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PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

SUNBELT CHLOR ALKALI PARTNERSHIP	)	
Complainant,	)	
v.	)	Docket No. NOR 42130
NORFOLK SOUTHERN RAILWAY COMPANY	)	
Defendant.	)	

OPENING EVIDENCE AND ARGUMENT OF SUNBELT CHLOR ALKALI PARTNERSHIP

Volume I: Narrative

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PART II

MARKET DOMINANCE

In this Part II, SunBelt presents evidence to establish the market dominance of NS over the issue movement of chlorine from McIntosh, Alabama to New Orleans, Louisiana. Part II-A addresses quantitative market dominance and Part II-B addresses qualitative market dominance.

A. QUANTITATIVE MARKET DOMINANCE.

In making a determination under this section, the Board may find that a railroad has market dominance if the rate charged results in a revenue to variable cost ("R/VC") ratio equal to or greater than 180 percent. 49 U.S.C. § 10707(d)(1). In this Part II-A, SunBelt demonstrates that the R/VC ratio for the movement challenged in this proceeding greatly exceeds 180 percent. The testimony in this Part II-A is jointly sponsored by Thomas D. Crowley and Timothy D. Crowley of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

For purposes of this analysis, NS tariff rates are compared to NS's variable costs for handling SunBelt's traffic following the Board's procedures in Major Issues. Specifically, NS's variable costs are calculated using the Board's NS 2010 Uniform Railroad Costing System ("URCS") unit costs,[1] the URCS Phase III program and the following nine (9) specific traffic and operating inputs for each movement: (1) the railroad; (2) loaded miles (including loop track miles); (3) shipment type (originated and terminated or "local", originated and delivered, received and delivered or "bridge," and received and terminated); (4) number of freight cars per train; (5) tons per car; (6) commodity; (7) type of movement (single car, multiple car or unit train); (8) car ownership (railroad or private); and (9) type of car.[2]

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[1] Released December 9, 2011.

[2] Major Issues at 52 and 60.

A detailed summary of the movement parameters, variable costs and R/VC ratios for SunBelt's challenged movement is included in SunBelt Opening Exhibit II-A-1. As shown in Table II-A-1 below, NS's R/VC ratios at mid-third quarter 2011 levels through mid-second quarter 2012 levels range between 479 percent and 488 percent.

Table II-A-1
Summary of Variable Cost, Jurisdictional Threshold and Revenue to Variable Cost Ratios for SunBelt Movement

Item (1)	**3Q2011** (3)	**4Q2011** (4)	**1Q2012** (5)	**2Q2012** (6)
1. Phase III Cost	$1,671	$1,659	$1,664	$1,688
2. Jurisdictional Threshold	$3,008	$2,985	$2,995	$3,039
3. Rate Per Car	$8,088	$8,088	$8,088	$8,088
4. R/VC Ratio	484%	488%	486%	479%

Source: Exhibit II-A-1

1. Traffic and Operating Characteristics.

As directed by the Board, SunBelt and NS conferred and agreed upon all nine (9) of the required traffic and operating characteristics associated with SunBelt's movement to which the challenged rate applies.[3] The agreed to traffic and operating characteristics used by SunBelt in its calculation of the variable costs summarized in Exhibit II-A-1 are shown below:

1. Railroad: NS
2. Miles: 585
3. Shipment Type: Originated and Delivered
4. Cars Per Shipment: 1

[3] Joint Submission of Operating Characteristics ("Joint Submission"), Docket No. NOR-42130 filed April 9, 2012 and summarized in SunBelt Opening Exhibit II-A-2.

5. Car Type: Tank <22,000 Gallons
6. Car Owner: Private
7. Tons Per Car: 89.8
8. Commodity (STCC): Chlorine (2812815)
9. Movement Type: Single Car

2. Variable Cost Calculations.

The rate being challenged is for a movement originated by NS and delivered by NS in interchange ("Originated and Delivered"). SunBelt Opening Exhibit II-A-1 shows the calculation of the variable costs for SunBelt's movement at issue using the STB's NS 2010 URCS unit costs. The 2010 NS URCS variable cost calculations are indexed to mid-third quarter 2011 ("3Q11") through mid- second quarter 2012 ("2Q12") wage and price levels using the STB prescribed indexing procedures.[4] Table II-A-1 above summarizes the results of these calculations.

3. Rates.

Through March 30, 2011, NS transported SunBelt's issue traffic pursuant to a joint UP/NS Contract with SunBelt. When the parties were unable to reach agreement on new contract rates, NS originally published a Joint Tariff rate with UP (NSRQ 70319) that remained in effect until July 29, 2011. At that time, UP and NS published separate Rule 11 (proportional) rates for the subject movement. On December 13, 2011, NS published a local rate in NSRQ 65912 to replace the Rule 11 rate which had been in effect since July 30, 2011. NS also has informed the Board that it waives any objection to SunBelt challenging the proportional rate that

[4] See workpaper "NS10 to 2Q12 Phase III INDEX.xlsx."

was in effect from July 30 until December 13, 2011 as a local rate.[5] It is the NS proportional and local rates from McIntosh, AL to New Orleans, LA which are at issue here.

Because SunBelt and NS were unable to agree upon new contract rates, SunBelt initiated this proceeding and has continued to pay NS's public tariff rate of $8,088 per car since July 30, 2011.[6]

Comparing the aforementioned variable cost calculations to the applicable rate produces R/VC ratios for 3Q11 through 2Q12 that range between 479 percent and 488 percent, well in excess of the 180 percent jurisdictional threshold.

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[5] See, "Defendant Norfolk Southern Railway Company's Reply To SunBelt's Motion for Clarification," pp. 5, 21-22 (filed Jan. 6, 2012).

[6] This rate is not subject to a fuel surcharge.

III. A. STAND-ALONE TRAFFIC GROUP

The testimony in this Part is being sponsored by Thomas D. Crowley, Michael E. Lillis, Robert D. Mulholland and Sean D. Nolan, all of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein.

For the last forty-one (41) years, Mr. Crowley has been analyzing and evaluating economic and transportation options available to users of all transportation modes, as well as the transporters of products. In addition to railroads, pipelines and truck transporters, Mr. Crowley has assisted shippers of chemical traffic, coal and aggregates, grain and agriculture, lumber and raw materials analyze and evaluate different transportation options available to them in both competitive and captive environments in all parts of the United States. Mr. Crowley has sponsored economic evidence in every maximum rate proceeding based on the stand-alone cost test filed at the STB and its predecessor agency, the ICC, since the adoption of the 1985 *Guidelines.*

Mr. Lillis has more than twenty-five (25) years of experience solving economic, transportation and fuel supply problems for different shippers throughout the United States. He has performed extensive analyses in the area of stand-alone costing including traffic group identification, route layout, design and construction costs, revenue development, forecasting and the development of detailed operating plans for various stand-alone railroads.

Mr. Mulholland has over seventeen (17) years of experience conducting and directing studies, analyzing many different facets of the freight transportation industry, with an emphasis on economic and policy issues. He has worked in both the private and public sectors with or for shippers, carriers, facility operators, and regulators. Much of his work has focused on the operations, cost and pricing structures of the rail and trucking industries. He has developed and sponsored evidence regarding traffic selection, shipment routing, revenue division, and traffic and revenue forecasts in several rate reasonableness proceedings before the STB.

Mr. Nolan has spent his twenty (20) year consulting career evaluating railroad cost of service, pricing and operations issues on behalf of shippers and government departments and agencies. The nature of his work has been supporting shippers in their procurement initiatives including the purchasing of fuel, transportation services, equipment and management of inventories. His development and analysis of alternative scenarios have been supported by tailored financial models used to estimate cost reductions and savings, actual versus budgeted variances, revenue to variable cost of service relationships, cash flows, and break-even and sensitivity analyses.

The SunBelt Stand-Alone Railroad ("SBRR") will operate 580.64 route miles, which includes 2.4 miles under a trackage rights agreement with CN (as NS does today).[1] The SBRR traverses three (3) states – Alabama, Louisiana and Mississippi. A schematic of the SBRR system appears in Exhibit III-A-1.

The SBRR stand-alone traffic group and associated revenues are discussed in the remainder of this Part III-A. Different, interrelated time periods are used to develop SunBelt's opening evidence. Specifically, the time periods are defined as follows: 1) "Base Period" is 2011;[2] 2) "Base Year" is July 30, 2010 through July 29, 2011;[3] 3) "First Year" is July 30, 2011 through July 29, 2012, the first year of the SAC analysis period; and 4) Peak Year is July 30, 2020 through July 29, 2021, the last year of the SAC analysis period.

The remainder of this Part III-A is organized under the following topical headings:

1. Stand-Alone Railroad Traffic

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[1] *See* e-workpaper "IC/SR Agreement.pdf."

[2] NS traffic data from the Base Period were used to develop base SBRR traffic volumes and revenues. These data were forecasted over the SAC analysis period as described in this section.

[3] NS train data from the Base Year were used to develop base SBRR operating statistics. These data were forecasted over the SAC analysis period as described in Part III-C.

2. Volumes (Historical and Projected)
3. Revenues (Historical and Projected)
4. Revenues by Traffic Type

1. Stand-Alone Railroad Traffic

The SBRR transports a broad range of commodities over its system in single-line, interline and cross-over service, similar to what NS does over the same rail lines in the real-world. The basis for the SBRR traffic group is NS waybill data and NS car and intermodal event data for January 1, 2010 through September 30, 2011, which were produced by NS in response to SunBelt discovery requests.[4]

As discussed in more detail in Parts III-A-2 and III-A-3 below, the waybill and car/intermodal event data were used in conjunction with several other files that were provided by NS in multiple disparate formats and with varying levels of common data fields that did not always enable efficient and/or complete database linking to identify the SBRR traffic. The processes used to link the tables and the difficulties encountered and overcome in developing those processes are detailed in Exhibit III-A-2.

Like NS, the SBRR traffic includes chemical, intermodal, agricultural, coal, automotive, metals, paper, and construction materials shipments.[5] The SBRR moves its shipments in the same manner that NS handles the traffic today on intermodal, unit, manifest (mixed general freight), and local trains. The Base Period traffic is made up of NS actual shipments traversing the SBRR during the first quarter 2011 ("1Q11") through third quarter 2011 ("3Q11") time period plus fourth quarter 2011 ("4Q11") projections based on NS' actual system-wide volumes and revenues. SunBelt developed 4Q11 NS commodity-specific growth rates by dividing NS

[4] NS 2010 traffic data were provided at hard drives NS-DP-HC-EHD2, NS-DP-HC-EHD4. NS 2011 traffic data were provided at hard drives NS-SB-HC-EHD1, and NS-SB-HC-EHD2.

[5] The traffic and corresponding NS commodity group codes include: Agriculture (10), Chemicals (40), Automotive (60), Coal (80), Intermodal (IM), and "General Merchandise" consisting of Metals (20), Construction (25), and Paper (30).

system-wide 4Q11 volumes by NS system-wide 1Q11-3Q11 volumes for each commodity group. The 4Q11 NS commodity specific growth rates are summarized in Table III-A-1 below.

Table III-A-1
NS Commodity Specific Growth Rates
To Annualize 1Q11-3Q11 NS Provided Data

Commodity	4Q11 Growth Rate 1/
(1)	(2)
1. Agricultural Products (10)	1.335
2. Metals (20)	1.330
3. Construction Materials (25)	1.330
4. Paper (30)	1.311
5. Chemicals (40)	1.304
6. Automotive (60)	1.365
7. Coal (80)	1.334
8. Intermodal (IM)	1.351

1/ Factor applied to annualize 1Q11-3Q11 NS provided data based on actual NS growth.
Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

SunBelt applied the Table III-A-1 growth rates to the 1Q11-3Q11 data for NS movements traversing the SBRR to develop Base Period traffic levels. The Base Period SBRR traffic is summarized in Table III-A-2 below and is made up of [redacted]} agricultural products, {[redacted]} metals, {[redacted]} construction materials, {[redacted]} paper, {[redacted]} chemicals, {[redacted]} automotive, {[redacted]} coal, and {[redacted]} intermodal on a carload/container basis.

Table III-A-2
Summary of SBRR Base Period Carloads/Containers and Net Tons – 2011

Commodity (1)	Carloads/ Containers (2)	Net Tons (3)	Percent of Col (2) Total (4)
1. Agricultural Products (10)	{[redacted]}	{[redacted]}	{[redacted]}
2. Metals (20)	{[redacted]}	{[redacted]}	{[redacted]}
3. Construction Materials (25)	{[redacted]}	{[redacted]}	{[redacted]}
4. Paper (30)	{[redacted]}	{[redacted]}	{[redacted]}
5. Chemicals (40)	{[redacted]}	{[redacted]}	{[redacted]}
6. Automotive (60)	{[redacted]}	{[redacted]}	{[redacted]}
7. Coal (80)	{[redacted]}	{[redacted]}	{[redacted]}
8. Intermodal (IM)	{[redacted]}	{[redacted]}	{[redacted]}
9. Total	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

The SBRR Base Period traffic consists of {[redacted]} carloads/containers or {[redacted]} million tons as shown in Table III-A-2 above. A detailed summary of the Base Period traffic group for the SBRR is included in SunBelt's workpapers.[6]

2. Volumes (Historical and Projected)

The SBRR begins operating on July 30, 2011. The SBRR traffic group is composed of: (1) actual selected NS traffic (including issue traffic) moving from the start date through the end of September 2011, and (2) forecasted traffic volumes from October 1, 2011 through July 29, 2021.

For all commodity groups (see Table III-A-1 above), the 4Q11 volumes were projected by adjusting the NS selected volumes for January to September, 2011 by the NS actual fourth quarter growth as shown in the NS' Fourth Quarter 2011 Quarterly Financial Review. For the 2012 through 2016 periods, SBRR volumes were projected by using an annual volume index developed from NS internal shipment forecasts provided in discovery. Specifically, NS

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[6] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

produced the 2012-2016 internal forecasts it developed in March 2012. SunBelt aggregated the NS forecasted carload and container totals on a commodity group basis and developed year-over-year volume change indexes for each commodity group. SunBelt then applied the annual volume change indexes it developed from the NS forecast data to the selected Base Period SBRR movements based on the 2-digit commodity code[7] provided in the NS waybill data. Aggregation of forecast data on a commodity group basis was necessary to maintain consistency between the traffic volume forecast and the train forecast because shipments that move together on a given train may be forecasted to grow at different rates in the NS forecast. By developing commodity group-specific growth rates, SunBelt was able to accurately reflect forecasted volume growth in the Peak Year train list.

This aggregate approach is consistent with the model accepted by the STB in *CP&L*.[8] In *CP&L*, the Board recognized that coal business in the east constantly shifts on an O/D pair basis and that an O/D pair-specific approach to forecasting the traffic group would be too restrictive and result in understated volume growth. The same holds true for this case.[9] Although some of the historical movements do not appear in the NS forecast (and would be excluded from the SBRR volume forecast using an O/D specific approach), the forecast does include other

[7] The NS database code that reflects the 2-digit commodity is "AR_MAJOR_COMMODITY_GRP."

[8] *See CP&L* at 249-251.

[9] Although the issue in *CP&L* was limited to coal volume forecasting, the principles behind the Board's decision in that case are relevant to the forecast of coal and other commodities in this case, and SunBelt applied the *CP&L* volume forecasting methodology to all selected movements in its forecast model. As stated by the STB in its December 23, 2003 *CP&L* decision, a customer may ship from one mine in one year, then shift to another the next year, and back to the first mine in the following year. Similarly, a customer may not ship from a SARR-served mine in the Base Year but it may do so in some or all subsequent years. Consequently, requiring exact origin-destination matches between forecasted traffic volumes and the selected Base Year is unduly restrictive and does not fairly reflect the traffic that would be available to the SARR in any given year. The better (and Board-endorsed) approach is to view the Base Year traffic group selected by the shipper as a snapshot that is reflective of the coal traffic that can reasonably be assumed to be available to the SARR for any given year of the model period. Thus, the fact that some traffic would not continue to move from a specific origin to a specific destination throughout the SAC analysis period does not mean that other traffic would not move from the mines served by the SARR. It is therefore reasonable to treat the base traffic group selected by the shipper as a representative traffic group for all modeled years. Theoretically there is no difference between coal and other commodities in this regard, so we have extended this Board approved logic to cover all existing carload movements on the SARR.

comparable movements that are not included in the historical data. Therefore, including only the historical lanes would not be reflective of the actual system-wide growth NS projects.

For the January 2017 through July 2021 time period, SBRR volumes were determined by adjusting the prior year volume by the commodity group-specific compound annual growth rate ("CAGR") developed utilizing three (3) years of NS actual data (2009-2011) and five (5) years of NS internal forecast data (2012-2016). These procedures were accepted by the Board most recently in *AEPCO 2011*.[10] The average tons per car will remain the same throughout the study period.

Table III-A-3 below summarizes the year-over-year SBRR growth rates by NS-designated commodity group for the 2012 through July 29, 2021 time period.

Table III-A-3
SBRR Traffic Growth Rates by NS Commodity Group

Time Period	Agriculture (Code 10)	Chemicals (Code 40)	Automotive (Code 60)	Coal (Code 80)	Other Freight (Code 20/25/30)	Intermodal (Code IM)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. 2012	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
2. 2013	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
3. 2014	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
4. 2015	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
5. 2016	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
6. 2017	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
7. 2018	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
8. 2019	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
9. 2020	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
10. 7/29/2021	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

a. Merchandise Traffic

Merchandise (or "General Freight") traffic handled by the SBRR was developed as described above. Some of the merchandise traffic originates and/or terminates on the SBRR and

[10] SunBelt is incorporating eight (8) years of NS data, reducing the effects of real and perceived volatility. *See AEPCO 2011* at 22-23.

some moves in overhead service. Table III-A-4 below summarizes the commodity groups, carloads, and tons moved in general freight service over the SBRR in the Base Period and Peak Year.

Table III-A-4
Summary of SBRR Base Period and Peak Year Merchandise Traffic

NS Major Commodity Group	**Base Period**		**Peak Year**	
	Carloads	**Net Tons**	**Carloads**	**Net Tons**
(1)	(2)	(3)	(4)	(5)
1. Agriculture Products (10)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
2. Metals (20)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
3. Construction Materials (25)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
4. Paper (30)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
5. Chemicals (40)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
6. Automotive (60)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
7. Total	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

Merchandise carloads and tons handled by the SBRR during each study year are shown in SunBelt's workpapers.[11]

b. Intermodal Traffic

The intermodal traffic handled by the SBRR is developed as described above. Some of the intermodal traffic is originated and/or terminated on the SBRR system, and some moves in overhead service on the SBRR. Table III-A-5 below summarizes the Base Period and Peak Year containers moved by the SBRR in intermodal service by customer.

[11] *See* e-workpaper "Gen Freight Traffic and Revenue Forecast.xlsx."

Table III-A-5
Summary of SBRR Base Period and Peak Year Intermodal Traffic

Transporter	Containers: Base Period	Containers: Peak Year
(1)	(2)	(3)
1. HUB Group Inc.	{[redacted]}	{[redacted]}
2. JB Hunt Transport Inc.	{[redacted]}	{[redacted]}
3. Hanjin Shipping Limited	{[redacted]}	{[redacted]}
4. NYK International	{[redacted]}	{[redacted]}
5. All Other	{[redacted]}	{[redacted]}
6. Total Intermodal Traffic	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables 5+6.xlsx" and "IM-Coal Traffic and Revenue Forecast.xlsx."

Intermodal containers handled by the SBRR for each year of the DCF model are shown in SunBelt's workpapers.[12]

c. Coal Traffic

The coal traffic handled by the SBRR is also developed as described above. The SBRR will not serve any origin coal mines directly but will receive trainloads of coal in interchange from NS and other railroads. Some coal moving over the SBRR terminates at two generating stations[13] and a few industrial facilities located on the SBRR. Other coal traffic moving over the SBRR will be interchanged (interline forwarded/received) with NS and other railroads that will transport this traffic to/from electric utilities, marine coal terminals or industrial facilities located off the SBRR system.

As in prior STB maximum rate reasonableness proceedings, electric utility coal volume growth was capped at an 85 percent plant capacity level for each generating station. However, for the two generating stations at which SBRR terminates coal shipments, i.e., R.D. Morrow at Richburg, MS and Lowman Plant at Jackson (Carson), AL, when the forecasted growth factors

[12] *See* e-workpaper "IM-Coal Traffic and Revenue Forecast.xlsx."
[13] R.D. Morrow Station at Richburg, MS and Lowman Plant at Jackson (Carson), AL.

were applied to the annual volumes, the maximum volume was less than produced by the 85 percent capacity factor.

The on and off system coal destinations and total tons of coal handled by the SBRR for the Base Period and Peak Year are summarized in Table III-A-6 below.

Table III-A-6
Summary of SBRR Base Period and Peak Year Coal Traffic

Coal Destination	Tons: Base Period	Tons: Peak Year
(1)	(2)	(3)
1. South Mississippi Electric Power	{[redacted]}	{[redacted]}
2. Powersouth Energy Cooperative	{[redacted]}	{[redacted]}
3. International Paper Co.	{[redacted]}	{[redacted]}
4. Alabama Power Co.	{[redacted]}	{[redacted]}
5. All Other	{[redacted]}	{[redacted]}
6. Total Coal Traffic	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables 5+6.xlsx" and "IM-Coal Traffic and Revenue Forecast.xlsx."

Total coal tons handled by the SBRR for each year of the DCF model are shown in SunBelt's workpapers.[14]

3. Revenues (Historical and Projected)

SunBelt developed total revenue for each selected movement using actual revenue and revenue adjustment data provided by NS in discovery for January 1, 2011 through September 30, 2011. SunBelt then forecasted the movement revenues for the rest of the SAC analysis period based on the methodology described below. Finally, SunBelt allocated the movement revenues between the SBRR and residual NS using the Board's modified average total cost ("ATC") methodology.

Calculating base net revenues was a difficult and cumbersome process. As with volumes, the difficulties arose from the nature and scope of the waybill revenue data and the revenue adjustment data provided by NS in discovery. Specifically, NS provided revenue data in an

[14] *See* e-workpaper "IM-Coal Traffic and Revenue Forecast.xlsx."

inconsistent manner in the waybill file and in multiple additional files of multiple different media types containing multiple record layouts and few common data fields that would enable efficient and precise linking of files. Exhibit III-A-2 contains a detailed description of the problems encountered and solutions developed to process and utilize the complex, disparate, and extremely voluminous data NS provided in an orderly, automated, repeatable way. There is no doubt that SunBelt's automated model was unable to make positive links between and among the many data tables for some shipments. These broken links are due entirely to data deficiencies and were unavoidable in the development of a system of straightforward, intuitive, and understandable scripts and models to pull all the disparate data sources together in a way that facilitated the SAC analysis.

a. Historical Revenues

SunBelt developed movement revenues (which included fuel surcharges, absorbed switching charges, other revenue claims and handling/haulage settlement payments) for each unique shipment[15] handled by the SBRR and then compiled the individual shipments into unique movements. A unique movement is defined by Origin/Destination ("O/D") pair, commodity group, and contract, if available. Using this compiled data, NS movement revenues were developed as follows:

1. For merchandise, coal and non-TCS/TDIS[16] intermodal moves, the following fields were summed:[17]
    a. Line Haul Revenues
    b. Fuel Surcharge Revenues
    c. Accounts Receivable Adjustments
    d. Other NS Revenue Adjustments
    e. Contract Refunds
    f. Dumping Amounts

[15] A shipment is defined as a car/container or group of cars/containers moving under the same waybill.
[16] NS intermodal shipments were classified in the following three ways: 1) shipper = Triple Crown Services ("TCS"); 2) Shipper = Thoroughbred Direct Intermodal Services ("TDIS"); and 3) All other Intermodal. There are no TCS shipments on the SBRR.
[17] All revenue fields were summed because negative revenue adjustments were captured as negative values in the data processing models. For example, contract refunds are recorded as negative amounts.

g. Net Switching Payments (where applicable)[18]
h. Net Handling Line Payments (where applicable)[19]
i. Net Haulage Receivable Payments (where applicable)[20]

2. For TDIS Intermodal moves, the following fields were summed:
   a. TDIS Net Revenues (total revenues less drayage expenses)
   b. NS Fuel Surcharge Revenues
   c. Accounts Receivable Adjustments
   d. Other NS Revenue Adjustments
   e. Contract Refunds
   f. Dumping Amounts
   g. Net Switching Payments (where applicable)
   h. Net Handling Line Payments (where applicable)
   i. Net Haulage Receivables Payments (where applicable)

3. There are no TCS Intermodal moves on the SBRR.

b. <u>Projected Revenues</u>

SBRR forecasted revenue for 4Q11 through July 29, 2021 using: (1) NS system-wide 4Q11 revenue data; (2) NS pricing authorities and fuel surcharge tariffs; (3) NS internal revenue forecasts; and (4) publicly available forecasts of key economic indices.

Table III-A-7 summarizes the basis of the revenue forecasts that SunBelt used to develop SBRR projected revenues.

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[18] Switching charges/payments were provided in separate data tables and often could not be positively linked to the waybill data based on the common fields provided. To the extent that links could be made, switching charges were considered in the development of NS movement revenues.

[19] Handling Line charges/payments were provided in separate data tables and often could not be linked to the waybill data based on the common fields provided. To the extent that links could be made, handling line charges were considered in the development of NS movement revenues.

[20] Haulage receivable payments were provided in separate data tables and often could not be linked to the waybill data based on the common fields provided. To the extent that links could be made, haulage receivables payments were considered in the development of NS movement revenues.

Table III-A-7
Basis of SBRR Revenue Forecasts

NS Major Commodity Group	Study Period		
	4Q11	1Q12-2016	2017 - 7/29/21
(1)	(2)	(3)	(4)
1. Agriculture (10)	1/	NS Internal Forecasts	AII-LF 2/
2. Metals (20)	1/	NS Internal Forecasts	AII-LF 2/
3. Construction (25)	1/	NS Internal Forecasts	AII-LF 2/
4. Paper (30)	1/	NS Internal Forecasts	AII-LF 2/
5. Chemicals (40)	1/	NS Internal Forecasts	AII-LF 2/
6. Automotive (60)	1/	NS Internal Forecasts	RCAFU 2/
7. Coal (80)	1/	NS Internal Forecasts	AEO East Escalator 3/
8. Intermodal (IM)	1/	NS Internal Forecasts	AII-LF 2/
9. All Commodity Groups	1/	NS WTI FSC Program 4/	NS WTI FSC Program 4/

1/ The 4Q11 revenues were developed by adjusting the NS net revenues for selected movements traversing the SBRR in January to September, 2011 by the NS commodity-specific, system-wide fourth quarter growth rates as shown in the NS' Fourth Quarter 2011 Quarterly Financial Review.
2/ Rail Cost Adjustment Factor Forecast, June 2012, Global Insight. If no FSC was applied to 1Q11-3Q11 actual shipments, RCAF-U is applied.
3/ Transportation Escalator from the Annual Energy Outlook 2012, 2009-2035.
4/ EIA 2012 forecasts of WTI in its Short Term and Annual Energy Outlooks.

SunBelt assumed that moves subject to NS fuel surcharge ("FSC") programs in 2011 will be subject to NS FSC programs throughout the SAC analysis period. Therefore, SunBelt separated the fuel surcharge revenue from the movement revenues developed as described above and forecasted the two revenue components separately.[21]

As summarized in Table III-A-7 above, SunBelt adjusted the "Revenues Less Fuel Surcharge" portion of revenues during the 2012-2016 time period based on NS' internal forecasts. During the 2017-7/29/21 time period, SunBelt used the Global Insights June 2012 forecasts of the AAR All Inclusive Index Less Fuel ("AII-LF") and the Unadjusted Rail Cost Adjustment Factor ("RCAF-U") for all commodities except coal.[22] Coal rates for 2017-7/29/21

[21] This revenue split was made for all traffic except automotive related traffic. Total movement revenues for automotive traffic were treated as base revenues for forecasting purposes because the NS provided forecast data did not separate revenues between base revenues and FSC revenues.

