.10-1 GR 161.95-1 GR 163.45-1 GR 164.65-1 GR 165.85-1 GR 166.95-1
GR 154.05-1 GR 154.60-1 GR 155.10-1 GR 155.65-1 GR 156.70-1 GR 157.85-1 GR 159.45-1 GR 162.15-1 GR 163.65-1 GR 164.90-1 GR 166.05-1 GR 167.15-1
EE SIDING TWO
WE SIDING TWO
GR 185.55-1 GR 184.00-1 GR 182.85-1 GR 181.85-1 GR 180.60-1 GR 179.10-1 GR 178.05-1 GR 176.35-1 GR 174.70-1 GR 173.45-1 GR 173.05-1 GR 171.85-1 GE 171.35-1 GR 168.55-1
GR 184.15-1 GR 182.95-1 GR 182.30-1 GR 180.85-1 GR 179.55-1 GR 178.55-1 GR 176.95-1 GR 175.70-1 GR 173.55-1 GR 171.45-1 GR 170.05-1 GR 168.65-1
ST JOSEPH DRAW
GR 186.50-1 GR 187.50-1 GR 188.55-1 GR 189.35-1 GR 190.15-1 GR 190.55-1 GR 191.35-1 GR 192.40-1 GR 193.40-1 GR 194.85-1 GR 195.85-1 GR 197.10-1 GR 198.45-1 GR 199.75-1
GR 186.85-1 GR 187.65-1 GR 188.90-1 GR 189.45-1 GR 190.20-1 GR 190.65-1 GR 191.45-1 GR 192.50-1 GR 193.60-1 GR 194.95-1 GR 196.05-1 GR 197.15-1 GR 198.90-1 GR 200.25-1
GR 218.30-2 GR 217.05-2
GR 219.30-1 GR 215.30-1 GR 213.65-1 GR 212.05-1 GR 210.65-1 GR 210.00-1 GR 209.10-1 GR 207.75-1 GR 206.75-1 GR 206.05-1 GR 204.20-1
GR 218.65-1 GR 213.70-1 GR 212.15-1 GR 210.95-1 GR 210.05-1 GR 209.35-1 GR 207.80-1 GR 206.90-1 GR 206.10-1 GR 204.45-1 GR 202.65-1
EE SIDING THREE
WE SIDING THREE
CALUMET TOWER
REPUBLIC
BE 228.90-I4 BE 230.65-I4 BW 231.35-I4
C 228.85-C1 R 229.45-H1 S 232.25-N1 S 232.31-H1
BE 230.65-2 BW 231.40-2 BW 232.40-2 BW 234.50-2 BW 235.95-2 BW 236.85-2 BW 237.36-2
BE 226.60-1
BW 231.55-1 C 233.95-C1 BW 234.50-1 BW 235.95-1 BW 236.85-1 BW 237.36-1 BW 237.80-1
C 238.95-C1 R 239.55-H1 S 242.35-N1
TR2 228.50-3
DOLTON TOWER
D 236.96-UP2 D 236.95-UP1
TR1 224.35-1
TR1 231.30-C
BW 241.25-C BW 240.05-C BW 239.80-C
BARR YARD
BI 247.35-1 BI 246.90-1 BI 246.60-1 BW 245.80-1 BW 245.35-1 BW 245.20-1 BW 242.35-1 BW 242.01-1
BI 247.05-2 BI 246.60-2 BW 245.50-2 BW 245.16-2 BW 242.10-2 BW 240.60-2 BW 239.85-2 BW 239.40-2
BW 245.08-2 BW 242.04-C BW 241.97-C
BW 242.99-Y3
D 247.06-UP2 D 247.05-UP1
BW 247.00-C BW 242.00-C
75TH STREET
BRIGHTON PARK
ASH STREET
BI 248.25-2 BI 248.95-2 BI 249.55-2 BI 250.35-2 BI 251.65-2 7 248.75-N1 BI 254.40-2 BI 255.70-2 B 253.65-C1
BI 252.50-1 BI 256.85-1 A 254.26-C2
BI 248.25-1 BI 248.90-1 BI 249.45-1 BI 250.35-1 BI 251.65-1 7 253.85-N1 B 258.75-C1 A 259.36-C2
BI 255.30-3
7 258.85-N1 BI 257.25-Y2 B 263.75-C1
TR1 228.70-1
TR1 228.75-1 TR1 253.54-1
BI 261.50-1 BI 260.90-1
Mouse mode: Select for inquiry or movement
RTC coordinates: (40, 388)
No node, label or link matches.
Zoom 0
3:03 PM
10/30/2015

Part III-H – Results
of SAC Analysis

TABLE A: CERR ANNUAL COST OF CAPITAL

Year (1)	Industry Cost of Capital (2)	Industry Cost of Debt 1/ (3)	Industry Cost of Preferred Equity 2/ (4)	Industry Cost of Equity 3/ (5)	CERR's Cost of Debt (6)	CERR's Cost of Preferred Equity (7)	CERR's Cost of Equity (8)	Debt as a Percent of Total Investment (9)	Preferred Equity as a Percent of Total Investment (10)	Equity as a Percent of Total Investment (11)	Composite Cost of Capital (12)	1 + Cost of Capital (13)	STB Prescribed Debt as a % of Capital 4/ (14)	STB Preferred Equity as a % of Capital 4/ (15)
2012	11.12%	3.29%	0.00%	13.40%	3.29%	0.00%	13.40%	22.56%	0.000%	77.44%	11.12%	1.1112	22.560%	0.000%
2013	13.80%	17.69%	3.87%	12.96%	17.69%	3.87%	12.96%	17.69%	0.004%	82.31%	13.80%	1.1380	17.690%	0.004%
2014	10.65%	3.58%	3.69%	12.06%	3.58%	3.69%	12.06%	16.66%	0.004%	83.34%	10.65%	1.1065	16.660%	0.004%
2015					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2016					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2017					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2018					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2019					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2020					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2021					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2022					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2023					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		
2024					10.64%	3.36%	12.81%	17.86%	0.004%	82.14%	12.42%	1.1242		

1/ Cost of railroad industry debt from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013,* decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.

2/ Cost of preferred equity from the STB Decisions Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013,* decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015. There was no railroad preferred equity issued in

3/ Cost of railroad common equity from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013,* decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.

4/ Railroad average capital structure from the STB Decisions in Ex Parte No. 558 (Sub-No. 16), *Railroad Cost of Capital - 2012*, decided August 30, 2013, Ex Parte No. 558 (Sub-No. 17), *Railroad Cost of Capital - 2013,* decided July 31, 2014 and Ex Parte No. 558 (Sub-No. 18), *Railroad Cost of Capital - 2014*, decided August 7, 2015.

TABLE B: CERR INFLATION INDEXES

Period	Land 1/	Hybrid RCAF 2/	MWS Excluding Fuel 3/	Materials & Supplies 4/	Wages & Supplements 5/
(1)	(2)	(3)	(4)	(5)	(6)
3Q 2012	100.0		477.5	346.6	503.3
4Q 2012	103.2		475.6	340.7	502.4
1Q 2013	105.6		477.1	339.0	504.6
2Q 2013	109.1		471.1	334.0	498.4
3Q 2013	113.4		478.0	340.8	505.2
4Q 2013	118.7		477.6	332.4	506.8
1Q 2014	121.9		483.7	337.7	513.0
2Q 2014	125.5		489.7	348.8	517.7
3Q 2014	129.1		494.1	349.1	523.0
4Q 2014	132.7		496.9	358.9	524.2
1Q 2015	137.0	100.0	506.7	338.8	541.1
2Q 2015	141.4	93.0	509.4	336.6	544.9
3Q 2015	142.8	87.6	507.6	332.7	543.5
4Q 2015	144.3	91.1	508.7	340.4	542.4
1Q 2016	145.9	90.4	518.2	341.0	554.3
2Q 2016	147.5	91.4	520.5	344.8	556.0
3Q 2016	149.2	93.3	527.3	347.9	563.8
4Q 2016	150.9	95.0	529.0	346.1	566.6
1Q 2017	152.5	95.7	533.0	349.6	570.6
2Q 2017	154.2	96.5	537.8	355.9	574.6
3Q 2017	156.0	97.8	542.1	360.5	578.6
4Q 2017	157.7	99.7	545.6	362.0	582.6
1Q 2018	159.5	100.9	550.6	365.3	588.0
2Q 2018	161.3	102.0	555.6	368.6	593.3
3Q 2018	163.1	103.2	560.7	372.0	598.7
4Q 2018	164.9	104.5	565.8	375.4	604.2
1Q 2019	166.7	105.6	571.1	378.5	610.0
2Q 2019	168.6	106.7	576.5	381.7	615.9
3Q 2019	170.5	107.8	581.9	384.9	621.8
4Q 2019	172.4	109.0	587.4	388.1	627.8
1Q 2020	174.3	109.4	591.9	389.8	633.0
2Q 2020	176.3	109.7	596.4	391.4	638.3
3Q 2020	178.2	110.1	601.0	393.1	643.7
4Q 2020	180.2	110.5	605.6	394.7	649.1
1Q 2021	182.3	111.2	610.9	397.6	655.0
2Q 2021	184.3	111.9	616.3	400.4	661.0
3Q 2021	186.4	112.5	621.7	403.3	667.0
4Q 2021	188.5	113.2	627.2	406.2	673.1
1Q 2022	190.6	114.3	632.8	410.0	679.1
2Q 2022	192.7	115.4	638.5	413.8	685.1
3Q 2022	194.9	116.4	644.2	417.7	691.2
4Q 2022	197.1	117.5	650.0	421.6	697.4
1Q 2023	199.3	118.7	655.7	425.2	703.6
2Q 2023	201.5	119.9	661.5	428.9	709.8
3Q 2023	203.8	121.1	667.4	432.6	716.1
4Q 2023	206.1	122.3	673.3	436.4	722.5
1Q 2024	208.4	123.4	679.1	439.5	728.9
2Q 2024	210.8	124.5	684.9	442.6	735.4
3Q 2024	213.1	125.5	690.8	445.8	741.9
4Q 2024	215.5	126.6	696.7	449.0	748.5
Annual Inflation Rate 6/	4.97%		3.44%	2.27%	3.63%

1/ Used to index Road Property Account 2. Based on historic change in rural land prices as reported by the USDA and urban land prices as reported by the S&P Dow Jones and Moody's/RCA.

2/ Used to index expenses in Table K. Based on the RCAF-U and RCAF-A through 3Q2015 then IHS Economics forecast for remaining periods.

3/ Used to index Road Property Accounts 3, 5, 6, 13, 17, 19, 20, 26, 27, 37, and 39. Based on RCR indices - East Region through 3Q2015 then IHS Economics forecast.

4/ Used to index Road Property Accounts 8, 9, and 11. Based on RCR indexes - East Region through 3Q2015 then IHS Economics forecast for remaining periods.

5/ Used to index Road Property Accounts 1 and 12. Based on RCR indexes - East Region through 3Q2015 then IHS Economics forecast for remaining periods.

6/ 4Q 2014 ÷ 4Q 2024^(1/10)-"1. The Annual Rate is used to develop asset replacement values at the end of asset lives.

TABLE C: CERR PROPERTY INVESTMENT VALUES

Construction of the CERR occurs between July 1, 2012 and January 1, 2015.
Investments are assumed to be in January 1, 2015 dollars.

Property Account	Property Component	Service Life In Years 1/	Investment In 3Q2012 Dollars 2/	Investment In 3Q2013 Dollars 3/	Investment In 3Q2014 Dollars 4/	2012 Investment Value 5/	2013 Investment Value 6/	2014 Investment Value 7/	Total Property Investment 1Q 2015 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Engineering	NA	$34,872,496	$35,004,143	$36,237,464	$20,923,498	$14,001,657	$0	$34,925,155
2	Land	NA	$87,723,575	$99,469,310	$113,290,357	$37,595,818	$56,839,606	$0	$94,435,424
3	Grading	69	$37,495,341	$37,534,603	$38,798,844	$0	$37,534,603	$0	$37,534,603
5	Tunnels	76	$0	$0	$0	$0	$0	$0	$0
6	Bridges & Culverts	61	$69,054,536	$69,126,844	$71,455,175	$0	$48,388,791	$21,436,553	$69,825,344
8	Ties	20	$61,421,212	$60,393,391	$61,864,239	$0	$25,882,882	$35,350,994	$61,233,875
9	Rails and OTM	34	$81,118,702	$79,761,263	$81,703,805	$0	$34,183,398	$46,687,889	$80,871,287
11	Ballast	36	$25,589,423	$25,161,210	$25,773,998	$0	$10,783,376	$14,727,999	$25,511,375
12	Labor	30	$45,995,043	$46,168,678	$47,795,366	$0	$19,786,576	$27,311,638	$47,098,214
13	Fences and Roadway Signs	47	$97,882	$97,984	$101,285	$0	$41,993	$57,877	$99,870
16	Stations and Office Buildings	40	$2,184,451	$2,186,738	$2,260,392	$0	$874,695	$1,356,235	$2,230,930
17	Roadway Buildings	37	$1,326,779	$1,328,168	$1,372,904	$0	$531,267	$823,742	$1,355,010
19	Fuel Stations	29	$0	$0	$0	$0	$0	$0	$0
20	Shops and Enginehouses	34	$2,634,931	$2,637,690	$2,726,532	$0	$1,055,076	$1,635,919	$2,690,995
26	Communications Systems	13	$6,306,899	$6,313,503	$6,526,155	$0	$0	$6,526,155	$6,526,155
27	Signals and Interlockers	29	$29,696,115	$29,727,210	$30,728,482	$0	$0	$30,728,482	$30,728,482
39	Public Improvements	44	$12,577,961	$12,591,131	$13,015,226	$0	$5,396,199	$7,437,272	$12,833,471
	Total		$498,095,345	$507,501,867	$533,650,222	$58,519,316	$255,300,120	$194,080,754	$507,900,189

1/ 1 ÷ Depreciation Rate shown in Schedule 332 of CSXT's 2014 Annual Report R-1
2/ January 1, 2015, indexed to 2012 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2012 ÷ 1Q2015.
3/ January 1, 2015, indexed to 2013 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2013 ÷ 1Q2015.
4/ January 1, 2015, indexed to 2014 dollars; Investment Exhibit - 1Q2015 x Inflation Index from Table B, 3Q2014 ÷ 1Q2015.
5/ Column (4) x Percent constructed in 2012.
6/ Column (5) x Percent constructed in 2013.
7/ Column (6) x Percent constructed in 2014.
8/ Sum of Columns (7) through (9).

TABLE D: INTEREST DURING CONSTRUCTION

Month of Installation (1)	Cost of Funds 1/ (2)	Timing of Account 1 Investment 2/ (3)	Timing of Account 2 Investment 2/ (4)	Timing of Accounts 3, 5 and 6 Investment 2/ (5)	Timing of Accounts 8 Through 39 Investment 2/ (6)	Total Investment by Month 3/ (7)	Interest During Construction 4/ (8)	Cost of Debt 5/ (9)	Deductible Interest During Construction 6/ (10)
Jul-12	0.88%	$3,487,250	$0	$0	$0	$3,487,250	$0	0.27%	$0
Aug-12	0.88%	$3,487,250	$0	$0	$0	$3,487,250	$30,774	0.27%	$2,125
Sep-12	0.88%	$3,487,250	$0	$0	$0	$3,487,250	$61,820	0.27%	$4,269
Oct-12	0.88%	$3,487,250	$12,531,939	$0	$0	$16,019,189	$93,140	0.27%	$6,432
Nov-12	0.88%	$3,487,250	$12,531,939	$0	$0	$16,019,189	$235,328	0.27%	$16,250
Dec-12	0.88%	$3,487,250	$12,531,939	$0	$0	$16,019,189	$378,771	0.27%	$26,156
Jan-13	1.08%	$3,500,414	$14,209,901	$0	$0	$17,710,316	$642,322	1.37%	$143,407
Feb-13	1.08%	$3,500,414	$14,209,901	$0	$0	$17,710,316	$841,049	1.37%	$187,775
Mar-13	1.08%	$3,500,414	$14,209,901	$0	$0	$17,710,316	$1,041,928	1.37%	$232,624
Apr-13	1.08%	$3,500,414	$14,209,901	$5,362,086	$0	$23,072,402	$1,244,982	1.37%	$277,959
May-13	1.08%	$0	$0	$5,362,086	$0	$5,362,086	$1,508,296	1.37%	$336,747
Jun-13	1.08%	$0	$0	$12,274,771	$0	$12,274,771	$1,582,690	1.37%	$353,357
Jul-13	1.08%	$0	$0	$12,274,771	$16,012,404	$28,287,175	$1,732,742	1.37%	$386,858
Aug-13	1.08%	$0	$0	$12,274,771	$16,012,404	$28,287,175	$2,057,805	1.37%	$459,433
Sep-13	1.08%	$0	$0	$12,274,771	$16,627,664	$28,902,434	$2,386,388	1.37%	$532,793
Oct-13	1.08%	$0	$0	$12,274,771	$16,627,664	$28,902,434	$2,725,191	1.37%	$608,435
Nov-13	1.08%	$0	$0	$6,912,684	$16,627,664	$23,540,348	$3,067,663	1.37%	$684,897
Dec-13	1.08%	$0	$0	$6,912,684	$16,627,664	$23,540,348	$3,355,781	1.37%	$749,223
Jan-14	0.85%	$0	$0	$7,145,518	$17,082,691	$24,228,209	$2,851,668	0.29%	$164,715
Feb-14	0.85%	$0	$0	$7,145,518	$17,082,691	$24,228,209	$3,080,948	0.29%	$177,958
Mar-14	0.85%	$0	$0	$7,145,518	$17,082,691	$24,228,209	$3,312,169	0.29%	$191,314
Apr-14	0.85%	$0	$0	$0	$17,082,691	$17,082,691	$3,545,348	0.29%	$204,783
May-14	0.85%	$0	$0	$0	$17,082,691	$17,082,691	$3,720,001	0.29%	$214,871
Jun-14	0.85%	$0	$0	$0	$29,500,903	$29,500,903	$3,896,134	0.29%	$225,044
Jul-14	0.85%	$0	$0	$0	$28,864,921	$28,864,921	$4,178,899	0.29%	$241,377
Aug-14	0.85%	$0	$0	$0	$28,864,921	$28,864,921	$4,458,675	0.29%	$257,537
Sep-14	0.85%	$0	$0	$0	$0	$0	$4,740,819	0.29%	$273,834
Oct-14	0.85%	$0	$0	$0	$0	$0	$4,780,958	0.29%	$276,152
Nov-14	0.85%	$0	$0	$0	$0	$0	$4,821,438	0.29%	$278,491
Dec-14	0.85%	$0	$0	$0	$0	$0	$4,862,260	0.29%	$280,849
Total		**$34,925,155**	**$94,435,424**	**$107,359,947**	**$271,179,664**	**$507,900,189**	**$71,235,991**		**$7,795,664**

1/ ((1 + Cost of Capital from Table A for the applicable year)^(1/12) - 1) x 100.
2/ Applicable account value from Table C for the applicable investment period.
3/ Sum of Columns (3) through (6).
4/ July 12 equals Column (2) x prior Column (7), all other periods equal Column (2) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods)).
5/ ((1 + Cost of Debt from Table A for the applicable year)^(1/12) - 1) x 100.
6/ July 12 equals prior Column (7) x Column (9) x Table A, Column (9) for 2012, all other periods equal Column (9) x ((Sum of Column (7) for all prior periods) + (Sum of Column (8) for all prior periods)) x Table A, Column (9) for the applicable year.