[22] SunBelt adjusted 2017-2021 revenues for movements that were not subject to NS fuel surcharge programs in 2011 based on the Global Insights forecast of the Unadjusted Rail Cost Adjustment Factor ("RCAF-U").

were adjusted using the annual percentage change in the 2012 AEO's Transportation Rate Escalator for the Eastern U.S., consistent with Board precedent.[23]

SunBelt's forecasting procedures for 4Q11 through July 29, 2021, for each commodity group shown in Table III-A-2 above, are described as follows:

1. SunBelt developed annual revenue growth indices for 2011-2016 for all commodity groups based on NS actual data and NS forecasts that separately recorded "Revenues Less Fuel Surcharge" and FSC.

    a. SunBelt restated "Revenues Less Fuel Surcharge" on an average per unit basis for each forecast year from 2011-2016 by dividing the aggregate "Revenues Less Fuel Surcharge" by the corresponding carloads/containers in the NS provided forecasts for each commodity group.

    b. SunBelt then developed an annual revenue growth rate for each commodity group based on the annual average per unit revenues implicit in the NS forecast.

2. To forecast "Revenues Less Fuel Surcharge", SunBelt applied either: (1) the applicable contract rate adjustment mechanism (where available); (2) the commodity-group-specific revenue-per-unit growth index it developed from NS forecasts (for 2011-2016) (Item 1 above); or (3) the appropriate publicly available economic index (for 2017-2021) for each SBRR movement, as appropriate.

    a. For movements where contract data was provided by NS, contract rate adjustment mechanisms were used to forecast the "Revenues Less Fuel Surcharge" portion of revenues for the duration of the contract term.

    b. After expiration of the contract, "Revenues Less Fuel Surcharge" were adjusted based on the commodity-group-specific revenue-per-unit growth index SunBelt developed from NS forecasts through 2016 and the appropriate publicly available economic index from 2017 through 2021.

    c. If no contract was provided by NS, "Revenues Less Fuel Surcharge" were adjusted based on the commodity-group-specific revenue-per-unit growth index SunBelt developed from NS forecasts through 2016

[23] EIA uses its Transportation Rate Escalators to forecast future coal transportation prices. It applies the escalators based on coal origins. EIA uses its Eastern Escalator for coal originating east of the Mississippi River, and its Western Escalator for coal originating west of the Mississippi River. Coal produced in the Powder River Basin or Rocky Mountains and destined to locations east of the Mississippi River would have transportation rates adjusted based on the Western Escalator. *See, e.g.*, *WFA/Basin* at 30; *PSCo/Xcel* at 639.

and the appropriate publicly available economic index from 2017 through 2021.

The fuel surcharge portion of the revenues for movements subject to a fuel surcharge was adjusted based on the fuel surcharge growth rate implicit in the NS fuel surcharge tariffs and the price of West Texas Intermediate ("WTI") fuel based on the EIA's Short Term Energy Outlook ("STEO") and Annual Energy Outlook ("AEO") forecasts.

4. Revenues By Traffic Type

The SBRR revenues developed as described in the previous section are summarized by traffic type in this section. SBRR handles single-line traffic, interline traffic, and cross-over traffic.

Single-line traffic is traffic that originates and terminates on the SBRR. Interline traffic is traffic that either originates or terminates on the SBRR and is interchanged with a railroad other than NS. Cross-over traffic is traffic that presently moves over a portion of the NS system that is beyond that which the SBRR replicates and is interlined between the SBRR and NS.

Table III-A-8 below contains a summary of the SBRR revenues by traffic type in the Base Period and Peak Year.

Table III-A-8
Summary of SBRR Base Period and Peak Year Net Revenue

Traffic Type (1)	Base Period (2)	Peak Year (3)
1. Single-Line	{[redacted]}	{[redacted]}
2. Interline	{[redacted]}	{[redacted]}
3. Cross-Over	{[redacted]}	{[redacted]}
4. Total	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

As shown in Table III-A-8 above, total SBRR revenues equal {[redacted]} million in the Base Period and {[redacted]} million in the Peak Year. Each of the three traffic types is discussed further below.

a. Single-Line Traffic

As shown in Table III-A-8 above, single-line traffic revenue equaled {[redacted]} million in the Base Period. This revenue accrued from the handling of {[redacted]} carloads of general freight and {[redacted]} intermodal containers/trailers in single-line service. SBRR revenue for this traffic was developed assuming 100 percent of the NS net movement revenue accrues to the SBRR.

In the Peak Year of operations, {[redacted]} carloads of general freight and {[redacted]} containers will move over the SBRR in single-line service generating {[redacted]} million in revenue. The total revenue for all single-line SBRR traffic for all years is shown in SunBelt's workpapers.[24]

b. Interline Traffic

Base Period interline traffic revenue equaled {[redacted]} million. This revenue came from handling {[redacted]} carloads of general freight and {[redacted]} containers/trailers in interline service.

In the Peak Year of operations, {[redacted]} carloads of general freight and {[redacted]} containers will move over the SBRR in interline service. This traffic will generate {[redacted]} million in the Peak Year.

SBRR revenues for interline traffic are the same as revenues generated by NS on the same movements. The total revenue for interline traffic handled by SBRR for all years is summarized in SunBelt's workpapers.[25]

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[24] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

[25] Id.

c. **Cross-Over Traffic**

The largest group of traffic handled by the SBRR is cross-over traffic. These shipments are assumed to be interlined between the SBRR and NS. The SBRR portion of revenues for these movements is calculated using the Modified Average Total Cost ("ATC") revenue division approach pursuant to the Board's decision in *Major Issues.*[26]

In implementing the STB's ATC methodology, SunBelt encountered multiple problems with the NS provided electronic data. A summary of these problems and the modifications made by SunBelt to overcome the NS data deficiencies is included in Exhibit III-A-3. A detailed description of the methodology followed by SunBelt to calculate SBRR's share of revenue on cross-over traffic is included in SunBelt's electronic workpapers and summarized below.[27]

i. Variable Costs – SunBelt calculated variable costs per unit for both the SBRR segment ("on-SARR") and the residual NS segment ("off-SARR") of each cross-over movement in the SBRR traffic group. Variable costs were developed using the nine (9) URCS Phase III inputs identified in *Major Issues*.[28] SunBelt utilized the Board's 2010 NS URCS unit costs to develop the URCS Phase III costs for both the on-SARR and off-SARR segments.

ii. Fixed Costs Per Route Mile – SunBelt calculated fixed costs per route mile for both the on-SARR and off-SARR segments of each cross-over movement in the SBRR traffic group. SunBelt first calculated the density for each segment of the entire movement of SBRR cross-over traffic (both on-SARR and off-SARR). SunBelt developed density data by segment from data produced by NS in discovery. The density data was developed on a net ton basis as called for in the STB's ATC methodology. SunBelt then calculated the NS fixed cost per route mile[29] by subtracting NS's total system variable costs from NS's total costs as developed in URCS and dividing the difference by NS's total system route miles.[30]

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[26] As modified by the STB in *WFA/Basin* at 12-14 and *AEP Texas II* at 11-16.

[27] *See* e-workpaper "SUNBELT_ATC_METHODOLOGY.docx."

[28] The STB stated that *AEPCO 2011* "properly framed this issue for future rate litigants to consider and brief" at 36. *AEPCO 2011* related to the calculation of variable costs for the maximum markup methodology ("MMM") model and not the ATC model. Exhibit III-A-3 explains, in part, why the URCS Phase III variable costs should not be adjusted in the ATC model.

[29] Because of the limitations of NS data, SunBelt did not calculate a separate fixed cost per route mile for trackage rights segments. Instead SunBelt calculated a fixed cost per route mile for all segments (the sum of NS owned segments and NS trackage rights segments). SunBelt's calculations are described more fully in Exhibit III-A-3.

[30] Total route miles are from NS's 2010 Annual Report Form R-1, Schedule 700, Line 57, Column (c).

iii. Fixed Costs Per Ton – With the fixed cost information developed above, SunBelt calculated the fixed cost per net ton for each segment of the actual route of movement of the cross-over traffic. NS's fixed cost per ton was calculated by multiplying the NS fixed cost per route mile by each segment's route miles and dividing the resulting aggregate fixed cost per segment by the density for each segment. SunBelt aggregated the SBRR fixed cost per net ton for the SBRR (on-SARR) segments and separately aggregated the residual NS fixed cost per net ton for the non-SBRR (off-SARR) segments of the total movement.[31]

iv. Net SARR Revenue – On-SARR variable costs plus the off-SARR variable costs were subtracted from the total NS net revenue.[32] If the result was negative (i.e., variable costs exceeded revenues), then the NS net revenues were allocated to the SBRR and residual NS based on the ratio of on-SARR to total variable costs and the ATC process for the movement was complete. If the result was positive (i.e., revenues exceeded variable costs) then the total movement contribution was calculated by subtracting the total variable costs from the total NS revenues. The contribution was allocated between the SBRR and residual NS as follows:

(1) Calculate the total cost per ton for both the on-SARR and off-SARR segments for each movement by adding the variable cost per net ton and the fixed cost per net ton;
(2) Calculate the ratio of on-SARR total costs to full movement total costs; and
(3) Apply the item (2) ratio to the total contribution for the evaluated movement and add this result to the on-SARR variable cost to arrive at the SBRR share of the total movement revenue for each cross-over movement.

The SBRR ATC revenue division ratios developed using the above procedures are held constant during each year of the DCF model life, regardless of when the movement over the SBRR starts or terminates.[33]

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[31] In performing the calculations described above, SunBelt relied upon NS provided car and intermodal event data produced in discovery and additional publicly available data from PC*MILER/Rail. PC*MILER/Rail was used primarily to identify the actual detailed route of movement on-SARR and off-SARR for each shipment. It was also used to identify the stations on the SBRR system where cross-over traffic is either received from NS or would enter the SBRR system and where cross-over traffic is interchanged to NS for off-SARR delivery or would leave the SBRR system. PC*MILER/Rail is point-to-point rail routing, mileage and mapping software for the North American rail network. The software is available for purchase and is utilized by the STB and the railroad industry.

[32] In developing the ATC divisions, URCS variable costs and URCS-based fixed costs are used. Implicit in URCS costs are total NS fuel costs recovered through the base rates plus the fuel surcharge. Therefore, to ensure that the costs and revenues that are used to allocate are on the same basis, total net revenues including fuel surcharges are included in this calculation.

[33] *See AEP Texas* at 3.

Cross-over traffic generated {[redacted]} million in the Base Period and will generate {[redacted]} million in the Peak Year of the SBRR study period. A complete summary of SunBelt's cross-over revenue allocations using the ATC methodology is shown in our workpapers.[34]

In *WFA/Basin III*, the STB reaffirmed the use of modified ATC for purposes of developing revenue divisions for cross-over traffic. The STB also stated that it may evaluate BNSF's so called alternate ATC methodology[35] in future maximum rate cases. The impact of applying BNSF's alternative ATC methodology to the cross-over traffic handled by the SARR is included in the accompanying electronic workpapers.[36] Application of the BNSF alternative ATC methodology has only a minor impact on the revenue divisions for cross-over traffic handled by the SBRR.

[34] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

[35] BNSF's alternate ATC methodology can be summarized as follows: if total movement revenue is greater than total movement variable costs, revenues are divided between the on-SARR and off-SARR segments based on a percent distribution of total costs (on-SARR revenues cannot be less than variable costs). If total movement revenue is less than total movement variable costs, revenues are divided between the on-SARR and off-SARR segments based on a percent distribution of variable costs.

[36] *See* e-workpapers "ATC Alt Gen Freight Traffic and Revenue Forecast.xlsx," and "ATC Alt IM-Coal Traffic and Revenue Forecast.xlsx."

Part III-B

III. B. STAND-ALONE RAILROAD SYSTEM

The testimony in this Part is being sponsored by Richard H. McDonald, President of RHM Consulting, Inc. and Charles A. Stedman of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein.

Mr. McDonald has over 40 years of experience in the railroad engineering and operations fields, primarily at the former Chicago and NorthWestern ("CNW") which is now part of the Union Pacific Railroad. Mr. McDonald began his railroad career in 1958 at the New York Central Railroad, where he held positions as Assistant Engineer, Roadmaster and Division Engineer (for both the New York Central and Penn Central). In 1974, Mr. McDonald left Penn Central and joined CNW, where he held several positions of increasing responsibility in the Engineering and Operating Departments including Assistant Division Manager-Engineering and later Division Manager at St. Paul, MN, Vice President-WRPI, Vice President-Operating Administration, Vice President-Transportation, Vice President-Operations, and Vice President-Planning & Acquisitions.

Mr. Stedman has over thirty (30) years of experience in solving economic, marketing, transportation and fuel supply problems. He has directed and performed extensive analyses in the area of stand-alone costing, including route layout, design and construction costs, as well as the development of detailed operating plans for various stand-alone railroads.

1. Routes and Mileage

The SunBelt Stand Alone Railroad ("SBRR") is a limited system that has only two (2) main line segments. The segments are:

1. Birmingham, AL to New Orleans, LA; and
2. McIntosh, AL to Burstall, AL (near Birmingham).

The SBRR does not include any branch lines but does operate over 2.4 miles of Canadian National Railway Company ("CN") right of way under a trackage rights agreement. The total route miles operated by the SBRR equal 580.64. The SBRR will construct 578.24 miles. The SBRR's route is shown on Exhibit III-A-1. Exhibit III-A-1 also shows the SunBelt issue traffic origin (McIntosh, AL) and interchange location (New Orleans, LA).

a. Route Miles

NS operating timetables and track charts (produced by NS in discovery) were used to develop the SBRR rail lines being replicated and summarized in Table III-B-1 below.[1] NS operating timetables and track charts that were used to develop the SBRR rail lines being replicated, which were produced by NS in discovery, are the primary source documents used to identify the SBRR route mileages.[2] Maps and schematics of various portions of the SBRR route that were used to develop the SBRR route miles are also included in SunBelt's opening work papers.[3]

Table III-B-1
SBRR Constructed Route Mileage

Segment	Constructed Miles
(1)	(2)
1. Birmingham, AL to New Orleans, LA	365.72
2. McIntosh, AL to Burstall, AL	212.52
3. Total constructed route miles	578.24

Source: e-workpaper "SUNBELT RR Route Miles Opening.xlsx"

1 *See* e-workpaper "SUNBELT RR Route Miles Opening.xlsx."
2 The timetable and track chart pdf files provided by NS in discovery that cover the route of the SBRR are included in SunBelt's opening electronic work papers.
3 *See* e-workpaper "Additional SBRR mileage support.pdf."

The SBRR's rail lines are shown in the stick diagrams, which are the track charts for the SBRR.[4] The SBRR interchanges traffic with six (6) Class I railroads (UP, BNSF, CN, CSXT, KCS and NS) as well as with several short line railroads in the same manner that NS does today.[5] A summary of the SBRR's major interchange locations are shown in Table III-B-2 below.

Table III-B-2
SBRR Major Interchange Locations

Location (1)	Carrier (2)
1. McIntosh, AL	NS
2. Kimbrough, AL	NS, AGR
3. Marion Jct., AL	NS
4. Selma, AL	NS, MNBR
5. Maplesville, AL	NS
6. Wilton, AL	NS
7. Birmingham	NS, CSXT, BNSF
8. Tuscaloosa, AL	NS, KCS, ABS
9. Boligee, AL	NS, AGR
10. Meridian, MS	NS, UP, KCS, MNBR
11. Hattiesburg, MS	NS, CN, KCS, MSE
12. New Orleans, LA	NS, CSXT, BNSF, UP, CN, KCS, NOPB

Source: e-workpaper "SBRR interchanges.xlsx."

b. Track Miles and Weight of Track

The SBRR's track and yard configuration was developed by SunBelt's expert operating witnesses McDonald and Stedman. The system configuration was developed to accommodate the SBRR's traffic group, using several tools, including information provided by SunBelt Witness Nolan (and supported by data produced by NS) concerning the SBRR's Peak Year traffic volumes and flows, and the trains that will move over the SBRR system in the peak week of the peak traffic year; the SBRR operating plan developed by Mr. McDonald; NS's operating timetables and track charts for the divisions and subdivisions involved; and a simulation of the

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4 *See* e-workpaper "SBRR Opening Sticks.pdf."
5 *See* e-workpaper "SBRR interchanges.xlsx."

SBRR's operations executed by Messrs. Fapp and Humphrey using the Rail Traffic Controller ("RTC") model, which has been accepted by the Board as an appropriate operational modeling tool in several previous rail rate cases.[6]

The SBRR's track miles are shown in Table III-B-3 below.[7]

Table III-B-3
SBRR Constructed Track Miles

Type of Track	Constructed Miles
(1)	(2)
1. Main line track	
a. Single first main track[1/]	578.24
b. Other main track[2/]	124.11
c. Total main line track	702.35
2. Setout tracks	4.48
3. Yard tracks (include interchange tracks)[3/]	63.62
4. Total track miles	770.45

[1/] Single first main track miles equal total constructed route miles, excluding yard tracks and the 2.4 route miles of trackage rights that are operating miles that the SBRR does not construct.
[2/] Equals total miles for constructed other main tracks and passing sidings.
[3/] Includes all tracks in yards, such as locomotive repair and servicing tracks and classification tracks.

i. Main Line -- As shown in the SBRR stick diagrams, the SBRR's main line consists of single main track with sections of additional main track (including signaled passing sidings) at appropriate intervals to enable the SBRR to move its peak period trains efficiently and without delay. The SBRR has a total of 702.35 single main track miles and other main track/passing sidings.

All constructed main track and passing sidings in line segments carrying 20 million or more gross tons per year ("MGT") consist of new 136-pound continuous welded rail ("CWR").

6 *See, e.g.*, *PSCo/Xcel* at 613; *WFA/Basin* at 15. A detailed explanation of the RTC Model simulation that was conducted in developing the SBRR system configuration is set forth in Exhibit III-C-2.
7 *See* e-workpapers "SUNBELT RR Route Miles Opening Grading.xlsx" and "SBRR Yard Matrix.xlsx."

Standard rail is used for all mainline track except that premium (head-hardened) rail is used on curves of 3 degrees or more, where rail wear is heaviest. The main tracks in segments carrying less than 20 MGT will be constructed using new 115-pound CWR.

All of the SBRR's track and structures are designed to accommodate a gross weight on rail ("GWR") of 286,000 pounds per car and maximum train speeds of 60 mph, conditions permitting.

ii. <u>Branch Lines</u> -- The SBRR will not construct any branch lines.

iii. <u>Sidings</u> -- The SBRR's passing sidings are considered part of its main tracks and are discussed above.

iv. <u>Setout tracks</u> -- The SBRR places one setout track on each side of each of the SBRR's Failed-Equipment Detectors ("FEDs"), as described in Parts III-C and III-F, with one FED on each track in areas with multiple main tracks. All of these setout tracks are single-ended tracks, 735 feet in length. This provides 600 feet in the clear, past the switch, to accommodate both the occasional bad-order car and the temporary storage of maintenance-of-way ("MOW") equipment.

The locations of the setout tracks are shown in the SBRR stick diagrams.[8] They consist of 115-pound new CWR. The SBRR has a total of 4.48 track miles for these tracks. The SBRR does not have any helper districts, so does not require any helper pocket tracks.

2. <u>Yards</u>

The SBRR has a total of thirteen (13) yards. This total includes one (1) major yard, four (4) mid-size yards and eight (8) other yards. These yards are used for train staging, 1000/1500-mile car inspections, crew changes, locomotive repair, servicing and fueling, interchanges, local

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[8] *See* e-workpaper "SBRR Opening Sticks.pdf."

train operations and originating/terminating traffic. A listing of all the SBRR yards is shown in SunBelt's opening workpapers.[9]

a. Major Yard Characteristics

The Birmingham (Norris) Yard is the only major yard on the SBRR. This yard includes fueling platforms, a locomotive shop, a crew change facility, a yard office and space for a contractor-provided car shop (including spare car storage and rip tracks). Car inspections are also performed here.

b. Mid-Size Yard Characteristics

There are four mid-size yards located on the SBRR. These yards are located in McIntosh, AL, Meridian, MS, New Orleans, LA and Selma, AL. The SBRR has stationed yard crews at New Orleans. Local crews perform the switching duties as needed at the other locations. Each location also includes a crew change facility, a yard office, inspection tracks, locomotive servicing tracks and classification tracks.

c. Other Yard Characteristics

The SBRR also has several other yards where traffic levels are minimal. These yards are used for interchanging traffic (at locations where a yard does not already exist).[10]

d. Miles and Weight of Yard Track

The SBRR's thirteen (13) yards have 63.62 miles of track.[11] The yard tracks are 115-pound new CWR.

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9 *See* e-workpaper "SBRR Yard Matrix.xlsx."

10 *See* e-workpaper "SBRR Yard Matrix.xlsx" for a complete listing of the yards on the SBRR and the activities that occur at each yard.

11 Id.

3. Other

a. Trackage Rights

The SBRR utilizes 2.4 miles of trackage rights over track owned by CN. This agreement allows the SBRR to deliver trains to the UP and CN. A more detailed description of this agreement is included in Part III-C.

b. Signal/Communications System

Current federal law mandates that the SBRR be equipped with Positive Train Control ("PTC") by December 31, 2015. Rather than construct a Central Traffic Control ("CTC") system at the outset of SBRR operations (July 30, 2011) and then convert it to PTC, the SBRR will install PTC at the beginning of SBRR operations. The PTC system is discussed in more detail in Part III-F-6.

Power switches are used for the connections between the main line and the yard lead and relay tracks, and the connections to local origins and destinations. Interior yard switches and set-out track switches are hand-thrown switches.

Communications are conducted using a microwave system, with microwave towers at appropriately-spaced intervals as described in Part III-F-6. All locomotive engineers, dispatchers and field supervisory personnel are equipped with radios connected to the microwave system. Certain employees also will be equipped with cellular telephones for emergency railroad use, as a back-up to the radios. Further details on the SBRR's signal and communications system are provided in Part III-F-6.

c. Turnouts, FEDs and AEI Scanners

All turnouts between the SBRR's main tracks are No. 20 turnouts. This permits trains to operate through the turnouts at speeds of up to 40 miles per hour (conditions permitting). No. 20

turnouts also are used for connections between the main line and the yard leads and the main running tracks at both ends of each of the SBRR's major and mid-size yards. No. 14 turnouts are used between main tracks and all other tracks, including the connections with origin and destination industrial spurs, other yards and sidings used by local trains, where trains move at slower speeds. Trains can operate through these turnouts at a speed of up to 25 miles per hour. No. 10 turnouts are used within yards and for setout tracks.

FEDs, which include hot-bearing, dragging-equipment, cracked-wheel and wide/shifted load detection systems, have been spaced approximately every 35 miles along the SBRR's route. Multiple FEDs are provided at each location that has multiple main tracks, one for each track. Each FED is accompanied by two setout tracks, each located within two miles on either side of the FED. Each such track is a 735-foot single-ended track (with 600 feet in the clear) to facilitate the setout of bad-order cars after a train has passed an FED. 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.

Automatic Equipment Identification ("AEI") scanners are located at or near each of the locations where the SBRR interchanges trains with other railroads as described above. A total of 20 AEI scanners have been provided. The AEI scanners have been placed so as to enable them to capture all train movements that occur on the SBRR, including both local and interline movements.

Part III-C

III. C. STAND-ALONE RAILROAD OPERATING PLAN

The operating plan for the SBRR was designed by Richard H. McDonald, one of the nation's leading rail operations and management experts, with assistance from Mr. Philip H. Burris of L. E. Peabody & Associates, Inc. who developed the operating specifications. Mr. Daniel L. Fapp and Mr. William W. Humphrey, also of L. E. Peabody & Associates, Inc., performed a simulation of the SBRR's peak-period operations using the Rail Traffic Controller model ("RTC Model") with operating inputs provided by Mr. McDonald to confirm the feasibility of the operating plan.

The operating plan is designed to enable the SBRR to transport its Peak Year traffic volume, and the trains moving on the system during the peak week of the Peak Year, in a manner that meets the transportation needs of its traffic group, in full compliance with all applicable NS transportation and service commitments to the customer group involved. The operating plan and the RTC Model are used to optimize the SBRR's system track configuration, as described in Part III-B, and provide the basis for many of the SBRR's annual operating expenses shown in Part III-D.

A key series of NS records needed to perform the multiple, interrelated analyses required to produce a viable operating plan for the SARR are the NS' train event records or train movement data. SunBelt requested train event records from NS in the discovery phase of this proceeding through Requests for Production No. 21 and No. 22. In response, NS provided eleven text files that contained train event data for January 2009 through September 2011.

Exhibit III-C-1 explains numerous problems and errors included in the NS provided train event data and the "fixes" that SunBelt employed to utilize this data.

1. General Parameters

The SBRR's configuration and operating plan have been designed to accommodate its peak seven-day traffic volume and train frequencies during the 10-year DCF period. The peak traffic volume and train movements were developed by SunBelt Witness Fapp using the 2010 through September 2011 traffic and car/train movement data provided by NS in discovery and the traffic forecast procedures described in Part III-A-2.

The SBRR system and operating plan were developed through a series of steps. First, Mr. McDonald reviewed the NS operating timetables and track charts for the lines being replicated,[1] as well as maps of various facilities, joint facility/joint use agreements between NS and other railroads, and NS interrogatory responses describing the operation of SunBelt traffic and other trains. A preliminary track configuration for the SBRR was developed, starting with NS's present main-track/passing siding configuration for all of the lines being replicated. Then, the operating plan elements to be input into the RTC Model were developed.

The SBRR operating plan was developed to accommodate the railroad's Peak Year traffic group. As indicated in Part III-A, the SBRR's peak traffic year is July 30, 2020 through July 29, 2021, which is also the final 12-month period in the 10-year DCF. As described in Part III-A-1, the SBRR's traffic group consists of general freight, coal, and intermodal traffic. The traffic moves in various flows over different parts of the system. The SBRR Peak Year total traffic volumes are shown in Table III-C-1 below.

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[1] The NS operating timetables and track charts for all of the lines involved are reproduced in Part III-B e-workpapers.

Table III-C-1
SBRR Peak Year Traffic Volume
(July 30, 2020 to July 29, 2021)

Train Type (1)	Cars/ Containers (2)	Tons (3)
1. General Freight		
a. Local	{[redacted]}	{[redacted]}
b. Interline	{[redacted]}	{[redacted]}
c. Overhead	{[redacted]}	{[redacted]}
2. Coal		
a. Local	{[redacted]}	{[redacted]}
b. Interline	{[redacted]}	{[redacted]}
c. Overhead	{[redacted]}	{[redacted]}
3. Intermodal		
a. Local	{[redacted]}	{[redacted]}
b. Interline	{[redacted]}	{[redacted]}
c. Overhead	{[redacted]}	{[redacted]}
4. Total	{[redacted]}	{[redacted]}

Source: e-workpaper "Table C-1.xlx."

The SBRR's operating plan reflects the different commodities it handles and the types of service they require. The SBRR serves various local origins and destinations, including industrial and intermodal facilities and power plants. The SBRR also serves interchange points with other railroads including CN, CSXT, BNSF, NS, UP and KCS as well as the NOPB and AGR.

As described in Part III-B, the SBRR has two (2) mainline segments and no branch lines. A schematic of the SBRR's route is attached as Exhibit III-A-1.

a. Traffic Flow and Interchange Points

The SBRR's Peak Year traffic volume consists of {[redacted]} million tons of general freight traffic, {[redacted]} million tons of coal traffic, and {[redacted]} million tons of intermodal traffic.[2] The

[2] The SBRR "Base Year" includes trains moving from July 30, 2010 through July 29, 2011. The SBRR begins operations on July 30, 2011 and continues for ten years to July 29, 2021 however, as the Board's standard DCF model adjusts operating expenses based on a full calendar year's statistics, SunBelt used calendar year 2011.

traffic density varies over different segments. The busiest segment is Birmingham, AL to Bessemer, AL. The Peak Year trains moving over the SBRR are shown in Table III-C-2 below.