TABLE E: CERR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPTIAL

INTEREST SCHEDULE FOR THE CERR 2012 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP		INTEREST SCHEDULE FOR THE CERR 2013 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP		INTEREST SCHEDULE FOR THE CERR 2014 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP	
1. Total Investment	$58,519,316 1/	1. Total Investment	$255,300,120 1/	1. Total Investment	$194,080,754 1/
2. IDC	$799,834 2/	2. IDC	$22,186,839 2/	2. IDC	$48,249,318 2/
3. Principal	$13,382,400 3/	3. Principal	$49,087,443 3/	3. Principal	$40,372,190 3/
4. Interest	3.29% 4/	4. Interest	17.69% 4/	4. Interest	3.58% 4/
5. Term (Quarters)	80 5/	5. Term (Quarters)	80 5/	5. Term (Quarters)	80 5/
6. Quarterly Coupon	$108,738 6/	6. Quarterly Coupon	$2,040,145 6/	6. Quarterly Coupon	$356,579 6/

Quarter (1)	Interest 7/ (2)	Quarter (3)	Interest 7/ (4)	Quarter (5)	Interest 7/ (6)
1	$108,738	1	$2,040,145	1	$356,579
2	$108,738	2	$2,040,145	2	$356,579
3	$108,738	3	$2,040,145	3	$356,579
4	$108,738	4	$2,040,145	4	$356,579
5	$108,738	5	$2,040,145	5	$356,579
6	$108,738	6	$2,040,145	6	$356,579
7	$108,738	7	$2,040,145	7	$356,579
8	$108,738	8	$2,040,145	8	$356,579
9	$108,738	9	$2,040,145	9	$356,579
10	$108,738	10	$2,040,145	10	$356,579
11	$108,738	11	$2,040,145	11	$356,579
12	$108,738	12	$2,040,145	12	$356,579
13	$108,738	13	$2,040,145	13	$356,579
14	$108,738	14	$2,040,145	14	$356,579
15	$108,738	15	$2,040,145	15	$356,579
16	$108,738	16	$2,040,145	16	$356,579
17	$108,738	17	$2,040,145	17	$356,579
18	$108,738	18	$2,040,145	18	$356,579
19	$108,738	19	$2,040,145	19	$356,579
20	$108,738	20	$2,040,145	20	$356,579
21	$108,738	21	$2,040,145	21	$356,579
22	$108,738	22	$2,040,145	22	$356,579
23	$108,738	23	$2,040,145	23	$356,579
24	$108,738	24	$2,040,145	24	$356,579
25	$108,738	25	$2,040,145	25	$356,579
26	$108,738	26	$2,040,145	26	$356,579
27	$108,738	27	$2,040,145	27	$356,579
28	$108,738	28	$2,040,145	28	$356,579
29	$108,738	29	$2,040,145	29	$356,579
30	$108,738	30	$2,040,145	30	$356,579
31	$108,738	31	$2,040,145	31	$356,579
32	$108,738	32	$2,040,145	32	$356,579
33	$108,738	33	$2,040,145	33	$356,579
34	$108,738	34	$2,040,145	34	$356,579
35	$108,738	35	$2,040,145	35	$356,579
36	$108,738	36	$2,040,145	36	$356,579
37	$108,738	37	$2,040,145	37	$356,579
38	$108,738	38	$2,040,145	38	$356,579
39	$108,738	39	$2,040,145	39	$356,579
40	$108,738	40	$2,040,145	40	$356,579
41	$108,738	41	$2,040,145	41	$356,579
42	$108,738	42	$2,040,145	42	$356,579
43	$108,738	43	$2,040,145	43	$356,579
44	$108,738	44	$2,040,145	44	$356,579
45	$108,738	45	$2,040,145	45	$356,579
46	$108,738	46	$2,040,145	46	$356,579
47	$108,738	47	$2,040,145	47	$356,579
48	$108,738	48	$2,040,145	48	$356,579
49	$108,738	49	$2,040,145	49	$356,579
50	$108,738	50	$2,040,145	50	$356,579
51	$108,738	51	$2,040,145	51	$356,579
52	$108,738	52	$2,040,145	52	$356,579
53	$108,738	53	$2,040,145	53	$356,579
54	$108,738	54	$2,040,145	54	$356,579

TABLE E: CERR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPTIAL

INTEREST SCHEDULE FOR THE CERR 2012 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP		INTEREST SCHEDULE FOR THE CERR 2013 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP		INTEREST SCHEDULE FOR THE CERR 2014 ROAD PROPERTY INVESTMENT FOR THE 1Q2015 START-UP	
1. Total Investment	$58,519,316 1/	1. Total Investment	$255,300,120 1/	1. Total Investment	$194,080,754 1/
2. IDC	$799,834 2/	2. IDC	$22,186,839 2/	2. IDC	$48,249,318 2/
3. Principal	$13,382,400 3/	3. Principal	$49,087,443 3/	3. Principal	$40,372,190 3/
4. Interest	3.29% 4/	4. Interest	17.69% 4/	4. Interest	3.58% 4/
5. Term (Quarters)	80 5/	5. Term (Quarters)	80 5/	5. Term (Quarters)	80 5/
6. Quarterly Coupon	$108,738 6/	6. Quarterly Coupon	$2,040,145 6/	6. Quarterly Coupon	$356,579 6/

Quarter (1)	Interest 7/ (2)	Quarter (3)	Interest 7/ (4)	Quarter (5)	Interest 7/ (6)
55	$108,738	55	$2,040,145	55	$356,579
56	$108,738	56	$2,040,145	56	$356,579
57	$108,738	57	$2,040,145	57	$356,579
58	$108,738	58	$2,040,145	58	$356,579
59	$108,738	59	$2,040,145	59	$356,579
60	$108,738	60	$2,040,145	60	$356,579
61	$108,738	61	$2,040,145	61	$356,579
62	$108,738	62	$2,040,145	62	$356,579
63	$108,738	63	$2,040,145	63	$356,579
64	$108,738	64	$2,040,145	64	$356,579
65	$108,738	65	$2,040,145	65	$356,579
66	$108,738	66	$2,040,145	66	$356,579
67	$108,738	67	$2,040,145	67	$356,579
68	$108,738	68	$2,040,145	68	$356,579
69	$108,738	69	$2,040,145	69	$356,579
70	$108,738	70	$2,040,145	70	$356,579
71	$108,738	71	$2,040,145	71	$356,579
72	$108,738	72	$2,040,145	72	$356,579
73	$108,738	73	$2,040,145	73	$356,579
74	$108,738	74	$2,040,145	74	$356,579
75	$108,738	75	$2,040,145	75	$356,579
76	$108,738	76	$2,040,145	76	$356,579
77	$108,738	77	$2,040,145	77	$356,579
78	$108,738	78	$2,040,145	78	$356,579
79	$108,738	79	$2,040,145	79	$356,579
80	$108,738	80	$2,040,145	80	$356,579

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Based on Ex Parte No. 657 20-year payment period x 4.
6/ Quarterly coupon payments on Line 3 principal and Line 4 interest rates.
7/ Line 6 coupon payment.

TABLE F: CERR PRESENT VALUE OF REPLACEMENT COST

Property Account	Property Component	Service Life In Years 1/	Investment 2/	Salvage 3/	Replacement Year Asset Net Cost 4/	Replacement Cost Adjusted To Reflect An Infinite Life 5/	Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2015 Dollars) 6/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
3	Grading	69	$461,409,993	$0	$395,748,920	$397,714,175	$175,490
5	Tunnels	76	0	0	0	0	0
6	Bridges & Culverts	61	655,101,205	0	553,443,809	0	603,212
8	Ties	20	115,719,204	0	91,750,157	115,616,796	11,642,641
9	Rails and OTM	34	208,660,535	14,363,271	153,636,640	165,367,693	3,520,116
11	Ballast	36	68,641,361	0	54,423,600	57,986,131	1,001,305
12	Labor	30	161,335,262	0	127,917,711	142,531,342	5,185,030
13	Fences and Roadway Signs	47	583,031	0	492,557	506,184	2,631
16	Stations and Office Buildings	40	10,132,437	0	8,560,104	8,988,639	107,321
17	Roadway Buildings	37	5,580,042	0	4,714,142	5,012,819	82,785
19	Fuel Stations	29	0	0	0	0	0
20	Shops and Enginehouses	34	10,264,248	0	8,671,461	9,333,577	198,680
26	Communications Systems	13	12,087,032	0	9,583,432	15,149,695	3,529,691
27	Signals and Interlockers	29	98,272,489	3,241,652	75,278,261	84,199,047	3,212,761
39	Public Improvements	44	67,931,232	0	57,389,789	59,387,831	427,005
	Total		$1,875,718,072	$17,604,923	$1,541,610,583	$1,061,793,931	$29,688,669

1/ From Table C, Column (3).
2/ (Table C, Column (10) after allocation of Engineering) x (Table B, 1.0 + Annual Inflation Index)^(Column (3)).
3/ [(Column (4) x Salvage %) - (Table C, Column (10) after allocation of Engineering x Salvage %)] x (1 - Current Federal Tax Rate) + (Table C, Column (10) after allocation of Engineering x Salvage %).
4/ Column (4) - (Present Value of the remaining tax deductions for depreciation, interest expense and the Present Value of any salvage).
5/ Column (6) + [(Column (6) / ((1 + Real Cost of Capital)^Column (3) - 1)].
6/ Column (7) / ((1 + Average Nominal Cost of Capital from Table A Column (2))^Column (3)).

TABLE G PART 1: TAX DEPRECIATION SCHEDULES

Depreciation of Start-up investment for tax purposes using
accounting lives from Modified Accelerated Cost Recovery System (MACRS) 1/

Road Property Account (1)	Road Property Component (2)	Asset Lives Per MACRS 2/ (3)	Total 1Q 2015 Investment (4)	Depreciable Base (5)
1	Engineering	5	$34,925,155	$34,925,155
2	Land	N/A	$94,435,424	$0
3	Grading	50	$37,534,603	$37,534,603
5	Tunnels	50	$0	$0
6	Bridges & Culverts	20	$69,825,344	$69,825,344
8	Ties	7	$61,233,875	$61,233,875
9	Rails and OTM	7	$80,871,287	$80,871,287
11	Ballast	7	$25,511,375	$25,511,375
12	Labor	7	$47,098,214	$47,098,214
13	Fences and Roadway Signs	20	$99,870	$99,870
16	Stations and Office Buildings	20	$2,230,930	$2,230,930
17	Roadway Buildings	20	$1,355,010	$1,355,010
19	Fuel Stations	20	$0	$0
20	Shops and Enginehouses	20	$2,690,995	$2,690,995
26	Communications Systems	7	$6,526,155	$6,526,155
27	Signals and Interlockers	7	$30,728,482	$30,728,482
39	Public Improvements	20	$12,833,471	$12,833,471
	Total		**$507,900,189**	**$413,464,765**

1/ Applicable Depreciation Method: 200 or 150 percent
Declining Balance Switching to Straight Line
Applicable Recovery Periods: 7, 20 and 50 a/ years
Applicable Convention: Mid-quarter(property placed in service in first quarter)

The Depreciation Rates are as follows for the corresponding
Recovery Period and Recovery year:

Year	5-Year	7-Year	20-Year	50-Year a/	
1	20.00%	25.00%	6.56%	2.00%	
2	20.00%	21.43%	7.00%	2.00%	
3	20.00%	15.31%	6.48%	2.00%	
4	20.00%	10.93%	6.00%	2.00%	
5	20.00%	8.75%	5.55%	2.00%	
6		8.74%	5.13%	2.00%	
7		8.75%	4.75%	2.00%	
8		1.09%	4.46%	2.00%	
9			4.46%	2.00%	
10			4.46%	2.00%	
11			4.46%	2.00%	
12			4.46%	2.00%	
13			4.46%	2.00%	
14			4.46%	2.00%	
15			4.46%	2.00%	
16			4.46%	2.00%	
17			4.46%	2.00%	
18			4.46%	2.00%	
19			4.46%	2.00%	19-50
20			4.46%		
21			0.57%		

a/ 50 year property uses the Straight Line Method for all time periods

2/ Bonus Depreciation Per the Tax Relief, Unemployment Compensation Reauthorization, and Job Creation Act of 2010, the American Taxpayer Relief Act of 2012 and the Tax Increase Prevention Act of 2014.

MARCS Lives	Bonus Depreciation - 50%
7	$125,984,694
20	$44,517,810

TABLE G PART 2: TAX DEPRECIATION SCHEDULES

	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 20 Years			Depreciation - MACRS 50 Years			Total
Year	Unamortized Investment 1/	Rate 2/	Annual Amort. 3/	Undepreciated Investment 4/	Rate 2/	Annual Amount 5/	Undepreciated Investment 6/	Rate 2/	Annual Amount 7/	Unamortized Investment 8/	Rate 2/	Annual Amount 9/	Annual Depreciation 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	$34,925,155	20.00%	$6,985,031	$125,984,694	25.00%	$31,496,173	$44,517,810	6.56%	$2,921,704	$37,534,603	2%	$750,692	$212,656,104
2	$27,940,124	20.00%	$6,985,031	$94,488,520	21.43%	$26,998,520	$41,596,106	7.00%	$3,116,247	$36,783,911	2%	$750,692	$37,850,490
3	$20,955,093	20.00%	$6,985,031	$67,490,001	15.31%	$19,288,257	$38,479,859	6.48%	$2,885,644	$36,033,219	2%	$750,692	$29,909,624
4	$13,970,062	20.00%	$6,985,031	$48,201,744	10.93%	$13,770,127	$35,594,215	6.00%	$2,669,288	$35,282,527	2%	$750,692	$24,175,138
5	$6,985,031	20.00%	$6,985,031	$34,431,617	8.75%	$11,023,661	$32,924,927	5.55%	$2,468,958	$34,531,835	2%	$750,692	$21,228,341
6				$23,407,956	8.74%	$11,011,062	$30,455,969	5.13%	$2,283,764	$33,781,143	2%	$750,692	$14,045,518
7				$12,396,894	8.75%	$11,023,661	$28,172,206	4.75%	$2,112,815	$33,030,451	2%	$750,692	$13,887,168
8				$1,373,233	1.09%	$1,373,233	$26,059,390	4.46%	$1,985,049	$32,279,759	2%	$750,692	$4,108,974
9							$24,074,341	4.46%	$1,985,049	$31,529,067	2%	$750,692	$2,735,741
10					100%		$22,089,292	4.46%	$1,985,049	$30,778,375	2%	$750,692	$2,735,741
11							$20,104,243	4.46%	$1,985,049	$30,027,682	2%	$750,692	$2,735,741
12							$18,119,194	4.46%	$1,985,494	$29,276,990	2%	$750,692	$2,736,186
13							$16,133,700	4.46%	$1,985,049	$28,526,298	2%	$750,692	$2,735,741
14							$14,148,650	4.46%	$1,985,494	$27,775,606	2%	$750,692	$2,736,186
15							$12,163,156	4.46%	$1,985,049	$27,024,914	2%	$750,692	$2,735,741
16							$10,178,107	4.46%	$1,985,494	$26,274,222	2%	$750,692	$2,736,186
17							$8,192,613	4.46%	$1,985,049	$25,523,530	2%	$750,692	$2,735,741
18							$6,207,563	4.46%	$1,985,494	$24,772,838	2%	$750,692	$2,736,186
19							$4,222,069	4.46%	$1,985,049	$24,022,146	2%	$750,692	$2,735,741
20							$2,237,020	4.46%	$1,985,494	$23,271,454	2%	$750,692	$2,736,186
21							$251,526	0.57%	$251,526	$22,520,762	2%	$750,692	$1,002,218
22										$21,770,070	2%	$750,692	$750,692
23								100%		$21,019,378	2%	$750,692	$750,692
24										$20,268,686	2%	$750,692	$750,692
25										$19,517,994	2%	$750,692	$750,692
26										$18,767,302	2%	$750,692	$750,692
27										$18,016,609	2%	$750,692	$750,692
28										$17,265,917	2%	$750,692	$750,692
29										$16,515,225	2%	$750,692	$750,692
30										$15,764,533	2%	$750,692	$750,692
31										$15,013,841	2%	$750,692	$750,692
32										$14,263,149	2%	$750,692	$750,692
33										$13,512,457	2%	$750,692	$750,692
34										$12,761,765	2%	$750,692	$750,692
35										$12,011,073	2%	$750,692	$750,692
36										$11,260,381	2%	$750,692	$750,692
37										$10,509,689	2%	$750,692	$750,692
38										$9,758,997	2%	$750,692	$750,692
39										$9,008,305	2%	$750,692	$750,692
40										$8,257,613	2%	$750,692	$750,692
41										$7,506,921	2%	$750,692	$750,692
42										$6,756,229	2%	$750,692	$750,692
43										$6,005,536	2%	$750,692	$750,692
44										$5,254,844	2%	$750,692	$750,692
45										$4,504,152	2%	$750,692	$750,692

TABLE G PART 2: TAX DEPRECIATION SCHEDULES

	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 20 Years			Depreciation - MACRS 50 Years			Total
Year	Unamortized Investment 1/	Rate 2/	Annual Amort. 3/	Undepreciated Investment 4/	Rate 2/	Annual Amount 5/	Undepreciated Investment 6/	Rate 2/	Annual Amount 7/	Unamortized Investment 8/	Rate 2/	Annual Amount 9/	Annual Depreciation 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
46										$3,753,460	2%	$750,692	$750,692
47										$3,002,768	2%	$750,692	$750,692
48										$2,252,076	2%	$750,692	$750,692
49										$1,501,384	2%	$750,692	$750,692
50										$750,692	2%	$750,692	$750,692
											100%		

1/ From Table G Part 1, Column (5), Road Property Accounts 1 minus Table G Part 1
2/ From Table G, Footnote 1/, Page 8.
3/ Column (2), Year 1 x Column (3).
4/ From Table G Part 1, Column (5), Road Property Accounts 8, 9, 11, 12, 26 and 27 minus Table G Part 1, 7-Year Bonus Depreciation.
5/ Column (5), Year 1 x Column (6).
6/ From Table G Part 1, Column (5), Road Property Accounts 6, 13, 16, 17, 19, 20 and 39 minus Table G Part 1, 20-Year Bonus Depreciation.
7/ Column (8), Year 1 x Column (9).
8/ From Table G, Page 8, Column (5), Road Property Accounts 3 and 5.
9/ Column (11), Year 1 x Column (12).
10/ Column (4) + Column (7) + Column (10) + Column (13) plus Page 8, 7 & 20 Year Bonus Depreciation.

TABLE H: CERR AVERAGE ANNUAL INFLATION IN ASSET PRICES

Development of average annual inflation factors for all capital assets

1. 1Q 2015 Land value	$94,435,424	1/
2. 1Q 2015 Property asset value accounts 3, 5, 6, 13, 16, 17, 26, 27, 39 and 52	$163,824,860	1/
3. 1Q 2015 Road Property asset value accounts 8, 9, and 11	$167,616,537	1/
4. 1Q 2015 Road Property asset value accounts 1 and 12	$82,023,369	1/

Period (1)	Quarter (2)	Inflation Index For Land 2/ (3)	Inflation Index For Line 2 Property Assets 3/ (4)	Inflation Index For Line 3 Road Property Assets 4/ (5)	Inflation Index For Line 4 Road Property Assets 5/ (6)	Land Value 6/ (7)	Road Property Value 7/ (8)	1Q 2015 Inflation Index 8/ (9)
0		1.000	1.000	1.000	1.000	$94,435,424	$413,464,765	1.000
1	1Q 2015	1.032	1.020	0.944	1.032	$97,449,640	$409,952,892	0.999
2	2Q 2015	1.065	1.025	0.938	1.039	$100,599,682	$410,410,202	1.006
3	3Q 2015	1.076	1.022	0.927	1.037	$101,630,570	$407,776,279	1.003
4	4Q 2015	1.087	1.024	0.948	1.035	$102,672,128	$411,557,755	1.012
5	1Q 2016	1.099	1.043	0.950	1.058	$103,816,589	$416,861,641	1.025
6	2Q 2016	1.112	1.047	0.961	1.061	$104,974,154	$419,619,172	1.033
7	3Q 2016	1.124	1.061	0.969	1.076	$106,144,979	$424,542,605	1.045
8	4Q 2016	1.137	1.065	0.964	1.081	$107,329,220	$424,744,511	1.048
9	1Q 2017	1.149	1.073	0.974	1.088	$108,527,034	$428,291,820	1.057
10	2Q 2017	1.162	1.082	0.992	1.096	$109,738,583	$433,415,125	1.069
11	3Q 2017	1.175	1.091	1.005	1.104	$110,964,029	$437,627,492	1.080
12	4Q 2017	1.188	1.098	1.009	1.111	$112,203,535	$440,094,445	1.087
13	1Q 2018	1.201	1.108	1.018	1.122	$113,457,268	$444,110,024	1.098
14	2Q 2018	1.215	1.118	1.027	1.132	$114,725,396	$448,162,243	1.108
15	3Q 2018	1.228	1.128	1.036	1.142	$116,008,089	$452,251,435	1.119
16	4Q 2018	1.242	1.139	1.046	1.153	$117,305,521	$456,377,939	1.130
17	1Q 2019	1.256	1.149	1.055	1.164	$118,617,864	$460,512,015	1.140
18	2Q 2019	1.270	1.160	1.064	1.175	$119,945,297	$464,683,668	1.151
19	3Q 2019	1.284	1.171	1.072	1.186	$121,287,996	$468,893,240	1.162
20	4Q 2019	1.299	1.182	1.081	1.198	$122,646,145	$473,141,078	1.173
21	1Q 2020	1.313	1.191	1.086	1.208	$124,019,924	$476,218,975	1.182
22	2Q 2020	1.328	1.200	1.091	1.218	$125,409,521	$479,318,458	1.191
23	3Q 2020	1.343	1.209	1.095	1.228	$126,815,123	$482,439,686	1.200
24	4Q 2020	1.358	1.219	1.100	1.238	$128,236,919	$485,582,819	1.209
25	1Q 2021	1.373	1.229	1.108	1.250	$129,675,101	$489,587,252	1.219
26	2Q 2021	1.389	1.240	1.116	1.261	$131,129,865	$493,625,058	1.230
27	3Q 2021	1.404	1.251	1.124	1.272	$132,601,408	$497,696,518	1.241
28	4Q 2021	1.420	1.262	1.132	1.284	$134,089,929	$501,801,915	1.252
29	1Q 2022	1.436	1.274	1.142	1.296	$135,595,629	$506,367,845	1.264
30	2Q 2022	1.452	1.285	1.153	1.307	$137,118,713	$510,975,343	1.276
31	3Q 2022	1.468	1.296	1.164	1.319	$138,659,389	$515,624,787	1.288
32	4Q 2022	1.485	1.308	1.175	1.330	$140,217,864	$520,316,561	1.301
33	1Q 2023	1.501	1.320	1.185	1.342	$141,794,352	$524,880,645	1.313
34	2Q 2023	1.518	1.331	1.195	1.354	$143,389,067	$529,484,769	1.325
35	3Q 2023	1.535	1.343	1.205	1.366	$145,002,227	$534,129,286	1.337
36	4Q 2023	1.553	1.355	1.216	1.378	$146,634,050	$538,814,549	1.350
37	1Q 2024	1.570	1.367	1.225	1.390	$148,284,759	$543,186,981	1.361
38	2Q 2024	1.588	1.378	1.233	1.403	$149,954,581	$547,595,193	1.373
39	3Q 2024	1.606	1.390	1.242	1.415	$151,643,742	$552,039,479	1.385
40	4Q 2024	1.624	1.402	1.251	1.428	$153,352,475	$556,520,137	1.398
Annual Average 9/								3.56%

1/ Table C, Page 3, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
3/ Previous Column (4) x (1 + Quarterly Inflation Rate Change from Table B).
4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).
5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).
6/ Line 1 x Column (3) for applicable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5) for applicable quarter) + (Line 4 x Column (6) for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).
9/ Annual weighted inflation using the last two quarters, used to calculate real cost of capital.

TABLE I: CERR DISCOUNTED CASH FLOW

Discounted Cash Flow
Present Value of the Cash Flow Discounted at the Cost of Capital in Table A
Inflation In Asset Values From Table H

1. 1Q 2015 Road Property Investment	$507,900,189 1/	Federal Tax Rate	35.0%	
2. Interest During Construction (1Q 2015 Invest.)	$71,235,991 2/			
3. Total 1Q 2015 Investment	$579,136,180 3/	Route Mile Weighted		
4. Present Value Of Replacement Cost for the CERR	$29,688,669 4/	Average State Tax Rate	6.38%	6/
5. Total Cost Recovered From Quarterly Revenue Flow	$608,824,849 5/			

Period (1)	Quarter (2)	Quarterly Levelized C Carrying Charge Requirement 7/ (3)	Interest on Investment Financed With Debt 8/ (4)	Tax Depreciation 9/ (5)	Actual Federal Tax Payments 10/ (6)	Actual State Tax Payments 11/ (7)	Cash Flow 12/ (8)	Present Value Cash Flow 13/ (9)	Cumulative Present Value 14/ (10)
1	1Q 2015	$15,482,740	$2,505,461	$53,164,026	$0	$0	$15,482,740	$15,257,828	$15,257,828
2	2Q 2015	$15,592,813	$2,505,461	$53,164,026	$0	$0	$15,592,813	$14,923,106	$30,180,934
3	3Q 2015	$15,543,899	$2,505,461	$53,164,026	$0	$0	$15,543,899	$14,447,228	$44,628,162
4	4Q 2015	$15,691,068	$2,505,461	$53,164,026	$0	$0	$15,691,068	$14,163,379	$58,791,540
5	1Q 2016	$15,887,831	$2,505,461	$9,462,622	$0	$0	$15,887,831	$13,927,360	$72,718,900
6	2Q 2016	$16,007,295	$2,505,461	$9,462,622	$0	$0	$16,007,295	$13,627,367	$86,346,268
7	3Q 2016	$16,193,253	$2,505,461	$9,462,622	$0	$0	$16,193,253	$13,388,069	$99,734,337
8	4Q 2016	$16,235,550	$2,505,461	$9,462,622	$0	$0	$16,235,550	$13,035,889	$112,770,227
9	1Q 2017	$16,380,341	$2,505,461	$7,477,406	$0	$0	$16,380,341	$12,772,809	$125,543,036
10	2Q 2017	$16,573,641	$2,505,461	$7,477,406	$0	$0	$16,573,641	$12,550,795	$138,093,831
11	3Q 2017	$16,739,569	$2,505,461	$7,477,406	$0	$0	$16,739,569	$12,310,832	$150,404,663
12	4Q 2017	$16,852,667	$2,505,461	$7,477,406	$0	$0	$16,852,667	$12,036,538	$162,441,201
13	1Q 2018	$17,013,453	$2,505,461	$6,043,784	$0	$0	$17,013,453	$11,800,903	$174,242,105
14	2Q 2018	$17,175,797	$2,505,461	$6,043,784	$0	$0	$17,175,797	$11,569,897	$185,812,002
15	3Q 2018	$17,339,713	$2,505,461	$6,043,784	$0	$0	$17,339,713	$11,343,428	$197,155,430
16	4Q 2018	$17,505,217	$2,505,461	$6,043,784	$0	$0	$17,505,217	$11,121,408	$208,276,837
17	1Q 2019	$17,671,408	$2,505,461	$5,307,085	$0	$0	$17,671,408	$10,903,181	$219,180,018
18	2Q 2019	$17,839,206	$2,505,461	$5,307,085	$0	$0	$17,839,206	$10,689,254	$229,869,272
19	3Q 2019	$18,008,626	$2,505,461	$5,307,085	$0	$0	$18,008,626	$10,479,542	$240,348,814
20	4Q 2019	$18,179,685	$2,505,461	$5,307,085	$0	$0	$18,179,685	$10,273,961	$250,622,775
21	1Q 2020	$18,315,523	$2,505,461	$3,511,379	$0	$0	$18,315,523	$10,052,190	$260,674,965
22	2Q 2020	$18,452,501	$2,505,461	$3,511,379	$0	$0	$18,452,501	$9,835,273	$270,510,238
23	3Q 2020	$18,590,632	$2,505,461	$3,511,379	$0	$0	$18,590,632	$9,623,103	$280,133,341
24	4Q 2020	$18,729,925	$2,505,461	$3,511,379	$68,943	$13,420	$18,647,562	$9,374,171	$289,507,512
25	1Q 2021	$18,895,999	$2,505,461	$3,471,792	$4,233,170	$823,975	$13,838,855	$6,756,173	$296,263,686
26	2Q 2021	$19,063,598	$2,505,461	$3,471,792	$4,288,088	$834,664	$13,940,845	$6,609,667	$302,873,353
27	3Q 2021	$19,232,735	$2,505,461	$3,471,792	$4,343,510	$845,452	$14,043,773	$6,466,423	$309,339,776
28	4Q 2021	$19,403,427	$2,505,461	$3,471,792	$4,399,442	$856,339	$14,147,646	$6,326,366	$315,666,141
29	1Q 2022	$19,588,695	$2,505,461	$1,027,244	$5,261,171	$1,024,072	$13,303,451	$5,777,291	$321,443,432
30	2Q 2022	$19,775,762	$2,505,461	$1,027,244	$5,322,469	$1,036,004	$13,417,289	$5,658,672	$327,102,105
31	3Q 2022	$19,964,645	$2,505,461	$1,027,244	$5,384,361	$1,048,051	$13,532,233	$5,542,543	$332,644,648
32	4Q 2022	$20,155,364	$2,505,461	$1,027,244	$5,446,855	$1,060,215	$13,648,293	$5,428,849	$338,073,496
33	1Q 2023	$20,342,735	$2,505,461	$683,935	$5,620,747	$1,094,063	$13,627,926	$5,264,401	$343,337,898
34	2Q 2023	$20,531,885	$2,505,461	$683,935	$5,682,727	$1,106,127	$13,743,032	$5,155,747	$348,493,645
35	3Q 2023	$20,722,830	$2,505,461	$683,935	$5,745,295	$1,118,306	$13,859,230	$5,049,379	$353,543,024
36	4Q 2023	$20,915,588	$2,505,461	$683,935	$5,808,457	$1,130,600	$13,976,531	$4,945,248	$358,488,272
37	1Q 2024	$21,099,376	$2,505,461	$683,935	$5,868,680	$1,142,322	$14,088,374	$4,841,048	$363,329,320
38	2Q 2024	$21,284,840	$2,505,461	$683,935	$5,929,452	$1,154,151	$14,201,236	$4,739,085	$368,068,405
39	3Q 2024	$21,471,994	$2,505,461	$683,935	$5,990,778	$1,166,088	$14,315,128	$4,639,310	$372,707,715
40	4Q 2024	$21,660,855	$2,505,461	$683,935	$6,052,664	$1,178,134	$14,430,058	$4,541,675	$377,249,390
	Future	$1,114,492,933	$128,910,836	$18,124,861	$317,013,036	$61,705,703	$735,774,193	$231,575,460	$608,824,849

1/ From Table C, Column (10) + Repaving and Rail Grinding Capital Costs from [].
2/ From Table D, Column (8).
3/ Line 1 + Line 2.
4/ Table F Column (8).
5/ Line 3 + Line 4.
6/ Michigan, Illinois, and Indiana corporate income tax rates weighted on CERR route miles.

7/ Quarterly carrying costs needed to recover the total investment over 40 quarters after consideration of the applicable interest payments, tax depreciation and tax liability. The Future value is an estimate of a perpetual income stream for the CERR and is calculated by taking the Period 40, Column (3) value and dividing it by the CERR's estimated quarterly Real Cost of Capital.
8/ Value from Table E.
9/ Value from Table G - Part 2, Column (14) divided by 4 quarters.
10/ Table J: Part 1.
11/ Table J: Part 2.
12/ (Column (3) - Column (6) - Column (7)).
13/ Column (8) discounted by the fourth root of the annual Cost of Capital adjusted to Midquarter dollars from Table A.
14/ Cumulative total of Column (9).

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME
(Road Property)

Time Period (1)	Taxable Income B/4 NOL's IRR 1/ (2)	Net Operating Losses Generated 2/ (3)	NOL's Generated Plus Carryforward 3/ (4)	Carryforward Utilized 4/ (5)	Carryforward Remaining 5/ (6)	Carryback Available 6/ (7)	Carryback Utilized 7/ (8)	Carryback Remaining 8/ (9)	Annual Taxable Income 9/ (10)	Annual Tax Liability 10/ (11)
2012	($55,231)	($55,231)	($55,231)	$0	($55,231)	($55,231)	$0	($55,231)	$0	$0
2013	($4,953,508)	($4,953,508)	($5,008,739)	$0	($5,008,739)	($5,008,739)	$0	($5,008,739)	$0	$0
2014	($2,786,924)	($2,786,924)	($7,795,664)	$0	($7,795,664)	($7,795,664)	$0	($7,795,664)	$0	$0
1Q 2015	($40,186,748)	($40,186,748)	($47,982,411)	$0	($47,982,411)	($47,982,411)	$0	($47,982,411)	$0	$0
2Q 2015	($40,076,674)	($40,076,674)	($88,059,085)	$0	($88,059,085)	($88,059,085)	$0	($88,059,085)	$0	$0
3Q 2015	($40,125,589)	($40,125,589)	($128,184,674)	$0	($128,184,674)	($128,184,674)	$0	($128,184,674)	$0	$0
4Q 2015	($39,978,420)	($39,978,420)	($168,163,094)	$0	($168,163,094)	($168,163,094)	$0	($168,163,094)	$0	$0
1Q 2016	$3,919,747	$0	($168,163,094)	$3,919,747	($164,243,347)	($164,243,347)	$0	($164,243,347)	$0	$0
2Q 2016	$4,039,211	$0	($164,243,347)	$4,039,211	($160,204,136)	($160,204,136)	$0	($160,204,136)	$0	$0
3Q 2016	$4,225,169	$0	($160,204,136)	$4,225,169	($155,978,966)	($155,978,966)	$0	($155,978,966)	$0	$0
4Q 2016	$4,267,466	$0	($155,978,966)	$4,267,466	($151,711,500)	($151,711,500)	$0	($151,711,500)	$0	$0
1Q 2017	$6,397,474	$0	($151,711,500)	$6,397,474	($145,314,027)	($145,314,027)	$0	($145,314,027)	$0	$0
2Q 2017	$6,590,774	$0	($145,314,027)	$6,590,774	($138,723,253)	($138,723,253)	$0	($138,723,253)	$0	$0
3Q 2017	$6,756,702	$0	($138,723,253)	$6,756,702	($131,966,551)	($131,966,551)	$0	($131,966,551)	$0	$0
4Q 2017	$6,869,799	$0	($131,966,551)	$6,869,799	($125,096,752)	($125,096,752)	$0	($125,096,752)	$0	$0
1Q 2018	$8,464,207	$0	($125,096,752)	$8,464,207	($116,632,544)	($116,632,544)	$0	($116,632,544)	$0	$0
2Q 2018	$8,626,551	$0	($116,632,544)	$8,626,551	($108,005,994)	($108,005,994)	$0	($108,005,994)	$0	$0
3Q 2018	$8,790,467	$0	($108,005,994)	$8,790,467	($99,215,526)	($99,215,526)	$0	($99,215,526)	$0	$0
4Q 2018	$8,955,972	$0	($99,215,526)	$8,955,972	($90,259,555)	($90,259,555)	$0	($90,259,555)	$0	$0
1Q 2019	$9,858,861	$0	($90,259,555)	$9,858,861	($80,400,694)	($80,400,694)	$0	($80,400,694)	$0	$0
2Q 2019	$10,026,659	$0	($80,400,694)	$10,026,659	($70,374,035)	($70,374,035)	$0	($70,374,035)	$0	$0
3Q 2019	$10,196,079	$0	($70,374,035)	$10,196,079	($60,177,955)	($60,177,955)	$0	($60,177,955)	$0	$0
4Q 2019	$10,367,139	$0	($60,177,955)	$10,367,139	($49,810,817)	($49,810,817)	$0	($49,810,817)	$0	$0
1Q 2020	$12,298,682	$0	($49,810,817)	$12,298,682	($37,512,135)	($37,512,135)	$0	($37,512,135)	$0	$0
2Q 2020	$12,435,660	$0	($37,512,135)	$12,435,660	($25,076,474)	($25,076,474)	$0	($25,076,474)	$0	$0
3Q 2020	$12,573,791	$0	($25,076,474)	$12,573,791	($12,502,684)	($12,502,684)	$0	($12,502,684)	$0	$0
4Q 2020	$12,699,664	$0	($12,502,684)	$12,502,684	$0	$0	$0	$0	$196,981	$68,943
1Q 2021	$12,094,771	$0	$0	$0	$0	$0	$0	$0	$12,094,771	$4,233,170
2Q 2021	$12,251,680	$0	$0	$0	$0	$0	$0	$0	$12,251,680	$4,288,088
3Q 2021	$12,410,030	$0	$0	$0	$0	$0	$0	$0	$12,410,030	$4,343,510
4Q 2021	$12,569,834	$0	$0	$0	$0	$0	$0	$0	$12,569,834	$4,399,442
1Q 2022	$15,031,918	$0	$0	$0	$0	$0	$0	$0	$15,031,918	$5,261,171
2Q 2022	$15,207,053	$0	$0	$0	$0	$0	$0	$0	$15,207,053	$5,322,469
3Q 2022	$15,383,889	$0	$0	$0	$0	$0	$0	$0	$15,383,889	$5,384,361
4Q 2022	$15,562,444	$0	$0	$0	$0	$0	$0	$0	$15,562,444	$5,446,855
1Q 2023	$16,059,276	$0	$0	$0	$0	$0	$0	$0	$16,059,276	$5,620,747
2Q 2023	$16,236,361	$0	$0	$0	$0	$0	$0	$0	$16,236,361	$5,682,727
3Q 2023	$16,415,128	$0	$0	$0	$0	$0	$0	$0	$16,415,128	$5,745,295
4Q 2023	$16,595,591	$0	$0	$0	$0	$0	$0	$0	$16,595,591	$5,808,457
1Q 2024	$16,767,657	$0	$0	$0	$0	$0	$0	$0	$16,767,657	$5,868,680
2Q 2024	$16,941,292	$0	$0	$0	$0	$0	$0	$0	$16,941,292	$5,929,452
3Q 2024	$17,116,509	$0	$0	$0	$0	$0	$0	$0	$17,116,509	$5,990,778

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME
(Road Property)

Time Period	Taxable Income B/4 NOL's IRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryforward Utilized 4/	Carryforward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
4Q 2024	$17,293,325	$0	$0	$0	$0	$0	$0	$0	$17,293,325	$6,052,664
Future	$905,751,532	$0	$0	$0	$0	$0	$0	$0	$905,751,532	$317,013,036

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) / 4 - Table J - Part 2, Column (11). Values for 2012 from Table D, Sum of Column (10).
2/ Column (2) if less than zero, otherwise zero.
3/ Cumulative total of Column (2).
4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).
5/ Column (4) + Column (5) + Column (8).
6/ Previous period Column (9) + current period Column (3) - current period Column (5).
7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.
8/ Column (7) + Column (8).
9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.
10/ Column (10) times applicable Federal Statutory Tax Rate.

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME

(Road Property)

Time Period (1)	Taxable Income B/4 NOL's IRR 1/ (2)	Net Operating Losses Generated 2/ (3)	NOL's Generated Plus Carryforward 3/ (4)	Carryforward Utilized 4/ (5)	Carryforward Remaining 5/ (6)	Carryback Available 6/ (7)	Carryback Utilized 7/ (8)	Carryback Remaining 8/ (9)	Annual Taxable Income 9/ (10)	Annual Tax Liability 10/ (11)
2012	($55,231)	($55,231)	($55,231)	$0	($55,231)	($55,231)	$0	($55,231)	$0	$0
2013	($4,953,508)	($4,953,508)	($5,008,739)	$0	($5,008,739)	($5,008,739)	$0	($5,008,739)	$0	$0
2014	($2,786,924)	($2,786,924)	($7,795,664)	$0	($7,795,664)	($7,795,664)	$0	($7,795,664)	$0	$0
1Q 2015	($40,186,748)	($40,186,748)	($47,982,411)	$0	($47,982,411)	($47,982,411)	$0	($47,982,411)	$0	$0
2Q 2015	($40,076,674)	($40,076,674)	($88,059,085)	$0	($88,059,085)	($88,059,085)	$0	($88,059,085)	$0	$0
3Q 2015	($40,125,589)	($40,125,589)	($128,184,674)	$0	($128,184,674)	($128,184,674)	$0	($128,184,674)	$0	$0
4Q 2015	($39,978,420)	($39,978,420)	($168,163,094)	$0	($168,163,094)	($168,163,094)	$0	($168,163,094)	$0	$0
1Q 2016	$3,919,747	$0	($168,163,094)	$3,919,747	($164,243,347)	($164,243,347)	$0	($164,243,347)	$0	$0
2Q 2016	$4,039,211	$0	($164,243,347)	$4,039,211	($160,204,136)	($160,204,136)	$0	($160,204,136)	$0	$0
3Q 2016	$4,225,169	$0	($160,204,136)	$4,225,169	($155,978,966)	($155,978,966)	$0	($155,978,966)	$0	$0
4Q 2016	$4,267,466	$0	($155,978,966)	$4,267,466	($151,711,500)	($151,711,500)	$0	($151,711,500)	$0	$0
1Q 2017	$6,397,474	$0	($151,711,500)	$6,397,474	($145,314,027)	($145,314,027)	$0	($145,314,027)	$0	$0
2Q 2017	$6,590,774	$0	($145,314,027)	$6,590,774	($138,723,253)	($138,723,253)	$0	($138,723,253)	$0	$0
3Q 2017	$6,756,702	$0	($138,723,253)	$6,756,702	($131,966,551)	($131,966,551)	$0	($131,966,551)	$0	$0
4Q 2017	$6,869,799	$0	($131,966,551)	$6,869,799	($125,096,752)	($125,096,752)	$0	($125,096,752)	$0	$0
1Q 2018	$8,464,207	$0	($125,096,752)	$8,464,207	($116,632,544)	($116,632,544)	$0	($116,632,544)	$0	$0
2Q 2018	$8,626,551	$0	($116,632,544)	$8,626,551	($108,005,994)	($108,005,994)	$0	($108,005,994)	$0	$0
3Q 2018	$8,790,467	$0	($108,005,994)	$8,790,467	($99,215,526)	($99,215,526)	$0	($99,215,526)	$0	$0
4Q 2018	$8,955,972	$0	($99,215,526)	$8,955,972	($90,259,555)	($90,259,555)	$0	($90,259,555)	$0	$0
1Q 2019	$9,858,861	$0	($90,259,555)	$9,858,861	($80,400,694)	($80,400,694)	$0	($80,400,694)	$0	$0
2Q 2019	$10,026,659	$0	($80,400,694)	$10,026,659	($70,374,035)	($70,374,035)	$0	($70,374,035)	$0	$0
3Q 2019	$10,196,079	$0	($70,374,035)	$10,196,079	($60,177,955)	($60,177,955)	$0	($60,177,955)	$0	$0
4Q 2019	$10,367,139	$0	($60,177,955)	$10,367,139	($49,810,817)	($49,810,817)	$0	($49,810,817)	$0	$0
1Q 2020	$12,298,682	$0	($49,810,817)	$12,298,682	($37,512,135)	($37,512,135)	$0	($37,512,135)	$0	$0
2Q 2020	$12,435,660	$0	($37,512,135)	$12,435,660	($25,076,474)	($25,076,474)	$0	($25,076,474)	$0	$0
3Q 2020	$12,573,791	$0	($25,076,474)	$12,573,791	($12,502,684)	($12,502,684)	$0	($12,502,684)	$0	$0
4Q 2020	$12,713,084	$0	($12,502,684)	$12,502,684	$0	$0	$0	$0	$210,400	$13,420
1Q 2021	$12,918,746	$0	$0	$0	$0	$0	$0	$0	$12,918,746	$823,975
2Q 2021	$13,086,344	$0	$0	$0	$0	$0	$0	$0	$13,086,344	$834,664
3Q 2021	$13,255,482	$0	$0	$0	$0	$0	$0	$0	$13,255,482	$845,452
4Q 2021	$13,426,173	$0	$0	$0	$0	$0	$0	$0	$13,426,173	$856,339
1Q 2022	$16,055,990	$0	$0	$0	$0	$0	$0	$0	$16,055,990	$1,024,072
2Q 2022	$16,243,057	$0	$0	$0	$0	$0	$0	$0	$16,243,057	$1,036,004
3Q 2022	$16,431,940	$0	$0	$0	$0	$0	$0	$0	$16,431,940	$1,048,051
4Q 2022	$16,622,659	$0	$0	$0	$0	$0	$0	$0	$16,622,659	$1,060,215
1Q 2023	$17,153,339	$0	$0	$0	$0	$0	$0	$0	$17,153,339	$1,094,063
2Q 2023	$17,342,488	$0	$0	$0	$0	$0	$0	$0	$17,342,488	$1,106,127
3Q 2023	$17,533,433	$0	$0	$0	$0	$0	$0	$0	$17,533,433	$1,118,306
4Q 2023	$17,726,191	$0	$0	$0	$0	$0	$0	$0	$17,726,191	$1,130,600
1Q 2024	$17,909,980	$0	$0	$0	$0	$0	$0	$0	$17,909,980	$1,142,322
2Q 2024	$18,095,443	$0	$0	$0	$0	$0	$0	$0	$18,095,443	$1,154,151
3Q 2024	$18,282,597	$0	$0	$0	$0	$0	$0	$0	$18,282,597	$1,166,088

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME
(Road Property)

Time Period (1)	Taxable Income B/4 NOL's IRR 1/ (2)	Net Operating Losses Generated 2/ (3)	NOL's Generated Plus Carryforward 3/ (4)	Carryforward Utilized 4/ (5)	Carryforward Remaining 5/ (6)	Carryback Available 6/ (7)	Carryback Utilized 7/ (8)	Carryback Remaining 8/ (9)	Annual Taxable Income 9/ (10)	Annual Tax Liability 10/ (11)
4Q 2024	$18,471,459	$0	$0	$0	$0	$0	$0	$0	$18,471,459	$1,178,134
Future	$967,457,235	$0	$0	$0	$0	$0	$0	$0	$967,457,235	$61,705,703

1/ Table I Column (3) - Table E Columns (2),(4) & (6) - Table G, Column (14) ÷ 4 - Table J - Part 2, Column (11). Values for 2012 from Table D, Sum of Column (10).
2/ Column (2) if less than zero, otherwise zero.
3/ Cumulative total of Column (2).
4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).
5/ Column (4) + Column (5) + Column (8).
6/ Previous period Column (9) + current period Column (3) - current period Column (5).
7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.
8/ Column (7) + Column (8).
9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.
10/ Column (10) times applicable route mile weighted State Statutory Tax Rates.