Table III-C-2
SBRR Peak Year Trains By Line Segment

Line Segment[1/] (1)	**No. of Trains** (2)
1. Birmingham to Bessemer	{[redacted]}
2. Bessemer to Lacy	{[redacted]}
3. Lacy to Wilton	{[redacted]}
4. Wilton to Selma	{[redacted]}
5. Selma to Marion Jct.	{[redacted]}
6. Marion Jct. to Jackson	{[redacted]}
7. Jackson to Carson	{[redacted]}
8. Carson to McIntosh	{[redacted]}
9. Bessemer to Mercedes	{[redacted]}
10. Mercedes to Kimbrell	{[redacted]}
11. Kimbrell to Vance	{[redacted]}
12. Vance to Tuscaloosa	{[redacted]}
13. Tuscaloosa to Boligee	{[redacted]}
14. Boligee to Meridian	{[redacted]}
15. Meridian to Hattiesburg	{[redacted]}
16. Hattiesburg to Richburg	{[redacted]}
17. Richburg to New Orleans	{[redacted]}
18. Mercedes to Lacy	{[redacted]}

Source: e-workbook "Trains on SBRR.xlsx."
1/ Trains shown for a line segment are the maximum trains moving over any part of the segment – volumes may not be uniform for the entire segment.

The SBRR handles SunBelt traffic from origin to the terminating carrier (UP). It also directly serves two (2) coal burning power plants[3] to which it delivers {[redacted]} tons of coal in the Peak Year. The SBRR also handles coal originated and terminated by other railroads. In addition, the SBRR handles other general freight and intermodal traffic in interline and local service, interchanging such traffic with other railroads at various points on the SBRR system.

The SBRR's operating plan takes into account its total traffic volume and the traffic flows described in Part III-A and summarized above and also reflects the SBRR's interchange

[3] These power plants are the Southern Mississippi Electric Power Association ("SMEPA") Morrow station located near Richburg, MS and Alabama Electric Cooperative's Lowman plant located near Leroy, AL.

relationships with other Class I carriers and short line railroads. These relationships are based on NS's joint use and interchange agreements with such carriers; the SBRR steps into NS's shoes under these agreements. All trains interchanged with other railroads are run-through trains, with the locomotive power staying with the train.

b. <u>Trackage Rights Agreements</u>

The SBRR steps into the shoes of NS and utilizes 2.4 miles of CN track at New Orleans from the CN/IC connection to Mays Yard.

c. <u>Track and Yard Facilities</u>

The SBRR's track and yard facilities are described in Part III-B-1 and III-B-2.[4] The SBRR's main lines consist of single track with appropriately spaced sections of second main track (essentially signaled passing sidings with power switches). The siding configuration and spacing were developed by SunBelt Witness McDonald with assistance from Witness Fapp and Humphrey's RTC Model simulation of the SBRR's peak-period operations.

All of the SBRR's main tracks are constructed to a standard that allows for maximum train speeds of 60 mph, conditions (including gradient and curvature) permitting. All tracks are being constructed to permit a maximum GWR of 286,000 pounds per car and are equipped with PTC and main-track power switches.

Wood crossties are being used on all SBRR tracks. The tie, other track and subgrade specifications (including rail section, turnouts, other track material, ballast and side slopes) are described in Parts III-F-2 and III-F-3 and associated e-workpapers. The track and subgrade specifications enable the SBRR to handle its expected peak-period traffic volume efficiently, consistent with lowest feasible cost, while enabling all customer service requirements to be met.

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[4] *See* e-workpaper "SBRR Yard Matrix.xlsx."

d. Crew-Change Locations/Times

i. Road Crews -- All of the SBRR's crew changes take place at origins, yards, interchange points or destinations. The SBRR follows the efficient modern railroad practice of calling train crews sufficiently in advance of a train's arrival at the designated crew-change point so that the crew is ready to board the train when it arrives and the in-coming crew has de-trained. The crews in each district are qualified to operate to and from other intermediate origins, destinations and interchange points within the district.

Mr. McDonald's operating plan for the SBRR provides for straight-away and turn crew assignments at four (4) locations on the SBRR. The crew districts and assignments are shown in Table III-C-3 below.

Table III-C-3
SBRR Crew District Assignments

	Assignment Location (1)	Away Locations (2)	Turn Location (3)
1.	Birmingham, AL	Selma, AL McIntosh, AL Marion Jct. AL Boligee, AL Carson, AL Meridian, MS Jackson, AL	Kimbrell, AL Wilton, AL Mercedes, AL
2.	Selma, AL	McIntosh, AL	
3.	Meridian, MS	Wilton, AL	Richburg, MS
4.	New Orleans, LA	Meridian, MS	

Source: e-workpaper "SBRR Crew Assignments.docx."

These crew districts and assignments reflect a least-cost SARR's flexibility to maximize the efficiency of its crew assignments within the constraints of the federal "12-hour" (hours of service) law, including the amendments thereto wrought by the recently-enacted Rail Safety Improvement Act of 2008 ("RSIA") (Public Law No. 110-432). Since the SBRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum efficiency. SBRR road crews are not limited to operating over a single route, but instead are flexible enough to operate over several different routes on which they are certified. For example, crews stationed in Birmingham, AL can operate south to Meridian, MS or southeast to McIntosh, AL as necessary.

ii. <u>Local Crews</u> -- Local Crews are assigned at Birmingham, Selma, McIntosh and Meridian Yards. SBRR local crews are not limited to operating local trains, but instead are flexible enough to operate road trains over routes on which they are certified, as well as to perform any switching operations that may be required in yards.

iii. <u>Helper crews</u> -- Helper service is not required on the SBRR.

e. <u>Switching and Yard Activity</u>

i. <u>Locomotive Inspections and Fueling</u> -- FRA-required 92-day locomotive inspections are performed at SBRR's locomotive shop located at Birmingham. Road locomotive(s) requiring inspection are removed from the train and moved to the locomotive shop. Fueling is accomplished at stanchions provided in Birmingham. All other fueling is performed by tanker truck.

ii. <u>Railcar Inspections</u>

(a) <u>Inspection Procedures</u> -- The SBRR conducts 1,500-mile inspections of coal trains and 1,000-mile inspections of non-coal trains using state-of-the-art procedures, while complying at all times with FRA-mandated safety and inspection rules. SBRR performs 1,500-mile and 1,000-mile inspections on through trains at Birmingham. SBRR also performs inspections on originating trains by car inspection crews at the Meridian, Selma, McIntosh and New Orleans yard locations. Road train crews perform inspection functions at other yards as necessary.

The SBRR uses three-person inspection crews at its Birmingham Yard for 1,000 and 1,500 mile inspections, with one crew member on each crew serving as foreman. One person inspection crews are used for inspecting originating trains at Meridian, New Orleans, Selma and McIntosh. A description of the car inspection crews on duty at each of the yards is included in SunBelt's workpapers.[5]

Roadways are provided between each of the yard relay tracks at Birmingham where 1,000 mile and 1,500 mile inspections are performed. Each inspection crew stationed at the Birmingham Yard is equipped with a low-slung, four-wheel ATV-type vehicle. The vehicles carry spare parts, such as brake shoes and air hoses. Some parts are also placed periodically adjacent to the rails on the inspection tracks for ready availability. Coupler knuckles are rarely replaced during 1,500 or 1,000 mile inspections and can be transported to a specific car needing a knuckle by a company pick-up truck as needed.

(b) Trains Requiring Inspection -- Each of the SBRR's yards where trains originate is an inspection point and all trains are inspected either by a car inspection crew or by the train crew.

f. Trains and Equipment

i. Train Sizes -- The SBRR operates complete trains, including general freight, coal and intermodal trains, in local and interline (including overhead) service. The SBRR's train sizes are no larger than those for comparable NS trains operated from January 2010 through September 2011 for which NS produced car movement data. Non-coal trains that are interchanged with NS have the same mix of traffic as the comparable NS trains that moved between the same points from January 2010 through September 2011.

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[5] *See* e-workpaper "Inspection Crews.xlsx."

All trains have sufficient locomotives to provide a horsepower-to-trailing ton ratio that assures they are adequately powered to meet present contractual transit-time commitments and service requirements. This was confirmed by the RTC simulation.

The SBRR operating plan assumes that the maximum train sizes (for a given train type) and locomotive consists will remain the same throughout the 10-year DCF period.[6] Increased volumes are accounted for by adding cars to existing trains consistent with the SBRR's (and NS's) ability to handle them with the same track configuration (yards/sidings). If a train would be too long using this procedure, "growth" trains are added that are equivalent or smaller in size to the comparable trains NS included in the data provided in discovery. The maximum train size is {[redacted]} cars and four (4) locomotives. All growth trains are limited to the same size and weight, and no growth train has more than four (4) locomotives.

ii. <u>Locomotives</u> -- The SBRR requires a total of 46 locomotives to handle its traffic volume in the first year of operations. The railroad has three types of locomotives: GE ES44AC locomotives for road service, GP-38 locomotives for local train and work train service and EMD SW1500 locomotives for yard switching service. The number of locomotives required for each kind of service in the first year of operations is shown in Table III-C-4 below. The SBRR's road locomotive requirements take into account the need to equalize the locomotive power used in run-through service for the NS and other interchange trains, any intermediate setting out or picking up of blocks of cars, and a spare margin which is described below.

[6] Maximum train sizes were identified for each train symbol ("TRN") based on car counts included in NS' car event data. As indicated in Exhibit III-C-1, NS' train event data was riddled with erroneous and missing information, including information on maximum train sizes, requiring SunBelt to use car event data to determine maximum train sizes.

Table III-C-4
SBRR Base Year Locomotive Requirements

Type of Service (1)	Quantity (2)
1. Road – ES44AC	26
2. Local/Work Train– GP38	16
3. Switch – SW1500	4
4. Total	46

Source: e-workpaper "SBRR Operating Statistics.xls."

(a) Road Locomotives -- The SBRR's "standard" road locomotive consist for all trains is two locomotives in a 1/1 distributed power ("DP") configuration, although some heavy coal, general freight and intermodal trains require three or more road locomotives for all or part of their runs on the SBRR. Where additional units are needed, they are placed at the front of the train.

The DP configuration involves positioning one locomotive on the front of the train and one locomotive on the rear of the train (hence the "1/1" designation). The rear (DP) locomotive has no engineer and is remotely controlled by radio signals from the lead locomotive. The use of a DP locomotive configuration reduces the drawbar tension between cars and enables the same number of locomotives to haul heavier trains or the same size trains at higher speeds. It also facilitates reversal of direction by a train, as locomotives do not have to be repositioned from one end of the train to the other. DP locomotive configurations are standard practice on the western Class I railroads, and DP is also being used by NS.[7]

As stated previously, local trains and work trains are powered by GP38 locomotives, using one locomotive per train where possible. When this is not possible, due to train size or topography, the SBRR adds a second GP38 locomotive, or in some instances uses an ES44AC

7 *See* http://www.progressiverailroading.com/pr/article/Class-Is-employ-fuelsaving-practices-that-promise-stingier diesel-usage—22736 and "Railroad Mechanical Article.pdf."

locomotive instead. Consistent with prior STB decisions, the count of road locomotives for the first year of operations, shown in Table III-C-4, above, includes a spare margin and a peaking factor.[8]

Spare Margin -- The total number of road locomotives required includes a spare margin of {[redacted]} percent for ES44AC locomotives and {[redacted]} percent for GP38 locomotives. This spare margin is based on information provided by NS in response to SunBelt's discovery requests. The information provided by NS includes locomotive bad order time, transit time and total equivalent units in service by locomotive type for annual 2009 through September 2011. From this information, we developed the amount of time locomotive units were unavailable for service on a weighted average basis for 2009 through year-to-date 2011 to yield the locomotive spare margin for both ES44AC locomotives and GP38 locomotives.[9]

Peaking Factor -- In addition to using the spare margin, SunBelt's experts determined the SBRR's locomotive peaking factor 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 moving in the Peak Year. This is the same process as that approved by the Board[10] and results in a peaking factor of 15.1 percent.[11]

(b) Helper Locomotives -- The SBRR system does not require helper service.

(c) Switch Locomotives -- The SBRR uses EMD SW1500 locomotives for switch service. This type of locomotive is commonly used by Class I and other railroads (including NS) for such service. The SBRR requires a total of four (4) SW1500

8 *See WFA/Basin* at 33-34.
9 *See* e-workpaper "Loco Utilization.xlsx." A similar calculation was accepted by the Board in *AEP Texas* at 43-44.
10 *See PSCo/Xcel II* at 13.
11 *See* e-workpaper "Peak Week Identification.xlsx," worksheet "Peak Period Identification."

locomotives for use in switch service. The number of locomotives assigned to each yard is dependent on the number of switch assignments working in each yard.

iii. Railcars -- Car ownership for the SBRR traffic group was determined from the shipment data produced by NS in discovery. This data shows that most of the SBRR's general freight and coal traffic moves in shipper-provided equipment and that nearly all of its intermodal traffic moves in shipper-provided containers and trailers. It is assumed that all flatcars used to transport intermodal containers and trailers are system cars. Table III-C-5 below summarizes the ownership of railcars and intermodal units for each traffic type.

Table III-C-5
Percent Of Car Ownership By Traffic Type

Traffic Type (1)	System (2)	Foreign (3)	Private (4)
1. General Freight	24.82%	10.65%	64.53%
2. Coal	38.72%	1.96%	59.32%
3. Containers & Trailers	15.17%	--	84.83%
4. Intermodal Flats	100.00%	--	--

Source: *See* e-workpaper "SBRR Car Costs.xlsx"

The SBRR 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 SBRR car requirements were increased by a {[redacted]} percent spare margin[12] and the 15.1 percent peaking factor described earlier. A complete description of the development of car ownership costs for system, foreign and private cars is set forth in Part III-D-2.

[12] The {[redacted]} percent spare margin is based on a review of coal transportation contracts provided by NS in discovery which show spare margins which range from {[redacted]} to a high {[redacted]} percent. Further, review of the public record in *AEPCO 2011* shows that both parties relied on a 5.0 percent spare margin, which is also based on review of transportation contracts in that proceeding, and is nearly the same as that used herein. *See AEPCO 2011* Opening Evidence (Public Version) in Docket. No. 42113 filed January 25, 2010 at III-C-15 and AEPCO's Rebuttal Evidence (Public Version) in Docket No. 42113 filed July 1, 2010 at III-C-16. In addition, the 5.0 percent spare margin for shipper-provided cars was accepted by the Board in *WFA/Basin* at 39 and *Otter Tail* at C-5, and was also based on the transportation contracts produced in discovery in those proceedings. SunBelt is relying on public information and common industry practice concerning the railcar spare margin from other maximum rate proceedings as described above.

g. RTC Model Procedures and Results

The essential elements of the operating plan (described above), the main-track configuration, and the yard and interchange locations were provided to Messrs. Fapp and Humphrey for input into the RTC Model. Messrs. Fapp and Humphrey also input various physical characteristics for these lines, which were obtained from NS track charts, operating timetables and other documents produced in discovery. These included train speed restrictions at various locations, grades, curves, topography and turnouts (switches). The final steps were to populate the RTC Model with the SBRR's trains during the simulation period, which includes the peak traffic week (in terms of train movements) in the SBRR's 10-year DCF existence plus a two-day warm-up and one-day cool down period, and input random "outage" and maintenance events.

SunBelt Witnesses Fapp and Humphrey developed SBRR's trains moving during the peak-seven day simulation period. The peak trains were based on the NS trains carrying traffic in the SBRR's traffic group forecasted from the base period to the Peak Year (the last year of the DCF model life.)

All road trains and local trains carrying SBRR identified cars moving on the SBRR network were included in the RTC simulation. The simulation includes stops en route for crew changes, inspections, fueling, and spotting and pulling cars at customer locations for all road trains and local trains operating in straight-away service between two locations. Local trains in turn service, i.e., trains identified in NS' train event data designated as local trains which originate and terminate at the same location, are also included in the RTC simulation. The data contained in NS' train event files for these trains did not provide adequate information to determine the stops en route. However, SunBelt's consultants were able to estimate the furthest location traveled from the train's home location and have included in the simulation the movement of the local turn train from its home location to the furthest location and back. A description of the infirmities of the NS train event data, and the steps SunBelt took to overcome these infirmities is included in Exhibit III-C-1.

The RTC simulation runs began after inputting the SBRR's track and other relevant facilities, peak-period trains and operating parameters (including random outages and maintenance outages). Changes were made on an iterative basis until the RTC Model ran to a successful conclusion. These changes included the relocation, addition or deletion of certain passing sidings and segments of second main track, refinement of the locations and configuration of yards and interchange tracks, and the addition of locomotives to certain trains. A detailed description of the SBRR modeling procedures and results is included in Exhibit III-C-2.

2. Cycle Time

A SARR's operating plan must enable it "to meet the transportation needs of the traffic the SARR proposes to serve."[13] As the Board noted in *WFA/Basin*, a SARR:

> Need not match existing operating 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. However, the assumptions used in the SAC analysis, including the operating plan, must be realistic, i.e., consistent with the underlying realities of real-world railroading.

Id at 15. This means that the complainant shipper must demonstrate that its SARR can provide service to its customers (i.e., traffic group members) that meets their requirements. SunBelt has accomplished this by showing that the average train transit times while on the SBRR during the

[13] *See WFA/Basin* at 15 - "the operating plan must be capable of providing, at a minimum, the level of service to which the shippers in the traffic group are accustomed."

peak period in the Peak Year are lower than the NS's transit times during the comparable period of the most recent 12-month period for which data is available.[14]

The starting point for the analysis in this case is the SBRR's Peak Year traffic volume and its peak-period train counts, which were developed from NS's train movement and car movement data for the traffic included in the SBRR's traffic group for July 2010 through July 2011. The peak trains, SBRR system configuration and relevant aspects of the operating plan were then input into the RTC Model to verify that the configuration and operating plan are realistic and adequate to enable the SBRR to operate its peak-period trains efficiently and in accordance with its customers' requirements as measured by train cycle/transit times.

The key outputs generated by the RTC Model for the transit time analysis were elapsed train running times over each of the SBRR's line segments and train transit times (used to develop locomotive and car hours and train-crew counts) over the portion of the SBRR system used by each train during the seven-day period modeled by SunBelt's operating experts. The electronic files containing the RTC Model runs, output and case files are included in SunBelt's Part III-C e-workpaper folder "RTC."[15]

As the Board has acknowledged, the SAC test must be equally workable in the Eastern and Western contexts.[16] The same holds true with regard to variances in the amount and usability of railroad traffic and operating data in a given proceeding. Accommodating both the nature of Class I rail operations in the East generally, and the NS traffic data produced in discovery in particular, the RTC simulation of the SBRR's operations in the peak week of its

[14] *See* e-workpaper "Sunbelt Time on SARR v5.xlsx."

[15] SunBelt understands that the Board's staff is a licensee of, and has, the RTC Model, so the RTC Model itself is not being provided to the Board. Messrs. Fapp and Humphrey used Version 64(K) of the RTC Model for the simulation of the SBRR's peak-period operations presented in e-workpaper folder "RTC."

[16] *See CP&L* at 250.

peak traffic year confirm that the SBRR's configuration, facilities and operating plan are feasible.

The SBRR's trains operate in a manner that produces faster train speeds and transit times on average than NS demonstrated in the provided train movement data. In fact, 135 of the 138 trains that are comparable to NS trains (i.e., no growth trains or local trains) have faster transit times on the SBRR portion of their move than NS trains. For the three (3) trains where the SBRR transit time is greater than the NS transit time (on the SBRR), the transit time increase is between 2 percent and 10 percent of the total NS elapsed time for the entire NS movement.[17] The SBRR's ability to provide service equal to or better than the service provided by NS therefore is confirmed.

3. Other

a. Train Control and Communications

The SBRR network employs a Positive Train Control ("PTC") system for all train control and communications. RSIA mandates the widespread installation of PTC systems by December 2015.

As stated by the Federal Railroad Administration, "PTC systems are integrated command, control, communications, and information systems for controlling train movements with safety, security, precision, and efficiency. PTC systems will improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers and damage to their equipment, and over speed accidents.... PTC systems are comprised of digital data link communications networks, continuous and accurate positioning systems such as NDGPS, on-board computers with digitized maps on locomotives and maintenance-of-way equipment, in-cab displays, throttle-brake interfaces on locomotives, wayside interface units at

[17] *See* e-workpaper "Sunbelt Time on SARR 7 17 12 2.xlsx" tab "SBRR More."

switches and wayside detectors, and control center computers and displays.... PTC systems issue movement authorities to train and maintenance-of-way crews, track the location of the trains and maintenance-of-way vehicles, have the ability to automatically enforce movement authorities, and continually update operating data systems with information on the location of trains, locomotives, cars, and crews. The remote intervention capability of PTC will permit the control center to stop a train should the locomotive crew be incapacitated. In addition to providing a greater level of safety and security, PTC systems also enable a railroad to run scheduled operations and provide improved running time, greater running time reliability, higher asset utilization, and greater track capacity. They will assist railroads in measuring and managing costs and in improving energy efficiency."[18]

As discussed in Part III-F, unlike existing Class I carriers, the SBRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment expenditures by the SBRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure.

Moreover, based on discussions with the designer and developer of the RTC simulation model, the dispatch logic of the RTC most closely simulates the communications of a PTC system where there are no active signals within the model. Therefore, SunBelt has disabled any signal logic in its RTC simulation runs.[19]

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[18] *See* http://www.fra.dot.gov/pages/784.shtml.

[19] The developer of the RTC model has indicated that operating the model with the signal logic turned off closely mimics the expected operations assuming PTC system communications are employed.

Part III-D

III. D. OPERATING EXPENSES

This Part of SunBelt's Opening Narrative summarizes the SBRR's annual operating expenses for equipment, personnel, General and Administrative ("G&A"), Information Technology ("IT") and maintenance-of-way ("MOW") requirements and the development of the related service units and costs. The expert witnesses responsible for the evidence in this Part include Richard H. McDonald (locomotive requirements and operating and G&A personnel and equipment); Joseph A. Kruzich (IT costs); Philip H. Burris (operating statistics, crew requirements, locomotive and freight car requirements, fuel costs, personnel compensation, equipment lease/maintenance costs and operating unit costs); and Harvey A. Crouch, P.E. (MOW costs). Their detailed qualifications are included in Part IV.

SunBelt witness Fapp and Humphrey developed train transit/cycle times from the RTC simulation of the SBRR's operations. The RTC output was directly used to calculate the SBRR's locomotive hours and car hours for the peak week of the July 30, 2020 to July 29, 2021 Peak Year. Mr. Burris, using the peak week transit times and locomotive requirement outputs from the RTC model, calculated locomotive hours, car hours, locomotive unit miles and car miles for trains moving from July 30, 2010 through July 29, 2011 ("Base Year").[1] The resulting statistics were utilized to determine overall locomotive requirements and car ownership requirements, as shown in the accompanying workpapers.[2] T&E (train crew) personnel requirements were also developed for trains moving in the Base Year.[3] Base Year statistics are then indexed to represent calendar year 2011 ("Base Period") traffic levels based on the difference between

[1] Development of the locomotive miles, car miles, locomotive hours, car hours and train and enginemen ("T&E") requirements is shown in e-workpaper "Base Year Train List_Statistics_Open.xlsx."

[2] *See* e-workpapers "SBRR Operating Statistics.xls" and "SBRR Car Cost.xls."

[3] Details are provided in e-workpaper "Base Year Train List_Statistics_Open.xlsx."

the carloads and containers moving in the Base Year and the carloads and containers moving in the Base Period.[4]

The actual locomotive and car hours and associated expenses derived from train transit/cycle times for the year would be lower than those presented here because the average number of daily trains containing SBRR traffic moved during the Base Year is less than the daily trains moved by the SBRR during the peak one-week period of the Peak Year. Thus the SBRR's transit/cycle times should be faster on a daily average basis for the entire year than as compared to the peak week.

The SBRR's Base Period annual operating expenses are shown in Table III-D-1 below.[5]

Table III-D-1
SBRR Base Period Operating Expenses

	Expense Component (1)	Cost (in Millions) (2)
1.	Locomotive Acquisition	$4.0
2.	Locomotive Maintenance	8.9
3.	Locomotive Operating Expense	43.6
4.	Railcar Acquisition and Maintenance	11.7
5.	Train and Engine Personnel	14.1
6.	Non-Train Operating Personnel	6.2
7.	General and Administrative	6.1
8.	Materials & Supplies Operating	0.7
9.	Start-up and Training	5.3
10.	Maintenance-of-Way	15.6
11.	Leased Facilities	0.0
12.	Loss & Damage	0.6
13.	Insurance	4.8
14.	Ad Valorem Taxes	5.1
15.	Other	1.5
16.	Total Base Period Operating Expense[1/]	$128.2

Source: e-workpaper "SBRR Operating Expense.xls.", tab "DCF Transfer."
1/ Total may differ slightly from the sum of the individual items due to rounding.

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[4] The Board's standard DCF model adjusts operating expenses based on full calendar year statistics. Therefore, SunBelt used calendar year 2011 as its "Base Period" even though the SBRR begins operations on July 30, 2011.

[5] Operating expenses are calculated at 3Q11 wage and price levels. The DCF model uses these expenses and indexes them to the appropriate time periods.

1. Locomotives

The SBRR's locomotive requirements for the Base Period are summarized in Table III-C-4 in Part III-C. The SBRR uses three types of locomotives – GE ES44AC locomotives for road service, GP38 locomotives for local train service and work trains and EMD SW1500 locomotives for yard switching. The SBRR needs a total of 26 ES44AC locomotives, sixteen (16) GP38 locomotives to transport its Base Period trains (including spares), and a total of four (4) SW1500 locomotives for switch service.

a. Acquisition

NS did not provide any current locomotive capital leases in response to SunBelt's discovery requests. As a result, SunBelt developed 3Q11 locomotive lease costs for ES44AC locomotives from information contained in *AEPCO 2011*[6] and the public version of defendants' reply statement in that proceeding. The annual lease expense developed from *AEPCO 2011* equals ${[redacted]} per unit.[7] This amount is also supported by the public version of UP's Reply evidence in *IPA*[8] which shows that UP's 2011 annual cost to lease ES44AC locomotives equals ${[redacted]}.[9] The locomotive lease cost developed from *AEPCO 2011* indexed to 3Q11 equals ${[redacted]} per unit. The total SBRR lease cost in 3Q11 for ES44ASC locomotives equals ${[redacted]}.[10]

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6 *See AEPCO 2011* at 40-41.

7 The STB's decision in *AEPCO 2011* provides total investment in locomotives at page 40, and the number of units by type of unit at page 41. Defendants' Reply statement (public version) provides the lease price for switch locomotives at page III.D-3, thereby providing the information necessary to determine UP's average annual lease price for ES44-AC locomotive in 2009. See e-workpaper "III-D-1 Loco Cost.pdf."

8 STB Docket No. 42127, *Intermountain Power Agency v. Union Pacific Railroad Company,* UP Reply at III-D-2 and III-D-8 (Public Version).

9 *See* e-workpaper "III-D-1 Loco Cost.pdf".

10 In addition, to these locomotive lease amounts, capital costs to install required PTC equipment on all ES44AC and GP38 locomotives are included with the signals & communications investment expense in the DCF model. The amount included per locomotive is developed from information provided by NS in discovery.

The SBRR leases its GP38 locomotives at an annual lease price of $82,216 per unit. This lease price is developed from an article in the June 2008 issue of *Railway Age*, titled "2008 Guide to Equipment Leasing."[11] The total SBRR lease cost in 3Q11 for GP38 locomotives equals $1.3 million.

The SBRR leases its SW1500 locomotives at an annual lease price of $36,540 per unit. This lease price is also developed from the June 2008 *Railway Age* article referenced above.[12] Application of this annual lease payment to the four (4) SW1500 locomotives results in an annual lease payment of $146,160 in 2011.

As explained in Part III-C-1, SunBelt's experts used a road locomotive spare margin of {[redacted]} percent and {[redacted]} percent for ES44AC and GP38 locomotives, respectively, based on NS's actual experience for 2009, 2010 and the first nine months of 2011, as shown in materials NS produced in discovery. SunBelt's experts also applied a peaking factor, as mandated by the Board in *WFA/Basin*, to arrive at the SBRR's total annual road locomotive requirements. The peaking factor equals 15.1 percent and is equal to the average number of train starts per day in the peak week of the Peak Year divided by the average number of train starts per day in the Peak Year. This is the same procedure as that used by the STB to calculate the peaking factor in *PSCo/Xcel II.*[13]

b. <u>Maintenance</u>

The SBRR's locomotives undergo FRA-required 92-day inspections and minor repairs at the SBRR's Birmingham yard, where the SBRR has provided a locomotive maintenance facility to be used by its locomotive maintenance contractor. Locomotives used for trains that do not

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[11] The lease price for GP38-2 and GP38-3 locomotives range from $200 to $250 per day, indexed to 3Q11 using the AAR equipment rents index produces an annual lease rate of $82,216.

[12] *See* e-workpaper "III-D-1 Loco Cost.pdf." The lease price for SW1500 locomotives ranges from $75 to $125 per day. Using the average price of $100 per day, indexed to 3Q11 using the AAR equipment rents index, produces an annual lease payment of $36,540 per unit.

[13] *See PSCo/Xcel II* at 13 and e-workpaper "Peak Week Identification.xls", tab "Peak Period Identification."

operate through Birmingham or any other locomotive inspection/maintenance point on NS (in the case of cross-over traffic) are routed on trains that do operate through Birmingham, to enable them to receive required maintenance, including periodic overhauls.

NS' 2011 average locomotive maintenance cost per locomotive unit mile is used for ES44AC, GP38 and SW1500 locomotives. The NS cost per locomotive unit mile of $1.6182 was developed from its 2011 R-1 Annual Report to the STB and indexed to 3Q11.[14] The NS system average cost includes both routine maintenance and locomotive overhauls. The system average cost was used as NS failed to provide information requested in discovery that is specific to various types of locomotives it utilizes including ES44AC and GP38 locomotives. The total locomotive maintenance cost for the SBRR equals $8.9 million in 2011.[15]

The SBRR provides an End-of-Train Device ("EOTD") for each of its locomotives.[16]

c. <u>Servicing (Fuel, Sand and Lubrication)</u>

Contractors based at the SBRR's yards fuel, sand and lubricate locomotives. Locomotives are fueled and serviced using two different procedures. A fixed fueling platform is located at the Birmingham Yard for fueling and servicing locomotives. Locomotives on through trains that are being inspected are removed and replaced with freshly fueled and serviced locomotives. Further, locomotives on trains originating at other yards are fueled and serviced by tanker truck (known in the railroad industry as direct-to-locomotive or "DTL" fueling).

The SBRR's fuel cost is based on the average consumption per locomotive unit mile calculated from NS' 2011 R-1 Annual Report for road and yard locomotives and the actual price of fuel paid by NS for 3Q11 as reported by NS in its Quarterly Review. The components of the SBRR's fuel costs are discussed below.

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14 *See* e-workpaper "Loco Servicing and Maintenance Cost.xlsx."
15 *See* e-workpaper "SBRR Operating Expense.xlsx."
16 *See* e-workpaper "SBRR Materials and Supplies.xls."

i. Fuel Cost -- The SBRR's fuel cost is based on the price NS paid for fuel in 3Q11 of $3.097 per gallon as reported in NS' Quarterly Financial Review, Third Quarter 2011.[17]

ii. Fuel Consumption -- The average fuel consumption rate for the SBRR was developed from NS' 2011 R-1 Annual Report. For road and switch locomotives this equals 2.48 and 2.40 gallons per locomotive unit mile, respectively.[18]

iii. Locomotive Servicing -- Other SBRR locomotive servicing costs (primarily sand and lubrication) are based on a cost of $0.2466 per diesel unit-mile for ES44AC and GP38 locomotives and $0.0399 for SW1500 locomotives. These amounts are calculated using NS's 2011 R-1.[19]

2. Railcars

a. Acquisition

The SBRR uses a mixture of railroad-provided cars and private cars. For railroad-provided cars, SunBelt developed car costs using three different approaches. First, for non-coal traffic moving in cars owned by foreign roads, car costs are based on time and mileage by car type developed from NS's 2011 R-1. Second, for non-coal traffic moving in NS equipment, an annual full service lease cost was developed for each car type from information provided by NS in discovery or from publicly available sources.[20] A weighted annual car cost for all car types was then developed based on the percentage each car type moves on the SBRR system. The weighted average annual car cost was then converted to a cost per hour and cost per mile and applied to the car hours and car miles for the Base Year trains. The Base Year car hours and car

[17] *See* www2.nscorp.com/sd/sdoc?doc=3Q_financial_review 20110261604000 and e-workpaper "III-D-1 Loco Cost.pdf."
[18] *See* e-workpaper "III-D-1 Loco Cost.pdf."
[19] *See* e-workpaper "Loco Servicing and Maintenance Cost.xls."
[20] *See* e-workpapers "III-D-2 Car Cost.pdf" and "SBRR Car Costs.xls."

miles are indexed to Base Period traffic levels to calculate operating expenses. The car hour requirements for these cars are based on RTC transit times, plus free time at shipper origin and destination. The free time included is based on review of NS Tariff NS 6004-C, *Demurrage Rules and Charges,* effective February 1, 2009.[21] This tariff specifies NS demurrage charges equal to $100 per car per day, or fraction thereof, and provides for a one day credit for loading and a two day credit for unloading. These credit days are included in the calculation of car days for the purpose of determining SBRR system car requirements. Time beyond the credit days at origin and destination are not included as NS collects $100 per car per day for that time. Given that the typical car leases for between $8.23 and $14.54 per day,[22] the $100 charge received by NS, and which would be received by SBRR, more than offsets any additional car costs the SBRR would incur for system cars at origin or destination. Third, for SBRR-provided coal cars, car lease payments are based on annual full service lease costs developed from the June 2008 *Railway Age* article referenced above. The annual full service lease for coal cars is $5,206.[23]

The cars provided by the SBRR for non-coal traffic include boxcars, covered hoppers, gondolas, open-top hoppers and flat cars. The annual full service lease cost per car for each of these car types, based June 2008 *Railway Age* article referenced above, is as follows:

Boxcars	$3,003
Covered Hoppers	$3,552
Open-top Hoppers	$5,206
Flat Cars	$5,306

The SBRR's freight car requirements include a spare margin of {[redacted]} percent. This spare margin is based on a review of transportation contracts provided by NS in discovery which show spare margins that range from {[redacted]} percent to {[redacted]} percent. This spare margin is similar

21 A copy of NS Tariff 6004 – C is included. *See* e-workpaper "III-D-2 Car Cost.pdf."
22 Annual lease cost of $3,003 and $5,306 divided by 365 days, respectively.
23 *See* e-workpapers "III-D-2 Car Cost.pdf" and "SBRR Car Costs.xls."

to the 5.0 percent spare margin used by both parties and accepted by the Board in *AEPCO 2011* at 46. A 5.0 percent margin was also accepted by the Board in *Otter Tail.*[24]

b. Maintenance

As described above, the SBRR uses full service car leases for the railcars it provides. As full service lease payments include maintenance costs, no other maintenance costs are included.

Shippers who supply railcars for their SBRR movements make their own separate arrangements for maintenance of their cars at existing car repair facilities on or near the route of movement.

c. Private Car Allowances

For SBRR coal movements that occur in private cars, the cars are provided per diem and mileage free under the terms of the relevant NS transportation contracts and other pricing authorities (that is, the cars are provided free of charge to NS and the freight rates reflect the fact that NS is not incurring car costs). Because the SBRR is replacing NS with respect to its coal traffic, the SBRR also pays no per diem or mileage allowances with respect to coal movements in private cars.

For private cars used for non-coal traffic, SunBelt's experts have included a private car charge per car-mile by car type which is applied to all private car-miles on the SBRR. The private car mileage charge by car type was developed from data contained in NS's 2011 R-1.[25]

3. Operating Personnel

The SBRR has a traffic group that moves primarily in trainload quantities. Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical

[24] *Otter Tail* at C-5.
[25] *See* e-workpaper "SBRR Car Costs.xls."

alternative to the incumbent, the SBRR is a non-union railroad that is built from the ground-up to handle a defined traffic group.[26]

SunBelt's experts have developed a staffing plan and associated personnel for the SBRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost. The staffing plan has been developed on the basis of the experience of SunBelt's witnesses McDonald and Crouch. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad.

The SBRR's operating personnel include train crew, line supervisory and field employees in Transportation, Engineering/Maintenance-of-Way, Administration and Mechanical departments. The operations staff reports directly to the Vice President – Operations or their respective Assistant Vice President. The SBRR's operating personnel requirements are summarized below and fully discussed in Exhibit III-D-1.

a. <u>Train/Switch Crew Personnel</u>

The SBRR requires a total of 140 Train and Engine ("T&E") crew members to transport its Base Year trains indexed to Base Period traffic levels. This count, which includes switch crews based at the SBRR's yards, is based on the number of trains moving over the various parts of the SBRR system; the crew assignments developed by Mr. McDonald (as described in Part III-C-1-d), and the switch assignments at the SBRR's yards. The RTC simulation, performed by Messers. Fapp and Humphrey, was used to confirm that train crews operating in these crew districts generally could complete each tour of duty within 12 hours and otherwise comply with the federal Hours of Service law, as amended.[27]

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[26] The Board has accepted the concept of a non-unionized SARR. *See TMPA* at 687; *PSCo/Xcel* at 651.

[27] *See* e-workpaper "Base Year Train List_Statistics_Open.xlsx."

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.[28] In this instance, crews were determined for all Base Year trains. The total crew starts from each crew base were then adjusted upward to reflect traffic volumes moving in the Base Period and to reflect the 0.3 percent re-crewing requirements based on the results of the RTC simulation indicating the number of crews whose on-duty time expired under the Hours of Service law. The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the Board to determine how many crews are required to cover the number of crew starts assuming that each crew member is available 270 days a year. *Id.*[29]

b. <u>Non-Train Operating Personnel</u>

The SBRR's staffing requirements for operating personnel other than train and switch crews and MOW personnel are summarized in Table III-D-2 below and fully discussed in Exhibit III-D-1. MOW personnel are discussed separately in Part III-D-5 and Exhibit III-D-3.

[28] *See PSCo/Xcel* at 645.
[29] This number is not affected by the hours-of-service provisions of RSIA.

Table III-D-2
SBRR Non-Train Operating Personnel

Operations Department Position (1)	No. of Employees (2)
Vice President – Operations	1
Assistant Vice President – Administration and Budget	1
Manager – Operations Planning & Joint Facilities	1
Manager – Safety, Rules & Training	1
Assistant Manager – Safety, Rules & Training	1
Customer Service Agent and Car Distributor	5
Manager – Field Operations	4
Assistant Manager – Field Operations	6
Managers – Locomotive Operations	2
Chief Dispatcher	1
Dispatchers (2 desks 24/7)	9
Crew Callers (1 desk 24/7)	5
Assistant Vice President – Engineering	1
Assistant Vice President – Mechanical	1
Manager – Locomotive Maintenance	1
Manager – Testing & Environmental	1
Manager – Equipment Maintenance	1
Car Inspectors	19
Total Non-Train Operating Personnel	61

Source: e-workpaper "SBRR Operating Expense.xls"

c. Compensation

Compensation for the T&E personnel and other non-train operating personnel is derived from NS's 2010 Wage Forms A&B and is established at the same levels as those paid by NS for comparable positions and indexed to 3Q11. The T&E wages include all constructive allowances paid by NS to its train and enginemen. The total compensation (excluding fringe benefits) for T&E personnel equals ${[redacted]}. Total compensation (excluding fringe benefits) for SBRR's non-train operating personnel equals $4.5 million. Salaries and total compensation for the SBRR's T&E personnel and for the non-train operating personnel are shown in detail in Exhibit III-D-1.

Fringe benefits for all SBRR employees are based on 37.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid to all railroad operating employees as reported by the Association of American Railroads.[30] This method of determining the fringe benefit ratio has been approved by the Board.[31] In addition, it is the same method used by Complainants and accepted by both Defendants and the Board in *AEPCO 2011*.[32]

4. <u>General and Administrative Expense</u>

The SBRR's personnel have all been designated either as operating personnel or as G&A personnel. The MOW employees, while considered operating personnel, are discussed separately in Part III-D-5 and Exhibit III-D-3. Those employees who might be considered non-operating personnel on a Class I railroad are included in the G&A staff discussed below.

The G&A expenses for the SBRR include its headquarters (corporate) management and administrative staff, buildings and equipment, and other expenses, including IT requirements. These expenses have been developed on the basis of the experience of SunBelt's Witnesses McDonald, Burris and Kruzich. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable NS or (where appropriate) other railroad personnel. SunBelt's IT expert, Joseph Kruzich, developed the SBRR's IT requirements and costs including computer hardware, systems, software, and support personnel as well as out-sourcing needs.

a. <u>G&A Personnel Requirements</u>

The G&A staff are based at Birmingham, AL, where the SBRR's corporate headquarters building is located. This staff covers all executive and administrative functions including

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[30] Historically, the AAR reported fringe benefit information on a state by state basis for operating employees it now reports fringe benefit information only for the US as a whole. *See* e-workpaper "III-D-4 Salaries.pdf."

[31] *See WFA/Basin* at 66.

[32] The Public Version of AEPCO's Opening Evidence shows the derivation of the fringe benefit ratio in that proceeding, see AEPCO's January 25, 2010 Opening Evidence, Public Version, page III-D-25. Review of Defendants Reply evidence shows that they did not object to this fringe benefit ratio. *See* Defendants Reply Evidence dated May 7, 2010, pp. III.D-29 to 30. Moreover the STB accepted this evidence without comment in *AEPCO 2011*.

marketing, legal services, accounting and bookkeeping, budgeting, financial reporting, payroll, information systems, human resources, secretarial and clerical services, and supervising contractors in the performance of some out-sourced functions. The SBRR's G&A staff is consistent with the G&A staffing for the SARRs approved by the Board in recent SAC cases, including *PSCo/Xcel*, *AEP Texas*, *WFA/Basin* and *AEPCO 2011*.

The SBRR's G&A staff is summarized in Table III-D-3 below. This table does not include the operating and MOW employees located at the Birmingham, AL headquarters, who are discussed elsewhere in this Part. The G&A personnel requirements are more fully discussed in Exhibit III-D-2.

Table III-D-3
SBRR General & Administrative
Personnel Requirements

Position (1)	Personnel (2)
Outside Directors	2
President and CEO	1
Administrative Assistant	1
Controller/Treasurer	1
Manager – Payrolls	1
Analysts	2
Manager – Budgets and Purchasing	1
Manager – Claims & Internal Auditing	1
Director – Real Estate & Security	1
Security Agents	2
Manager – Information Technology	1
IT Specialists	6
Director – Sales & Marketing	1
Director – Human Resources	1
Total General & Administrative	22

Source: e-workpaper "SBRR Operating Expense.xls."

b. Compensation

The salaries and benefits for the SBRR's G&A personnel are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries). Specifically, annual salaries for the G&A personnel are based on data contained in NS's Wage Forms A and B, with several exceptions. The salary for the President is based on the salary, including bonuses, paid for a similar position by the Providence and Worcester Railroad Company ("P&W"), a publicly traded regional railroad.

As stated previously, fringe benefits for all employees are based on 37.5 percent of wages based on information available from the AAR. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance and other programs. The total compensation (excluding fringe benefits) for the SBRR G&A employees equals $1.8 million. This compensation by employee is further detailed in Exhibit III-D-2.

c. Materials, Supplies and Equipment

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

The SBRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs. As fully discussed in Exhibit III-D-2, costs for this equipment are included in the calculation of the SBRR's annual operating expenses.[33] The SBRR also needs miscellaneous office equipment and supplies including desks, chairs, copiers, etc., which are included in the materials and supplies expense.[34]

d. Other G&A Expense

i. IT Systems -- The SBRR's IT systems have been developed by SunBelt Witness Joseph Kruzich, its experienced railroad IT expert. Mr. Kruzich has worked for Class I railroads reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a higher degree of efficiency. This position provided him an opportunity to become very familiar with various work processes involved in

[33] *See* e-workpaper "SBRR Operating Expense.xls."
[34] Id.

running a railroad. Mr. Kruzich also served as IT Vice President of the Kansas City Southern Railroad and was instrumental in directing the development of KCS' new computer systems in the late 1990s. A more detailed description of Mr. Kruzich's qualifications is contained in Part IV of this opening evidence.

Mr. Kruzich reviewed the SBRR'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 will enable the SBRR to operate safely and efficiently and to perform all administrative functions.

The SBRR has an average of 54 train movements per day in the peak week, as well as a limited number of local customers and interchange points. It also handles primarily trainload movements, with multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the computer and communications systems required to support operations and renders unnecessary the colossally expensive mainframe systems that large carriers such as NS use.

Based on the SBRR operating plan and G&A staff departments, the capital requirements for IT and communications systems equal $1.8 million.[35] The annual operating cost for IT and related communications equals $2.5 million at 3Q11 price levels.[36] Table III-D-4 below shows the capital and annual operating expenses separately for IT and related communications systems.

[35] *See* e-workpaper "SBRR-Capital Budget.xls."
[36] *See* e-workpaper "SBRR-Operating Budget.xls."

Table III-D-4
Capital And Operating Costs For
SBRR IT And Communications Systems

Item (1)	Capital Cost (2)	Operating Expense (3)
1. Information Technology	$1,758,627	$2,321,668
2. Communications	$32,509	$130,914
3. Total	$1,791,136	$2,452,582

Source: e-workpapers "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."

The SBRR's computer and IT communications systems are fully described in Exhibit III-D-2. They have been designed to meet the company's mission-critical technology needs to achieve operating efficiencies, customer satisfaction, maximum productivity, and safe train operations. The costs shown in the workpapers are based on the SBRR's highest daily train counts and number of annual carload transactions.

In addition to the amounts shown above for IT capital, costs for IT hardware and software are included in the signals and communications investment account that are required for the SBRR's PTC signaling system. The amount included is based on values provided by NS in discovery for additional IT systems and prorated to the SBRR based on a route mile basis. The amount provided was reduced to eliminate duplication of the dispatching system already provided for in the IT capital cost reflected above.

ii. <u>Other Out-Sourced Functions</u> -- As described earlier, several functions customarily provided in-house by large Class I railroads can be efficiently out-sourced by the SBRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, out-sourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Out-sourced functions, in addition to those described in the preceding section, include initial training of operating employees (discussed in more detail below), several finance and accounting functions including preparation of income, property and payroll tax returns and financial/account auditing, legal services including claims administration and investigation, and administration of the company's retirement plan.[37]

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 SBRR's internal human resources staff.

Estimated annual costs of $615,900 have been developed for outsourcing all of the functions described above.[38]

iii. <u>Start-Up and Training Costs</u> -- The SBRR's start-up and training costs have been calculated using the procedures approved by the Board in *WFA/Basin* at 51-54. A total amount of $5.3 million has been provided for initial SBRR training and recruiting costs.[39] Consistent with *WFA/Basin*, start-up training and recruitment costs are treated as operating expense in the SBRR's first year of operations. Training and recruiting costs are fully discussed by position in Exhibit III-D-2.

iv. <u>Travel Expense</u> -- Travel expenses have been included for all SBRR employees at the Manager level and higher and for the two (2) outside members of the Board of Directors. Annual travel expenses of $10,475 per employee are included. This amount is based

[37] *See* e-workpaper "SBRR GA Outsourcing.xls."
[38] Id.
[39] 2010 is the most recent Runzheimer survey available. *See* e-workpaper "SBRR Operating Expense.xls", tab "Training."

on the 2010 survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.[40] The SBRR's other start-up costs, road property investment costs including construction of fixed facilities, which are included in the SBRR's capital costs, and equipment acquisition are discussed in other sections of Part III.

5. Maintenance-of-Way

The MOW plan for the SBRR was developed by SunBelt's expert railroad engineering Witness Harvey Crouch.[41] It was also reviewed and approved by Richard McDonald, SunBelt's rail operations expert, who has engineering and operating experience with NS's predecessors.

Mr. Crouch served in the Southern Railway's and then NS's Engineering Department from 1977 to 1987, including service as a Project Engineer and Track Supervisor in the Maintenance of Way & Structures Department. His duties in these positions are detailed in his Statement of Qualifications in Part IV. As Track Supervisor, Mr. Crouch was responsible for the inspection and maintenance of a portion of NS's mainline trackage in Virginia, including track inspection, day-to-day supervision of work gangs, ordering material, budgeting and planning, as well as management of rehabilitation and maintenance of track and inspection of bridges. As Project Engineer, Mr. Crouch was responsible for engineering design and plan review, and the bid and construction engineering phases for major capital track and bridge construction and rehabilitation projects in the geographic areas served by the SBRR.

Mr. Crouch considered the kinds of terrain and climate in which the various portions of the SBRR are located in developing the SBRR's MOW plan and incorporated any significant aspects of variations in terrain and climate into the MOW plan and staffing.

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[40] *See* e-workpapers "SBRR Operating Expense.xls" and "III-D-4 Materials and Supplies.pdf."

[41] Mr. Crouch is also sponsoring SunBelt's evidence on the SBRR's construction costs in Part III-F. The staffing for the SBRR's MOW Communications & Signals Department is also sponsored by SunBelt's communications and signals expert, Victor Grappone, PE.

Consistent with *WFA/Basin*, Mr. Crouch's MOW plan provides for a field staff, to perform day-to-day inspection and maintenance activities, that reports to the SBRR's AVP Engineering. Capital maintenance programs are also required during the 10-year DCF period to renew/replace the fixed facilities and in particular the principal elements of the track structure. The SBRR's MOW staff has been structured to include planning, budgeting and contracting related to annual capital programs.

Also consistent with *WFA/Basin*, all of the SBRR's program work (including rail grinding and crossing paving) is performed by contractors. It is more efficient to contract out program work, rather than hiring large seasonal gangs to perform most of this work as most Class I railroads have done until recently.[42] Using contractors is more efficient, in part, because contractors are not subject to internal railroad union craft work-rules (which can be exacerbated for large railroads like NS that are the product of numerous mergers and consolidations among predecessor railroads) or the Railroad Retirement program, which makes internal railroad labor very expensive. In addition, it is not cost-effective to hire and equip large mechanized gangs consisting of SBRR employees because most program work is performed on an as-needed basis each year, and gangs simply are not needed throughout the entire year.[43]

In developing the SBRR's MOW plan, Mr. Crouch started by considering the maintenance functions that need to be performed and then developed an appropriate field organization and supervisory/support staff for each function given the railroad's geographic scope, terrain, number of trains and gross tonnages. The basic functions include track inspection

[42] Consistent with the treatment of program renewal work in other rate cases such as *AEP Texas II* and *WFA/Basin*, the cost of capital programs is accounted for in the DCF model. In addition, CSX uses Hulcher for ballast train supply and unloading; all the Class 1's use contractors for vegetation control, rail defect testing, geometry car testing, and to some extent, inspection using hi-rail truck mounted equipment. Regional and Short Line Railroads routinely use contract services for all capital work.

[43] Because the SBRR starts operations with a newly-constructed physical plant, there should be no need for significant program work (and thus large mechanized forces) during the first 10 years of its operations – notwithstanding the way program maintenance is treated under the DCF model, in which a portion of the SBRR's fixed assets are assumed to be renewed each year.

and routine maintenance, communication and signal inspections, testing and maintenance, bridge inspection and minor building maintenance, and budgeting and administrative support. Mr. Crouch also considered the equipment needs for each function, as well as the maintenance work (other than capital program maintenance) that appropriately could be contracted out. The annual MOW expense in at 3Q11 levels equals $15.6 million.

Each of the categories of MOW expense is discussed at length in Exhibit III-D-3. This Exhibit also addresses program maintenance and maintenance scheduling. The detailed calculations are provided in Mr. Crouch's supporting e-workpapers.

6. Leased Facilities

The SBRR utilizes a trackage rights agreement with Canadian National Railway Company ("CN") covering a 2.4 mile segment in New Orleans, LA. The Agreement, originally between Illinois Central Railroad and Southern Railway Company, and now between their successors CN and NS, allows NS to use this segment "without charge" and therefore the SBRR incurs no cost for use of this segment.[44]

7. Loss and Damage

The SBRR's annual loss and damage cost equals $600,803. This cost was developed based on NS's actual 2010 loss and damage per ton for the commodities moving on the SBRR multiplied by the number of tons of each commodity that would have moved on the SBRR in 2010.[45] This is the same methodology used to calculate loss and damage costs in other SAC proceedings by both Complainant and Defendant and accepted by the Board. Review of the public record shows that most recently, Complainant used this method in the *AEPCO 2011*

[44] *See* e-workpaper "IC/SR Agreement.pdf."

[45] For cross-over traffic, the SBRR's share of the loss and damage payments was calculated on the percentage of the SBRR's car-miles to NS's total car-miles by two-digit STCC code. *See* e-workpaper "SBRR Loss and Damage.xls."

proceeding, it was accepted by Defendants in that proceeding and without comment by the Board in *AEPCO 2011*.

8. Insurance

The standard practice of railroads is to self-insure against potential liability except for catastrophic risks. The SBRR also self-insures for most types of claims, and obtains insurance at competitive rates to cover catastrophic loss and Federal Employers Liability Act exposure.

Insurance expenses for the SBRR were calculated using P&W's average insurance ratio, for years 2008 through 2011, of 3.89 percent of operating expenses.[46]

9. Ad Valorem Taxes

The SBRR operates in the states of Alabama, Louisiana and Mississippi. To develop Ad Valorem taxes, the amount of tax that NS paid per route mile was calculated for NS's route miles in each state. These amounts were then applied to the SBRR's route miles in each state and summed to arrive at SBRR's total Ad Valorem Tax burden. Table III-D-5 below summarizes the SBRR's Ad Valorem tax burden in 2011.

Table III-D-5
SBRR Ad Valorem Tax Burden - 2011

State (1)	Taxes Per Mile (2)	SBRR Route Miles (3)	Ad Valorem Tax Burden (4)
1. Alabama	${[redacted]}	356.9	${[redacted]}
2. Louisiana	{[redacted]}	50.0	{[redacted]}
3. Mississippi	{[redacted]}	171.4	{[redacted]}
4. Total	xxx	578.3	${[redacted]}

Source: *See* e-workpaper "SBRR Ad Valorem Tax.xlsx"

46 *See* e-workpaper "SBRR Insurance Rate.xls."

10. Other

a. Intermodal Lift and Ramp Cost

In addition to the line haul costs associated with intermodal traffic related to locomotives, fuel, crews and maintenance-of-way, the SBRR incurs lift and ramp costs. These costs have been included for all containers and trailers originating or terminating on the SBRR based on information provided by NS in discovery. A lift and ramp cost is included based on the amount NS incurs for providing lift and ramp services at intermodal terminals located on the NS lines included in the SBRR network.[47] The costs were calculated at each NS facility and applied on a facility by facility basis to the containers and trailers handled at each facility by the SBRR.

The lift and ramp services include costs for {[redacted]}. The annual intermodal lift and ramp expenses incurred by the SBRR equal ${[redacted]} in the Base Period.[48]

b. Automotive Handling Cost

Automotive handling costs are included for loading and unloading automobiles to and from railcars. The handling cost per unit equals ${[redacted]} and is developed from information provided by NS in discovery. The total cost of automobile handling for the SBRR equals ${[redacted]}.[49]

c. Calculation of Annual Operating Expenses

As noted at the beginning of this Part, the statistical inputs used to develop the SBRR's annual operating expenses (equipment and operating personnel needs, locomotive unit miles,

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[47] *See* e-workpaper "SBRR Intermodal Cost Per Lift.xlsx" and SUNBELT_ATC_Open.xlsx", tab "Pivot – Intermodal Units"

[48] *See* e-workpaper "SBRR Operating Expense.xls." It should be noted that the SBRR incurs no intermodal dray expenses as no intermodal traffic originates or terminates on the SBRR where the intermodal plan code indicates that the railroad provides dray services.