TABLE K - PART 1: CERR OPERATING EXPENSES

Item (1)	2015 (2)	2016 (3)	2017 (4)	2018 (5)	2019 (6)	2020 (7)	2021 (8)	2022 (9)	2023 (10)	2024 (11)
1. Train & Engine Personnel	$7,094,038	$6,344,557	$7,685,070	$7,540,059	$7,558,090	$7,944,775	$8,002,131	$8,292,955	$8,158,028	$8,632,979
2. Locomotive Lease Expense	$1,264,871	$1,131,238	$1,370,252	$1,344,397	$1,347,612	$1,416,558	$1,426,784	$1,478,638	$1,454,581	$1,539,265
3. Locomotive Maintenance Expense	$1,364,502	$1,220,343	$1,478,184	$1,450,292	$1,453,760	$1,528,137	$1,539,169	$1,595,107	$1,569,155	$1,660,509
4. Locomotive Operating Expense	$4,639,202	$4,149,072	$5,025,712	$4,930,880	$4,942,672	$5,195,548	$5,233,056	$5,423,243	$5,335,006	$5,645,604
5. Railcar Lease Expense	$4,974,469	$4,448,919	$5,388,911	$5,287,226	$5,299,870	$5,571,021	$5,611,240	$5,815,171	$5,720,558	$6,053,602
6. Material & Supply Operating	$617,874	$617,874	$617,874	$617,874	$617,874	$617,874	$617,874	$617,874	$617,874	$617,874
7. Ad Valorem Tax	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810	$1,638,810
8. Operating Managers	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624	$4,968,624
9. General & Administration	$6,881,791	$6,998,832	$6,998,832	$6,998,832	$6,998,832	$6,998,832	$6,998,832	$6,998,832	$6,998,832	$6,998,832
10. Loss and Damage	$118,228	$105,737	$128,078	$125,661	$125,961	$132,406	$133,362	$138,208	$135,960	$143,875
11. Trackage Rights	$1,534,659	$1,372,523	$1,662,517	$1,631,147	$1,635,048	$1,718,700	$1,731,107	$1,794,022	$1,764,833	$1,867,579
12. Intermodal Lift Costs	$5,933,928	$5,307,012	$6,428,307	$6,307,010	$6,322,092	$6,645,541	$6,693,518	$6,936,782	$6,823,920	$7,221,201
13. Insurance 3.75%	$1,860,216	$1,757,948	$1,948,713	$1,928,077	$1,930,643	$1,985,671	$1,993,834	$2,035,220	$2,016,019	$2,083,608
14. Maintenance of Way	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125	$8,580,125
15. Total Operating Expenses	$51,471,337	$48,641,613	$53,920,009	$53,349,014	$53,420,014	$54,942,622	$55,168,466	$56,313,613	$55,782,325	$57,652,486
16. Expense Per Quarter	$12,867,834	$12,160,403	$13,480,002	$13,337,253	$13,355,003	$13,735,655	$13,792,117	$14,078,403	$13,945,581	$14,413,122
17. Net-Ton Miles	1,914,193,709	1,711,960,084	2,073,672,596	2,034,544,000	2,039,409,435	2,143,749,157	2,159,225,580	2,237,698,998	2,201,291,464	2,329,447,963

TABLE K - PART 2: CERR OPERATING EXPENSES INDEXED

Period (1)	Quarter (2)	Hybrid Index 1/ (3)	Operating Expense Indexed For Inflation 2/ (4)
1	1Q 2015	100.000	$13,539,755
2	2Q 2015	93.014	$12,640,817
3	3Q 2015	87.621	$11,946,832
4	4Q 2015	91.095	$12,393,914
5	1Q 2016	90.367	$10,988,936
6	2Q 2016	91.415	$11,116,408
7	3Q 2016	93.316	$11,347,629
8	4Q 2016	94.977	$11,549,617
9	1Q 2017	95.652	$12,893,837
10	2Q 2017	96.455	$13,002,145
11	3Q 2017	97.830	$13,187,426
12	4Q 2017	99.674	$13,436,009
13	1Q 2018	100.857	$13,451,562
14	2Q 2018	102.041	$13,609,482
15	3Q 2018	103.239	$13,769,256
16	4Q 2018	104.451	$13,930,906
17	1Q 2019	105.576	$14,099,722
18	2Q 2019	106.700	$14,249,735
19	3Q 2019	107.835	$14,401,345
20	4Q 2019	108.982	$14,554,567
21	1Q 2020	109.361	$15,021,493
22	2Q 2020	109.726	$15,071,522
23	3Q 2020	110.091	$15,121,718
24	4Q 2020	110.458	$15,172,081
25	1Q 2021	111.165	$15,332,063
26	2Q 2021	111.854	$15,427,100
27	3Q 2021	112.548	$15,522,726
28	4Q 2021	113.245	$15,618,945
29	1Q 2022	114.307	$16,092,602
30	2Q 2022	115.355	$16,240,121
31	3Q 2022	116.412	$16,388,993
32	4Q 2022	117.479	$16,539,229
33	1Q 2023	118.688	$16,551,663
34	2Q 2023	119.882	$16,718,252
35	3Q 2023	121.089	$16,886,518
36	4Q 2023	122.307	$17,056,478
37	1Q 2024	123.387	$17,783,914
38	2Q 2024	124.452	$17,937,421
39	3Q 2024	125.526	$18,092,253
40	4Q 2024	126.610	$18,248,422

1/ 1Q15 equals 100.0, all other quarters equal Quarterly Inflation Indexes for the Hybrid Index from Table B.

2/ Quarterly expense from Table K, Page 18, for the applicable time period x Column (3) ÷ 1Q15. Start-up costs have been distributed over the first 12 months in periods 1 - 4.

TABLE L: CERR STAND-ALONE COSTS AND REVENUES

Revenue Requirements to Cover Total Stand-Alone Costs

Period	Quarter	Quarterly Capital Requirement Road Property	Quarterly Operating Expense	Annual Stand-Alone Requirement	Annual Stand-Alone Revenues	Overpayments Or Shortfalls In Revenues	PV Difference	Cumulative PV Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	1Q 2015	$15,482,740	$13,539,755					
2	2Q 2015	$15,592,813	$12,640,817					
3	3Q 2015	$15,543,899	$11,946,832					
4	4Q 2015	$15,691,068	$12,393,914	$112,831,838	$139,420,104	$26,588,265	$25,076,657	$25,076,657
5	1Q 2016	$15,887,831	$10,988,936					
6	2Q 2016	$16,007,295	$11,116,408					
7	3Q 2016	$16,193,253	$11,347,629					
8	4Q 2016	$16,235,550	$11,549,617	$109,326,519	$124,301,738	$14,975,218	$12,563,542	$37,640,199
9	1Q 2017	$16,380,341	$12,893,837					
10	2Q 2017	$16,573,641	$13,002,145					
11	3Q 2017	$16,739,569	$13,187,426					
12	4Q 2017	$16,852,667	$13,436,009	$119,065,634	$157,697,963	$38,632,328	$28,830,296	$66,470,496
13	1Q 2018	$17,013,453	$13,451,562					
14	2Q 2018	$17,175,797	$13,609,482					
15	3Q 2018	$17,339,713	$13,769,256					
16	4Q 2018	$17,505,217	$13,930,906	$123,795,385	$158,736,857	$34,941,471	$23,195,231	$89,665,726
17	1Q 2019	$17,671,408	$14,099,722					
18	2Q 2019	$17,839,206	$14,249,735					
19	3Q 2019	$18,008,626	$14,401,345					
20	4Q 2019	$18,179,685	$14,554,567	$129,004,294	$164,015,897	$35,011,604	$20,674,205	$110,339,931
21	1Q 2020	$18,315,523	$15,021,493					
22	2Q 2020	$18,452,501	$15,071,522					
23	3Q 2020	$18,590,632	$15,121,718					
24	4Q 2020	$18,729,925	$15,172,081	$134,475,394	$179,653,610	$45,178,216	$23,730,406	$134,070,337
25	1Q 2021	$18,895,999	$15,332,063					
26	2Q 2021	$19,063,598	$15,427,100					
27	3Q 2021	$19,232,735	$15,522,726					
28	4Q 2021	$19,403,427	$15,618,945	$138,496,594	$186,273,795	$47,777,201	$22,323,181	$156,393,518
29	1Q 2022	$19,588,695	$16,092,602					
30	2Q 2022	$19,775,762	$16,240,121					
31	3Q 2022	$19,964,645	$16,388,993					
32	4Q 2022	$20,155,364	$16,539,229	$144,745,409	$200,881,860	$56,136,451	$23,331,337	$179,724,855
33	1Q 2023	$20,342,735	$16,551,663					
34	2Q 2023	$20,531,885	$16,718,252					
35	3Q 2023	$20,722,830	$16,886,518					
36	4Q 2023	$20,915,588	$17,056,478	$149,725,949	$202,646,215	$52,920,266	$19,564,826	$199,289,681
37	1Q 2024	$21,099,376	$17,783,914					
38	2Q 2024	$21,284,840	$17,937,421					
39	3Q 2024	$21,471,994	$18,092,253					
40	4Q 2024	$21,660,855	$18,248,422	$157,579,075	$223,757,130	$66,178,055	$21,763,425	$221,053,106

CERR MMM Revenue to Variable Cost Ratios - 2015 to 2024

	Year (1)	MMM Revenue to Variable Cost Ratios (2)
1.	2015	351.4%
2.	2016	406.7%
3.	2017	304.2%
4.	2018	319.0%
5.	2019	321.1%
6.	2020	293.3%
7.	2021	284.7%
8.	2022	264.6%
9.	2023	266.3%
10.	2024	239.6%

Source: e-workpaper "CERR MMM.xlsm," worksheet "Exhibit III-H-2," cells F10 to F19.

Part IV – Revenue Adequacy

Exhibit IV-1

PUBLIC VERSION

THE REVENUE ADEQUACY STATUS OF CSX TRANSPORTATION, INC.

REPORT BY

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A. INTRODUCTION, PREVIEW AND BACKGROUND

1. Introduction

My name is John F. Hennigan. I am an Associate Director at Navigant Economics LLC, a subsidiary of Navigant Consulting, Inc. with offices at 1200 19th Street N.W., Suite 700, Washington D.C. 20036. On behalf of Consumers Energy Company, the Complainant in STB Docket NOR 42142, I am sponsoring an assessment of the revenue adequacy of CSX Transportation, Inc. ("CSXT"), under the standards of 49 U.S.C. Section 10704(a). This Report will provide evidence for the application of the Revenue Adequacy Constraint, one of the guidelines used to evaluate captive shipper rail rate complaints under the Coal Rate Guidelines that the predecessor of the Surface Transportation Board ("STB" or "Board") adopted in 1985.[1]

1 *Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520 (1985).

I received my B.A. degree in Economics from Xavier University in Cincinnati, Ohio, and a Ph.D. in Economics from West Virginia University.

I joined the Interstate Commerce Commission ("ICC" or "Commission"), the STB's predecessor, in Washington, D.C. in 1976, initially as a staff economist in the Bureau of Economics and subsequently as a staff advisor to ICC Chairman Marcus Alexis. In 1981-1982, I was detailed to the U.S. House, Committee on Public Works and Transportation, Surface Transportation Subcommittee to provide legislative and oversight support for the Subcommittee. On returning to the ICC in June 1982, I served as a staff advisor to Commissioner and later Chairman Heather Gradison until I was appointed as the Director of the ICC Office of Economics, and served in that position until 1990.

This was an important and challenging period at the ICC. It was during this period that most of the Staggers Act's major policy provisions, such as the Standards for Railroad Revenue Adequacy, the Coal Rate Guidelines, and the major exemptions from rate regulation for commodities or railroad equipment were adopted and implemented by the Commission.

In 1991, after a one-year executive exchange assignment with the Transportation Marketing Division of the IBM Corporation, I accepted a position as Deputy Director of the Office of Aviation Policy and Plans at the Federal Aviation Administration ("FAA") in Washington, D.C. In 1999, I accepted a position as the Deputy CFO of the FAA, where I assisted the CFO in decision-making in accounting, finance, budget, and related FAA policy matters.

From 2006 to 2008, I was detailed to the U.S. Senate, Committee on Commerce, Science, and Transportation to assist in the drafting and passage of the FAA Reauthorization Bill and to help provide policy guidance and oversight on aviation issues. I returned to the FAA in 2008 to serve as the coordinator of external liaison and business development functions for the FAA's Air Traffic Organization. In 2011, I was detailed to the Department of Transportation ("DOT"), Office of Assistant Secretary for Budget and Programs, to assist, among other things, in setting up the Credit Program Oversight Office for the DOT's loan and loan guarantee programs for the surface transportation and maritime industries.

I retired from the FAA in June, 2014 and subsequently joined Microeconomic Consulting and Research Associates, Inc. (MiCRA) of Washington, D.C. as a senior economic advisor. In July, 2015 MiCRA merged with Navigant Economics in Washington, D.C. I am currently an Associate Director at Navigant Economics.

2. Preview

According to the STB's annual evaluation of railroad revenue adequacy, CSXT's return on net investment has fallen short of the targeted railroad industry return on investment, which is the railroad industry cost of capital ("COC"), by modest margins in recent years: 18 basis points in 2010, 3 basis points in 2011, 31 basis points in 2012, and 45 basis points in 2014, as shown in Table 1 below:

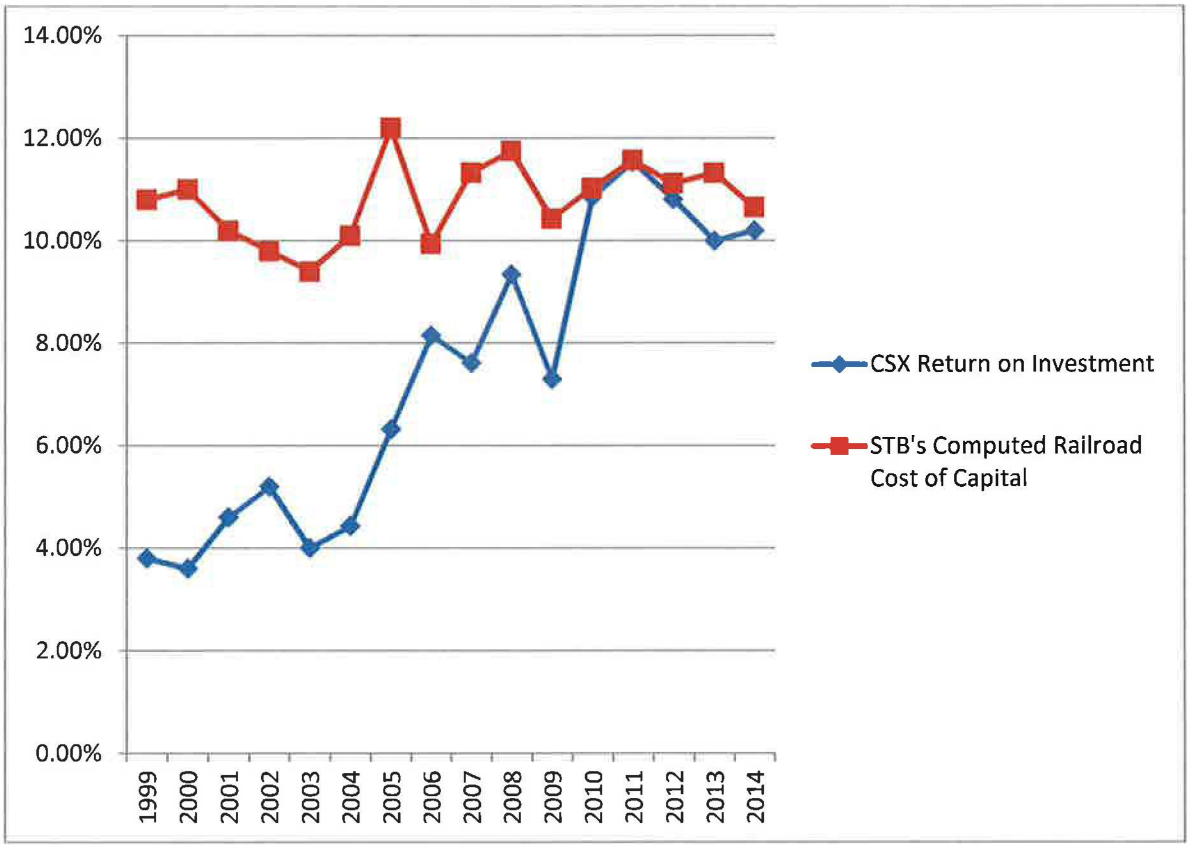
Table 1 Comparison of STB COC to CSXT ROI 2010-2014			
Year	STB Cost of Capital (a)	CSXT ROI (b)	ROI Deficit (in basis points)
2010	11.03%	10.85%	18
2011	11.57%	11.54%	3
2012	11.12%	10.81%	31
2013	11.32%	10.0%	132
2014	10.65%	10.18%	47
Average	11.14%	10.68%	46

Source:
(a) See, for example, *Railroad Cost of Capital - 2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, 2015, page 15.
(b) See, for example, *Railroad Revenue Adequacy - 2014 Determination*, STB Ex Parte No. 552 (Sub-No. 19), served September 8, 2015, page 3.
e-workpaper RA.xlsx, tab Table 1.

What is remarkable, however, as shown in Table 2 below[2] is the dramatic improvement in CSXT's return on investment since 1999, with CSXT coming very close to meeting the STB's test in recent years, which only compares railroad return on net investment to the industry cost of capital.

2 Table 2 is a chart and not a table, but all charts have been designated as tables for ease of reference.

Table 2
Comparison of CSXT's Return on Investment to STB's Railroad Cost of Capital 1999-2014



Source: STB Cost of Capital and Revenue Adequacy decisions, 1999-2014 and e-workpaper RA.xlsx, tab Table 2.

However, the STB's annual calculation of the railroad industry cost of capital is only an estimate and not a precise number. A simple statistical test of the differences between CSXT's return on investment values and the STB's industry cost of capital estimates from 2010-2014 shows that they are not statistically different from zero in a two tailed test at the 5% level of significance. Thus, while the numerical values of CSXT's return on investment are slightly less than the industry cost of capital, the difference between those values is not significantly different than zero (see Appendix, Exhibit 1, and e-workpaper RA.xlsx, tab Exhibit 1).[3] From either a statistical or an economics point of view, therefore, the hypothesis that in recent years CSXT already has achieved revenue adequacy even under the STB's single-measure annual test cannot be rejected. This Report will provide additional analysis and evidence to support the finding that CSXT is currently, and will continue to be, a revenue adequate railroad.[4]

3. Background - Early evolution of the Revenue Adequacy Standard

The STB and predecessor ICC have ruled that complainants in individual railroad rate cases can offer any competent and probative information to demonstrate that a railroad should be considered revenue adequate for purposes of the Coal Rate Guidelines, a sound and reasonable principle from a regulatory policy standpoint. The standard test decided upon by the STB and the ICC for making the annual, general evaluation of railroad revenue adequacy required under 49 U.S.C. § 10704(a)(3) has been whether an individual railroad's annual return on net investment ("ROI") equals or exceeds the railroad industry's estimated annual COC, as computed by the STB or as formerly computed by the ICC.

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3 The STB performs a similar statistical analysis in evaluating small shipper rail rate complaint cases under the Three-Benchmark Method when it determines whether the railroad freight rate that shippers pay is statistically significantly higher than the average of the rail rates for a selected group of comparable shipper traffic. See Three-Benchmark Methodology in *Simplified Standards for Rail Rate Cases*, STB Ex Parte No. 646 (Sub-No. 1), served September 5, 2007, page 12.

4 CSXT is the principal operating subsidiary of CSX Corporation (CSX). CSX's other subsidiaries are small or insignificant relative to CSXT. Railroad-related assets, operations, acquisitions, expenses and profits dominate CSX's financial statements and any financial analysis of the corporation. To avoid confusion, this testimony will use "CSXT" when referring to the railroad subsidiary as well as when referring to matters involving the corporate financial statements, corporate financial performance measures or common stock or other matters. Some exceptions may be made if a clear distinction is needed.

Implementing that test, however, involves resolving disputed conceptual issues in a context of imperfect data. Over the 34 year period from 1981 to 2015, the test for railroad revenue adequacy (ROI greater than or equal to COC) has remained the same, but periodic changes in the calculation to improve the test have been made, and significant additional changes currently are under consideration by the STB.[5]

As a result, any determination of revenue adequacy based solely on the current standard test is subject to bias and error. In the years immediately following the passage of the Staggers Act, the financial position of the railroads was sufficiently weak that almost no margin of error in that test could have produced a false positive result with respect to revenue adequacy. As the financial positions of railroads have improved, however, especially over the last ten years, reliance on this test for individual railroad revenue adequacy has become increasingly problematic. Thus, while it is important to correctly resolve the numerous conceptual and empirical issues with respect both to the individual railroad's return on investment and the industry cost of capital, and thus implement the STB's annual revenue adequacy test as accurately as possible given the data limitations, it also has become important to examine additional criteria or tests as a reality check on the standard test of revenue adequacy when it comes to evaluating the reasonableness of rates on captive traffic. Financial and other institutions routinely evaluate the performance of U.S. corporations using numerous tools and metrics to assess company profitability, future growth

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5 *See Petition of the Western Coal Traffic League to Institute a Rulemaking Proceeding to Abolish the Use of the Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Equity Capital*, STB Ex Parte No. 664 (Sub-No. 2), served December 20, 2013; *Railroad Revenue Adequacy*, STB Ex Parte No. 722, served April 2, 2014.

prospects, stock price, bond ratings, and investment strategies. Railroads now are viewed with great interest by the financial and investment community due to their improved profitability, stability, and future growth prospects.

The following sections of this Report (Sections B, C, D, E, F, and G) present evidence of CSXT's revenue adequacy based on a number of specific tests and analyses. The tests include:

-Section B - Whether CSXT's annual financial results meet or exceed the specific requirements for revenue adequacy specified in the applicable statute (codified at 49 U.S.C. Sect. 10704(a)(2));

-Section C - CSXT's revenue adequacy based on the use of other financial measures of CSXT's performance;

-Section D - Calculations of CSXT's revenue adequacy using the STB's ROI=COC revenue adequacy test in the form of a comparison of CSXT's return on net investment to the STB-computed industry cost of capital after incorporating a series of recommended corrections to the formula;

-Section E - Calculations of CSXT's revenue adequacy using the STB's ROI=COC revenue adequacy test in the form of a comparison of CSXT's return on net investment to CSXT's own cost of capital;

-Section F - Determination of CSXT's revenue adequacy based upon CSXT's internal estimates of its cost of capital taken from materials produced in the discovery phase of this case; and

-Section G – Study of CSXT's revenue adequacy as perceived by the financial and investment community.

B. CSXT's REVENUE ADEQUACY UNDER 49 U.S.C. SECTION 10704 (a)(2)

1. General applicability

A railroad can be shown to be revenue adequate not only by a finding that its return on investment, however defined and measured, exceeds its cost of capital, however defined and measured, but also by examining other competent and probative criteria. Under the statute that governs the determination, a railroad should be deemed to be revenue adequate if, under honest, economical, and efficient management the railroad's revenue is adequate to:

1. Cover total operating expenses including depreciation and obsolescence, and thus allow the railroad to
2. Earn a reasonable economic profit on the capital employed in the business.

More specifically, the railroad's revenue levels should:

(a) provide a flow of net income plus depreciation that is adequate to:

- support prudent capital outlays,

-assure the repayment of a reasonable level of debt,

-permit the raising of needed equity capital,

-cover the effects of inflation and

(b) Insure retention and attraction of capital in amounts adequate to provide a sound transportation system in the United States.