[49] *See* e-workpaper "SBRR AUTO DISTRIBUTION.xlsx."

crew starts, *etc.*) were developed by SunBelt's expert operating, IT and engineering/MOW witnesses, with assistance from SunBelt's Witness Burris. Mr. Burris also developed the annual salaries, equipment and operating unit costs. Mr. Burris used all of these inputs to develop the SBRR's Base Period operating expenses.[50]

The procedures used to develop the SBRR's annual operating expenses were those approved by the Board in *WFA/Basin*, i.e., applying transit times calculated for the peak period of the Peak Year to a full year of train data in order to calculate annual operating statistics, rather than calculating statistics only for trains moving in the peak week and then expanding those statistics to reflect a full year of data. The Board determined that applying the transit time statistics to a full year of train data is preferable as it avoids the risk of understating or overstating the annual operating statistics if the peak-week traffic mix is not representative of the annual traffic.[51]

The resulting operating statistics determined for Base Period trains were used to develop Base Period operating expenses. The Base Period operating expenses were then provided to SunBelt Witnesses Crowley and Fapp who developed operating expenses for each period in the DCF model.

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[50] *See* e-workpaper "SBRR Operating Expense.xls."
[51] *See WFA/Basin* at 33.

Part III-E

III. E NON-ROAD PROPERTY INVESTMENT

The testimony in this Part is being sponsored by Philip H. Burris of L.E. Peabody & Associates, Inc. His credentials are detailed Part IV.

1. Locomotives

As previously described, the SBRR leases ES44AC and GP38 road locomotives and SW1500 switching/work train locomotives. The annual lease cost is included as an operating expense. The acquisition of all locomotives is described in Part III-D.

2. Railcars

The SBRR also leases all of the railcars needed to serve the traffic group which are not supplied by the shippers or foreign railroads. The annual lease cost is also included as an operating expense, as described in Part III-D.

3. Other

As explained in Part III-D most of the SBRR's other equipment, including company vehicles, maintenance-of-way equipment such as hi-rail trucks, radios and telephones will be leased or purchased. The annual lease cost for this equipment is included as an operating expense. To the extent any of this equipment is purchased, the purchase price is annuitized and included with operating expenses.

Some items of equipment will be purchased, in particular, computers and related hardware. The SBRR's computer system needs, and the associated capital investment, are described in Part III-D.

The SBRR operates over 2.4 miles of track through a trackage rights agreement with CN in the same capacity as NS does today. The Agreement allows NS to use this segment "without charge" and therefore the SBRR incurs no cost for use of this segment. This agreement is discussed in Part III-C.

Part III-F

III. F. ROAD PROPERTY INVESTMENT

The SBRR replicates approximately 578.24 route miles of existing NS track in three (3) states (Alabama, Louisiana and Mississippi). The areas through which the track runs include rural undeveloped areas as well as major metropolitan areas.

The SBRR's road property investment costs are summarized in Table III-F-1 below.

Table III-F-1
SBRR Road Property Investment Costs
(in millions)

Item (1)	Investment (2)
1. Land	$199
2. Roadbed Preparation	244
3. Track Construction	537
4. Tunnels	0
5. Bridges	316
6. Signals & Communications	95
7. Buildings & Facilities	17
8. Public Improvements	8
9. Subtotal	$1,416
10. Mobilization	33
11. Engineering	122
12. Contingencies	137
13. Total Road Property Investment Costs	$1,708

Source: Exhibit III-F-1.

This testimony is being sponsored by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI and Daniel C. Vandermause (land acquisition costs), Philip H. Burris (easements), Harvey A. Crouch (construction costs and bridge designs and costs), Charles A. Stedman (roadbed preparation costs excluding culverts), and Victor F. Grappone (signals and communications system costs). These Witnesses' qualifications are included in Part IV.

1. Land

Land acquisition costs for the SBRR were developed by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI, Daniel C. Vandermause and their project team. Mr. Harps has over 35 years of experience as an appraiser and consultant. He holds the Member of the Appraisal Institute ("MAI") designation from the Counselors of Real Estate. He was President of the Washington, D.C. Association of Realtors in 1985. The team he has put together for this assignment brings an extensive background in real estate appraisal and experience in appraisal of transportation rights-of-way including valuation of rail properties throughout the United States and Canada.

The Across-the-Fence ("ATF") methodology was used for this appraisal. This method estimates the value of the right-of-way ("ROW") by establishing the value of adjacent lands and parcels of land in proximity to the ROW with the same zoning as lands abutting the ROW.[1] The acquisition price for land is assumed to be equal to the market value of the ATF properties.

A summary of SBRR's land acquisition acreage and costs based on the results of Mr. Harps' analysis is shown in Table III-F-2 below.

Table III-F-2
SBRR Land Acquisition Acreage And Costs

Property Type	Acreage	Cost (in millions)
(1)	(2)	(3)
1. ROW		
a. Fee-Simple	6,510.1	$175.1
b. Easement	272.6	0.2
2. Yard	163.0	21.9
3. Other		
a. Microwave Towers	50.0	1.9
4. Total	6,995.7	$199.1

Source: "Sunbelt Land Valuation – 2012.pdf"

[1] *Duke/CSXT* at 473 - "The land along the ROW is a prime indicator of a ROW's value and has been used in all prior SAC cases."

a. Right-of-Way Acreage

The majority of the ROW is based upon an average width of 100 feet.[2] In urban locations an average width of 75 feet was used.[3] And, in each location where additional trackage or space is required, acreage has been added.

The SBRR will acquire 6,995.7 total ROW acres; 6,723.1 acres in fee simple and 272.6 acres via easement.[4]

b. Yard Acreage

The SBRR has one major yard and several lesser yards whose locations are fully discussed in Parts III-B and III-C. The SBRR headquarters building is located at the Birmingham (Norris) Yard. The locomotive shop is also located at Birmingham (Norris). Yards throughout the SBRR system are primarily used for interchange, classification, car and locomotive inspections and fueling. SBRR will acquire 163.0 acres for its yards.[5]

c. Other Acreage

The SBRR will place 25 microwave towers along its right-of-way. The SBRR will acquire two (2) acres per microwave tower site for a total of 50.0 acres for microwave towers.[6]

d. Property Values

Based on the inspections and analyses undertaken by Mr. Harps and his team, and the easement costs developed by Mr. Burris, SunBelt has determined that the total cost for the ROW needed for the SBRR's lines as of July 30, 2011, is $199.1 million as summarized in Table III-F-

[2] The 100 foot right-of-way has been utilized consistently by both parties in prior SAC cases and accepted by the Board. *PSCO/Xcel* at 667.

[3] *See Duke/CSXT* at 472-473; *Wisconsin P&L* at 1018; *West Texas Utilities* at 702.

[4] *See* e-workpaper "Sunbelt Land Valuation – 2012.pdf."

[5] Id.

[6] Id.

2 above. A detailed description of Mr. Harps approach to developing these land acquisition costs is included in SunBelt's workpapers and summarized below.[7]

Mr. Harps and his team utilized aerial imagery from Google Earth Pro to trace the path of the SBRR. Adjacent land uses were noted along the way and used to define the land use type on both sides of the ROW. The ROW is split down the centerline with the adjacent land use defined for half of the ROW width on each side of the centerline. A new segment was defined when the ATF land use changed on either side of the ROW. Using this approach, 350 line segments were created.

Following the review of the aerial imagery, Mr. Harps and his team performed physical inspections of the ROW in 5 urban areas, covering 52 miles of ROW. These inspections took place during June 3 through June 5, 2012 and were used to verify the land use determined using aerial imagery as well as to provide additional information.

This process identified six (6) types of land use along the ROW that were used to determine comparable sales. Table III-F-3 below summarizes the percent of each type of land use along the SBRR ROW.

Table III-F-3
SBRR Distribution Of Land Use

Land Use Type	Percent of Total
(1)	(2)
1. Agriculture	68%
2. Residential	12%
3. Industrial	9%
4. Restricted	4%
5. Rural Town	5%
6. Commercial	2%
7. Total Acreage	100%

Source: e-workpaper "Sunbelt Land Valuation – 2012.pdf"

[7] Id.

The most appropriate method of estimating the value of the land for this purpose is the sales comparison approach. Land is valued as if vacant and unimproved regardless of its current state. Because there were only a limited number of sales in the recent past from which to determine values, Mr. Harps expanded the timeframe for comparable sales and broadened the area of proximity to encompass a greater number of sales. Mr. Harps details his valuation approach in his Report.[8]

Finally, and consistent with the principal that a SARR is not required to purchase a greater interest than the incumbent railroad possesses,[9] SunBelt's Witness Burris conducted an extensive review of NS valuation maps and easement documents provided in discovery. This review identified many easements and other transfers of property ownership along the SBRR ROW.

The SBRR easement acreage was developed by multiplying the length of the easement along the ROW times the width of the ROW at each location. The average cost per easement acre for each state was then applied to the acreage for each easement in the individual state. The total cost for SBRR acreage acquired through easements is $163,269.[10]

The total land acquisition costs for the SBRR are $199.1 million; $198.9 million for fee simple acquisitions and $163,269 for easements.

2. Roadbed Preparation

SunBelt's roadbed preparation testimony is sponsored by witnesses Harvey Crouch and Charles Stedman. Their qualifications are detailed in Part IV and summarized herein.

Mr. Crouch has over 30 years of freight railroad engineering experience, including service with Southern Railway and Norfolk Southern between 1977 and 1987 as a project

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[8] Id.

[9] *See CP&L* at 308 and *Duke/CSXT* at 474.

[10] *See* e-workpaper "SBRR Easements_Open.xlsx."

engineer and track supervisor with the NS. His experience with NS included supervision of the construction of numerous grading and track construction projects, and railroad facilities and buildings.

Mr. Stedman has over 30 years of experience with L. E. Peabody & Associates, Inc. He has developed and presented evidence pertaining to roadbed preparation in numerous proceedings before the ICC and the Board. Mr. Stedman has also researched ICC records including the ICC's Engineering Reports.[11]

In this testimony, the ICC Engineering Reports were used to develop the SBRR 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 modern engineering and design specifications.

The roadbed preparation unit costs utilized herein are a combination of actual costs and Means Handbook[12] costs. The Means Handbook costs are very conservative for this application because the prices 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 reflect the economies of scale inherent in a project the size of the SBRR or to accurately estimate the impact of using non-union labor.

A summary of the SBRR's roadbed preparation costs are summarized in Table III-F-4 below.

[11] ICC Bureau of Valuation B.V. Form No. 561.

[12] RS Means 2011 Site Work & Landscape Cost Data ("Means Handbook.")

Table III-F-4
SBRR Roadbed Preparation Costs[1/]

Item (1)	Cost (000) (2)
1. Clearing and Grubbing	$13,866
2. Earthwork	
a. Common	43,358
b. Loose Rock	15,053
c. Solid Rock	17,501
d. Borrow	93,250
e. Land for Waste Excavation	5,551
3. Drainage[2/]	
a. Lateral Drainage	2,792
4. Culverts[3/]	13,677
5. Retaining Walls	39,015
6. Rip Rap	437
7. Relocation of Utilities	0
8. Topsoil Placement / Seeding	7
9. Surfacing for Detour Roads	0
10. Environmental Compliance	0
11. **Total**	$244,507

1/ *See* e-workpaper "SBRR Open Grading.xlsx."
2/ Yard drainage is included in building site development costs.
3/ *See* e-workpaper "Culvert Construction Costs.xlsx."

a. Clearing and Grubbing

SunBelt reviewed the valuation section index maps accompanying the ICC Engineering Reports for the railroads traversed by the SBRR[13] and identified the valuation sections applicable to the SBRR. A listing of the valuation sections used in the development of the roadbed preparation construction costs for the SBRR is included in SunBelt's workpapers.[14]

13 The ICC Engineering Reports were compiled in the first quarter of the 20th century. At that time, the current lines of NS were owned by many different railroads.
14 *See* e-workpaper "SBRR Open Grading.xlsx" tab "Eng Rep Input."

Based on this selection of valuation sections, the clearing and grubbing quantities required for the original construction of the SBRR lines were taken from the ICC Engineering Reports. These quantities were then modified to reflect current construction specifications.[15]

Historically, clearing and grubbing costs have been developed and applied separately depending on the acreage requiring the grubbing of tree stumps. In this case, however, SunBelt's engineers based the clearing and grubbing costs on a recent railroad realignment project in Tennessee, the Trestle Hollow Project, and applied this cost to all SBRR acreage to be cleared. The project took place in 2007 and involved re-routing and building a new rail line near Centerville, TN. The cost for clearing and grubbing was $2,000 per acre and included "clearing and grubbing of all trees, stumps, undergrowth, brush, trash, grass, weeds, roots, debris, or other deleterious or objectionable materials…."[16] Stumps, roots and other debris were to be removed to a minimum depth of 18 inches below the surface and/or subgrade, whichever was lower and also included removal and stockpile of topsoil. SunBelt indexed the 2007 unit costs to July 30, 2011, the start date of the SBRR. The indexed unit cost for clearing and grubbing is $2,257 per acre.

Applying this combined unit cost to the total acres requiring clearing conservatively overstates the total costs as not all acres have trees or require grubbing. Construction of the SBRR requires 6,143 acres to be cleared and grubbed at a total cost of $13.9 million at 3Q11 levels.[17] Consistent with prior STB decisions, SunBelt has not included any additional costs for stripping or undercutting.[18]

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[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 SBRR's line segments to develop current clearing and grubbing quantities. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[16] *See* e-workpapers "Trestle Hollow Project Cost Sheet.pdf" and "Trestle Hollow Specifications.pdf."

[17] SunBelt notes that in recent stand-alone cost proceedings, complainants have used two different costs for clearing and one cost for grubbing, all from the Means Handbook. For the acres that were grubbed (according to the ICC

b. Earthwork

The ICC Engineering Reports were also utilized to develop the earthwork quantities for each valuation section covering the line segments of the SBRR. These quantities were adjusted to reflect current roadbed specifications. The adjusted earthwork quantities were then used to develop the earthwork requirements and costs for the SBRR. A combination of actual unit costs from the Trestle Hollow Project (indexed to 3Q11) and the Means Handbook average costs were used to develop the earthwork costs.

Table III-F-5 summarizes the earthwork quantities and costs associated with construction of the SBRR.

Table III-F-5
SBRR Earthwork Quantities And Costs

Item	Cubic Yards (000)	Cost (000)
(1)	(2)	(3)
1. Common Excavation	23,311	$43,358
2. Loose Rock Excavation	1,389	15,053
3. Solid Rock Excavation	1,210	17,501
4. Borrow	3,487	93,250
5. Total	29,397	$169,162

Source: *See* e-workpaper "SBRR Open Grading.xlsx," tab "EW Cost."

i. ROW Quantities -- SunBelt engineers identified the main-line, other main track, and all other track from the applicable ICC Engineering Reports. They also extracted the cubic yards ("CY") of excavation and embankment material by type – common,

Engineering Reports), complainants assumed that trees were also cleared and applied both the cost per acre for clearing and the cost per acre for grubbing from the Means Handbook. For the remaining acres of clearing (i.e., those acres not requiring grubbing), complainants applied a cost for brush clearing. This approach has been accepted by the STB. See *AEP Texas II* at 78-79, *AEPCO 2011* at 83-84. While SunBelt believes the use of actual clearing costs is superior to the costs from the Means Handbook, SunBelt has included these alternate calculations in its workpapers. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

18 *See PSCo/Xcel* at 671, *WFA/Basin* at 83, *AEP Texas II* at 74, *Duke/CSXT* at 479-480, *AEPCO 2011* at 84-85. Additionally, these costs are included in the Trestle Hollow unit costs.

loose rock, solid rock and embankment (borrow).[19] The grading quantities from the ICC Engineering Reports were then used to develop distribution percentages for the four earthwork categories.[20] Based on a review of railroad construction literature prevailing at the time the ICC Engineering Reports were compiled, SunBelt's engineers estimated that the ICC Engineering Report quantities for the rail lines comprising the SBRR reflect average roadbed widths of 19 feet for fills and 23 feet for cuts (including ditches).[21] The earthwork quantities obtained from the ICC Engineering Reports were adjusted to reflect the requirements of today's heavier trains. Table III-F-6 shows the more modern roadbed widths utilized in the construction of the SBRR.

Table III-F-6
Roadbed Widths For Construction Of The SBRR

	Roadbed Width[1/]	
Track Type	**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 and a side slope of 1.5 to 1.

The adjusted earthwork requirements by valuation section for the construction of the SBRR based on the above specifications are contained in the accompanying workpapers.[22] The calculation of the earthwork quantities for the SBRR's line segments are also detailed in SunBelt's workpapers and described below.[23]

First, the SBRR line segments were matched 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 SBRR's

[19] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Eng Rep Input."
[20] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Distribution."
[21] *See* William C. Willard, *Maintenance of Way & Structures*, McGraw-Hill Book Company, 1915, pp. 29-31 included in e-workpaper "Original Roadbed Widths.pdf."
[22] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Earthwork by val sec."
[23] *See* e-workpaper "SBRR Open Grading.xlsx," tab "CY Grad by seg."

track configuration shown in the SBRR stick diagrams. Finally, the number of track miles was multiplied by the applicable cubic yards per mile for the appropriate valuation section.

ii. Yard Quantities -- As discussed in Part III-B, the SBRR has one (1) major yard and twelve (12) lesser yards (including interchange yards).[24] For each yard, SunBelt calculated the grading requirements based on an assumed average fill height of one foot and 25-foot track centers.[25]

Yard earthwork is classified as excavation because the estimated yard track quantities removed from the ICC Engineering Report total quantities were removed from the excavation quantities for each valuation section.

iii. Earthwork Unit Costs -- Harvey Crouch and his associates are familiar with much of the territory traversed by the SBRR and knowledgeable about the appropriate equipment required for excavation. Rail lines, including the lines comprising the SBRR, are generally laid out to follow the natural ground as much as possible, minimize grade changes and avoid difficult terrain whenever possible. The SBRR relies upon the same least-cost-but-feasible grading approach previously accepted by the STB.[26]

(a). Common Earthwork -- In most previous stand-alone proceedings, earthwork excavation unit costs have been based on the Means Handbook.[27] The costs in the Means Handbook are conservative because they are based on an average of costs for

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[24] *See* e-workpaper "SBRR Yard Matrix Open Grading.xlsx."

[25] The one-foot fill height was used for the 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 Wisconsin P&L* at 1022, *PSCo/Xcel* at 675, *AEP Texas II* at 81, *Otter Tail* at D-10, *Duke/NS* at 172, *CP&L* at 310-311, *Duke/CSXT* at 477 and *AEPCO 2011* at 90. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Yards."

[26] *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* at 676-678.

[27] *See PSCo/Xcel* at 677-678, *AEP Texas II* at 81-82, *Otter Tail* at D-11-12, *Duke/CSXT* at 478-479, *Duke/NS* at 174-176 and *CP&L* at 313.

projects of all sizes from around the country, without specific consideration for the economies of scale that would benefit the SBRR due to the large project size involved. Using the Means Handbook, SunBelt's engineers have calculated a common excavation unit cost; however, this is not the cost SunBelt has relied upon here.[28]

Beginning with *WFA/Basin*, complainants used costs from actual railroad construction projects. The common excavation cost per CY based on an actual BNSF track construction project was accepted by BNSF and the STB.[29] This trend continued in *AEPCO 2011*, where the complainant relied on costs from five BNSF railroad projects and this was accepted by the Board.[30]

In this proceeding, NS provided a limited number of documents containing earthwork cost information in response to SunBelt's discovery requests. Virtually all of the documents were {[redacted]} estimates with CY quantities ranging from {[redacted]}. These projects reflected {[redacted]} construction. None of these projects are remotely akin to new rail construction like the SBRR.

Moreover, projects undertaken by the {[redacted]} are generally projects involving additions or modifications to existing track and right-of-way, many times requiring construction under traffic, or adjacent to active tracks. This drives the cost up since site access is limited, work has to be conducted in limited work windows, and work has to be performed in a manner that is safe with respect to the railroad and its contractor and the contractor's activities.

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[28] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Unit Costs."

[29] *See WFA/Basin* at 86 (the parties agreed on the unit costs for common excavation), WFA/Basin April 19, 2005 Opening (Public Version) at III-F-36-37 (describing the source of the common excavation unit cost) and WFA/Basin September 30, 2005 Rebuttal (Public Version) at III-F-56 (stating that BNSF accepted WFA/Basin's common excavation unit cost).

[30] *See AEPCO 2011* at 86-88.

The data provided by NS was insufficient to be used to develop common earthwork unit costs based on actual projects. As discussed in the previous section on clearing and grubbing, SunBelt's Witness Crouch was involved with the Trestle Hollow Project, a railroad realignment project in Tennessee which required the construction of a new railroad line. This was an actual project with actual quantities and costs as opposed to an estimate of quantities and costs, it reflects new rail line construction and there were considerable amounts of earthwork moved.[31]

The Trestle Hollow project involved constructing a complicated, new alignment for the South Central Tennessee Railroad west of Nashville. This project was challenging for several reasons. The purpose of the project was to bypass several large timber bridges approximately 100 years old. The alignment was designed to improve the vertical grade and reduce curvature. The new design was difficult due to the hilly terrain and included several tall embankments and deep cuts all on an average 2.4 percent grade. Clearing was difficult due to the hilly nature of the land and the size of the trees. The material excavated was a combination of common earth and loose rock. SunBelt's engineers are being conservative by using the Trestle Hollow cost for only common excavation.

Common earthwork excavation costs for the SBRR are based on the actual unit cost from the 2007 Trestle Hollow project of $1.65 per CY indexed to 3Q11 resulting in a cost of $1.86 per CY. This unit cost includes all necessary work to prepare the roadbed for the placement of subballast, the handling of waste and hauling it to off-site locations as needed, as well as costs associated with any water for compaction that might be necessary.[32]

(b). <u>Loose Rock Excavation</u> -- Loose rock excavation is a category on the ICC Engineering Reports that does not have a counterpart in today's railroad

[31] *See* e-workpapers "Trestle Hollow Specifications.pdf" and "Trestle Hollow Project Cost Sheet.pdf." *See also,* the directory "Trestle Hollow Pictures" included with SunBelt's opening workpapers.
[32] *See* the construction specifications contained in e-workpaper "Trestle Hollow Specifications.pdf" at 152-153.

construction environment. Railroads today use the categories of common (or unclassified) and solid rock. Thus, SunBelt 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 use of two (2) 300 HP dozers for ripping the loose rock and pushing it into piles, a 3CY power shovel for placing the ripped and dozed rock into the truck (including the Means 15% additive), a 42 CY off-highway truck to haul the material to the fill or disposal site, and a dozer to spread the material after it is dumped. Each of the 300 HP dozers is equipped with rock rippers at the rear and large push blades in front. The 42 CY off-highway truck was selected because it is capable of turning in a 27' 11" radius and thus suitable for work in a railroad right-of-way.[33]

The cost for loose rock excavation on the SBRR is $10.84 per CY.[34]

(c). <u>Solid Rock Excavation</u> -- The unit cost for solid rock blasting is based on an average of the Means Handbook cost for blasting rock over 1,500 cubic yards and the cost for bulk drilling and blasting. SunBelt 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 was also applied.[35]

SunBelt's engineers used a 50/50 combination unit cost made up of the solid rock unit cost ($18.07 per CY) and the loose rock unit cost ($10.84 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

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[33] *See* e-workpaper "42 CY Truck.pdf."

[34] The unit costs from the 2011 Means Handbook are indexed to 3Q11 levels and adjusted by the Means Handbook location factors. *See* e-workpaper "SBRR Open Grading.xlsx," tabs "Unit Cost" and "Loc Factor."

[35] SunBelt's solid rock excavation unit cost development is consistent with recent Board decisions. *See WFA/Basin* at 86-87, *AEP Texas II* at 82-83, *PSCo/Xcel* at 677-678 and *AEPCO 2011* at 89-90.

therefore classified as loose rock or common excavation) using modern equipment.[36] This 50/50 combination results in a cost per CY of $14.46 for solid rock excavation.

(d). Embankment/Borrow -- The Means Handbook-based unit costs for borrow utilized by the SunBelt engineers are based on a five (5) cubic yard wheel-mounted front end loader, 20 CY capacity dump trucks to haul material to the construction site, a dozer to spread the material, and the average compaction cost for embankment that was used for the other earthwork categories.[37] SBRR borrow unit costs equal $26.74 per CY at 3Q11 levels.

(e). Land for Waste Excavation -- Not all of the excavated material for the SBRR is re-used as fill. Consistent with the procedures used in other SAC cases, SunBelt's earthwork calculations assume a 30 percent waste ratio. As this waste material needs to be placed somewhere, the SBRR is acquiring additional land along the right-of-way to accommodate the dumping of the waste material. SunBelt's engineers have assumed an average 15-foot depth for wasted materials. SunBelt has included an additional 385 acres of rural land for this purpose at an estimated $14,402 per acre for a total cost of $5.6 million.

(f). Total Earthwork Cost -- The total earthwork cost associated with constructing the SBRR, including the cost of land for waste excavation, is $174.7 million.

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 SBRR's line segments. The cost per linear foot for installed drainage pipe, including backfill and compaction, was taken from the 2011 Means Handbook indexed to 3Q11 and adjusted by the Means

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[36] This 50/50 combination has been repeatedly accepted by the Board. *See WFA/Basin* (parties agreed, not mentioned or altered in decision); *AEP Texas II* (parties agreed, not mentioned or altered in decision); *Otter Tail* at D-12; *PSCo/Xcel* at 677 (where BNSF also agreed on this split); *Duke/NS* at 174; *CP&L* at 312; *Duke/CSXT* at 478; *AEPCO 2011* at 90.

[37] *See AEP Texas II* at 81 and *Otter Tail* at D-13.

Handbook location factors. Based on the ICC Engineering Reports, the SBRR requires 112,346 linear feet of lateral drainage pipe. The SBRR's total investment in lateral drainage equals $2.8 million at 3Q11.[38]

ii. <u>Yard Drainage</u> -- SunBelt's engineering experts have included yard drainage facilities in the way of catch basins and drainage pipe for the SBRR's major yard and four (4) mid-size yards. Prior to the installation of any drainage facilities, the roadbed for yard track construction will be constructed to slope away from the main line. Storm water runoff will drain freely through the ballast and be collected by ditch lines along the perimeter of the yards. These ditches will then convey the storm water runoff offsite. Low areas can occur near facilities and between tracks separated by non-typical spacing. In those instances, catch basins are used to collect the water in the low areas. This water is then conveyed under the track to the perimeter ditch.

Yard drainage for the SBRR will cost $0.9 million for catch basins and $0.6 million for drainage pipe and is included in the yard building site development costs.

d. <u>Culverts</u>

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, typical of bridges, are not required. The culverts specified by SunBelt's engineers are corrugated aluminized metal pipe ("cmp"). All culverts used by the SBRR are adequate to withstand railroad loadings to a gross weight on rail of 286,000 pounds per car (Cooper E-80 standards).

Culverts on the SBRR also replace any bridges less than 20 feet in length, assuming that the bridge crosses a waterway.[39]

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[38] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."
[39] *See AEP Texas II* at 93.

i. **Culvert Unit Costs** -- Unit costs were developed from costs provided in quotes from multiple metal pipe manufacturers and the Means Handbook. Unit costs for cmp are driven by the linear feet ("LF") of length of each culvert required in a particular location as well as the diameter of the pipe.[40] Additional unit costs were developed for excavation, furnishing and placing crushed stone for bedding material, and backfill.[41]

ii. **Culvert Installation Plans** -- All culverts are installed during the early stages of preparation of the subgrade for the railroad. The sites are easily accessible, in part through the ongoing preparation of the roadbed and in part because much of the SBRR's ROW is near public roads. Moreover, the culverts can be installed with a minimum of excavation using the open trench method of installation.