This set of criteria for railroad revenue adequacy was set out in Section 205 of the *Railroad Revitalization and Regulatory Reform Act of 1976,* Pub. Law No. 94-210, 90 Stat 41 (1976), and presently is codified in 49 U.S.C. § 10704(a)(2). The Staggers Rail Act that ultimately became law in 1981 made no substantive changes to the criteria for railroad revenue adequacy. However, faced with a requirement under the Staggers Act to quickly implement revenue adequacy standards and determine annually which rail carriers were earning adequate revenues, the ICC in 1981 adopted as a standard a rate of return greater than or equal to the industry cost of capital. Although, for practical reasons, the ICC chose a single test for railroad revenue adequacy, it is clear that the underlying statutory provision defining revenue adequacy was broader and lists multiple measures of financial health that also should be considered. If a railroad succeeds in meeting all of these enumerated criteria for revenue adequacy as specified by the governing statute, then the railroad should not be deemed revenue inadequate based solely on the result of a single test historically used by the STB. Under these conditions, failure to meet the STB's ROI=COC test would indicate that the singular test may have flaws or is too conservatively biased.

It is also important to note that analyses of historical trends in financial variables such as operating profit margins, changes in railroad productivity and the volume of rail services show not only where a company has been with respect to key measures, but also the direction of movement, and thus provide a bridge between the purely backward-looking measures such as the STB standard test and more forward-looking measures, such as the market value of equity.

2. CSXT Revenue Adequacy under 49 U.S.C. § 10704(a)(2)

A logical starting point to examine potential gauges of revenue adequacy is its statutory definition at 49 U.S.C. § 10704(a)(2), and the available CSXT data that is relevant to its various elements. As previously noted, the statutory definition is broken down into a series of relevant questions about the financial performance of a railroad that need to be measured and assessed. In this section, I will introduce and answer each of these questions about elements of the revenue adequacy definition with relevant data for CSXT. Each of the elements is shown below in italics, and an analysis with the relevant CSXT data pertinent to the element follows it:

a. Under honest, economical, and efficient management, is CSXT's revenue level adequate to:

-Cover total operating expenses including depreciation and obsolescence, and thus

- Earn a reasonable economic profit on capital employed in the business?

Table 3 combines excerpts from CSXT's Consolidated Income Statements for the five-year period 2010 through 2014 ("the relevant period"). Over this period, net revenues (i.e., revenue minus operating expenses, including depreciation, interest, income taxes and other expenses) have been positive and increasing. Net earnings increased by 23% and earnings per share increasing by 41%. CSXT also almost doubled its dividends per share over this period, from $0.33 per share in 2010 to $0.63 per share in 2014. Throughout this period, CSXT's revenues covered all expenses and depreciation, and also generated economic profits.

Table 3
Excerpts from CSXT's Consolidated Income Statements
2010-2014
(Dollars in millions)

		Fiscal	Years		
	2010	2011	2012	2013	2014
Revenue	$10,636	$11,795	$11,763	$12,026	$12,669
Expense					
Labor and Fringe	2,957	3,073	3,020	3,138	3,377
Materials, Supplies and Other	2,075	2,229	2,156	2,275	2,484
Fuel	1,212	1,668	1,672	1,656	1,616
Depreciation	947	976	1,059	1,104	1,151
Equipment and Other Rents	374	379	392	380	428
Total Expense	7,565	8,325	8,299	8,553	9,056
Operating Income	3,071	3,470	3,464	3,473	3,613
Interest Expense	(557)	(552)	(566)	(562)	(545)
Other (Expense) Income -Net	32	22	73	11	(24)
Earnings Before Income Taxes	2,546	2,940	2,971	2,922	3,044
Income Tax Expense	(983)	(1,086)	(1,108)	(1,058)	(1,117)
Net Earnings	$1,563	$1,854	$1,863	$1,864	$1,927
Per Common Share					
Net Earnings per Share					
Basic	$1.37	$1.71	$1.80	$1.83	$1.93
Assuming Dilution	$1.35	$1.70	$1.79	$1.83	$1.92
Average Common Shares Outstanding (Millions)					
Basic	1,143	1,083	1,038	1,019	1,001
Assuming Dilution	1,154	1,089	1,040	1,019	1,002
Cash Dividends Paid Per Common Share	$0.33	$0.45	$0.54	$0.59	$0.63
Source: CSX 2012 Annual Report (Consolidated Income Statement) at 56 (for 2010); CSX 2013 Annual Report at 53 (for 2011); CSX 2014 Annual Report at 54 (for 2012-2014); e-workpapers RA.xlsx, tab Table 3 and RA-Table3.pdf.					

That CSXT's economic profits have been at least "reasonable" is indisputable when the company's performance is measured against the overall economy. Although the U.S. economy has recovered only slowly from the 2007 great recession, CSXT began a strong recovery in late 2009 and continued growing and improving its financial performance through 2014. In response to CSXT's consistent earnings increases, traffic gains, and steady improvement in operating performance, investors have bid up CSXT stock. As can be seen in Table 4 below, CSXT stock has outperformed the Standard & Poor's 500 stock index, a broad measure of performance of the U.S economy, by a wide margin over the period.

Table 4
Stock Market Performance – CSX versus S&P 500
2008-2015

Source: Bloomberg Finance – Comparison of CSX stock index against S&P 500 index - January, 2008=100; e-workpapers RA.xlsx, tab Table 4, and RA-Table 4.pdf.

Between 2008 and July 20, 2015, CSXT stock appreciated by 118%, as compared to a 44% increase in the S&P 500. From March 2, 2009 (the lowest point of the CSXT and S&P 500 stock index values in the recession) to July 20, 2015, CSXT stock appreciated 282% compared to 175% for the S&P 500. Thus, whether measured from the beginning or the end of the recession, CSXT stock has appreciated considerably faster than the S&P 500 index. CSXT's financial performance and its profits have been more than sufficient to attract and retain investment, despite a difficult U.S. economy since 2008.

b. More specifically, the railroad's revenue levels should:

- provide a flow of net income plus depreciation adequate to:

- support prudent capital outlays,

CSXT's average net income plus depreciation over the five-year period from 2010 through 2014 was $2.862 billion, as shown on row (c) on Table 5, below:

Table 5 CSXT's Consolidated Cash Flow Statements 2010-2014 *(Dollars in Millions)*								
			Fiscal Years					
Row	**Description**	**Source: Appendix, Exhibit 2**	**2010**	**2011**	**2012**	**2013**	**2014**	**Average**
(a)	Net Earnings	App., Exhibit 2, Row (1)	$1,563	$1,854	$1,863	$1,864	$1,927	$1,814
(b)	Depreciation	App., Exhibit 2, Row (2)	$947	$976	$1,059	$1,104	$1,151	$1,047
(c)	Net Earnings Plus Depreciation	App., Exhibit 2, sum of Rows (1) and (2)	$2,510	$2,830	$2,922	$2,968	$3,078	$2,862
(d)	Deferred Income Taxes	App., Exhibit 2, Row (3)	$474	$609	$592	$300	$298	$455
(e)	Other Operating Cash Flow	App., Exhibit 2, sum of Rows (4) through (11)	$277	$52	-$568	-$1	-$33	-$55
(f)	Operating Cash Flow	App., Exhibit 2, Row (12)	$3,261	$3,491	$2,946	$3,267	$3,343	$3,262
(g)	Property Additions	App., Exhibit 2, Row (13)	$1,840	$2,297	$2,341	$2,313	$2,449	$2,248
(h)	Proceeds from Property Dispositions	App., Exhibit 2, Row (16)	$108	$240	$186	$53	$62	$130
(i)	Other Investing Cash Flow	App, Exhibit 2, sum of Rows (14), (15) and (17)	-$39	-$530	-$122	$33	$204	-$91
(j)	Investing Cash Flow	App., Exhibit 2, Row (18)	-1,771	-2,587	-2,277	-2,227	-2,183	-$2,209
(k)	Long-Term Debt Issued	App., Exhibit 2, Row (19)	$800	$1,200	$1,100	$500	$1,000	$920
(l)	Long-Term Debt Repaid	App., Exhibit 2, Row (20)	-$113	-$605	-$508	-$780	-$933	-$588
(m)	Net Increase in Long-Term Debt	App., Exhibit 2, sum of Rows (19) and (20)	$687	$595	$592	-$280	$67	$332
(n)	Dividends Paid	App., Exhibit 2, Row (21)	-$372	-$480	-$558	-$600	-$629	-$528
(o)	Shares Repurchased	App., Exhibit 2, Row (23)	-1,452	-1,564	-$734	-$353	-$517	-$924
(p)	Other Financing Cash Flow	App., Exhibit 2, Sum of Rows (22) and (24)	-$90	$36	$32	$1	-$4	-$5
(q)	Financing Cash Flow	App., Exhibit 2, Row (25)	-1,227	-1,413	-$668	-1,232	-1,083	-$1,125
Source: CSXT SEC Annual Reports (Consolidated Cash Flow Statements), 2012, 2013 and 2014; Exhibit 2; e-workpapers RA.xlsx, tab Table 5, and RA-Table5.pdf.								

Operating cash flow is a valid comparable for the "net income plus depreciation" identified in the statutory definition of revenue adequacy, and is a broader, more reliable, and more often utilized metric of a firm's ability to fund investing and financing activities (*i.e.*, capital outlays) from its operations. During the relevant period, CSXT's annual operating cash flow averaged $3.262 billion (see row (f) on Table 5 above). CSXT's operating cash flow exceeded its net income plus depreciation in part because CSXT expensed $0.455 billion more in income tax than it paid (see row (d) on Table 5 above). This entry is referred to as deferred taxes and it provides an additional source of cash flow for CSXT.

Railroad capital outlays, or capital expenditures, often are depicted as a percentage of revenues. CSXT's capital expenditures are shown as a percentage of revenues in Table 6 below:

Table 6 CSXT Capital Expenditures/Revenues 2010-2014			
Year	Capital Expenditures (a) (billions)	Revenues (b) (billions)	Percentage Ratio
2010	$1.840	$10.636	17.3%
2011	$2.297	$11.795	19.5%
2012	$2.341	$11.763	19.9%
2013	$2.313	$12.026	19.2%
2014	$2.449	$12.669	19.3%
Average	$2.248	$11.777	19.1%
Source: (a) CSX SEC Annual Reports (Consolidated Cash Flow Statements), Table 5, line g. (b) CSX SEC Annual Reports (Consolidated Income Statement), Table 3, line 1. e-workpapers RA.xlsx, tab Table 6, and RA-Table6.pdf.			

CSXT's revenue levels during the relevant period were more than adequate after expenses to support "prudent capital outlays," as measured by property additions that averaged $2.248 billion annually (see row (g) on Table 5 above). CSXT's average annual net income plus depreciation exceeded prudent capital outlays by $0.614 billion (i.e., $2.862 billion minus $2.248 billion, see row (c) minus row (g)), and operating cash flow exceeded prudent capital outlays by $1.014 billion (i.e., $3.262 billion minus $ 2.248 billion, see row (f) minus row (g)). As can be seen in Table 6, prudent capital represented 19% of CSXT's operating revenues over the period. Given that capital expenditures for railroads generally have averaged about 15% of revenues in the modern era,[6] with the AAR reporting an average of 19% in recent years,[7] CSXT's capital outlays are squarely in line with those of the other major railroads, and clearly prudent on a relative basis.

CSXT could devote even more of its resources to capital expenditures if it needed additional investment. As shown in Table 7 (below), CSXT has devoted substantial resources to buying back its own stock, a clear indicator that CSXT does not suffer from a capital shortfall:

Table 7 CSXT Stock Buyback Expenditures 2010-2014		
Year	Dollars Spent on Stock Buybacks	Source
2010	$1.5 billion	CSX 2010 10-K, p. 45
2011	$1.6 billion	CSX 2011 10-K, p. 65
2012	$734 million	CSX 2012 10-K, p. 21
2013	$353 million	CSX 2014 10-K, p. 19
2014	$517 million	CSX 2014 10-K, p. 20
Average	$941 million	
Total	$4.704 billion	
Source: e-workpapers RA.xlsx, tab Table 7; RA-Table7.pdf, and RA-CSXT-Fin.pdf (031085).		

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6 See http://myemail.constantcontact.com/Rail-Industry-Capital-Expenditures---Special-Report-by-Tony-Hatch--Sponsored-by-the-NRC.html?soid=1106103828154&aid=xwRVdIrDGyE; e-workpaper RA-Hatch.pdf. The report is undated, but appears to have been produced during 2013, as it uses estimated data for that year.

7 AAR, *Overview of America's Freight Railroads* (July 2015), at 4. https://www.aar.org/BackgroundPapers/Overview%20of%20America's%20Freight%20RRs%20July%202015.pdf; e-workpaper RA-AAROverview.pdf.

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During the past ten years, railroads in general and CSXT in particular have been willing to invest billions of dollars in new plant and equipment, based upon improved earnings and confidence in the future of railroading. Railroads often depict themselves as having one of the highest levels of capital investment per dollar of revenue among large industrial companies in the U.S.[8] Railroads invest in infrastructure and equipment in order to replace worn out equipment, and meet customers' service demands. If railroads did not expect to earn sufficient levels of profits on existing operations or on prospective net additions to infrastructure (such as building double track operations along a particular line, building a new intermodal terminal, or purchasing new locomotives), they would be reluctant to make these investments. The large annual investment that CSXT has been making every year, along with CSXT's dividend and stock repurchase programs, clearly show that CSXT's earning levels provide an adequate return on its investments.

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8 *See*, for example, CSXT's hearing exhibit in *Railroad Revenue Adequacy*, STB Ex Parte No. 722 (July 22, 2014), at page 6 (copy included as Appendix, Exhibit 3).

-Assure the repayment of a reasonable level of debt,

CSXT's revenue levels during the relevant period were more than adequate to "assure the repayment of a reasonable level of debt," as measured by annual interest expense on debt outstanding, redemptions of matured debt obligations due each fiscal year, and discretionary repayment of additional indebtedness outstanding. CSXT's scheduled maturation of debt is shown on Table 8, below:

Table 8
Scheduled Maturation of CSXT Debt
2010-2014

Year Debt Due	Amount (millions)	Source
2010	$113	CSX 2009 10-K, p. 114, n.9
2011	$613	CSX 2010 10-K, p. 103, n.9
2012	$507	CSX 2013 10-K, p. 94 n.9
2013	$780	CSX 2014 10-K, p. 94 n.9
2014	$533	CSX 2014 10-K, p. 91 n.9
Average	$509	
Total	$2,546	

Source: e-workpapers RA.xlsx, tab Table 8, and RA-Table 8.pdf.

During the relevant period, CSXT's annual required redemption of maturing debt due was, on average, $509 million (see Table 8, above). Referring again to the financial statistics summarized in Table 5 (above), on an average annual basis during the relevant period, CSXT's net income plus depreciation was $0.105 billion higher than the sum of prudent capital outlays and repayment of a reasonable level of debt (i.e., $2.862 - $2.248- $0.509 =$0.105), and CSXT's operating cash flow was $0.505 billion higher than the sum of prudent capital outlays and repayment of a reasonable level of debt (i.e., $3.262 - $2.248- $0.509 = $0.505).

CSXT has access to bond markets and uses this ability when needed to refinance debt or borrow for other general corporate purposes. Table 5, line m (above), shows that the net of CSXT's average annual borrowings and redemptions of debt amounted to $332 million per year over the 2010-2014 period, which indicates that CSXT makes strategic use of borrowing. CSXT's current overall bond ratings - BBB+ from Standard & Poor's and Baa1 from Moody's Investor Services – are both investment grade ratings. See, e.g., CSX 2014 Annual Report at 25, 40; e-workpaper RA-CSX-2014-Annual Report.pdf. Access to bond markets at reasonable interest rates has been readily available to CSXT.

-Raise equity capital-

Neither CSXT nor any of the other Class I railroads that were included in each year's determination of the railroad industry cost of capital have issued new offerings of stock to the public since 1991, when BNSF floated additional equity.[9] For its part, CSXT has been engaged in substantial net buybacks of its common stock at least since 2006.

The decision to go to the capital markets for equity or bond financing, to use the money markets for shorter term financing, or to use internal cash flow to finance railroad investments or operations is an individual corporate decision. That decision is based on consideration of numerous factors such as access to capital, finance considerations, availability of internal sources of funds, bond ratings, current interest rates on debt, and a desire to maintain a favorable capital structure. While CSXT has not chosen to make a public offering to sell stock, it has used its

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9 CSXT's annual reports explain that in 2001 it issued $564 million in unsubordinated callable zero coupon convertible (into common stock at maturity) debentures due in 2021. *See, e.g.,* CSX 2011 Annual Report at 93-94. As of December 2012, only $2 million face value (convertible into 245,000 shares) of the debentures remained. 2012 Annual Report at 67. See e-workpaper RA-CSX-Convertible.pdf.

access to the capital markets for debt funding and refinancing. Since the cost of debt capital is lower than the cost of equity capital, and since CSXT also engages in significant stock repurchases, CSXT can adjust and optimize its capital structure to lower its overall weighted cost of capital. In that regard, CSXT's decision to use, on average, $924 million of cash annually during the relevant time period for share repurchases (see row (o) on Table 5 above) is very strong evidence that CSXT's revenues were more than adequate to meet its capital needs.

-Cover the effects of inflation

CSXT is now in an excellent operational and financial position to aggressively address railroad related inflation. Tools such as the STB's rail cost adjustment factor ("RCAF") and CSXT's fuel surcharge program provide information and tools to assist CSXT in recovering any inflationary increases in operating costs through periodic freight rate adjustments. As noted above, CSXT increased its earnings by 23% and its earnings per share by 41% during the period from 2010-2014. In contrast, the increase in the Rail Cost Adjustment Factor, Unadjusted for Productivity ("RCAF-U") from the first quarter of 2010 to the first quarter of 2015 was 10.3%, and the corresponding increase in the Rail Cost Adjustment Factor, Adjusted for Productivity ("RCAF-A") was 4.7%.[10] CSXT's earnings have increased at more than double the rate of the RCAF-U and nearly five times the rate of the RCAF-A. Obviously, its revenues have been more than adequate to cover the effects of inflation. Cutting off the comparison as of the first quarter of

10 The RCAF-U values are 0.858 and 0.946, and the RCAF-A values are 0.387 and 0.405, as shown on the AAR's "Rail Cost Adjustment Factor -- 2012r Base," available at https://www.aar.org/Documents/Rail%20Cost%20Indexes/RCAF%20History/RCAF%20History%202015Q3.pdf, and included as e-workpaper RA-AAR-RCAF.pdf.

2015 is conservative, because it gives only partial recognition to the recent decrease in fuel prices. The RCAF-A value for the third quarter of 2015 was 0.354, which is lower than the RCAF-A value for the first quarter of 2010 (0.387). E-workpaper RA-AAR-RCAF.pdf. Cost inflation over the 23 quarters actually was negative 8.5% ((.354 -.387)/.387= -8.5%).

Inflation has not impaired CSXT's ability to make sizable annual capital investments in infrastructure, equipment, and critical growth and productivity enhancements. These new investments have resulted in and should continue to result in improved productivity in railroad operations, lower railroad operating costs and improved customer service, and should attract additional customer demand for rail freight services, notwithstanding inflation.[11]

On a more current operational basis, CSXT continues to focus on driving down its operating ratio (operating revenues/operating expenses) by aggressively pricing its traffic, lowering operating costs, and growing its business. In the introductory letter to stockholders in the 2014 CSX Annual Report, Chairman and CEO Michael Ward summed up very simply how CSXT intends to cover issues such as inflation and continue to improve the company's financial performance: "In 2015, we'll remain focused on delivering highly regarded service to our customers, which drives our ability to grow our merchandise and intermodal businesses faster than the economy, price above rail inflation, and drive improvements in asset utilization." E-workpaper RA-CSX-2014-AnnualReport.pdf.

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11 See Railway Age, CSX's capex strategy, Roy H. Blanchard, March 05, 2013. http://www.railwayage.com/index.php/finance-leasing/csxs-capex-strategy.html, copy included as e-workpaper RA-Blanchard.pdf.

Despite recent decreases in the volume of coal shipments and other industrial commodities by rail, CSXT has maintained and improved its quarterly earnings through growth in other rail traffic and lower railroad operating costs through improved efficiency and asset utilization. For example, CSXT just recently achieved a record low third quarter operating ratio. See e-workpaper RA-CSX3Q15-Financial Report.pdf at 2. The continued and aggressive use of these measures is more than covering the effects of any cost inflation.

-Insure retention and attraction of capital in amounts adequate to provide a sound transportation system in the United States.

The final stated criterion in 49 U.S.C. § 10704(a)(2)(B) is that carriers have revenues that "attract and retain capital in amounts adequate to provide a sound transportation system in the United States." CSXT more than satisfies this standard as well. CSXT is one of the four large successor US railroads. It provides rail service throughout the eastern US, operating successfully in many markets against other railroads, trucking companies, inland waterway competitors, ocean shipping companies, and freight intermediaries. CSXT's challenge is to attract shippers and continue over time to move their freight timely and profitably over its lines. Over the years since the passage of the Staggers Rail Act of 1980, CSXT has greatly improved and expanded its railroad operations, invested heavily in plant and equipment, lowered its costs, increased its service quality and offerings and attracted needed capital adequate to facilitate the provision of current and future railroad service.

As noted above, CSXT has not needed to raise outside equity capital in at least 25 years. Instead, CSXT's revenues have been adequate to enable it, after making large annual capital expenditures and the paying of dividends, to repurchase a large portion of its outstanding shares of common stock (See Table 7). Had CSXT wanted – or needed to – it could have retained those funds for use in its business, such as for additional capital expenditures. CSXT has been able to retire its debt as scheduled (or earlier, when it is favorable to do so) and to refinance or take on additional debt for corporate purposes, {

} Furthermore, CSXT has maintained or improved its credit ratings at the same time.

CSXT also has been able to devote approximately 19% of its revenues over the past 5 years to capital expenditures, so as to maintain and expand its operations. As stated by the CSX Chairman in the letter to shareholders in the 2014 Annual Report at p. 11: "Since 2003, CSX has invested an astonishing amount – nearly $21 billion – in its network and equipment. A record capital investment in 2014 of more than $2.4 billion supported safe, reliable service upon which our customers rely." E-workpaper RA-CSXT-2014-AnnualReport.pdf.

The staff of the United States Senate, Committee on Commerce, Science and Transportation summarized the situation as follows:

> While the freight railroads have been investing record amounts of their profits into much-needed capital projects, they have also doubled dividend payments to their shareholders and spent billions more dollars repurchasing their publicly-traded shares to boost the short-term value of their stocks. These large expenditures undermine the railroads' argument that they still lack the income to reinvest in their long-term capital needs.[12]

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12 *The Current Financial State of the Class I Freight Rail Industry*, Report of Office of Oversight and Investigations, U.S. Senate Committee on Commerce, Science and Transportation,

In short, CSXT has earned increased revenues and profits especially over the last ten years and continues to fund and provide sound and forward-looking railroad transportation in the United States.