Specifically, once the base layer of the roadbed is in place, the trench for the cmp 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 then backfilled. After the sub-base has been prepared, most culverts can be installed in less than one day.

Work production of the crews is consistent with SunBelt's proposed construction schedule because there are no deep trenches to excavate or work in, and by installing the culverts at this stage of the project, no waterway diversions are required. Moreover, in the few instances

[40] *See* e-workpaper "Culvert Construction Costs.xlsx."
[41] The price of bedding material is from the Trestle Hollow Project. All other unit costs are from the Means Handbook. *See* e-workpaper "Culvert Construction Costs.xlsx."

where water is flowing immediately adjacent to the culvert, the culvert can be installed while the water is flowing.

iii. Culvert Quantities -- SunBelt's engineers used the culvert inventories provided by NS in discovery to form an initial culvert list. All culverts less than 20' in length were removed from the list, because they did not go through the full width of the roadbed, so that only culverts that provided drainage under the SBRR lines were included. The list was then converted to equivalent circular pipe sizes of 24", 36", 48", 60", 72", 84", 96", 108", or 120".

In many instances, the culvert inventories provided by NS did not include any culvert length data. SunBelt's engineers have, therefore, assumed that the culvert length will be set in accordance with the standard roadbed widths for cut and fill sections. Further, in many cases, NS's culvert inventory list did not indicate the size of the culvert being used; in those cases a size of 24" was assumed. In order to ensure that the SBRR's culverts could meet the loading requirements of the SBRR, SunBelt's engineers elected to use aluminized cmp for all culvert installations.

iv. Total Culvert Costs -- The total cost of the SBRR's culverts is $13.7 million.[42]

e. Other

i. Ditches -- The SBRR has side ditches in cuts that are two feet wide and two feet deep and that are trapezoidal in section. Two-foot ditches have repeatedly been accepted by the Board.[43]

ii. Retaining Walls -- Retaining wall quantities for the SBRR are also extracted from the ICC Engineering Reports. The Engineering Report data includes cubic yards

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[42] *See* e-workpaper "Culvert Construction Costs.xlsx."

[43] *See Duke/NS* at 171, *CP&L* at 310, *Duke/CSXT* at 476, *TMPA* at 701, n.183, *Wisconsin P&L* at 1023.

of masonry, timber walls, and walls made from timber ties and pilings under the category "Protection of Roadway" in Account 3, Grading. Rather than construct masonry or timber retaining walls, the SBRR 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.

SunBelt has used the cost for retaining wall gabions (including the rock) and the cost for timber pilings from the 2011 Means Handbook. Total retaining wall investment for the SBRR equals $39.0 million at 3Q11 levels.[44]

iii. Rip Rap -- SunBelt's engineers developed rip rap quantities from the ICC Engineering Reports, and applied the unit cost 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. SunBelt has included $0.4 million for rip rap investment at 3Q11 levels.[45]

iv. Relocating and Protecting Utilities -- All of the lines being replicated by the SBRR were constructed by NS'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 SBRR.[46]

v. Seeding/Topsoil Placement -- Embankment protection quantities for all lines of the SBRR were derived from the ICC Engineering Reports. Based on the ICC Engineering Report data, less than one (1) percent of the lines being replicated by the SBRR had

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[44] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[45] 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 "SBRR Open Grading.xlsx," tab "Other Items."

[46] *See AEP Texas II* at 84; *PSCo/Xcel* at 680; *Duke/CSXT* at 483.

embankment protection quantities. For seeding and topsoil placement costs, SBRR's engineers relied upon the unit cost of $1,600 per acre from the Trestle Hollow Project indexed to $1,805.90 per acre at 3Q11 levels.[47] Total SBRR investment costs for seeding/placing topsoil equal $6,459.

vi. Water for Compaction -- In the Eastern coal rate cases, the Board agreed with complainants that water for compaction was not necessary in the areas traversed by the stand-alone railroads because there is sufficient water content in the region to allow for proper compaction.[48] Consistent with the territory traversed by the stand-alone railroads in the Eastern coal rate cases, the SBRR rail lines traverse sub-humid, moist sub-humid and humid areas and not arid and semi-arid areas.[49] In any event, even if water for compaction was necessary in a certain area, the common earthwork unit costs relied on by SunBelt include any incidental items such as water.[50]

vii. Surfacing for Detour Roads -- SunBelt's engineers did not include any costs for road detours for the SBRR's lines, as it is unlikely that NS incurred any costs for this item when the lines were originally built, and NS 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.[51]

viii. Construction Site Access Roads -- In general, the SBRR's track subgrade is used for its site construction roads. In addition, most of the SBRR right-of-way is accessible from public roads and highways, thereby permitting construction access without building separate access roads. Further, the initial construction activity includes clearing the

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47 *See* e-workpapers "Trestle Hollow Project Cost Sheet.pdf" and "SBRR Open Grading.xlsx," tab "Other Costs."
48 *See Duke/CSXT* at 483, *Duke/NS* at 179-180 and *CP&L* at 317.
49 *See* e-workpaper "SBRR Route avg rainfall.pdf."
50 *See* e-workpaper "Trestle Hollow Specifications.pdf."
51 *See PSCo/Xcel* at 681-682; *Duke/NS* at 180; *CP&L* at 317; *Duke/CSXT* at 484; *TMPA* at 707-708; *Wisconsin P&L* at 1024-1025; *FMC* at 802.

SBRR right-of-way and creating initial site access with the heavy construction equipment. As the site is leveled by either cutting or 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 the Trestle Hollow project, used for common excavation costs, required the contractor to provide its own, uncompensated, access to the site.[52] SunBelt's position on this issue is consistent with several prior SAC decisions.[53]

ix. <u>Environmental Compliance</u> -- SunBelt did not include any environmental compliance costs for its construction. Inclusion of these costs on the lines originally constructed in the 19th and early 20th centuries by NS or its predecessors would constitute a barrier to entry.[54]

3. <u>Track Construction</u>

SunBelt's track construction testimony is sponsored by Witness Harvey Crouch. His qualifications are detailed in Part IV.

Track construction is the work required to lay track once the subgrade has been completed. This includes placing subballast, ballast, ties, rail, and other track components. The total costs of track construction for the SBRR ($536.7 million) are summarized in Table III-F-7 below.

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[52] *See* e-workpaper "Trestle Hollow Specifications.pdf."

[53] *See Duke/CSXT* at 476-477; *Duke/NS* at 172; *CP&L* at 317; and *AEP Texas II* at 80.

[54] *See Wisconsin P&L* at 1025 (the parties agreed that environmental mitigation was only required for the recently constructed segments); *PSCo/Xcel* at 682 (the parties agreed on the inapplicability of such costs); *AEP Texas II* at 83. *See also* the public evidence (complainants' Rebuttal Evidence) in *WFA/Basin* where environmental compliance costs were applied only to recently-constructed lines - Docket No. 42088 (Public Version) filed Sept. 30, 2005, Narrative Vol. II at III-F-81-82.

Table III-F-7
SBRR Track Construction Costs

Item	Cost (000)
(1)	(2)
1. Geotextile Fabric	$182
2. Ballast	74,322
3. Ties	108,259
4. Track (Rail)	
a. Main Line	152,795
b. Yard and Other Track	12,831
c. Field Welds	2,217
d. Switches (Turnouts)	34,754
5. Rail Lubricators	184
6. Plates, Spikes and Anchors	54,133
7. Derails and Wheel Stops	191
8. Track Labor and Equipment	96,804
9. Total	$536,672

Source: *See* e-workpaper "Track Construction Costs.xls."

a. Geotextile Fabric

SunBelt has placed geotextile fabric under turnouts and at at-grade crossings.[55] The cost for at-grade crossings already includes the cost for the fabric so the quantities and costs in this part are only for the amount required under the SBRR turnouts. SBRR requires a total of 151,821 SY of geotextile fabric under turnouts at a cost of $0.2 million. The total SBRR geotextile quantity calculations are included in the costs of turnouts and grade crossings.[56]

b. Ballast

SunBelt's engineers have used 18" of ballast and subballast, consisting of a 6-inch subballast layer and a 12-inch layer of clean rock ballast for all main tracks. Diagrams of the standard SBRR main track cross sections (single and double) are included in the accompanying

[55] *See WFA/Basin* at 94-95.
[56] *See* e-workpaper "Track Construction Costs.xls."

workpapers.[57] This roadbed section conforms to AREMA and certain Class 1 standard roadbed sections.

SunBelt's engineers used 4" of subballast and 6" of ballast under yard tracks and set-out tracks because of the lighter traffic and slower speeds. This is consistent with certain Class 1 standard roadbed sections. Ballast for the SBRR would be locally obtained limestone or granite, crushed to meet AREMA No. 4 size requirements and meeting Los Angeles and Mill Abrasion requirements.[58] Subballast consists of similar parent materials crushed to provide a well-graded, dense layer of crushed rock similar to road base material.[59]

Ballast and subballast quantities were developed for all sections of track based on the lengths of single and multiple track sections, and the roadbed section referenced above. As noted, the SunBelt engineers have included cross-sections of the SBRR track designs in the workpapers. These designs include the volume per foot of track for all items, including the volume per foot for ballast and subballast.[60] The quantities were 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 the 4" subballast and 6" ballast depth. SunBelt's experts also used the standard conversion factor of 1.5 tons/CY in determining quantities, which is conservative versus the conversion factor of 1.325 tons/CY used by the "Track Data Handbook."[61]

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[57] *See* e-workpaper "Typical Track Sections.pdf."
[58] *See* e-workpaper "Track Construction Costs.xls."
[59] *See* e-workpaper "Trestle Hollow Specifications.pdf."
[60] *See* e-workpapers "Typical Sub-Ballast.pdf" and "Ballast Sections.pdf."
[61] *See* e-workpapers "Track Construction Costs.xls" and "Typical Sub-Ballast.pdf."

SunBelt's engineers used prices for ballast from direct quotes obtained from suppliers and historical pricing data obtained from NS in discovery.[62] The unit costs for subballast were obtained from the Trestle Hollow Project, which included delivery costs as well as placement of the subballast on the roadbed. Delivered costs for ballast are based on shipping distances from the sources to the railheads throughout the SBRR system, which were then multiplied by $0.035 per mile based on a transportation charge from *AEPCO 2011*.[63] The supply and shipping costs were then totaled and averaged to develop an average delivered cost per CY for ballast. The total cost of ballast and sub-ballast for the SBRR is $74.3 million.

c. <u>Ties</u>

SunBelt's engineers selected wood ties with a tie spacing of 20.5 inches for all main track and passing sidings consistent with railroad industry standards for mainline track. The Board has repeatedly accepted wood tie spacing of 20.5 inches.[64] Because of the lighter traffic and slower speeds, SunBelt's engineers used wood ties with 24-inch spacing in yards and set-out tracks.[65]

SunBelt's engineers selected standard Grade 5 treated hardwood railroad ties, whose dimensions are 7" x 9" x 8'6", for all track. Unit costs for Grade 5 ties were based on quotes received from Tangent Rail. Transportation costs were added based on average distance to rail head at $0.035 per ton-mile.

The SBRR is constructing its bridges with ballast decks, thereby obviating the need for transition ties. In addition, the Board has rejected transition ties at turnouts.[66] The total cost of ties for the SBRR is $108.3 million.

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62 *See* e-workpapers "Track Construction Costs.xls" and "Ballast 2011.xls."
63 *See AEPCO 2011* at100.
64 *See WFA/Basin* at 96; *West Texas Utilities* at 707.
65 *See WFA/Basin* at 96 (accepting this spacing in yards).
66 *Id* at 97.

d. **Track (Rail)**

i. **Main Line** -- As discussed in Part III-B, the SBRR will use 136-pound CWR for most of the SBRR's main tracks and passing sidings (20 MGT/year or greater), with premium rail used in curves 3 degrees and greater. For the lighter density portions of the SBRR (less than 20 MGT/year) new 115-pound CWR will be used.[67] The delivered cost used for the SBRR's mainline rail is $889 per ton.[68]

The rail is welded together into approximately 1,440-foot lengths and then loaded onto a rail train. The rail is distributed by the rail installation contractor and the rail distribution costs are included in labor charges.[69] The total cost of mainline rail for the SBRR is $152.8 million.

ii. **Yard and Other Track** -- As discussed in Part III-B, the SBRR is using new 115-pound CWR for yard and set-out tracks. As with the 136-pound rail, the price includes delivery to various railheads and the materials will be distributed by the rail installation contractor. The total cost of rail for yards and other tracks for the SBRR is $12.8 million.

iii. **Field Welds** -- The cost of labor for field welds is derived from direct quotes and historical prices from projects overseen by Crouch Engineering.[70] The cost of field weld materials is included in the costs for field welding labor. Field welds are required to connect the 1,440-foot strings of welded rail produced by the manufacturer as well as to insert insulated joints, make connections to turnouts and span grade crossings. The calculations for the number of field welds as well as the number of compromise welds (where 115-pound and 136-

67 *See* e-workpaper "Track Construction Costs.xls."
68 *See* e-workpapers "NS 2010 Rail Cost.pdf", and "Track Construction Costs.xls."
69 *See* e-workpaper "Track Construction Costs.xls."
70 Id.

pound rail are joined together) are included in the workpapers accompanying this opening evidence.[71] The total cost for field welds is $2.2 million.

iv. Insulated Joints -- Insulated joint requirements are addressed in the signals and communications costs discussed in Section III-F-6 below.

v. Switches (Turnouts) -- SunBelt's engineers included the number and size of turnouts specified in the SBRR's stick diagrams (as discussed in Section III-B). Turnouts were also included for the SBRR's yards and connections to customers served by the SBRR.[72] Unit costs for turnouts were obtained from quotes from vendors.[73] The turnout quotations include all materials necessary for construction of complete No. 20 power turnouts, No. 14 power turnouts, and No. 10 hand-thrown turnouts, including, but not limited to rail, switch ties, frogs, guard rails, switch points, base plates and tie plates, switch plates, switch point heel blocks, adjustable wedge brace plates for the switch point section, insulated tie bar rods, connecting rods, the switch machine, and all other items incidental to turnout construction. The total cost to the SBRR for turnouts (excluding geotextiles and including switch heaters) is $34.8 million.[74]

e. Other

i. Rail Lubricators -- Rail lubricators are used by the SBRR to distribute grease to the wheel/flangeway interface. Spacing of lubricators is based on the coverage of the grease as defined by the supplier, and as warranted by track conditions. The unit cost for rail lubricators is based on quotes from vendors.[75] The SBRR's total cost for rail

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[71] Id.

[72] *See* e-workpapers "SBRR Yard Matrix.xlsx" and "SUNBELT_ATC_OPEN.xlsx," tab "Origins and Destinations."

[73] *See* e-workpaper "Track Construction Costs.xls."

[74] Id.

[75] Id.

lubricators is \$0.2 million.[76]

ii. Plates, Spikes and Anchors -- The SBRR 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 feet 8.5 inches inside dimension between the railheads). Two spikes per tie plate (four spikes per tie) are used on all track with timber ties and less than 3-degree curves. This spiking pattern is standard practice for U.S. railroads, and is used by NS. AREMA standards also support two spikes per plate.[77]

For curves between 3 and 6 degrees, 4 spikes per plate are used. This pattern is consistent with industry practice and AREMA.[78] For curves greater than 6 degrees, five spikes per plate are used.[79]

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 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 3 degrees. Anchors are used on both sides of every tie for curves 3 degrees or greater and for 200 feet at each end of grade crossings (those costs are included in the grade crossing and turnout costs).

76 Id.
77 *See* e-workpaper "Spiking Pattern.pdf."
78 Id.
79 Id.

The anchoring pattern being used on the SBRR is consistent with AREMA and NS standards.[80] The total costs for plates, spikes, and anchors on the SBRR are $54.1 million.[81]

iii. <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 Failed Equipment Detectors ("FED"), set-out track turnouts and at yard turnouts at the 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 cost for derails and wheels stops were developed from vendor price catalogues. The total costs for derails and wheel stops for the SBRR are $0.2 million.[82]

iv. <u>Materials Transportation</u> -- As described above, specific transportation costs associated with a given item are included in the total costs for that item. Therefore, no additional transportation costs have been added.

v. <u>Track Labor and Equipment</u> -- The SBRR's track laying and related costs are derived from direct quotes and bids obtained from contractors on projects where Crouch Engineering bid and oversaw rail construction, and from recent quotes solicited from contractors for similar projects. Labor quotes for track construction were obtained from Queen City Railroad Construction and RailWorks. Bid prices were also obtained from several NS track construction projects. The lowest quote/bid has been used for track construction and includes the following:

1) Provide labor to unload and distribute all track material including 136 RE CWR or 115 RE CWR from rail train, timber crossties, tie plates, rail anchors, spikes, and ballast;

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80 *See* e-workpaper "Rail Anchor pattern.pdf."
81 *See* e-workpaper "Track Construction Costs.xls."
82 Id.

2) Construct track complete using CWR, crossties on 21" centers, box anchoring every other tie, box anchor every tie within 200' of grade crossings;

3) Distribute ballast from hoppers or ballast cars; and

4) Surface and line track, regulate ballast, 12" of ballast under center of ties.

The total cost of track labor for the SBRR is $96.8 million.[83]

4. Tunnels

There are no tunnels on the SBRR.

5. Bridges

SunBelt's bridge testimony is also sponsored by witness Harvey Crouch. SunBelt's engineers have observed bridges on the lines being replicated by the SBRR and reviewed the specific information contained in NS's bridge inventory. Bridge quantities for the SBRR were developed from NS bridge inventory information provided in discovery. Bridge designs were developed by SunBelt's engineers and unit costs are derived from various real world sources as described below.

a. Bridge Inventory

Mr. Crouch prepared the bridge inventory for the SBRR based on a review of the bridge information provided by NS in discovery. The bridge inventory utilized by SunBelt's engineers includes milepost, feature crossed, number of spans, structure type, and total length.[84] Bridges spanning 20 feet or less and crossing natural barriers have been built as culverts.[85]

b. Bridge Design and Cost Overview

When the NS lines replicated by the SBRR were constructed, a variety of bridge types and lengths were used. This was due to the different technologies that were available at the time

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[83] Id.
[84] *See* e-workpaper "SBRR Bridge Construction Costs.xls."
[85] *See* e-workpaper "Culvert Construction Costs.xls."

of original bridge construction, the proclivities of the particular railroad company that constructed the bridge, the desired load rating, and the available materials. As technology has become more sophisticated, so has bridge design and implementation.

The SBRR's bridges have the same lengths as those being replicated, but SunBelt's engineers have designed those bridges using more efficient spans where possible using several standard bridge designs (*e.g.,* Type I, II, III bridges) based on the diverse bridge lengths and heights that are required.[86] However, the bridge inventory provided by NS did not include complete and detailed bridge height data, only the maximum height. Therefore, to determine the necessary heights of the bridge being replicated, the following methodology was used based on the feature the bridge is crossing:

1. Highway/Interstate	16.5' (AASHTO-Interstate Requirement)
2. Other roads	14.5' (AASHTO-Other Highways)
3. Navigable waterways	USCG clearance requirements[87]
4. Other waterways	11'

These standard heights were adopted by SunBelt's engineers in order to develop costs for the bridges required for the SBRR. Bridge height is an essential aspect of the cost of a bridge. The higher the bridge, the more bracing will be required for stability, the more materials will be used, and the higher the construction cost will be due to the difficulty in forming concrete, driving longer steel piles, and lap-splicing rebar.

No information was provided in discovery on the hydraulic area of the bridges. Therefore, water flow increase/decrease was not taken into consideration in the engineer's methodology as this is negligible due to the fact that each bridge either kept the same number of

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86 This is standard practice in prior SAC rate cases. *See Duke/NS* at 190-191, *CP&L* at 327, *Duke/CSXT* at 496 and *WFA/Basin* at 108-112.

87 *See* e-workpaper "USCG_Clearance_Guide.doc."

spans, or had a decrease in span number, while keeping the length the same as the existing bridge.

SunBelt's engineers then developed a cost formula for each of the four bridge types using a composite of costs from Crouch Engineering's historical data of successful bidders on similar scale railroad bridge construction. The historical data includes the cost quotes from successful bidders for bridges built in rural Tennessee and rural Alabama with terrain very similar to that of the lines being replicated by the SBRR. This project data focused on bridges that were not being built under traffic conditions or limited work windows, i.e., working conditions similar to those assumed to exist when building the SBRR.

Once they developed a standard cost formula, they then applied it to every bridge within the relevant category in the inventory. The cost for each bridge is developed separately. The primary formula applied for each bridge, but separately by Type as needed is:

> Bridge Cost = [(Abutment cost X number of Abutments) + (Pier Cost X number of Piers) + (Per Linear Foot Cost X Length of Bridge)].

Other components such as piling, handrail, elastomeric pads, base plates, and PVC deck drains are also reflected in the costs.[88]

From a design standpoint, using Crouch Engineering's historical costs for building bridges ensures that all items necessary for building the bridges are included, especially since these historical costs are actual costs from real world applications thereby demonstrating the feasibility of the methodology. These bridges are adequate in design, and have a minimum rating of 286,000 pounds and a life cycle of 100 years (meaning that no major repairs will be required for 100 years).

[88] *See* e-workpaper "SBRR Bridge Construction Costs.xls."

i. <u>Type I Bridges</u> -- Type I bridges have varying spans of 20'-0" to 32'-0". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. The same precast deck, column caps, abutment caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation. Type I bridges less than 32' in length are single span structures; structures that are 32-55' are two spans. In addition, Type I spans were often used when approach spans were necessary due to the inconsistent span lengths on the bridge inventory list.[89]

ii. <u>Type II Bridges</u> -- Type II bridges have spans of 32'-0" to 45'-0". These bridges are typically one span unless they are incorporated into the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing rolled beam sections next to each other. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation.[90] The Type II Bridge classification on the SBRR is reserved for single-span bridges between 32'-0" and 45'-0" in length, and on an occasional multi-span bridge requiring a shorter span.

iii. <u>Type III Bridges</u> -- Type III bridges have spans of 60'-0" to 92'-6". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing four 60' pre-stressed concrete Bulb-T beams side-by-

[89] Examples of the designs are included in e-workpaper "Type I_Photos and Plans.pdf."

[90] Examples of the designs are included in e-workpapers "Type II_Photos and Plans.pdf," "BR01-Pier Typical.pdf," "BR02-Pier Typical Sections.pdf," "BR05-Type II-1.pdf," "BR05-Type II-2.pdf," "BR05-Type II-3.pdf," "BR05-Type II-4.pdf," "BR05-Type II-5.pdf" and BR05-Type II-6.pdf."

side. A cast-in-place deck is installed over the pre-stressed Bulb-T beams. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation.[91] The Type III Bridge classification on the SBRR is reserved for single-span bridges between 60'-0" and 92'-6" in length, and on an occasional multi-span bridge requiring a longer span.[92] Type III Bridges are the most economical span, and, therefore, this is the span that was chosen for single-span bridges between 60'-0" and 92'-6" in length, and for multi-span bridges longer than 92'-6" (unless USCG restrictions are in-place).

iv. <u>Type IV Bridges</u> -- Type IV bridges have spans of 150'-0", consist of a Steel-Through-Plate-Girder, and can be comprised of multiple bridge types in order to achieve long multiple span structures. Type IV bridges were selected to cross over large rivers needing to comply with USCG clearance requirements. Along with the 150' spans, the vertical clearance of the bridge was set to 60' through the length of the river only.[93] Through-Plate-Girders were only chosen when USCG requirements were present and the structure consisted of the minimum of eighteen (18) 150' spans (totaling 2,700') or the length of the structure based on NS information provided in discovery. If eighteen 150' spans were used, it was necessary in some instances to have additional bridge types to extend the structure so as to keep it out of the floodplain. This is consistent with the information provided by NS in discovery.

v. <u>Highway Overpasses</u> -- Grade separated crossings are included in the SBRR bridge calculations. The SBRR is constructing one (1) such overpass. As noted pre-

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[91] Examples of the designs are included in e-workpapers "BR01-Pier Typical.pdf," "BR02-Pier Typical Sections.pdf," "BR06-Type III-1.pdf," "BR06-Type III-2.pdf," "BR06-Type III-3.pdf," "BR06-Type III-4.pdf," "BR06-Type III-5.pdf," "BR06-Type III-6.pdf" and "BR06-Type III-7.pdf."

[92] Examples of the design are included in e-workpaper "Type III_Photos and Plans.pdf."

[93] Examples of the designs are included in e-workpapers "Type IV_Plans and Photos.pdf," "BR03-Pier USCG.pdf," "BR04-Pier USCG Sections.pdf," "BR07-Type IV-1.pdf" and "BR07-Type IV-2.pdf."

viously, the NS lines being replicated predate the roads in this territory. As such, SunBelt has included 10 percent of the costs for this bridge consistent with Board precedent.[94]

The unit costs for highway overpass construction were derived from a composite list of costs that is tracked by various state Departments of Transportation.[95] The SBRR highway overpass bridge will be constructed with the required clearances as specified in AREMA Figure 28-1-6. A sketch and photo of the typical highway overpass is shown in SunBelt's workpapers.[96]

The total investment cost for the SBRR's bridges is $316.2 million and for highway overpasses is $0.06 million for a total of $316.2 million.[97]

6. <u>Signals and Communications</u>

The SBRR will rely on a standard CTC-based vital signal system with components added to provide Positive Train Control ("PTC"). It will rely on a microwave system for communications. The signal system, including PTC, and communication system costs are sponsored by witness Victor Grappone, PE and summarized in Table III-F-8 below.

Table III-F-8
<u>Signals And Communications System Costs</u>
($ millions)

Item (1)	Cost (2)
1. PTC Signals System	$68.1
2. Detectors	0.8
3. Communications	25.7
4. Total	$94.6

Source: e-workpapers "SunBelt C&S estimate.xlsx" and "PTC Locomotive Cost.xlsx."

94 *See AEP Texas II* at 102-103.
95 *See* e-workpaper "SBRR Over Head Bridge Construction Costs.xls."
96 *See* e-workpapers "BR09-Single Track Overpass.pdf" and "BR09-Double Track Overpass.pdf."
97 *See* e-workpapers "SBRR Bridge Construction Costs.xls" and "SBRR Over Head Bridge Construction Costs.xls."

a. **PTC Signal System**

The Rail Safety Improvement Act of 2008 ("RSIA") (signed by the President on October 16, 2008, as Public Law 110-432) has mandated the widespread installation of PTC systems by December 2015. The SBRR network employs a PTC system for all train control and communications on the entirety of its constructed track network (i.e., the SBRR does not include investment cost for signaling and communications system on trackage rights and joint facility tracks owned by other carriers).

Unlike existing Class I carriers, the SBRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment expenditures by the SBRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure. To develop the cost of the PTC system, SunBelt's experts relied on information provided by NS in discovery related to its estimates of the costs of the various components of the PTC system. The costs were adjusted, where appropriate, to reflect the cost of a PTC system as an initial installation rather than conversion from an existing CTC or other signaling system.

PTC investment costs are included for three basic components, which include track (wayside), information technology systems and locomotive communications. Signal system costs, including the costs for the wayside and information technology portions of PTC, are detailed in SunBelt's workpapers.[98] The number and type of components associated with typical installations along the right of way are defined in this file. The number of each type of installation was identified based on the layout of the SBRR as manifested in the SBRR stick diagrams and the track charts provided by NS in discovery.

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[98] *See* e-workpaper "SunBelt C&S estimate.xlsx."

SunBelt counted interlocking components for huts ("IH"), signals ("IG"), switches ("IW") and track circuit ends ("IT"). For interlocking huts, a standard end-of-siding layout was taken as a baseline. To account for the additional costs associated with larger interlockings, a scaling factor was included that takes into account the number of signals, switches and track circuit ends. For automatic signal locations, either single or double track installations ("AS1" or "AS2") were counted.