C. CSXT's REVENUE ADEQUACY BASED UPON OTHER FINANCIAL MEASURES

Shippers and industry analysts have advocated a return to the multiple-indicator approach to evaluating railroad revenue adequacy that the ICC utilized before the Staggers Act was passed. Historically, they have supported an analysis of various ratios of railroad financial performance to accompany the more narrow and singular return on investment test that was supported by railroads. While the cost of capital is currently the sole standard for the STB's annual snapshot evaluation of railroad revenue adequacy, other specific additional financial measures may also be appropriate, especially under the revenue adequacy constraint in the Coal Rate Guidelines that is being used in this rate case. As stated in a recent proceeding: "At a minimum, it would be illuminating to supplement the current standard with other financial indicators, to better understand what information affects the investment decisions of equity providers, and to better

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Sept. 15, 2010, at 1 ("2010 Senate Report"), available at http://www.commerce.senate.gov/public/?a=Files.Serve&File_id=76823478-a901-4b4d-869b-9301bb43343b; e-workpaper RA-2010-SenateReport.pdf.

align the STB's determinations with the profile of railroad financial health that is reflected by those indicators"[13]

The following financial measures complement the previous analysis of CSXT's financial performance under the applicable statutory criteria of Section 10704 (a)(2). These measures are commonly used in the financial analysis of railroads and other public corporations.

- **Market to book value ratio** – current average market value of stock divided by average book value of stock.
- **Debt to capital ratio** – average market value of long term debt as a percentage of long term debt plus current average market value of stock.
- **Operating ratio** – operating expenses (including depreciation) as a percentage of operating revenues.
- **Return on equity** – net income as a percentage of shareholders' average book value of stock.
- **Cash flow return on shareholder equity** – cash flow (net income plus depreciation plus deferred taxes as a percentage of shareholders' average book value of stock.
- **Dividend payout ratio** – annual dividends paid as a percent of average market value of stock.

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13 V.S. of Dr. Harvey Levine, for the Western Coal Traffic League, Consumers Energy Company, and South Mississippi Electric Power Association, *Railroad Revenue Adequacy*, STB Ex Parte No. 722, submitted September 5, 2014 ("Joint Opening Comments"), at 3.

For reference, Table 9 (below) presents the computed values of the foregoing financial ratios for CSXT for the five year period 2010-2014, that will be discussed below.

Table 9
CSXT Key Financial Ratios
2010-2014

Measure	**2010**	**2011**	**2012**	**2013**	**2014**	**Average**
Market/ Book ratio	2.36	2.97%	2.57	2.58	2.85	2.67
Debt/Capital ratio	27%	26.5%	30%	27%	24%	27.4%
Operating ratio	71.1%	70.6%	70.6%	71.1%	71.5%	71.09%
Return on Equity	17.9%	21.6%	21.3%	19.0%	17.8%	19.5%
Cash Flow/equity	31%	40.7%	34%	33%	31%	35.2%
Dividend Payout ratio	1.8%	1.9%	2.5%	2.4%	2.0%	2.1%

Source: Annual Reports, CSX Corporation, 2010-2014, STB annual Cost of Capital decisions, 2010-2014.
e-workpapers RA.xlsx, tab Tables 9-15; RA-Table9.pdf.

CSXT's Market to Book Ratio

The market to book value ratio is measured as the ratio of the market value of the common stock of a company to the net book value of the company's assets. This is an important metric that reflects the current and future expectations of capital providers about the performance of the company, relative to the initial level of equity investment. The ratio reflects the market's valuation of current profits earned on existing assets, as well as the expectation that the railroad will make significant investments to replenish the capital stock and increase capacity for the future, as well as increase profitability. Table 10 (below) shows CSXT's market to book ratios, using data from CSXT's annual reports to the SEC and STB Cost of Capital decisions for 2010-2014. CSXT's market to book ratios are well in excess of 1.0 and generally have increased throughout this period. A ratio well in excess of 1.0 indicates a strong vote of confidence by investors in the operations, leadership, and business plans of the railroad. It is also a critical measure of capital attractiveness. The market to book ratio is a good barometer of investor expectations for the profitability of the railroad well into the future. CSXT's average value of 2.67 over the relevant period is very favorable and reflective of investor confidence in the current and future profitability of CSXT.

Table 10 CSXT Market to Book Ratios 2010-2014	
Year	Market to Book Ratio
2010	2.36
2011	2.97
2012	2.57
2013	2.58
2014	2.86
Average	2.67
Source: CSX Annual SEC Reports and STB Cost of Capital decisions 2010-2014. e-workpapers RA.xlsx, tabs Table 10 and Table 9, and RA-Table 9.pdf.	

A strong market to book ratio is confirmation that a company's revenues are adequate to provide "a reasonable and economic profit or return (or both) on capital employed in the business," and to "attract and retain capital in amounts adequate to provide a sound transportation system in the United States." 49 U.S.C. § 10704(a)(2). It also should be recognized that the book value of CSXT's assets does not represent a static figure. Instead, it represents the regular and ongoing depreciation, obsolescence, renewal, replenishment, replacement, and expansion of CSXT's assets through the normal process of CSXT's capital expenditures and asset retirements.

The Debt to Capital Ratio

The debt to capital ratio, representing the average market value of long term debt as a percentage of long term debt plus current average market value of stock, is shown for CSXT below in Table 11 for 2010-2014. These values are computed using the same method used by the STB to determine the industry capital structure in its annual railroad cost of capital determination. CSXT's average debt ratio over the relevant period is 26%.

Table 11
CSXT Debt to Capital Ratios
2010-2014

Year	Debt/Capital Ratio
2010	27.6%
2011	26.5%
2012	30.8%
2013	27.7%
2014	24.6%
Average	27.4%

Source: STB Cost of Capital Decisions and e-workpapers RA.xlsx, tabs Table 11 and Table 9, and RA-Table 9.pdf.

Strategic use of debt to refinance maturing obligations at lower interest rates, to repurchase stock, or for other purposes, lowers the overall weighted cost of capital for CSXT and allows more flexibility in operations and investments. The CSXT debt to capital ratio is relatively conservative and, as previously shown, CSXT net earnings and cash flow exceed overall debt service costs by a comfortable margin and the CSXT bond rating is, and has been, investment grade. CSXT's debt to capital ratio does not suggest that the carrier suffers from inadequate revenues, insufficient profitability, or an inability to raise sufficient capital. The ratio also does not indicate that the firm is staying afloat only because it is taking on additional debt. Instead, the stable debt to capital ratio is further confirmation of CSXT's revenue adequacy.

CSXT's Operating Ratio

The operating ratio represents the ratio of operating expenses, including depreciation, as a percentage of operating revenues. The CSXT operating ratio has decreased from a value of 86.1 in 2002 to an average value of 70.9 over the 2010-2014 period as shown in Table 12 (below).[14]

Table 12 CSXT Operating Ratios 2010-2014	
Year	Ratio
2010	71.1%
2011	70.6%
2012	70.6%
2013	71.1%
2014	71.5%
Average	71.0%
Source: CSX Annual SEC Reports, 2010-2014 and e-workpapers RA.xlsx, tabs Table 12 and Table 9, and RA-Table 9.pdf.	

Lower operating ratios indicate that more operating revenues or margins are available to pay finance charges and taxes, fund investment in new plant and equipment, or to return funds to shareholders as dividends or by repurchasing outstanding shares. "Operating ratio, which is inverse margin or the ratio of operating expenses to operating revenues expressed as a percentage, is a widely used performance measurement in the railroad industry."[15]

14 CSXT's operating ratio for 2002 is shown in the CSX Corporation Annual Report for 2002 at 18. E-workpaper RA-CSX-2002-AnnualReport.pdf.

15 Testimony of Michael J. Ward, Chairman and CEO, CSX Corporation, U.S. House Committee on Transportation and Infrastructure, Subcommittee on Railroads, Pipelines, and

The operating ratio is a key metric for CSXT, and was the exclusive measure for CSXT's executive Long Term Incentive Compensation plans until 2013. Since 2013, CSXT's operating ratio metric is equally weighted in the executive long term incentive plan with a return on assets metric. Goals have been set by CSXT for these measures, executives and employees have been incentivized, and CSXT's operating and financial results have dramatically improved in recent years. The target goal in the executive incentive plan cycle that ended in 2014 was an operating ratio in the range of 65.5- 69.5, with 65.5 needed for executives to achieve a maximum payout.[16] CSXT did not achieve that optimistic result in the 2014 plan cycle, but did achieve an operating ratio of 71.5 for 2014. The CSXT operating ratio was 72.2 in the first quarter of 2015, but measured a record low 66.8 in the second quarter, and 68.3 in the third quarter of 2015. The company indicated at the earnings call for the second quarter of 2015 that its operating ratio goal was to continue to improve the measure toward a target value in the mid 60's. E-workpaper RA-CSX2Q15-EarningsCall.pdf.at 3, 8. At these very low operating ratios, railroad operations are very efficient, pricing of competitive traffic is aggressive and successful, and operating costs are low. An operating ratio in the low 70s and a stated expectation to drive the ratio to the 60s, provide further confirmation of CSXT's long-term financial soundness.

Hazardous Materials, *Hearing on Investment in the Rail Industry*, 110th Congress (March 5, 2008) (H. Rept. 110-104), *quoted in* 2010 Senate Report at 6 n.21; e-workpaper RA-2010-SenateReport.pdf.

16 See, CSX, *2014 Proxy Statement*, at. 43-44, and *2015 Proxy Statement*, at 44-47; e-workpaper RA-CSX-2014-2015-Proxy.pdf.

CSXT's Return on Equity

Return on equity represents net income as a percentage of shareholders' average book value of stock. It is the primary measure for investors to judge the profits earned for equity dollars invested in the firm. Table 13 (below) depicts CSXT's return on equity for 2010-2014.

Table 13 CSXT Return on Equity 2010-2014	
Year	Return on Equity
2010	17.9%
2011	21.6%
2012	21.3%
2013	19.0%
2014	17.8%
Average	19.5%
Source: CSX Annual SEC Reports, 2010-2014 and e-workpapers RA.xlsx, tabs Table 13 and Table 9, and RA-Table 9.pdf.	

CSXT's equity returns are consistently high over the period, with an average value of 19.5 percent annual return. These realized returns on equity values are considerably higher than the estimated required cost of equity capital calculations in the STB's annual cost of capital proceedings. This means that equity investors in CSXT are earning more than the industry expected cost of equity capital as estimated by the STB in the annual railroad cost of capital determination. Such returns should be considered more than sufficient to enable CSXT to attract and retain equity capital as needed.[17] Shareholders have earned attractive returns on equity and also have received continued dividend increases and stock buyback programs over this period.

17 As noted, CSXT has not needed to raise any outside equity capital investment in at least the past 25 years, and CSXT instead has engaged in sizeable stock repurchases.

The attractive return on equity, along with the dividends, buybacks, and lower operating ratios, logically contributes to the substantial appreciation in CSXT's stock price, and provides further confirmation of CSXT's revenue adequacy.

The Cash Flow Return on Shareholder Equity

Cash flow to equity, or cash flow return on shareholders' equity, depicts corporate cash flow (defined as net income plus depreciation and deferred taxes) as a percentage of the shareholders' average book value of stock. This ratio is similar to the return on equity ratio previously discussed, but instead of focusing on just the net earnings of a corporation in the numerator of the ratio as does the return on equity ratio, this ratio measures all the available sources of cash flow to the corporation as a percentage of the book value of equity. The ratio therefore presents a broader and more strategic measure for shareholders of all of the funds available, after all expenses are paid, for management of a company to make critical current and future capital investment decisions for the company as well as whether to directly compensate equity shareholders with increased dividends or stock buyback programs and at what level. Both the capital investment programs and shareholder payment programs are important to stockholders' longer run views and are greatly facilitated by healthy levels of cash flow. Table 14 (below) depicts CSXT's cash flow to equity for the period 2010 through 2014.

Table 14 CSXT Cash flow to equity ratios 2010-2014	
Year	Cash flow to Equity ratio
2010	37.3%
2011	40.7%
2012	33.7%
2013	33.3%
2014	30.8%
Average	35.2%
Source: CSX Annual SEC Reports, 2010-2014 and e-workpapers RA.xlsx, tabs Table 14 and Table 9, and RA-Table 9.pdf.	

The value of this metric for CSXT has been very stable around an average of 35 percent over the period. Asset heavy industries with large and continuing capital program requirements like CSXT need to generate considerable annual cash flow from all sources, including depreciation and deferred taxes, to help support paying for their capital needs. These sources of cash flow are considerably enhanced by the addition of CSXT's positive and increasing net income realized in the last few years. The resultant cash flow including net income provides much greater flexibility for CSXT's internal funding of capital projects and financing activities including stockholder programs. A healthy available cash flow return on equity makes CSXT less dependent on outside financing, allows CSXT to continue to pursue needed capital expenditures for the future using internal capital sources, enables CSXT to consider stockholder enhancement programs such as dividend increases and stock repurchase programs, and continues to make CSXT very attractive to capital markets.

The Dividend Payout Ratio

The final recommended metric for revenue adequacy analysis is the dividend payout ratio. It is often referred to as the dividend yield, and represents the ratio of the annual dividends paid per share to the average market value of a share of stock. The ratio is computed as the annual dividends paid divided by the average current value of the company stock. The ratio may vary if a company changes the amount of the dividend, or if the price per share fluctuates. As previously shown in Table 3 (above), CSXT's annual dividends have steadily increased over the period 2010 to 2014. Table 15 (below) shows CSXT's calculated dividend payout ratios for the period. The average CSXT dividend payout ratio averaged 2.1 percent over the 2010-2014 period.

Table 15
CSXT Dividend Payout Ratios (Yield) for 2010-2014

Year	Dividend Yield
2010	1.8%
2011	1.9%
2012	2.5%
2013	2.4%
2014	2.0%
Average	2.1%

Source: CSX Annual SEC Reports, 2010-2014 and e-workpapers RA.xlsx, tabs Table 15 and Table 9, and RA-Table 9.pdf.

CSXT's dividend increases have tracked the value of CSXT stock. In addition, an average 2.1 percent dividend payout indicates that CSXT stockholders will receive a dividend payout component of the overall equity return similar in value to a risk-free return of a government security. E-workpaper RA-5YRTreasuryYield.pdf. Table 15 shows that CSXT's annual dividend payouts have remained relatively stable over the period. While the yield decreased in 2014, CSXT announced a dividend increase (as well as a new stock buyback plan) in conjunction with its earnings release for the first quarter of 2015.[18] It also should be noted that the steady dividend yields occurred amidst the rapid appreciation in CSXT's stock shown in Table 4 (above), and represented a use of cash that could have been devoted to capital expenditures if CSXT needed resources for that purpose.

The values of these metrics for CSXT over the period 2010-2014 present a very positive and attractive picture of CSXT's financial performance. This analysis and the previous detailed discussion of CSXT's performance under the revenue adequacy criteria detailed in Section 10704 (a)(2) of the applicable statute present a very positive view of CSXT as a mature, growing, profitable, future focused, and revenue adequate U.S. railroad.

CSXT's revenue levels are sufficiently high that, after expenses, the company earns sufficient profits, has access to capital markets, and invests in new plant and equipment to sustain and grow itself now and into the future. CSXT's investors have independently and daily evaluated CSXT assets, operations, financing and earnings, and future business prospects, and continue to support CSXT's equity value. CSXT should not fall short of any reasonable standard measure of railroad revenue adequacy.

18 See: http://investors.csx.com/phoenix.zhtml?c=92932&p=irol-newsArticle&ID=2035010; e-workpaper RA-CSX1Q15-Release.pdf.

D. CSXT'S REVENUE ADEQUACY UNDER THE STB STANDARD – RETURN ON INVESTMENT EQUAL TO THE INDUSTRY COST OF CAPITAL – AS CORRECTED

1. Preliminary

The previous two Sections show that an analysis of CSXT's financial performance measured against the statutory criteria that define revenue adequacy, as well as an analysis of other CSXT relevant financial metrics, demonstrate that CSXT is a revenue adequate railroad each year over the period 2010-2014. The results of these multiple indicators contrast with the STB determination that CSXT has not been revenue adequate based on its annual single-indicator test that CSXT's annual return on investment must be equal to or exceed the STB's annual estimated industry cost of capital. As explained earlier in this Report, the STB's test at best is an approximation, and the difference between CSXT's observed return on investment and the STB-determined industry cost of capital over the last five years is statistically insignificant, so on one level, this contrast may indicate simply that the STB test of revenue adequacy is too conservative. However, as has been demonstrated by the Western Coal Traffic League in Ex Parte No. 664 (Sub-No. 2), the STB's methodology for estimating the equity portion of the industry cost of capital is flawed in three (3) key respects, which together lead to cost of capital calculations that are unrealistic, inconsistent with ex ante expectations of the cost of capital across other industry sectors, inconsistent with the recommendations of many financial professionals, and at odds with the demonstration of the previous Sections of this Report showing that CSXT meets the revenue adequacy standard based on review of the statutory criteria and a full consideration of other financial measures. To correct these flaws, the Western Coal Traffic League has proposed three (3) modifications to the STB's cost of equity methodology, which I endorse: a) eliminate the use of the Multi Stage Discounted Cash Flow model ("MSDCF") method of computing the cost of equity capital, b) compute the market risk premium ("MRP") in the Capital Asset Pricing Model ("CAPM") based on a 50-year period, and c) use a Blume adjustment to the estimated "beta" risk factor in the CAPM equation.

First, the STB should eliminate the MSDCF model from the calculation of the cost of equity capital in the industry cost of capital determination. The CAPM method should be used exclusively. CAPM is a very powerful but simple model, having only three variables -- a risk free rate measured by the return on government securities, a market risk premium reflecting the historical difference between average stock market returns and the risk free rate, and a measure of the additional risk, the beta value, of the stock volatility of a company or industry relative to the overall performance of the market. It is relatively easy to collect the data and to compute and interpret the results from the CAPM model. CAPM is a widely recognized as a financial tool around the world, and is the dominant tool used by corporations and financial professionals to compute the cost of capital for corporations.[19] The Canadian Transportation Agency recently evaluated all options for computing a cost of railroad equity, and decided on the use of CAPM exclusively.

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19 *See,* for example, W. Todd Brotherson, Kenneth M. Eades, Robert S. Harris, and Robert C. Higgins, *"Best Practices" in Estimating the Cost of Capital: An Update*, 1 J. of Applied Finance 15 (2013), e-workpaper RA-Brotherson.pdf; Association for Financial Professionals, *Estimating and Applying Cost of Capital* (2013) at 4 ("AFP Survey 2013"), e-workpaper RA-AFRSurvey2013.pdf.

In contrast, the MSDCF method is relatively complicated to compute the various measures that are part of the model, and is not widely recognized or used by industries or professionals. In addition, the MSDCF estimated values used by the STB in its cost of capital determinations have been consistently too high relative to CAPM results and in general exceed the broad industry views about the current cost of equity capital. Averaging higher and incorrect MSDCF cost of equity values with the more accepted CAPM results, as the STB currently allows, does not make sense or produce better estimates of the cost of equity capital. Instead, it simply inflates the estimated costs of equity capital for the railroad industry, as shown in each of the years since at least 2010, in Table 16 (below).

Table 16
Comparison of CAPM and MSDCF COE values for 2010-2014

Year	CAPM COE	MSDCF COE	Difference
2010	11.84%	14.13%	2.29%
2011	11.31%	15.83%	4.52%
2012	10.27%	16.53%	6.26%
2013	12.52%	13.40%	0.88%
2014	11.82%	12.30%	0.48%
Average	11.55%	14.43%	2.88%

Source: WCTL Opening Comments in Ex Parte 664 (Sub-No. 2) filed September 5, 2014, at 9. In addition, Dr. Levine's Verified Statement in the same pleading provides an updated version of the table that includes data for 2013 in his Verified Statement at 8-9. The data for 2014 is taken from: *Railroad Cost of Capital - 2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, 2015, at 20. e-workpaper RA.xlsx, tab Table 16.

Second, the market risk premium, which is the difference between the expected stock market return and the risk free rate, needs to be computed over a shorter period of time. The market risk premium is the premium above the riskless rate that equity investor's demand, and should reflect investor expectations over a long time period. But a time period going back from the present to 1926, as has been used by the STB, is unrealistic, given long-ago events such as the severe and unique U.S. depression experienced in the period shortly after 1926. A 50-year period is more realistic and should be used by the STB in the CAPM model. A shorter time period or lower premium for the computation is used by most users of the CAPM method.[20]

Third, the beta risk factor calculated for the railroad industry or for an individual company like CSXT should be adjusted to better indicate the future value of risk. The beta is a measure of the variability of the movement of a stock or portfolio of stocks relative to a broad diversified measure of the stock market, such as the S&P 500 stock index. Stocks that demonstrate greater price variability over a period, up and down, compared to the overall stock market index, are viewed as more volatile or risky in their movement than the market as a whole and therefore command a premium return. The beta value is used in the CAPM model to adjust the market risk premium value, a measure of the return expected by the market. Academic studies on the measurement of risk have observed that over time the industry beta values move toward the average level (set at a value of 1).[21] Hence the suggested Blume adjustment, which is commonly accepted and used by the financial community, weighs the current beta value of a company with a weight of two thirds and the industry standard value of 1 with a weight of one third, and adds the two weighted values together. For industries with a beta value greater than 1, this adjustment

20 See AFP Survey 2013 at 11, RA-AFPSurvey 2013.pdf; John Graham & Campbell Harvey, *The Equity Risk Premium in 2013* (January 28, 2013) at 4, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2206538; e-workpaper RA-Graham2013.pdf.

21 Marshall E. Blume, *On the Assessment of Risk*, 26 Journal of Finance, 1-10 (1971); e-workpaper RA-Blume1971.pdf.

lowers the beta value slightly, but reflects the trend of the calculated beta to decrease from the current value toward the industry standard of 1.0 over time.

These three changes, eliminate the use of the MSDCF method of computing the cost of equity capital, compute the MRP based on a 50-year period, and use a Blume adjustment to the estimated "beta" risk factor in the CAPM equation will be made below in computing the cost of equity in the standard method of calculation of revenue adequacy used by the STB.

2. Calculating the Industry Cost of Capital – With Corrections

The STB's annual determinations of the railroad industry cost of capital follow the same well-defined format every year. The railroad financial data that needs to be submitted each year to the STB for the cost of capital determination are provided by the Association of American Railroads ("AAR") on behalf of the large railroads. The STB evaluates the railroad data and calculations and generally accepts them. Each STB annual cost of capital decision thoroughly discusses every component of the cost of capital, all of the assumptions that went into a calculation, and how the values of the components of the capital structure were weighted to determine a final cost of capital.