SunBelt has also included costs to cover active highway crossing gates and flashers where needed. The count of crossings based on the numbers of track (one to four) and whether a given crossing had gates and flashers or just flashers ("X1G", "X1F", "X2G", "X2F", etc.) was based on information provided by NS in discovery.[99] Consistent with the Board's decision in *Duke/CSXT*, SunBelt's engineers have included 10 percent of the costs for highway crossing protection signals.

b. <u>Detectors</u>

Automatic roll-by failed equipment detectors ("FEDs") are included along the SBRR main lines as required by operations and consistent with the current industry standard.[100] As discussed in Part III-B, FEDs are located approximately every 35 miles along the main line (one for each main track in areas with two or more main tracks). Bad order setout tracks have been sited within two miles of the failed equipment detectors in each direction to provide for train stopping distances and allow removal of bad order cars to the setout tracks. All setout tracks near the detectors are single-ended tracks, 735 feet in length providing 600 feet in the clear past the switch. For interface to the signal and PTC system, each setout track is provided with either

[99] *See* e-workpaper "SunBelt C&S estimate.xlsx," tab "Crossings."
[100] *See* AREMA 2001 Standards, Chapter 16, Section 5.3.1, Items j & k.

a single- or double-track ("EL1" or "EL2") electric lock manual switch installation. Costs for FED and electric lock locations are contained in SunBelt's workpapers.[101]

c. Communications System

The SBRR's railroad radio system enables locomotive communications, two-way radio communications, general voice communications, general data communications, and FED alerts. Microwave radio technology is used for the radio 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, supervisory and track maintenance personnel that need to communicate with the railroad=s operating headquarters and central dispatching facility at Birmingham, AL. 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 SBRR=s railroad radio system includes microwave towers along the SBRR route.[102] The use of microwave towers for railroad communications is widespread, although fiber optic communications are now also being used. On average, microwave towers are placed at 20 mile intervals along the SBRR.

Each tower includes a full set of microwave equipment, including two microwave base stations enabling sending and receiving along a straight path, and four microwave antennas. End towers have only one microwave station and two antennas. Where necessary, a tower may have three or four base stations and six or eight antennas. Each microwave tower also includes a

[101] *See* e-workpaper "SunBelt C&S estimate.xlsx."
[102] *See* e-workpaper "SunBelt LMR cost development.xls."

LMR base station, with corresponding radio equipment. Finally, each tower includes the necessary communications shed.

The type of multiplexor deployed at each tower is the Alcatel 1518 Integrated Access Device ("AD"). The 1518 AD is rack-mountable and will convert analog Radio Frequency ("RF") signals from/to digital signals. The 1518 AD also interconnects with the MTR2000 LMR base station by standard Plain Old Telephone System ("POTS") four-wire. The 1518 AD will also interconnect with the Alcatel MDR-8606 microwave base station by standard DS1 cable and shall conform to Telcordia TR-TSY-000499 and ANSI T1.102 standards. The 1518 AD supports up to 24 PCM channels per digroup that are intermixed at random, providing voice frequency ("VF") trunking, special service interfaces, synchronous and asynchronous data channels, program/broadcast services and FCC registered channels in one assembly.

CTC infrastructure components that are radio-enabled (*e.g.*, AEIs and FEDs) are equipped with the Kenwood TK-762GK radio, KAP-1 switching unit and required cables. For technical descriptions of the Kenwood TK-762GK VHF radio, *see* SunBelt's workpapers.[103] This mobile radio is VHF capable and operates in the 148-174 MHz frequency range.

In addition to the radios handling CTC infrastructure, SunBelt's engineering experts have included 163 LMR repeating stations positioned along the right-of-way. These LMR repeaters allow for uninterrupted RF communications along the right-of-way because the LMR stations on the microwave tower may or not be accessible at all points. Many of the LMR repeaters include a 30-foot antenna to extend the range.

Automatic Equipment Identification ("AEI") scanners are located at or near each of the locations where the SBRR interchanges trains with other railroads as described in Part III-B. A total of 20 AEI scanners have been provided. The AEI scanners have been placed so as to enable

[103] *See* e-workpaper "Radios.pdf."

them to capture all train movements that occur on the SBRR, including both local and interline movements. Details of the costs and components are shown in SunBelt's workpapers.[104]

The costs for the locomotive communications component of PTC are also included in the SBRR's communications system costs. Total investment cost for the SBRR's communications system is $25.7 million.[105]

7. Buildings and Facilities

SunBelt's buildings and facilities testimony is also sponsored by witness Harvey Crouch. The SBRR's major system facilities are located at its Birmingham, AL yard. These facilities include the SBRR's headquarters building, crew facilities, a yard office, a locomotive repair shop, 1,000 and 1,500-mile inspection facilities, and car and locomotive storage. Additional, smaller yards are located throughout the SBRR system.[106] The total SBRR building and facilities costs are summarized in Table III-F-9 below.

Table III-F-9
SBRR Buildings And Facilities Costs

Facility	Cost (000)
(1)	(2)
1. Headquarters Building	$3,025
2. Fueling Facilities	377
3. Locomotive Shops	897
4. Car Repair Shop	0
5. Crew Change Facilities	1,409
6. Yard Offices	237
7. Roadway Buildings (MOW)	142
8. Wastewater Treatment	887
9. Other Facilities/Site Costs	10,637
10. Total Buildings and Facilities	$17,611

Source: *See* e-workpaper "SBRR Facilities Cost.xlsx."

104 *See* e-workpaper "SunBelt C&S Estimate.xlsx."
105 *See* e-workpapers "SunBelt C&S Estimate.xlsx" and "PTC Locomotive Cost.xlsx."
106 *See* e-workpaper "SBRR Yard Matrix.xlsx."

a. Headquarters Building

The SBRR headquarters is located at the SBRR's Birmingham (Norris) Yard. The SunBelt engineers calculated the required square footage using the American Institute of Architects standards square footage per employee which includes additional space for work rooms, IT equipment, hallways, bathrooms and mechanical services. Executive employees were allotted additional space per those same standards. The resulting building is two (2) stories with a total of 19,365 square feet.[107] The building's costs were based on RS Means online square foot cost calculator for building structures of this kind.[108] The total cost of the headquarters building is $3.0 million.

b. Fueling Facilities

i. Fueling Platforms and Fueling by Truck -- Fueling platforms are located at SBRR's Birmingham (Norris) Yard. Locomotive fueling at all other locations is performed by trucks (i.e., direct-to-locomotive or DTL fueling). All fueling by truck will be performed track-side. The yard tracks where locomotive fueling by truck will occur are built on 25-foot track centers, thereby providing sufficient space for the trucks to operate. The cost for fueling facilities on the SBRR equals $0.4 million.[109]

ii. Lube Oil & Sanding -- Locomotive servicing tracks designed for fueling locomotives by truck including sanding and lube facilities are located in SBRR yards in order to provide such services as needed.[110] These costs are included in each major and mid-size yard site based on the unit costs for the necessary facilities (including any needed storage tanks) derived from bid tabulations of projects with similar scope and size.

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[107] *See* e-workpaper "SBRR Facilities Cost.xlsx," tab "HQ Bldg."
[108] Id.
[109] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[110] *See* e-workpaper "SBRR Yard Matrix.xlsx" for the location of these facilities.

c. Locomotive Shop

SunBelt's engineers have included a locomotive shop designed to handle overhaul work as well as 92-day inspections and running repairs at the Birmingham (Norris) Yard. This shop includes a two-track facility designed to handle 92-day inspections and other minor running repairs as required and includes such necessities as a pit. Two (2) additional tracks capable of holding up to a total of eight (8) locomotives are included for the larger overhaul work. The heavier work-track design includes overhead and jib cranes, drop tables and other necessary heavy equipment as required based on the function of each track.[111] In addition, the shop is equipped with a wheel turning machine.[112]

Unit costs and designs are based on actual locomotive shop facilities designed and constructed by Crouch Engineering. Details of the shop fixtures and costs are included in SunBelt's workpapers.[113] The total cost for the locomotive shop for the SBRR is $0.9 million.[114]

d. Car Repair Shop

As noted in Part III-C, the SBRR acquires its railcars via full service leases and therefore, the lessor, and not the SBRR, is responsible for providing all necessary car repair shops.[115] Consequently, SunBelt's experts have not included costs for any car repair facilities. However, they have provided the necessary space and tracks for such a facility at the SBRR's Birmingham (Norris) Yard.

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[111] All items included in the design of the SBRR locomotive shop are separately priced.
[112] *See* e-workpaper "SBRR Facilities Cost.xlsx," tab "Major."
[113] *See* e-workpapers "SBRR Facilities Cost.xlsx" and "Locomotive Shop.pdf."
[114] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[115] *See PSCo/Xcel* at 693, *CP&L* at 333-334; *Duke/NS* at 196.

e. Crew Change Facilities

There are six (6) crew change locations on the SBRR which require a crew change facility.[116] The buildings at Birmingham, Meridian and New Orleans, which have a higher number of crew starts per day, are sized 35' by 64' for a total of 2,240 square feet per building. The buildings at the other locations are sized 25' by 56' for a total of 1,400 square feet per building. These buildings generally replicate the buildings used by NS for such purposes. Based on Mr. Crouch's experience, NS utilizes a variety of structures for crew change locations including old depots, metal buildings and concrete block buildings. Each building includes basic facilities such as locker rooms, a break area, a work room and other necessities. The unit costs and designs are based on actual buildings designed by Crouch Engineering. The total cost for crew change facilities on the SBRR is $1.4 million.[117]

f. Yard Offices

There are five (5) yard offices, one at each of the SBRR's major and mid-size yards.[118] These buildings are 25' by 56' and are pre-engineered metal buildings. The total cost for yard offices on the SBRR is $0.2 million.[119]

g. Maintenance of Way Buildings (Roadway Buildings)

The SBRR has three (3) MOW buildings. Each building is similar in office space and design to the crew change facilities, but the interior is smaller as there are fewer employees using the space. Additional area is provided for garaging certain vehicles as necessary and storing MOW supplies. SunBelt's engineers developed the space requirements based on the typical MOW crew at each location as well as the need to house signal maintainers. The unit costs and

[116] Some crew change locations do not require a facility as the crew is away from home and goes directly to a motel upon going off duty. *See* e-workpaper "SBRR Yard Matrix.xlsx" for crew change facility locations.
[117] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[118] *See* e-workpaper "SBRR Yard Matrix.xlsx" for yard office locations.
[119] *See* e-workpaper "SBRR Facilities Cost.xlsx."

specifications were derived from actual MOW buildings designed by Crouch Engineering. The total cost for MOW buildings on the SBRR is $0.1 million.[120]

h. Wastewater Treatment

The SBRR building facilities are located near existing towns and cities, and are able to be served by a local sewer connection or similar service. SunBelt's engineers, therefore, included costs for sewer tie-ins. In addition, to handle runoff from various work by-products (*e.g.*, oil) before reaching the public sewer system, SunBelt's engineers have included oil/water separators. (The effluent (oil) is sent to an oil/water vaporizer that produces a dry powder which can be easily disposed of.) SunBelt's engineers have utilized such facilities in projects for other railroads. The total cost for wastewater treatment on the SBRR is $0.9 million.[121]

i. Other Facilities / Site Costs

SunBelt has also included costs for other facilities and site preparation costs. These costs include automobile handling facilities, locomotive servicing areas in certain SBRR yards, yard lighting, yard drainage and other site preparation costs. SunBelt has included $10.6 million for these items.[122]

8. Public Improvements

SunBelt's public improvements testimony is also sponsored by witness Harvey Crouch. While public improvements are discussed in detail below, the costs for some of items were included in other investment categories, such as buildings and facilities and signals.

a. Fences

NS did not provide any data concerning the quantities or locations of fencing on any of the lines being replicated by the SBRR. Consequently, SunBelt has relied on its experts'

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[120] *See* e-workpapers "SBRR Facilities Cost.xlsx" and "MOW Building.pdf."
[121] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[122] Id.

experience and observations that the vast majority of the lines being replicated are not fenced. Moreover, the fencing that was observed tended to be for farm, industrial, or residential use, and given the variations in materials, such fencing appears to have been erected by the adjacent land owner. Therefore, SunBelt has included fencing only for its yards at a cost of $1.0 million.[123]

b. Signs

SunBelt's operating and engineering experts have included a standard package of railroad signs, including milepost, whistle post, yard limit, and cross-buck signs and posts. SunBelt has included $0.6 million for railroad signs.[124]

c. Highway Crossings and Road Crossing Devices

The SBRR is building all at-grade crossings, and paying 100 percent of the cost for the crossing materials. SunBelt has included $7.5 million for at-grade crossings.[125] Consistent with *TMPA, PSCo/Xcel, Duke/CSXT, Duke/NS* and *CP&L*, SunBelt has included 10 percent of the costs associated with crossing protection, such as gates, flashers, and related signal elements such as crossing predictor huts.[126] These costs are included with the signal costs described in Part III-F-6 above.[127] For grade separated crossings, the SBRR is paying for 10 percent of the total investment costs in such structures[128] resulting in $0.1 million. These costs and designs are discussed in Part III-F-5 above.

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123 Id.
124 *See* e-workpaper "Track Construction Costs.xlsx.
125 *See AEP Texas II* at 102; *PSCo/Xcel* at 695-696. *See* e-workpaper "Track Construction Cost.xlsx."
126 *See TMPA* at 154, *PSCo/Xcel* at 696, *Duke/CSXT* at 504, *Duke/NS* at 200 and *CP&L* at 337.
127 *See* e-workpaper "SunBelt C&S Estimate.xlsx."
128 *See WFA/Basin* at 130 and *Duke/CSXT* at 504.

9. Mobilization

SunBelt's engineers have added a 2.7 percent mobilization factor for all items where mobilization is not already included in the contractor's bid.[129] The total cost for mobilization on the SBRR is $32.9 million.

10. Engineering

The Board has used a 10 percent estimate for all engineering cost components.[130] Thus, SunBelt's 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. The total cost for engineering on the SBRR is $121.8 million.

11. Contingencies

Consistent with prior Board decisions in other SAC rate cases,[131] SunBelt's engineering experts have used a 10 percent contingency factor and applied it to the construction subtotal excluding land. Total contingency costs for the SBRR are $137.2 million.[132]

12. Other

a. Construction Time Period

The construction time period for the SBRR is controlled by the time it takes to construct the Lake Pontchartrain Bridge located near the city of New Orleans, LA. The work will begin with the start of surveying and aerial mapping operations. A two (2) month period will be allocated to obtain sufficient information to allow preliminary planning and engineering design

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[129] *See Duke/CSXT* at 505. The STB accepted 2.6 percent in *CP&L* (at 338) and 2.5 percent in *Duke/NS* (at 201). The STB also accepted 2.4 percent in *AEPCO 2011* (at (132). SunBelt is being conservative by using 2.7 percent for mobilization.

[130] *See PSCo/Xcel* at 697-698.

[131] *See WFA/Basin* at 132-133; *AEP Texas II* at 104-105; *PSCo/Xcel* at 698 (parties agreed to 10 percent contingency); *TMPA* at 746-747; *West Texas Utilities* at 710; *APS* at 402.

[132] *See* e-workpaper "III-F Total.xls."

to begin. Design of the railroad and appurtenances will require a fourteen (14) month period including the two (2) month start-up/surveying period.

Land acquisition will take approximately seven (7) months to complete. It will commence five (5) months after project initiation. Test borings will be timed to coincide with land acquisition so sufficient test borings can be made during the design process.

By the tenth month at about 70 percent completion of the design phase, the longest bridge, the Lake Pontchartrain Bridge, will be bid with construction to start by the thirteenth month. The remaining site work bid packages will be ready to bid in the eleventh month and work on all site work, bridges and tunnels will be started by the fifteenth month. In the twelfth month, the PTC, signal, communications and track packages will be bid.

Construction of all bridges and structures other than the Lake Pontchartrain Bridge is anticipated to take a maximum period of twelve months. It is expected that the Lake Pontchartrain Bridge can be constructed in fourteen months.

In general, the construction work has been planned by subdivision. The work has been structured so that all site work and bridges and tunnels can be completed prior to installation of track and signals. Total construction time for the N.O. & N.E. District, which will take the longest to construct, will be twenty months. Total design and construction time for this project is twenty-eight (28) months with six (6) months (of which four (4) months overlap construction) available at the end of construction for final operational testing. Thus a thirty (30) month overall construction period has been provided.

The SBRR construction project would be divided into 7 track packages, 36 grading packages, 50 bridge packages and 1 building package.[133]

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[133] *See* e-workpaper "Complete Construction Schedule.xls."

Track gangs will lay track at an average of one-half mile per day, ballasted and anchored. With crews working six days per week, the rate of one half-mile per day would enable the project to be completed within the established schedule.

Finally, material prices have been obtained for most track materials delivered to railheads, including, but not limited to, Birmingham, AL, McIntosh, AL and New Orleans, LA. Because of the numerous road access points along the lines, the uniform topography for most of the railroad, and interstate roads paralleling many line segments, materials that cannot be shipped by rail have been priced with shipping by truck to one or more of the road access points along the SBRR's lines.

Part III-G

III. G. DISCOUNTED CASH FLOW ANALYSIS

The expert witnesses responsible for this part are Thomas D. Crowley and Daniel L. Fapp of L. E. Peabody and Associates, Inc. Their credentials are detailed in Part IV.

The Board's SAC constraint rests on the premise that a captive shipper should pay no more than the minimum necessary to receive service from a least-cost, presumptively 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.[1] The SAC constraint is derived from and constitutes an application of the theory of contestable markets.

In the Board's contestable market structure, the incumbent railroad's rates are deemed constrained by the threat of entry by the hypothetical stand-alone entity. If it is shown that the prospective cost of substitute service is less than the rate charged by the incumbent, there is an incentive for the new entity to enter. The presence of that incentive, in turn, is evidence that under the incumbent's rates the shipper is contributing to (subsidizing) the cost of services that it does not use, and/or is contributing monopoly profits to the incumbent.

SAC provides a regulatory ceiling on rates under conditions of rail market dominance; if the incumbent's rates are higher than those that would be charged by the stand-alone entity (the SBRR in this case), then the incumbent's rates are unreasonable. As the Board summarized in *CP&L*:

> A SAC analysis seeks to determine the lowest cost at which a hypothetical, optimally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization of other traffic. A stand-alone railroad is hypothesized that could serve the traffic if the rail industry were free of barriers to entry or exit. (It is such barriers that can make it possible for railroads to engage in monopoly pricing absent regulatory constraint.) Under the SAC constraint, the rate at issue

[1] *See Coal Rate Guidelines*, 1 I.C.C. 2d at 523-524; *AEPCO 2011* at 3 and 4.

> cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment.[2]

Since the function of a SAC analysis is to identify the cost associated with providing the most-efficient, least-cost service to the captive shipper, it follows that application of the SAC standard should be premised on rational economic behavior by the stand-alone entrant. In particular, the stand-alone entrant should pay no more than is necessary for its inputs. Thus, while the SBRR is considered to be a substitute for NS to the extent of the scope of the SBRR's planned services, SAC does not require that the SBRR replicate the NS system in all respects. As the Board's predecessor confirmed 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.[3] This means that the SBRR must be considered a replacement for the relevant portions of the NS system, not a rival, and must be afforded the flexibility to configure its system and service scope in a manner that maximizes efficiency and cost effectiveness.[4]

These core principles guide the traffic group, design, configuration, and planned operation of the SBRR as detailed in the previous Parts of this Testimony. They also inform the proper treatment of capital cost recovery, inflation and taxes.

1. <u>Cost of Capital</u>

Calculation of the capital recovery charge for the SBRR necessarily depends on the SBRR's assumed cost of capital. The Board has consistently accepted the general railroad industry's average costs of common equity, debt and preferred equity (if any), and their

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2 *See CP&L* at 244-245.
3 *See Coal Rate Guidelines* at 543-544.
4 *See, e.g., Nevada Power II* at 280-281(Chairman McDonald, commenting).

percentage mix within the industry's capital structure[5] in forming a capital structure for the SARR over the relevant construction period (February 27, 2009 through July 29, 2011 in this case) and operating period (July 30, 2011 through July 29, 2021).[6]

The SBRR's cost of debt and preferred equity[7] capital during the 10-year DCF period is assumed to equal the weighted average railroad industry cost of debt or preferred equity over the SBRR's construction period, weighted by the SBRR's investment by construction year. The cost of common equity capital is assumed to equal the then-current year railroad industry cost of equity as determined by the Board. If the Board has not calculated the cost of equity capital for such year, the simple average of all prior years' costs of equity capital beginning in the first year of the SARR's construction is used. To project capital costs forward and estimate the value of the SBRR at the end of the DCF period, the Board relies on an average of available past years' industry capital costs, reaching back to the first construction year.[8]

SunBelt has followed the Board's approved and preferred approach in developing capital costs for the SBRR. For 2009 and 2010, SunBelt employs the industry average costs determined by the Board in its annual cost of capital proceedings.[9] For 2011, Sunbelt has used the industry average costs of common equity, debt and capital structure as calculated by the Association of American Railroads ("AAR") and submitted to the STB as part of the Board's 2011 cost of

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5 As determined by the Board in its annual railroad cost of capital proceedings.

6 *See WFA/Basin* at 135; *Duke/NS* at 123; *CP&L* at 261-262.

7 The STB's annual cost of capital findings since calendar year 2002 have not included preferred equity.

8 *See AEP Texas* at 108-109.

9 *See Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital – 2009,* decided October 28, 2010, and *Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital – 2010,* decided September 30, 2011. The railroad industry had no preferred equity capital outstanding, therefore the SBRR incurs no cost of preferred equity for these years.

capital determination.[10] SunBelt uses the railroad industry cost of capital to calculate the capital recovery charges for all road property investment.

2. Inflation Indices

The prices of goods and services used by the SBRR undoubtedly will change over the 10-year DCF period. It therefore is 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.* July 30, 2011 through July 29, 2021. The time path of capital recovery charges for the SBRR likewise must maintain the real purchasing power of those charges. A summary of the indexes applied to the SBRR's capital assets and operating expenses is shown in Table III-G-1 below.

Table III-G-1
Index Values Utilized In The SBRR DCF Model

Year (1)	Land (2)	Materials and Supplies (3)	Wage Rates and Supplements (4)	Materials, Supplies, Wage Rates and Supplements (Excluding Fuel) (5)	Operating Expenses (6)
2009	100.0	100.0	100.0	100.0	---
2010	100.1	100.3	107.2	106.3	---
2011	108.2	103.7	109.1	108.4	100.0
2012	116.6	110.5	114.0	113.6	97.7
2013	124.6	114.1	120.8	120.0	100.4
2014	133.1	116.7	124.9	123.8	102.4
2015	142.2	120.0	130.2	128.8	104.6
2016	152.0	122.6	135.2	133.5	106.5
2017	162.5	124.5	140.1	138.1	108.3
2018	173.7	126.5	145.4	142.9	110.2
2019	185.8	128.4	150.8	147.9	112.0
2020	198.6	130.3	156.3	152.9	113.5
2021	210.7	132.4	161.1	157.3	115.5

Sources: Opening e-workpapers "SBRR Land Appreciation.xls," "Hybrid RCAF.xls," and "Exhibit III-H-1.xls."

[10] *See* the AAR's Opening evidence in *Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital – 2011*, submitted April 20, 2012. SunBelt's use of the AAR's 2011 cost of capital calculations is not an endorsement of the AAR's estimate, but instead an effort to minimize the potential differences between SunBelt and NS.

The annual inflation forecast that is used to calculate the value of the SBRR'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 supplements, and materials prices, wage rates, and supplements combined (excluding fuel) ("MWSExFuel") for eastern railroads, and the current Global Insight's June 2012 Rail Cost Adjustment Factor Forecast for rail labor and rail materials and supplies.[11]

For land assets, the annual forecast inflation rate is based on a weighted combination of indices that reflect rural and urban land prices in proportion to the mix of the land values on the SBRR system routes.[12]

Rural land indexes were developed from historic rural land values reported by the U.S. Department of Agriculture ("USDA"). The STB determined in *AEPCO 2011* 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.[13] The STB cited its use of historical averages of more than 80-years in developing railroad costs of equity estimates.[14] Given the STB's clear preference for longer historical averages, and the use of averages from the late 1920s to 1930 to calculate the SBRR's cost of equity, we developed the historic average annual and quarterly

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[11] Global Insight does not develop a forecast of the AAR's MWSExFuel index. SunBelt therefore uses a proxy that weights Global Insight's materials and supplies and labor rate index forecasts, which the Board has relied upon for purposes of execution of the DCF model. *See AEP Texas II* at 109; *Duke/NS* at 123; *CP&L* at 261.

[12] Historically, parties in SAC cases weighted the different urban and rural land indexes based upon the percentage of SARR acres which were urban and rural. In *AEPCO 2011*, the STB changed its approach to weight the indexes based on the value of the rural and urban land acquired by the SARR. SunBelt has applied the STB's revised approach in its opening DCF model.

[13] *See AEPCO 2011* at 139.

[14] *See AEPCO 2011* at 139 "In measuring the terminal growth rate (from year 11 out) in the cost of equity, the Morningstar/Ibbotson model uses, in part 'the average annual percentage change in real GDP from 1930 to the year being analyzed." Similarly, in developing the Capital Asset Pricing Model ("CAPM") cost of equity, the STB relies upon the historic average equity risk premium calculated from the year 1926 to the present. See STB Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital -- 2006*, served January 17, 2008.

percentage change in rural land values between 1930 and 2011 for the SBRR states, and used these historic averages to forecast future changes in rural land values.[15]

Urban land values, which are assumed to consist of a mix of investment, residential and commercial properties, were indexed using a commercial land index prepared by the National Council of Real Estate Investment Fiduciaries ("NCREIF").[16] The NCREIF Property Index ("NPI") is a quarterly time series composite index, which like the Massachusetts Institute of Technology Center for Real Estate ("MIT") index used in *AEPCO 2011*, measures total rate of return of investment performance of a very large pool of individual commercial real estate properties acquired in the private market.[17] However, unlike the MIT index used in *AEPCO 2011*, the NPI reports values back to 1977, while the MIT index only reports values back to 2001. As indicated above, the Board determined in *AEPCO 2011* that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends. The 23 years of additional data included in the NPI makes it superior to the data included in the MIT index.

SunBelt applied the NPI to urban land values in developing its land inflation index. For the years 2009 through 2011, SunBelt used the actual historic change in the Southern Region NPI. For the years 2012 to 2021, SunBelt calculated the long-term historic change in the Southern Region NPI from 1978 (the first year reported) to 2011, and used this longer-term average as a proxy for future urban land value growth. This collection of forecasts and their application is shown on Exhibit III-H-1.

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15 For the years 2009 through 2011, SunBelt relied upon the actual historic change in rural land values instead of the historic average.

16 Details are provided in e-workpaper "Land Appreciation.xls." *See, e.g., Duke/NS*; *CP&L.*

17 A complete description of the NPI can be found on the NCREIF website at http://www.ncreif.org/property-index-returns.aspx.

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 percent of the change in the RCAF-U; expenses for the second year would adjust based on 95 percent of the change in the RCAF-U and 5 percent of the change in the RCAF-A; and each succeeding year of the DCF period would use a mix reflecting increasing shares of the RCAF-A in 5 percent increments.[18] SunBelt applies this method to the indexing of operating expenses for the SBRR.[19] SunBelt's model uses actual RCAF-U and RCAF-A indexes through 2Q12, the latest quarter available, and applies Global Insight's June 2012 RCAF-U and RCAF-A forecasted indexes thereafter.