The following Section of the Report accepts and uses all of the data analysis and calculations made by the STB for the annual cost of capital determinations for railroads from 2010-2014, except for the three changes in the calculation of the cost of equity capital noted above.

2A. Cost of common equity capital - corrected

The cost of equity will be calculated using the CAPM method only, with a market risk premium value based on 50 years of market data, the risk-free rate used by the STB, and a Blume adjustment to the STB estimated beta for the railroad industry. Otherwise, the presentation that follows will apply the exact procedures and use the same data and calculations from the STB cost of capital decisions. The CAPM model for the years 2010-2014 uses the following three variables:

- Risk- free rate – average yield to maturity for a 20-year U.S. Treasury bond. The STB approved values will be used in each year.
- Market risk premium ("MRP") – the mean or average value of the MRP as extracted from the Ibbotson SBBI Yearbook for a period of 50 years back from the year of the cost of capital calculation will be used in this analysis. The STB uses the same source and method to compute the value of the variable, but goes back from the present to 1926.
- Beta value – the STB estimated annual beta values for the railroad industry will be adjusted using the Blume procedure.

Table 17 (below) shows the values used for the market risk premium in the CAPM calculation. The values for each year represent the relevant 50-year arithmetic average of the market risk premium values from the Ibbotson SBBI Yearbook.

Table 17
Market Risk Premium Value used in CAPM analysis
2010-2014

Year	Market Risk Premium
2010	4.43%
2011	3.94%
2012	4.46%
2013	4.68%
2014	4.63%
Source: Ibbotson SBBI Yearbook, 2013, 2014. e-workpapers RA.xlsx, tab Table 17, and RA-Table17.pdf.	

Table 18 (below) shows the calculation of the Blume adjustment to the beta values estimated by the STB for the railroad industry. The Blume adjustment weights the estimated beta value of the railroad industry by .67 and the industry standard beta value (of 1.00) by .33 and then sums the two weighted values. The result is a Blume adjusted beta.

Table 18
Blume Adjustment to STB estimated beta values for the Railroad Industry
2010-2014

A	B (a)	C	D	E
Year	**Estimated beta Value**	**Estimated beta Value x .67**	**Mkt. Standard Value (1.00) x .33**	**Blume Adjusted beta (C+D)**
2010	1.1619	.78	.33	1.11
2011	1.1623	.78	.33	1.11
2012	1.1543	.77	.33	1.10
2013	1.3499	.90	.33	1.23
2014	1.25	.84	.33	1.17
Source: STB Cost of Capital decisions, 2010-2014; e-workpaper RA.xlsx, tab Table 18.				

Table 19 (below) shows the calculation of the CAPM cost of common equity for each year during the relevant period, 2010-2014. This table is the same format as Table 10 of the STB's Annual Railroad Cost of Capital decisions.

Table 19
CAPM - Cost of Common Equity
2010-2014

2010 (a)	**Formula**		**Equity Cost**
Risk-Free Rate (RF)	4.03%		
RF +(beta x Market Risk Premium)	4.03% + (1.11 x 4.43%)		8.95%
Cost of Equity Capital			**8.95%**
2011 (b)			
Risk-Free Rate (RF)	3.62%		
RF +(beta x Market Risk Premium)	3.62% + (1.11 x 3.94%)		7.99%
Cost of Equity Capital			**7.99%**
2012 (c)			
Risk-Free Rate (RF)	2.54%		
RF +(beta x Market Risk Premium)	2.54% + (1.10 x 4.46%)		7.45%
Cost of Equity Capital			**7.45%**

2013 (d)			
Risk-Free Rate (RF)	3.12%		
RF +(beta x Market Risk Premium)	3.12% + (1.23 x 4.68%)		8.88%
Cost of Equity Capital			**8.88%**
2014 (e)			
Risk-Free Rate (RF)	3.07%		
RF +(beta x Market Risk Premium)	3.07% + (1.17 x 4.63%)		8.49%
Cost of Equity Capital			**8.49%**

(a) See *Railroad Cost of Capital -2010*, STB Ex Parte No. 558 (Sub-No. 14), served September 30, 2011.

(b) See *Railroad Cost of Capital -2011,* STB Ex Parte No. 558 (Sub-No. 15), served September 13, 2012.

(c) See, *Railroad Cost of Capital -2012*, STB Ex Parte No. 558 (Sub-No. 16), served August 30, 2013.

(d) See *Railroad Cost of Capital -2013*, STB Ex Parte No. 558 (Sub-No. 17), served July 31, 2014.

(e) See *Railroad Cost of Capital -2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, - 2015.

e-workpaper RA.xlsx, tab Table 19.

2B. Weighted Cost of Capital and Summary

The three modifications to the STB's current method results in a cost of equity capital that more closely represents the risk adjusted cost of equity to the railroad industry, and is reasonably in line with estimates of financial professionals. Table 20 (below) is the same format as Table 16 of the STB's weighted cost of capital calculations. The only value that has been adjusted in Table 20 compared to the original STB tables is the cost of equity.

Table 20
Cost of Capital Computation
2010-2014

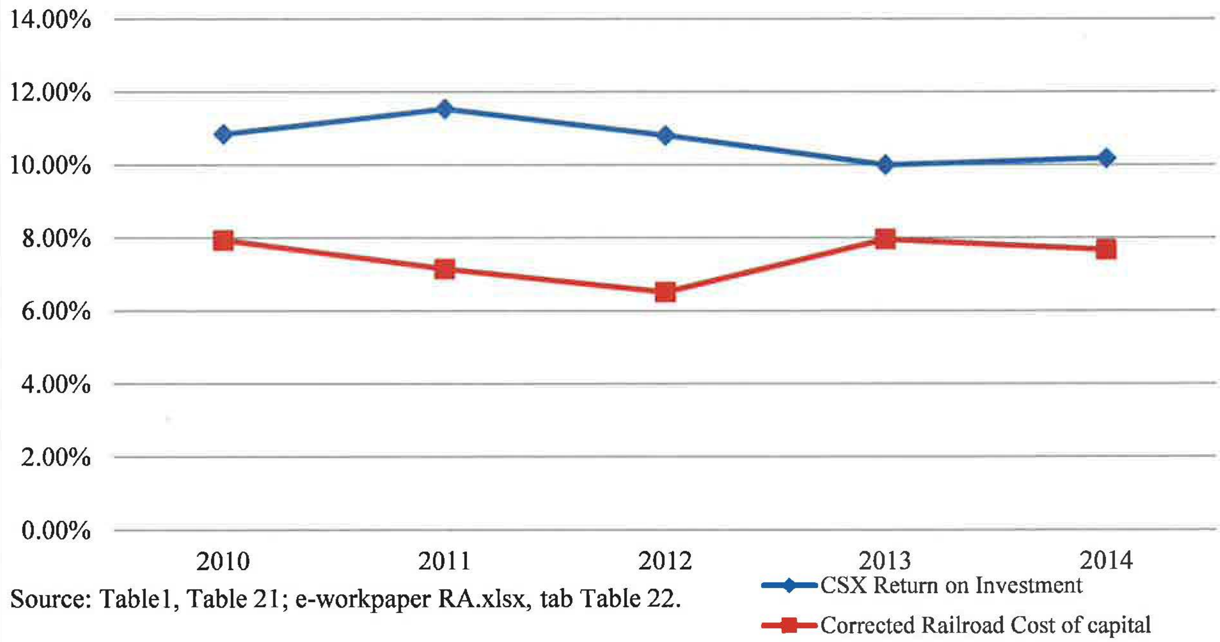
Type of Capital	Cost	Weight	Weighted Average
2010			
Long-Term Debt	4.61%	23.38%	1.08%
Common Equity	8.95%	76.62%	6.86%
Preferred Equity	0.0%	0.0%	0.0%
Composite Cost of Capital			7.94%
2011			
Long-Term Debt	3.97%	20.83 %	.83%
Common Equity	7.99%	79.17%	6.33%
Preferred Equity	0.0%	0.0%	0.0%
Composite Cost of Capital			7.15%
2012			
Long-Term Debt	3.29%	22.56%	.74%
Common Equity	7.45%	77.44%	5.77%
Preferred Equity	0.0%	0.0%	0.0%
Composite Cost of Capital			6.51%
2013			
Long-Term Debt	3.68%	17.69%	0.65%
Common Equity	8.88%	82.31%	7.31%
Preferred Equity	3.87%	0.004%	0.00%
Composite Cost of Capital			7.96%
2014			
Long-Term Debt	3.58%	16.66%	.60%
Common Equity	8.49%	83.33%	7.08%
Preferred Equity	3.69%	0.003%	0.00%
Composite Cost of Capital			7.67%
Source: STB Cost of Capital decisions, 2010-2014 and Table 19. e-workpaper RA.xlsx, tab Table 20.			

Table 21 (below) compares the railroad industry cost of capital as corrected and computed in Table 20 (above) with CSXT's Return on Investment for the years 2010-2014 as was previously shown in Table 1 above. Table 21 (below) shows that CSXT returns on investment substantially exceed the corrected industry cost of capital in every year, 2010-2014.

Table 21 Comparison of CAPM-Only COC With a 50 –Year MRP and Blume-adjusted Beta to CSXT ROI			
Year	CAPM Cost of Capital w/ 50-Year MRP and Blume Beta Adjustment	CSXT ROI	COC Surplus (in basis points)
2010	7.94%	10.85%	291
2011	7.15%	11.54%	439
2012	6.51%	10.81%	430
2013	7.96%	10.00%	204
2014	7.67%	10.18%	251
Average	7.45%	10.68%	323
Source: e-workpaper RA.xlsx, tab Table 21. CSXT ROI values taken from annual STB revenue adequacy determinations. CSXT cost of capital taken from Table 20.			

The results of Table 21 are graphically depicted on Table 22 (below).

Table 22
CSXT Return on Investment v. Corrected Railroad Cost of Capital
2010 - 2014



Source: Table1, Table 21; e-workpaper RA.xlsx, tab Table 22.

E. CXST'S REVENUE ADEQUACY TEST BASED ON ITS OWN COMPUTED COST OF CAPITAL STANDARD – AS CORRECTED

1. Preliminary

The STB has adopted a composite railroad approach to computing an industry wide cost of capital. The approach uses the data from a qualified sample of railroads to develop the relevant measures needed for the industry cost of capital determination. As a result of previous railroad consolidations since 1981 and the more recent event of BNSF Railway's move to private ownership, the current sample of railroads for use in the composite railroad approach to computing the cost of capital is very small, and the railroads are very different in terms of size, service territory, commodity sector mixes, operations, finances, and profitability. A sensible approach would be to compute each individual railroad's own cost of capital for revenue adequacy purposes, and not to rely exclusively on an industry average cost of capital. The two eastern US railroads may be similar in operations, performance and finances, but they are different from each other in terms of traffic mixes, and they are very different from the two western carriers in terms of geography covered, length of haul of shipments, and profitability. BNSF is now under private ownership and is excluded from the cost of capital calculations. Kansas City Southern (KCS) is a smaller railroad that runs North and South through the center of the U.S., and the Soo Line and Grand Truck Central are affiliates of larger Canadian railroads. Calculating each railroad's own cost of capital is more accurate, and is the approach used in Canada by the Canadian Transportation Agency to compute the cost of capital for its two major railroads, the Canadian Pacific Railway and the Canadian National Railway.

The relevant data needed to make a cost of capital determination for CSXT are already mostly available in the annual data provided by the AAR to the STB for computing the standard industry cost of capital. The only variable not provided is the annual beta measure of risk for CSXT, but a computed beta value for CSXT is published by Bloomberg and other sources and is easily accessible.

The calculation of CSXT's own cost of capital (the cost of capital CSXT faces) will be based on the same presentation as in Section D of the Report (above). Some detail and tables will be added to show the calculation of CSXT's embedded debt cost and the weighted cost of capital. The data to make these calculations for CSXT are included in the annual STB cost of capital determinations.

2. Calculation of CSXT's Own Cost of Capital

2A. CSXT's Embedded Debt Cost

Table 23 (below) shows the computation of CSXT's embedded cost of debt. It is very similar to Table 8 in the STB's annual Cost of Capital decision for the railroad industry. CSXT's information on debt costs comes from the relevant STB cost of capital decisions from 2010 – 2014.

Table 23
CSXT Cost of Debt Capital
2010-2014

Type of Debt	**Mkt. Value ($000)**	**Percentage of Total Mkt. Value (Excludes Other Debt)**	**Debt Cost**	**Weighted Debt Cost (Excluding Other Debt)**
2014				
Bonds, Notes, and debentures	$10,133,868	100%	3.659%	3.659%
ETC's	0	-	-	-
CSA's	0	-	-	-
Subtotal	$10,133,868			
Flotation Costs				0.075%
Weighted Cost of Debt				3.734%
2013				
Bonds, Notes, and debentures	$9,682,034	99.7%	3.698%	3.686%
ETC's	26,164	0.3%	1.266%	.003%
CSA's	0	-	-	-
Subtotal	$9,708,198			
Flotation Costs				0.068%
Weighted Cost of Debt				3.757%
2012				
Bonds, Notes, and debentures	$9,896,486	99.3%	3.396%	3.37%
ETC's	$72,668	.007%	1.220%	.000%
CSA's	0	-	-	-
Subtotal	$9,969154			
Flotation Costs				0.062%
Weighted Cost of Debt				3.432%
2011				
Bonds, Notes, and debentures	$8,992,471	98.9%	3.957%	3.913%
ETC's	$98,058	1.1%	1.906%	.000%
CSA's	0	-	-	-
Subtotal	$9,090,529			
Flotation Costs				0.067%
Weighted Cost of Debt				3.98%

2010				
Bonds, Notes, and debentures	$7,601,352	98.0%	4.506%	4.42%
ETC's	$122,978	1.6%	2.594%	.000%
CSA's	$30,836	.4%	2.099%	.000%
Subtotal	$7,755,166			
Flotation Costs				0.072%
Weighted Cost of Debt				4.492%
Source: STB Cost of Capital decisions, 2010-2014; e-workpaper RA.xlsx, tab Table 23.				

2B. CSXT's Cost of Equity Capital

Table 24 (below) shows the values for the market risk premium in the CAPM calculation for the period 2010-2014. The values represent the 50-year arithmetic average of the market risk premiums from the Ibbotson SBBI Yearbook. The market risk premium is the same for CSXT as for the railroad industry.

Table 24
Market Risk Premium value used in CAPM analysis
2010-2014

Year	**Market Risk Premium**
2010	4.43%
2011	3.94%
2012	4.46%
2013	4.68%
2014	4.63%
Source: Table 17 and e-workpapers RA.xlsx, tabs Table 24 and Table 17, and RA-Table17.pdf.	

Table 25 (below) shows the calculation of the Blume adjustment to the beta values for CSXT. The Blume adjustment weights the estimated beta value of the industry by 0.67 and the industry standard beta value (of 1.00) by 0.33 and then sums the two weighted values. The result is a Blume adjusted beta slightly less than the original beta value.

Table 25
Blume Adjustment to CSXT beta values
2010-2014

A	B	C	D	E
Year	**Estimated beta Value** (a)	**Estimated beta Value x .67**	**Mkt. Standard Value (1.00) x .33**	**Blume Adjusted beta E=(C+D)**
2010	1.26	.84	.33	1.17
2011	1.26	.84	.33	1.17
2012	1.26	.84	.33	1.17
2013	1.49	1.00	.33	1.33
2014	1.34	.90	.33	1.23

(a) Bloomberg Finance, 2010-2014. Beta values for CSXT computed using 5 years of weekly adjusted stock return data for CSXT and S&P 500.

Source: e-workpapers RA.xlsx, tab Table 25, and RA-Table 25.pdf.

Table 26 (below) shows the calculation of the CSXT cost of common equity using the CAPM method for each year, 2010-2014. This table is exactly the same template as Table 10 of the STB's Annual Railroad Cost of Capital decisions.[22]

22 See, for example, *Railroad Cost of Capital -2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, 2015.

Table 26
CAPM Cost of Common Equity for CSXT
2010-2014

<u>**2010**</u> (a)	**Formula**	**Equity Cost**
Risk-Free Rate (RF)	4.03%	
RF +(beta x Market Risk Premium)	4.03% + (1.17 x 4.43%)	9.21%
Cost of Equity Capital		**9.21%**
<u>**2011**</u> (b)		
Risk-Free Rate (RF)	3.62%	
RF +(beta x Market Risk Premium)	3.62% + (1.17 x 3.94%)	8.23%
Cost of Equity Capital		**8.23%**
<u>**2012**</u> (c)		
Risk-Free Rate (RF)	2.54%	
RF +(beta x Market Risk Premium)	2.54% + (1.17 x 4.46%)	7.76%
Cost of Equity Capital		**7.76%**
<u>**2013**</u> (d)		
Risk-Free Rate (RF)	3.12%	
RF +(beta x Market Risk Premium)	3.12% + (1.33 x 4.68%)	9.34%
Cost of Equity Capital		**9.34%**
<u>**2014**</u> (e)		

Risk-Free Rate (RF)	3.07%	
RF +(beta x Market Risk Premium)	3.07% + (1.23 x 4.63%)	8.76%
Cost of Equity Capital		**8.76%**

a) See *Railroad Cost of Capital* -2010, STB Ex Parte No. 558 (Sub-No. 14), served October 3, 2011.

(b) See *Railroad Cost of Capital -2011,* STB Ex Parte No. 558 (Sub-No. 15), served September 13, 2012.

(c) See *Railroad Cost of Capital -2012*, STB Ex Parte No. 558 (Sub-No. 16), served August 30, 2013.

(d) See *Railroad Cost of Capital -2013*, STB Ex Parte No. 558 (Sub-No. 17), served July 31, 2014.

(e) See *Railroad Cost of Capital -2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, 2015.

e-workpaper RA.xlsx, tab Table 26.

2C. Weighted Cost of Capital and Summary - CSXT

Table 27 (below) presents CSXT's capital structure mix of debt and equity capital. Just like the STB calculations for the railroad industry, the debt and equity values are market values. The table shows the computation of the debt and equity weights as a percentage of the overall capital structure. These weights in Table 27 (below) are used in Table 28 (below) to compute CSXT's weighted own cost of capital.

Table 27
CSX's Capital Structure Mix
2010-2014

Type of Capital	Market Value ($000)	Weight
2010		
Debt	$7,851,934	27.56%
Equity	$20,635,114	72.44%
Total	$28,487,048	100.00%
2011		
Debt	$9,157,404	26.46%
Equity	$25,457,455	73.54%
Total	$34,614,859	100.00%
2012		
Debt	$10,015,854	30.83%
Equity	$22,471,841	69.17%
Total	$32,487,695	100.00%
2013		
Debt	$9,735,827	27.74%
Equity	$25,364,867	72.26%
Total	$35,100,694	100.00%
2014		
Debt	$10,154,077	24.68%
Equity	$30,985,885	75.32%
Total	$41,139,962	100.%

Source: *See*, for example, *Railroad Cost of Capital -2014*, STB Ex Parte No. 558 (Sub-No. 18), served August 7, 2015 and other years, 2010-2014, and e-workpaper RA.xlsx, tab Table 27.

The result of the three modifications to the STB's standard method of calculating the cost of equity capital as applied to CSXT is a cost of equity capital that much more closely represents the risk adjusted cost of equity for CSXT and is reasonably in line with estimates of financial professionals. Table 28 for CSXT below calculates the weighted cost of components of CSXT's own cost of capital.

Table 28
CSXT's Own Cost of Capital Computation
2010-2014

Type of Capital	**Cost**	**Weight**	**Weighted Average**
2010			
Long-Term Debt	4.49%	27.56%	1.24%
Common Equity	9.21%	72.44%	6.67%
Preferred Equity	0.0	0.0	0.0
Composite Cost of Capital			7.91%
2011			
Long-Term Debt	3.98%	26.45%	1.05%
Common Equity	8.23%	73.54%	6.05%
Preferred Equity	0.0	0.0	0.0
Composite Cost of Capital			7.11%
2012			
Long-Term Debt	3.43%	30.83%	1.06%
Common Equity	7.76%	69.17%	5.37%
Preferred Equity	0.0		0.0
Composite Cost of Capital			6.43%
20113			
Long-Term Debt	3.76%	27.74%	1.04%
Common Equity	9.34%	72.26%	6.75%
Preferred Equity	0.0	0.0	0.0
Composite Cost of Capital			7.79%
2014			
Long-Term Debt	3.73%	24.68%	.92%
Common Equity	8.76%	75.32%	6.60%
Preferred Equity	0.0	0.0	0.0
Composite Cost of Capital			7.52%
Source: Tables 23-27 and STB Cost of Capital decisions 2010-2014; e-workpaper RA.xlsx, tab Table 28.			

Table 29 (below) compares CSXT's own cost of capital as computed in Table 28 (above) with CSXT's Return on Investment for the years 2010-2014 that was previously shown in Table 1. CSXT's return on investment in each year substantially exceeds its cost of capital as an independent railroad, and shows the railroad to be revenue adequate in every year, 2010-2014.

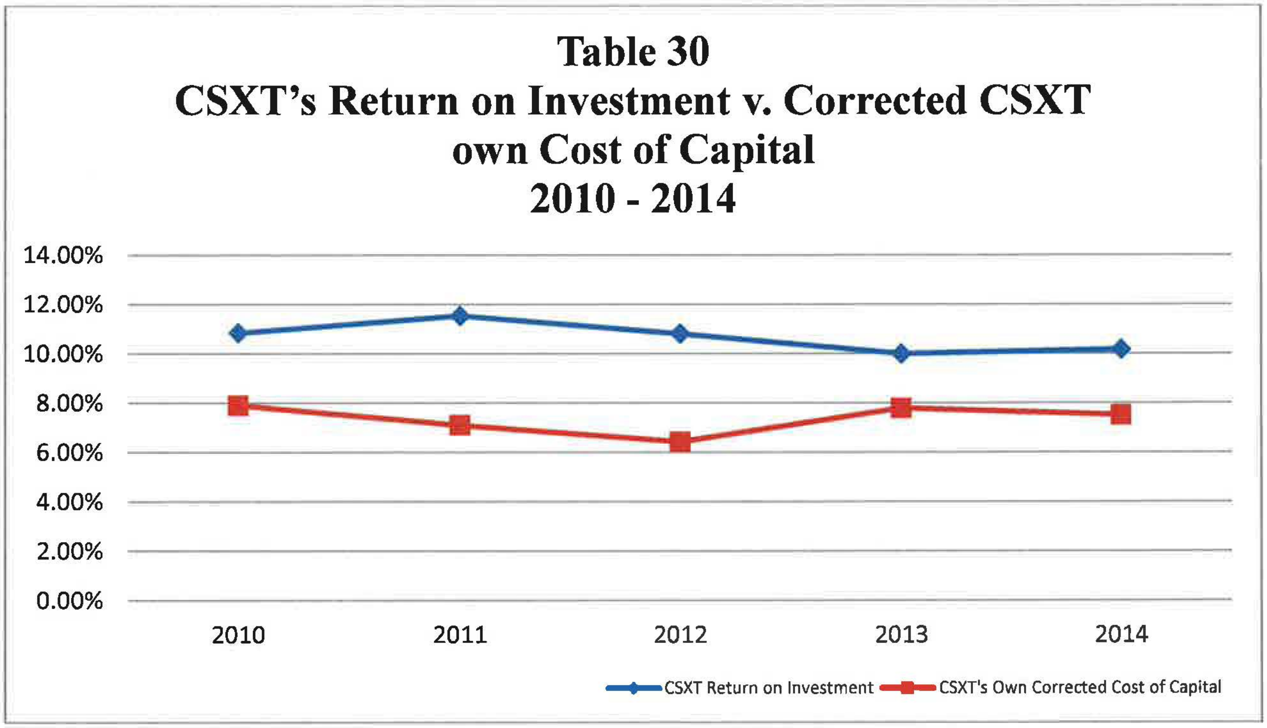
Table 29
Comparison of CSXT's Specific CAPM-Only COC With a 50 –Year MRP and Blume-adjusted Beta to CSXT ROI

Year	CSXT CAPM Cost of Capital w/ 50-Year MRP and Blume Beta Adjustment	CSXT ROI	COC Surplus (in basis points)
2010	7.91%	10.85%	294
2011	7.11%	11.54%	443
2012	6.43%	10.81%	438
2013	7.79%	10.00%	221
2014	7.52%	10.18%	266
Average	7.35%	10.68%	332.4

Source: e-workpaper RA.xlsx, tab Table 29. CSXT ROI values taken from annual STB revenue adequacy determinations. CSXT cost of capital taken from Table 28.

The relationship is graphically depicted in Table 30 (below).

Table 30
Comparison of CSXT's Return on Investment to
CSXT own Cost of Capital - Corrected
2010-2014



Source: Tables 1, 28-29, and e-workpaper RA.xlsx, tab Table 30.

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F. CSXT REVENUE ADEQUACY AS PERCEIVED BY THE FINANCIAL AND INVESTMENT COMMUNITIES

In assessing CSXT's revenue adequacy, it is also appropriate to consider analyses prepared by and relied upon by the financial and investment communities. Such analyses provide an independent and informed assessment of CSXT's financial health and viability, and its suitability or desirability as an investment. Reports prepared by ValueLine, S&P, and Morningstar provide valuable information and insights on the financial performance of CSXT. These firms were selected for several reasons. First, they are independent and well-respected. Second, they are commonly utilized and relied upon, especially by retail investors, as opposed to relatively short-term trading or arbitrage. A fundamental, long-term focus is the appropriate focus for STB's assessment of revenue adequacy. Third, the reports are readily accessible, and are available to the public.

1. ValueLine

ValueLine's report for CSX dated as of August 28, 2015, is included as e-workpaper RA-ValueLineCSX.pdf. ValueLine assigned CSXT a safety rating of 3 on a scale of 1 (highest) to 5 (lowest), with 3 representing an average rating. The safety rating reflects the average of CSXT's financial strength, which was B++, and the stock's price stability, which was 70 out of a possible value of 100.[27] For purposes of revenue adequacy, the financial strength rating is the significant metric, as the stability ranking is equivalent in concept to the beta measurement of risk for a company. The B++ is an above average rating, demonstrating that CSXT is financially healthy.

ValueLine presents a number of data metrics for CSXT, including average annual dividend yield, operating margin (the inverse of operating ratio), return on total capital, return on shareholder equity, and capital structure (which includes an adjustment to treat operating leases as debt), which are most of the same ratios discussed above. The market-to-book ratio is not specifically presented, but the book value per share is depicted, and the market-to-book value can be easily determined. The report also identifies a target price for CSXT for 2018-2020 with a low of $35 and a high of $55, indicating that substantial further price appreciation of between 20% and 85% is anticipated.

ValueLine's brief commentary regarding CSXT states that "Significant margin expansion is the highlight for CSX," and notes that CSXT achieved a record 66.8% operating ratio in the second quarter of 2015, confirming the relevance of that metric. The report also states that "Core

27 A guide to ValueLine's rating system is included as e-workpaper RA-ValueLineGuide.pdf.

pricing (including fuel surcharges) is tracking above rail inflation, which is a long-term goal." This demonstrates that CSXT has no problems covering the effects of rail inflation, one of the statutory criteria for revenue adequacy. The report adds that CSXT "is targeting productivity savings of $200 million for 2015, and the longer-term goal is for a full-year operating ratio in the mid-60s, compared to 71.5% in 2014."

In short, the ValueLine analysis depicts CSXT as being a desirable investment, and gives no suggestion that the company is revenue inadequate or that it faces a precarious future because of any inability to attract needed capital.

2. Morningstar

Morningstar provides a large volume of quantitative data about CSXT, including the price/book ratio, operating margin, return on assets, and return on equity, and capital structure, which further confirms the relevance and utility of those metrics for assessing a company's health. See e-workpaper RA-CSXMorningstarReport.pdf. Morningstar also provides more extensive commentary, which is updated periodically. A recent "Investment Thesis" for CSXT, dated April 27, 2015, states that:

> CSX's margin gains of the past decade are nothing short of astounding. The firm lagged its peers after the rail renaissance began in 2004, but surprisingly strong profitability during the recession marked the end of its perceived second-class status. Historically, CSX's closest comparative peer, Norfolk Southern, earned at least 5 percentage points better annual margin, but CSX achieved record improvements in operating ratio (operating expenses/revenue) during 2009-2012 and more than closed the performance gap. The Eastern railroad started its margin improvement trajectory during the early days of the modern railroad renaissance and advanced its OR to around 71% (29% EBIT margin) during the past five years from more than 90% in 2003.

> Management's long-run mid-60s OR (operating ratio) target seems attainable to us, for we believe much-improved profitability is here to stay at CSX....
>
> .... CSX made meteoric progress in its operations during the past decade, improving safety, shortening terminal dwell time, and increasing on-time arrivals. In almost every measure of operating performance, CSX moved the needle significantly. Along with better-run operations the company materially improved its pricing, expanding consolidated yield at a 6% compound rate since 2004. Given this progress, there's now less room for improvement, but we expect pricing power to persevere in excess of 2%-3% annual railroad cost inflation.[28]

Morningstar thus depicts a company that has done extremely well since the recession, and is poised to continue and expand on its success. The assessment stresses the importance of the operating ratio and also explains that inflation has been an opportunity, rather than a problem, for CSXT.

Morningstar's analysis for CSX also includes an "Economic Moat" analysis, which begins by observing that "CSX's wide economic moat is based on cost advantages and efficient scale," and then adds that "[t]he network of track and assets Class I railroads have in place is impossible to replicate," and that "[b]arriers to entry are powerful for railroads." Morningstar then observes that CSXT and its peers outearn their cost of capital:

> While the rails don't outearn their cost of capital by much, our wide moat rating stems from our confidence that rails will leverage cost and efficient scale competitive advantages to generate positive

28 A copy of the Morningstar analysis is included at e-workpaper RA-CSXMorningstarStockAnalysis.pdf.

> economic profits for the benefit of share owners with near certainty 10 years from now, and more likely than not 20 years from now; by our methodology, this defines wide economic moat.

Morningstar's evaluation states that CSXT and the other major Class I railroads not only satisfy the Board's ROI=COC test currently, but are highly likely to continue doing so for the next ten years, and "more likely than not" for the following ten years, thus further attesting to their long-term revenue adequacy.

3. Standard & Poor's

S&P provides many of the same metrics as ValueLine and Morningstar, including yield percentage, capital structure (long-term debt as a percentage of capitalization), net margin (operating margin after taxes), return on equity, and return on assets, confirming their relevance for investors and for assessing a company's financial health. S&P also provides some proprietary evaluations, including an "Investability Quotient Percentile" of 91 out of 100 for CSXT.[29] S&P explains that the ranking means it has determined that CSXT is more investable than 91% of all companies for which S&P reports are available. S&P explains elsewhere that the investability quotient is a measurement of the stock's medium-to-long term return potential relative to other stocks.[30] A finding that CSXT is more investable than 91% of other stocks is a

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29 A copy of the S&P report is included as e-workpaper RA-CSXSandP.pdf.

30 *Your Guide to S&P Capital IQ™ Stock Reports* explains that the investability quotient is "[a] quantitative measure of investment desirability" and the IQ indicates potential medium- to long-term return and can serves as a caution against downside risk. The IQ percentile presents the company's IQ score relative to all other ranked stocks." See https://www.capitaliq.com/stockreportguide_(April 2012) at 3, and e-workpaper RA-SandPGuide.pdf Val.

strong indication that CSXT currently is revenue adequate, and is projected to maintain that status into the future. Like ValueLine and Morningstar, S&P gives no indication that CSXT's revenues are in any way insufficient for the company to continue to be viable for the long-term.

G. CONCLUSIONS

The analyses in the previous Sections B, C, D, E, F and G each demonstrate from many different viewpoints or using different methods that CSXT is a revenue adequate railroad. The following analyses and tests of CSXT's revenue adequacy were performed:

-Compared the financial performance of CSXT to the original stated criteria for revenue adequacy from the governing statute, 49 U.S.C. § 10704(a)(2).

-Performed an analysis of multiple financial ratios for CSXT financial performance.

-Corrected the procedures for testing railroad revenue adequacy based on the calculated industry cost of capital under the STB's current test, and showed CSXT to be revenue adequate under that test.

-Performed an analysis of CSXT's revenue adequacy based on CSXT's own cost of capital.

- Presented and reviewed CSXT's internal estimates of its cost of capital, pursuant to documents requested during the discovery process.

-Evaluated CSXT's revenue adequacy as perceived by the financial and investment community.

Based on the analysis described above, CSXT clearly has achieved revenue adequacy over a multi-year period through 2014, and the relevant indicators all support the conclusion that CSXT will maintain this status into the future. CSXT's achievement of revenue adequacy is not a short-term phenomenon. CSXT has demonstrated great flexibility in tailoring its railroad operations to demand, controlling costs, making significant investments in capital assets, aggressively seeking new business, earning increasing levels of profits, and achieving revenue adequacy. The stock market and its multitude of diverse participants continually appraise and evaluate the expected future performance of publicly traded companies such as CSXT. Future revenues, costs, profitability, and stock prices of companies with traded stock are constantly evaluated by individual and institutional investors, market researchers, brokers, other companies, and others. As shown in this Report, those sources and the metrics on which they rely confirm that CSXT's multi-year, steady trend of progress will continue.

Appendix, Exhibit 1

Test of the Significance of Differences between CSXT's Return on Investment and Railroad Cost of Capital, 2010-2014

1. Based on CSXT's 2010-2014 financial performance

	Difference[a]
Average of the differences[1]	(0.0046)
Standard error of the differences[1]	0.0023
t-value[2]	2.0226
critical t value for test[3]	2.7764
Significance level[4]	0.1132
Inference	Not significant at 5% level

Notes

[a] Difference between CSXT Return on Investment and STB Railroad Cost of Capital

[1] Estimated over 2010-2014

[2] Average/Standard deviation

[3] Value of the inverse-t distribution for probability = 5% and degrees of freedom = 4

[4] Statistical significance in a 2-tailed test.

Source: Data on CSXT's financial performance taken from Table 1 of CSXT's "Motion to Dismiss Revenue Adequacy Claim", filed March 24, 2015 in Consumers Energy Company v. CSX Transportation, Inc., STB Docket No. NOR 42142, filed January 13, 2015 and Table 1 of this Report. e-workpapers RA.xlsx, tab Exhibit 1 and RA-Exhibit 1.pdf.

Appendix, Exhibit 2
Excerpts from CSX's Consolidated Cash Flow Statements, 2010-2014

		2010	2011	2012	2013	2014
	Operating Activities					
1	Net Earnings	$1,563	$1,854	$1,863	$1,864	$1,927
	Adjustments To Reconcile Net Earnings To Net Cash Provided By Operating Activities:					
2	Depreciation	$947	$976	$1,059	$1,104	$1,151
3	Deferred Income Taxes	$474	$609	$592	$300	$298
4	Contribution To Qualified Pension Plans (Note 8)			-$275		
5	Gain On Property Dispositions	$21	-$25	-$166	-$70	-$11
6	Other Operating Activities	$31	-$10	-$64	-$35	$14
	Changes In Operating Assets And Liabilities:					
7	Accounts Receivable	$38	-$117	$61	-$6	-$119
8	Other Current Assets	-$22	-$23	-$32	$36	-$26
9	Accounts Payable	$58	$76	-$4	$28	$1
10	Income And Other Taxes Payable	$28	$116	-$14	-$67	$74
11	Other Current Liabilities	$123	$35	-$74	$113	$34
12	**Net Cash Provided By Operating Activities**	**$3,261**	**$3,491**	**$2,946**	**$3,267**	**$3,343**
	Investing Activities					
13	Property Additions	-$1,840	-$2,297	-$2,341	-$2,313	-$2,449
14	Purchase Of Short-Term Investments		-$492	-$633	-$1,256	-$1,433
15	Proceeds From Sales Of Short-Term Investments	$41	$74	$581	$1,401	$1,674
16	Proceeds From Property Disposition	$108	$240	$186	$53	$62
17	Other Investing Activities	-$80	-$112	-$70	-$112	-$37
18	**Net Cash Used In Investing Activities**	**-$1,771**	**-$2,587**	**-$2,277**	**-$2,227**	**-$2,183**
	Financing Activities					
19	Long Term Debt Issued Note 9	$800	$1,200	$1,100	$500	$1,000
20	Long Term Debt Repaid Note 9	-$113	-$605	-$508	-$780	-$933
21	Dividends Paid	-$372	-$480	-$558	-$600	-$629
22	Stock Options Exercised	$42	$29	$14	$9	
23	Shares Repurchased	-$1,452	-$1,564	-$734	-$353	-$517
24	Other Financing Activities	-$132	$7	$18	-$8	-$4
25	**Net Cash Used In Financing Activities**	**-$1,227**	**-$1,413**	**-$668**	**-$1,232**	**-$1,083**
	Net (Decrease) Increase In Cash And Cash Equiva	$263	-$509	$1	-$192	$77
	Cash And Cash Equivalents					
	Cash And Cash Equivalents At Beginning Of Period	$1,029	$1,292	$783	$784	$592
	Cash And Cash Equivalents At End Of Period	**$1,292**	**$783**	**$784**	**$592**	**$669**
	Supplemental Cash Flow Information					
	Interest Paid - Net Of Amounts Capitalized	$564	$574	$592	$595	$575
	Income Taxes Paid	$421	$359	$506	$824	$741

(Dollars in Millions)

Source: CSXT SEC Annual Reports (Consolidated Cash Flow Statements), 2012, 2013, and 2014; e-workpaper RA.xlsx, tab Exhibit 2 and RA-Exhibit 2.pdf.

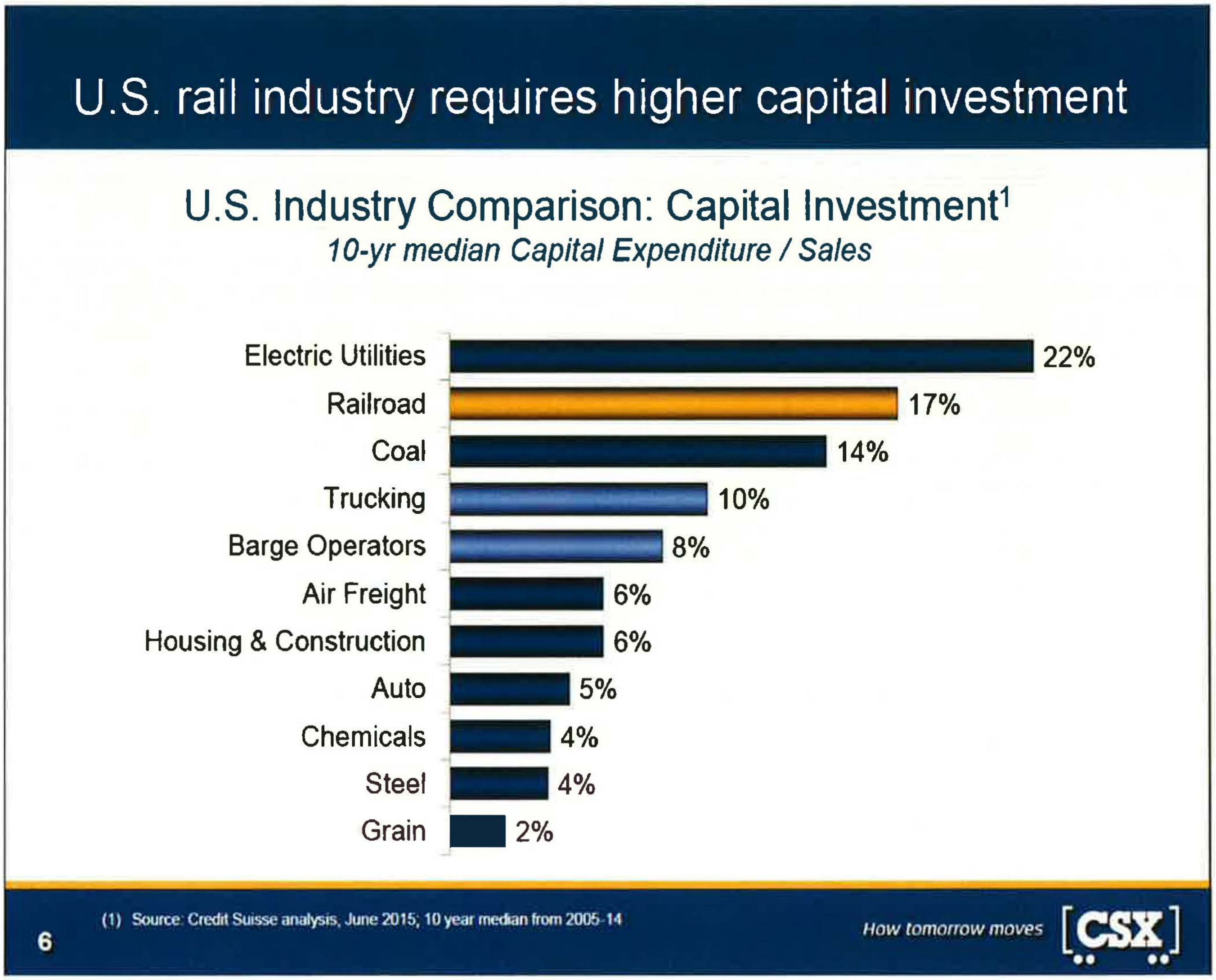
Appendix, Exhibit 2
Screenshot of CSXT's Annual Reports
Excerpts from CSX's Consolidated Cash Flow Statements

(Dollars in Millions)

	Fiscal Years				
	2014	2013	2012	2011 [a]	2010
OPERATING ACTIVITIES					
(1) Net Earnings	$ 1,927	$ 1,864	$ 1,863	$ 1,854	$ 1,563
Adjustments to Reconcile Net Earnings to Net Cash Provided by Operating Activities:					
(2) Depreciation	1,151	1,104	1,059	976	947
(3) Deferred Income Taxes	298	300	592	609	474
(4) Contributions to Qualified Pension Plans (Note 8)	—	—	(275)	—	—
(5) Gain on Property Dispositions	(11)	(70)	(166)	(25)	21
(6) Other Operating Activities	14	(35)	(64)	(10)	31
Changes in Operating Assets and Liabilities:					
(7) Accounts Receivable	(119)	(6)	61	(117)	38
(8) Other Current Assets	(26)	36	(32)	(23)	(22)
(9) Accounts Payable	1	28	(4)	76	58
(10) Income and Other Taxes Payable	74	(67)	(14)	116	28
(11) Other Current Liabilities	34	113	(74)	35	123
(12) **Net Cash Provided by Operating Activities**	3,343	3,267	2,946	3,491	3,261
INVESTING ACTIVITIES					
(13) Property Additions	(2,449)	(2,313)	(2,341)	(2,297)	(1,840)
(14) Purchase of Short-term Investments	(1,433)	(1,256)	(633)	(492)	—
(15) Proceeds from Sales of Short-term Investments	1,674	1,401	581	74	41
(16) Proceeds from Property Dispositions	62	53	186	240	108
(17) Other Investing Activities	(37)	(112)	(70)	(112)	(80)
(18) **Net Cash Used in Investing Activities**	(2,183)	(2,227)	(2,277)	(2,587)	(1,771)
FINANCING ACTIVITIES					
(19) Long-term Debt Issued (Note 9)	1,000	500	1,100	1,200	800
(20) Long-term Debt Repaid (Note 9)	(933)	(780)	(508)	(605)	(113)
(21) Dividends Paid	(629)	(600)	(558)	(480)	(372)
(22) Stock Options Exercised	—	9	14	29	42
(23) Shares Repurchased	(517)	(353)	(734)	(1,564)	(1,452)
(24) Other Financing Activities	(4)	(8)	18	7	(132)
(25) **Net Cash Used in Financing Activities**	(1,083)	(1,232)	(668)	(1,413)	(1,227)
Net (Decrease) Increase in Cash and Cash Equivalents	77	(192)	1	(509)	263
CASH AND CASH EQUIVALENTS					
Cash and Cash Equivalents at Beginning of Period	592	784	783	1,292	1,029
Cash and Cash Equivalents at End of Period	$ 669	$ 592	$ 784	$ 783	$ 1,292
SUPPLEMENTAL CASH FLOW INFORMATION					
Interest Paid - Net of Amounts Capitalized	$ 575	$ 595	$ 592	$ 574	$ 564
Income Taxes Paid	$ 741	$ 824	$ 506	$ 359	$ 421

Source: CSXT Annual Reports (Consolidated Cash Flow Statements), 2012, 2013, and 2014, e-workpaper RA-Exhibit 2.pdf.

Appendix, Exhibit 3
CSXT Briefing at an Oral Hearing on Ex Parte 722, Railroad Revenue Adequacy before the Surface Transportation Board, July 22, 2015.



Source: CSXT Briefing at an Oral Hearing on Ex Parte No. 722, Railroad Revenue Adequacy, before the Surface Transportation Board, July 22, 29015. e-workpaper RA-Exhibit3.pdf.