3. <u>Tax Liability</u>

Federal taxes for the SBRR are calculated on the assumption that it pays taxes at the 35 percent corporate rate, with all payments for debt interest, state income taxes and depreciation expenses treated as reductions in taxable income.[20] Interest expense is calculated on a 20-year period, pursuant to Board precedent.[21] As explained in greater detail in Section III-H-1-d, SBRR interest expense is calculated based on the real practice of railroads issuing primarily coupon bonds, which pay periodic, even interest payments. Depreciation expenses for tax purposes use accounting lives from the Modified Accelerated Cost Recovery System ("MACRS") with investments placed in service in the second quarter using a mid-quarter convention. In addition,

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[18] 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 percent of the change in the RCAF-U, and 45 percent of the change in the RCAF-A. *Id.* at 40.

[19] See e-workpaper "Hybrid RCAF.xlsx."

[20] *See FMC* at 847-848.

[21] *McCarty Farms* at 525. This has been an uncontested issue between the shippers and railroads and is implicit from the statement in *Major Issues* at 65 where the STB states "the only changes…[needed to convert the DCF model from a 20-year to a 10-year model] are: (1) the elimination of forecasts for operating expenses in years 11 through 20 and (2) changing the netting calculations…."

as described in Part III-H-1-f, the SBRR calculated bonus depreciation available under current tax laws.

The SBRR also must account for any income tax liability accruing to the three (3) states in which it operates. Following Board-approved procedures, the taxes applicable to railroads in each state were weighted together based on the SBRR route-miles located within each state.[22] As summarized in Table III-G-2 below and detailed in Exhibit III-H-1, the weighted average rates for each state produce an effective state tax rate of 6.19 percent for the SBRR.

Table III-G-2
State Tax Rates And
Constructed Miles For The SBRR

State (1)	Tax Rate (2)	Route Miles (3)
1. Alabama	6.50%	356.85
2. Louisiana	8.00%	50.03
3. Mississippi	5.00%	171.36
4. Weighted Average	6.19%	578.24

Source: Exhibit III-H-1

4. Capital Cost Recovery

Under the Board's DCF methodology, economic depreciation is used to calculate the capital recovery cost of the SBRR'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. The changes adopted in *Major Issues* dictate the use of a 10-year analysis period to benchmark the SBRR's asset value. However, the SBRR's investments would not be retired at the end of the 10-year DCF period; rather, it is assumed that continuing investments will be made in the SBRR, and that it would operate, hypothetically, in perpetuity. SunBelt's calculation of SAC, in Exhibit

[22] *See*, e.g., *Coal Trading Corp.* at 527.

III-H-1, therefore accounts for the costs associated with the renewed investments in and continued operation of the SBRR after July 29, 2021, using the approach approved by the Board in previous cases.[23]

Beginning with *FMC* and continuing through subsequent decisions, the Board has utilized a real capital carrying charge that is equal in each year of the DCF period, regardless of changes in volume. Under this assumption, the relationship between stand-alone revenues and SAC (and, thus, the measure of potential rate relief and the maximum reasonable rate) fluctuates with annual changes in volume and associated revenue.[24] SunBelt's computations of the pattern of capital recovery apply this approach.[25]

[23] *See, e.g., AEP Texas* at 105-106.
[24] *See WFA/Basin* at 134-135.
[25] *See* Exhibit III-H-1.

Part III-H

III. H. RESULTS OF SAC ANALYSIS

The expert witnesses responsible for this Part are Thomas D. Crowley and Daniel L. Fapp of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

1. Results of SAC DCF Analysis

The results of the SAC DCF analysis conducted by SunBelt are shown in Exhibit III-H-1. The calculations shown in each table of that Exhibit are summarized below.[1]

a. Cost of Capital

The cost of capital (Table A) for the SBRR is based upon the Board's annual cost of capital determinations for 2009 and 2010 and the Association of American Railroad's ("AAR") estimate of the railroad industry's 2011 cost of capital.[2] The SBRR's cost of debt for years 2009 to 2011, the SBRR's construction period, is assumed to equal the railroad industry average cost of debt for each specific year in the construction period. For years 2012 through 2021, the SBRR's cost of debt equals 4.71 percent and reflects the weighted average of the construction years' debt costs. The SBRR's cost of common equity for the years 2009 through 2011 is assumed to equal the railroad industry cost of common equity for each specific year. For years 2012 through 2021, the SBRR's cost of common equity equals 12.98 percent, which, consistent with prior SAC cases, is equal to the simple average of the prior years cost of common equity. The SBRR has no preferred equity.

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1 The cost of capital (Table A) and inflation indices (Table B) are addressed in more detail in Part III-G.

2 Our use of the AAR's 2011 cost of capital estimate is not an endorsement of the calculation, but instead provides a very conservative upper-bound approximation of the SBRR's actual cost of capital and minimizes the potential areas of difference between SunBelt and NS.

b. Road Property Investment Values

The calculation of road property investment costs is summarized in Table C of Exhibit III-H-1. The investment cost also incorporates one-time fees paid for land easements.

c. Interest During Construction

Interest During Construction ("IDC") accrues on the road property assets of the SBRR. Table D 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 described in Part III-F-12 is used as the basis for the length of the finance period. The portion of IDC that is debt-related is calculated by multiplying the investment by the length of the finance period, the SBRR'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. Interest Schedule of Assets Purchased With Debt Capital

Parties in prior SAC proceedings have assumed that the hypothetical SARR's debt capital would mirror the debt issued by the U.S. Class I railroads included in the Board's annual cost of capital determination.[3] While the parties had incorporated the cost of the railroad industry debt reflected in the Board's annual determination, they implicitly deviated from the type of debt the railroad industry utilized in its capital structure. Both shippers and railroads assumed that the SARR would issue debt structured similar to a typical home mortgage loan, e.g., the SARR would make quarterly payments that contained a principal repayment component and an interest

[3] *See West Texas Utilities* at 712.

component. Over time, as the debt was amortized, the interest component portion of the payment declined as larger amounts of the principal were repaid until, after 20 years, the debt was assumed to be completely repaid.

While such a payment stream is consistent with a typical home mortgage, it is contradictory to the payment schemes of the vast majority of railroad industry debt. Railroad companies, like other large corporations, do not customarily make periodic payments that contain constantly changing principal and interest components, but rather make coupon payments on the debt consisting of fixed interest payments. The AAR's filing in the 2010 cost of capital determination shows that nearly 90 percent of railroad industry debt consists of corporate bonds, notes and debentures that incorporate such periodic coupon payments.[4] In fact, the vast majority of NS' own debt is held in the form of corporate notes and debentures. According to the NS's 2011 SEC Report 10-K, $7.464 billion of NS' $7.540 billion total debt (after discounts and premiums) is held in notes and debentures paying coupon payments.[5] In other words, nearly 99 percent of NS' total long-term debt pays fixed payments.

If Board precedent assumes that the SARR's cost of debt should mirror the railroad industry cost of debt, the SARR debt should also mirror the composition of that debt and how the interest is paid to the debt holders. To that end, instead of amortizing the debt in a mortgage-style approach over a 20-year schedule, SunBelt has developed quarterly coupon payments associated with the SBRR's debt as depicted in Table E of Exhibit III-H-1.[6] The SBRR's

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4 *See* the Verified Statement of John T. Gray in Ex Parte No. 558 (Sub No. 14), *Railroad Cost of Capital – 2010*, submitted April 29, 2011 at page 10 and Appendix A, which discuss the pricing of bonds based in part on their coupon payments and shows the coupon payments for the railroads' long-term notes and debentures. Mr. Gray submitted verified statements in the 2008 and 2009 Railroad Cost of Capital proceedings that show that the debt issued by the railroads in those years also primarily consisted of notes and debentures with coupon provisions.

5 *See* NS SEC Form 10-K for the Fiscal Year Ended December 31, 2011 at page K56.

6 Most railroad companies pay interest semi-annually, but to remain consistent with the structure of the Board's DCF model, SunBelt has assumed the SARR will make coupon payments on a quarterly basis.

quarterly interest payment is 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.

Consistent with *Major Issues* and previous Board decisions, the debt for road property investment is assumed to be financed over 20 years. The Board has expressed concern about the SARR issuing 20-year debt obligations that may not match the actual length of debt obligations issued by the railroads in the cost of capital determination group. However, this should not be a concern and need not impact the assumption of fixed interest payments. As explained more fully below, the railroads' level of debt has remained fairly level since the last round of mergers in the mid-1990s. This is because the 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 2009, the four main railroads included in the STB's cost of capital calculation paid aggregate interest payments ranging in a narrow band between $1.8 and $2.2 billion.

e. <u>Present Value of Replacement Cost</u>

Table F shows the additional investment (on a present value basis) that the SBRR would have to make if each of its assets (excluding land) was replaced indefinitely at the end of its useful life. The 2009-2011 average cost of capital values are used to calculate replacement value for road property assets. This calculated investment is added to the initial investment in Table I prior to determining the quarterly cash flows.

f. Tax Depreciation Schedules

Table G displays the tax depreciation required under the Federal Tax Code as currently in effect.[7] Depreciation was calculated assuming a mid-quarter convention, with assets placed in service in the third quarter. Investments in communications (Account 26), signals and interlockers (Account 27), and the track accounts (Accounts 8-12) were depreciated over seven (7) 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), station and office buildings (Account 16), roadway buildings (Account 17), and shops and engine houses (Account 20) were depreciated over 15 years using a 150 percent declining balance method, and then switching to straight-line depreciation at the same point consistent with Board precedent. Investments in grading (Account 3) and tunnels (Account 5) were amortized over 50 years using straight-line amortization. Investments in engineering (Account 1) were amortized over five (5) years using straight-line amortization.

The SBRR will take advantage of additional or "bonus" depreciation provisions enacted in 2009 and 2010. These provisions were part of the American Reinvestment and Recovery Act ("ARRA") of 2009, the Small Business Jobs Act of 2010, which contained 50 percent depreciation bonus applicable to purchases made between January 1, 2010 through September 7, 2010 and the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 which increased the bonus depreciation to 100 percent for capital investments placed in

[7] 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.

service after September 8, 2010 through December 31, 2011.[8] These acts provided bonus depreciation on capital investments with MACRS recovery periods of 20 years or less.[9] Qualifying investments made between February 2009 and September 7, 2010 are allowed a 50 percent depreciation bonus in the year that they are placed into service, while qualifying assets made between September 8, 2010 and July 29, 2011 are allowed 100 percent bonus depreciation. Tax depreciation for the remaining 50 percent of the cost, or the remaining cost basis, is calculated using the standard MACRS schedules.[10] Because the DCF model assumes that all assets are placed into service in the first year of the 10-year DCF period, which in this case is July 2011, the majority of the SBRR's investment qualifies for the bonus depreciation.[11] Table G of Exhibit III-H-1 displays the amount of bonus depreciation available to the SBRR in 2011.

The STB expressed some skepticism in *AEPCO 2011* as to whether bonus depreciation allowed under the prior and current tax law should be allowed in SAC presentations. Not allowing a shipper to avail itself of the bonus depreciation provisions clearly taken and used by the railroad companies, however, would create a barrier to entry, and place the shipper at a distinct disadvantage relative to the incumbent railroad. The STB defines a barrier to entry as any type of cost that a new entrant would have to incur that was not actually incurred by the

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8 For equipment placed in service after December 31, 2011 and through December 31, 2012, the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 provides for 50 percent depreciation bonus.

9 NS took advantage of bonus depreciation provisions in the federal tax code in 2008 through 2011 to defer significant taxes to later years. *See* NS 2008 SEC Form 10-K at K30 ("The improvement in 2008 (liquidity) resulted from increased railway operating income and from bonus depreciation which reduced current tax payments.") NS also took further advantage of bonus depreciation in its 2009, 2010 and 2011 tax calculations. See NS 2009 SEC Form 10-K at K29, NS 2010 SEC Form 10-K at K28 and NS 2011 SEC Form 10-K at page K27.

10 For example, a $1 million asset with a five (5) year MACRS life placed into service between February 2009 September 7, 2011 would accrue $500,000 in bonus depreciation in year 1 ($1 million x 50 percent bonus factor), plus $100,000 in standard MACRS depreciation ($500,000 remaining cost basis x 20% Year 1 MACRS factor for a 5 year asset) for a total of $600,000 in first year depreciation. See http://www.depreciationbonus.org/ for a description and example of bonus depreciation under the various enacting laws.

11 The SBRR begins calculating depreciation on all assets in the first year of railroad operations. This is consistent with the fact that no depreciation charges are incurred during the 30-month construction and testing period.

defendant carrier.[12] There is no denying that NS reduced its tax costs and increased its cash flows by employing the tax shielding effects of the bonus depreciation.[13] If the STB were to disallow shippers the same tax advantage enjoyed by the incumbent railroad, it would be creating a clear barrier to entry by forcing the SARR to pay higher taxes than those paid by the incumbent. In this instance, the incumbent carrier, NS, was able to lower its tax expense and increase its cash flow by employing the bonus depreciation allowed under the law. Denying the SBRR the same tax-shielding benefits as NS would be a textbook example of a barrier to entry to the SARR.

The STB may also have been concerned about the bonus depreciation since it deemed the bonus depreciation as "temporary," and "now-expired."[14] However, the bonus depreciation allowances allowed by federal tax law have extended over at least five (5) tax years, with the possibility of further extensions.[15] In other words, bonus depreciation is still current under federal tax law and is expected to continue into the near future.[16] Moreover, the structure of the Board's DCF model limits the bonus depreciation taken by SunBelt to only the assets placed into service in 2009, 2010 and 2011. This is because the DCF model assumes assets are only replaced at the end of their useful lives, meaning replacement assets are ineligible for use of the bonus depreciation. While not yet a permanent part of the federal tax code, the bonus depreciation is a

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[12] *See West Texas Utilities* at 670.

[13] As NS clearly stated in its 2012 SEC Form 10-K at page K-27, "Cash provided by operating activities, NS' principal source of liquidity, was $3.2 billion in 2011 compared with $2.7 billion in 2010 and $1.9 billion in 2009. The improvement in 2011 reflects better operating results and lower income taxes paid due to additional bonus depreciation."

[14] *See AEPCO 2011* at 142.

[15] The current administration has proposed extending the 100 percent bonus depreciation through 2012 (2013 for certain long-lived property and transportation property, including railroads). See "FY 2013 Federal Budget Proposals," CCH Tax Briefing, February 17, 2012 at page 6.

[16] Not only is the bonus depreciation still applicable under current tax law, it was expanded in 2010 to allow 100 percent bonus depreciation for capital investments placed in service after September 8, 2010 through December 31, 2011. For equipment placed in service after December 31, 2011 and through December 31, 2012, the bill provides for 50 percent depreciation bonus. In other words, NS is currently enjoying the 100 percent bonus depreciation available to real world companies.

tax benefit available to the SBRR under applicable tax laws. SunBelt, should not be penalized by incurring a cost that the incumbent carrier has not incurred.

g. Average Annual Inflation in Asset Prices

Table H 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. The weighted average inflation rates are based on the inflation indexes discussed in Part III-G.

h. Discounted Cash Flow

Table I 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, the present value of replacement investment calculated in Table F, and any capitalized maintenance of way expenses. The result equals the total investment to be recovered over the life of the SBRR 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 SBRR. For road property investment, this quarterly figure is then discounted by the fourth root of the composite annual cost of capital from Table A, adjusted to reflect the assets being placed in service on July 30, 2011. 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 SBRR's unconsumed assets, future interest payments and remaining tax liabilities (remaining interest and depreciation), and reflects the cash flow required to account for the value of the assets not consumed during the 10-year life of the DCF model.

Prior to the STB's decision in *AEPCO 2011*, unused depreciation was accounted for in the terminal value calculation on an undiscounted basis. However, the STB modified its approach in *AEPCO 2011* to calculate the present value of unused depreciation in the terminal value calculation.[17] SunBelt has included the STB's modified terminal value approach in its DCF model, but in doing so, has identified an additional flaw in the STB's model. The STB's DCF model explicitly assumes that the SARR's capital structure will remain constant into perpetuity.[18] This means that the amounts of common equity and debt carried on the assumed SARR's financial statements will remain the same forever. However, the STB's DCF model assumes that after year 20, and until the first assets are replaced in the replacement level of the DCF model, the railroad has no debt and no tax shielding interest payments. Stated differently, the model assumes from a tax payment perspective that the railroad is 100 percent equity financed after year 20 and before its first replacement cycle. This creates an irreconcilable

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[17] *See AEPCO 2011* at 140 to 141.

[18] The cost of capital used to calculate the terminal value in the DCF model equals the simple average cost of capital from the first year of the SARR's construction to the most recent cost of capital issued by the STB. It also reflects the average railroad industry capital structure over the same period. Between 2009 and 2011, debt as a percentage of railroad industry capital ranged from 20.8 to 29.1 percent.

mismatch between the SARR's cost of capital and its cash flows. The cost of capital assumes that the SARR is carrying debt, and its associated interest payments, but the cash flows reflect no benefits from the interest tax shields.

To correct this flaw, SunBelt adjusted 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. Specifically, SunBelt calculated an interest tax shield perpetuity by dividing the last full quarterly coupon payment by one plus the quarterly real cost of capital.[19] This calculation aligns the cost of capital assumption of a fixed level of debt forever with the interest payable on this debt.[20]

This change not only corrects for a flaw in the STB's DCF model, but also aligns the SARR with how the real world railroads operate. As indicated above, the railroads are constantly issuing new debt as older debt issuances mature, or the railroads call the debt before its maturity. Since the last round of mergers in the mid-1990s the amount of railroad industry debt, as measured by the four major railroads included in the STB's cost of capital calculations (UP, BNSF, CSXT and NS), has remained consistent. As shown in Exhibit III-H-2, the amount of railroad industry debt between 1998 and 2009 has remained at approximately $30 billion in aggregate.[21] It is generally agreed in the financial community that borrowing can add value to a firm because of the tax shielding impact of interest payments.[22] Under the STB's current DCF

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[19] This is the same type of calculation used to develop the terminal capital carrying charge.

[20] To avoid a double count in the impact of the interest tax shields, SunBelt has adjusted the asset replacement calculations to remove the impact of the interest tax shields on replacement assets.

[21] The amount of debt carried by the railroads increased beginning in 1996 as the railroads took on debt to finance their last round of mergers. 2009 is the final year in this analysis because that was the last year that BNSF was included in the STB's cost of capital calculation.

[22] See, for example, Brealey, R. A., Myers, S. C., and Allen, F., "Principles of Corporate Finance, Eighth Edition," McGraw-Hill Irwin, 2006, at page 476 ("Brealey, Myers and Allen"), "... most financial managers believe that

model assumptions, the value this debt adds from the interest tax shields is unaccounted for in all periods in the cash flow projections, but is accounted for in the cost of capital. The change made by SunBelt corrects this flaw.

The development of the quarterly levelized capital carrying charge requirement is a relatively simple calculation, *i.e.,* the 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 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 displays the calculation of the SBRR's federal tax liability on road property. The procedures followed to develop the federal tax liability are discussed in Part III-G. Table J, Part 2 shows the calculation of the SBRR's state income tax liability for both asset groups, which also is discussed in Part III-G.

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there is a moderate tax advantage to corporate borrowing, at least for companies that are reasonably sure they can use the corporate tax shields."

j. Operating Expenses

Table K 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 ton-miles to take into consideration the shifting nature of SBRR's traffic.[23] In this case, SunBelt has adjusted train and engine personnel expenses, locomotive related expenses, loss and damage expenses, and intermodal lift costs annually by the change in SBRR net ton-miles. Table K 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 SBRR based on 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 are presented and summed in Table L for each year of the SBRR'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 SBRR exceed its total capital and operating costs. Table III-H-1 below shows the excess revenue over SAC in each year of the DCF period for this case.

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[23] For example, assume that in Year 1 of the 10-year period Movement A transports 1,000 tons of product over 1,000 miles of the SARR, producing 1 million net ton-miles of traffic. 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 1,000 tons of product, but only moves over 100 miles of the SARR, producing 100,000 net ton-miles. Movement B will be less expensive to move than Movement A, given the lower aggregate costs associated with a shorter movement and the 90 percent reduction in net 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 – July 30, 2011 to July 29, 2021
($ in millions)

Year (1)	Annual Stand-Alone Requirement (2)	Stand-Alone Revenues (3)	Overpayments or Shortfalls (4)	PV Difference (5)	Cumulative PV Difference (6)
July 30, 2011 – Dec 2011	$123.0	$182.4	$59.4	$59.4	$59.4
2012	294.4	458.0	163.5	147.3	206.8
2013	311.7	496.0	184.3	149.7	356.4
2014	324.6	549.1	224.5	164.2	520.6
2015	339.5	613.1	273.5	180.3	700.9
2016	353.7	680.7	327.0	194.2	895.1
2017	369.6	745.6	376.0	201.2	1,096.3
2018	386.5	812.1	425.6	205.2	1,301.5
2019	404.1	883.7	479.5	208.2	1,509.8
2020	422.1	961.1	539.0	210.9	1,720.7
Jan 2021 – July 29, 2021	254.7	603.7	349.0	126.3	1,847.1

Source: Exhibit III-H-1

Where stand-alone revenues are shown to exceed costs, rates for the members of the SBRR traffic group -- including SunBelt 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*.[24]

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 SBRR 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, intermodal or general freight), NS origin and destination, and SBRR origin and destination. Variable costs for each movement are calculated using NS's 2010 URCS costs for the portion of the movement replicated by the SBRR, based on the nine (9) cost inputs identified in *Major Issues*.

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[24] *See Major Issues* at 14-23.

a. Calculation of Variable Costs Used In The MMM

In *Major Issues*, the Board determined parties in SAC cases should use the incumbent railroad's unadjusted URCS Phase III variable costs as the cost input for the MMM model.[25] The Board, however, expressed a concern in *AEPCO 2011* that use of variable costs based on a movement's characteristics on the incumbent carrier would not reflect, in some cases, the movement's characteristics when it moved over the SARR.[26] Specifically, the STB stated that where the SARR transported trains in overhead service between interchanges with the incumbent carrier (i.e., cross-over traffic), parties should calculate the variable costs for all cars on a trainload service basis even if the cars moved in single car or multiple car service on the incumbent railroad. The Board felt this would better reflect the actual cost of operations incurred by the SARR in moving this traffic.

Pursuant to the Board's order, the shipper in *AEPCO 2011* submitted revised variable cost calculations for use in its MMM model.[27] The incumbent railroads subsequently submitted their reply variable cost calculations pursuant to the Board's order, and made one key change from the shipper's opening submission. The railroads asserted that, while the variable costs for non-issue overhead traffic should be calculated as if the traffic were operated in unit train service, the empty return ratio should not reflect the standard 2.0 empty return ratio used in unit train costing. Instead, the railroads indicated the empty return ratios should reflect each applicable traffic group. In simple terms, the railroads argued that the parties should use

[25] *See Major Issues* at 14.
[26] *See AEPCO 2011* at 35.
[27] *See* "Revised Variable Cost Calculations of Complainant Arizona Electric Power Cooperative, Inc," filed July 5, 2011. As part of its public filing, AEPCO stated that its filing should not be mistaken for any acquiescence in or agreement with the Board's basic premises or assumptions.

movement specific adjustments to the variable cost calculations to replace the default empty return ratio with an empty return ratio based on the type of traffic moved.

The STB did not come to a final conclusion on these issues in *AEPCO 2011* because the impact was immaterial to the outcome of the case.[28] Instead, the Board indicated it had properly positioned the issue for litigants in future cases to consider and brief. Consistent with the Board's position, SunBelt considers this issue below.

i. <u>The STB's Proposed Variable Cost Adjustments Are Inconsistent With The Focus On An Incumbent's Costs</u> -- The STB stated in *AEPCO 2011* that the variable costs used in the MMM model should reflect the variable costs of the SARR's operations rather than the incumbent's as required in *Major Issues*:

> The Maximum Markup Methodology provides for demand-based differential pricing. The approach recognizes that, because competition would compel the defendant carrier to price some of its services below an average R/VC level, the defendant carrier must be able to price other services above the average to compensate. By design, the Maximum Markup Methodology therefore calculates the precise amount that the defendant carrier would need to price its services above the average R/VC ratio to cover all its costs and earn adequate revenues. This calculation rests on the demand for rail transportation services, as observed in the existing rate structure of the defendant carrier.[29]

A major consideration for implementing the MMM approach was the maintenance of the incumbent railroad's relationship between revenues and costs for different movements. Adjusting the variable costs used in the MMM to reflect a SARR's operations would adversely distort this relationship and the resulting rate reductions.

For example, assume two incumbent-railroad, single car movements, identical in all ways, with the same incumbent variable costs, move over the SARR, except for one is an overhead movement on the SARR and the other is not. By the adjustment proposed by the Board

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[28] *See AEPCO 2011* at 36.
[29] *See Major Issues* at 20.

in *AEPCO 2011*, the overhead movement would have lower variable costs than the second movement and subsequently a higher R/VC ratio. This may lead to the overhead movement receiving a rate reduction in the MMM process while the identical movement, that does not move in overhead service, sees no change in rates. This outcome is completely contradictory to the idea that demand, as reflected by relative R/VC ratios, sets the price. There is no distortion if the variable costs parameters are based on the incumbent's movement characteristics and not the SARR's characteristics.

This is the position supported by the Board in *WFA/Basin*. In discussing the correct variable costs to use in the MMM model, the Board directly indicated that the variable costs used in the MMM model are the defendant railroad's variable costs estimated by URCS and not the SARR's variable costs.[30]

ii. <u>The Board's Proposed Adjustments Violate the Long-Cannon Factors</u> -- Under Long-Cannon factors included in the United States Code, a carrier must charge its competitive traffic as much of its un-attributable costs as demand will permit before passing along the remaining costs to less competitive shippers.[31] This is one of the primary reasons the STB rejected the percent reduction rate reduction approach it used to establish SAC rates prior to *Major* Issues.[32] The STB found in *Major Issues* that MMM reflects the important principle that a railroad should recover as much of its costs as possible from each shipper served before charging differentially higher rates to captive shippers.[33]

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[30] *See WFA/Basin* at 30.
[31] *See Guidelines* at 539.
[32] The percent reduction violated the Long-Cannon factors because it reduced all rates by an equal percentage, and thus did not require competitive traffic to carry as much un-attributable costs as demand would allow.
[33] *See Major Issues* at 16.

Adjusting the variable costs used in the MMM model to reflect a SARR's operations instead of the incumbent could lead to a Long-Cannon violation by reducing rates on competitive traffic below the rates dictated by their demand. For example, assume a competitive movement with a rate of $10 and variable costs of $8 based on the incumbent carrier's characteristic. This produces an R/VC ratio of 125 percent, which, according to the Board, reflects the highest rate the railroad can charge without fear of losing this traffic to a competitor. This rate also reflects the amount of un-attributable costs that this movement can absorb.

Now assume that this movement moves in overhead service on a SARR, and has variable costs of $6.67 based on the SARR operating characteristics. This produces an R/VC of 150 percent for MMM purposes. If the final MMM ratio were, say, 140 percent, the competitive movement would not be due relief if the incumbent's variable cost characteristics were used, since it is contributing as much as it can given its competitive environment. However, if the variable costs were calculated based on the SARR's operating characteristics, this move would be due relief under the STB's proposed variable cost adjustments.[34] This reduction, however, is completely contradictory to the Long-Cannon Factor that a competitive movement contribute as much as its demand permits. A railroad can charge up to $10 for this movement, but making the Board's proposed MMM adjustments provides a rate below this theoretically optimal level, thus contradicting the Long-Cannon Factors.

Within the MMM rate reduction approach, reducing the rate for a competitive movement means captive traffic must assume a greater share of the SAC, and subsequently higher rates. The Board rejected this very notion in *Major Issues* when the railroads argued that it is more

[34] The MMM adjusted R/VC ratio of 150 percent exceeds the MMM R/VC ratio of 140 percent. Based on MMM the 140 percent R/VC ratio would then be multiplied by the SARR variable cost of $6.67, producing a rate of $9.34, or a $0.66 reduction in the rate.

efficient to lower rates on shippers with more competitive options and shift recovery of un-attributable costs to shippers with fewer competitive alternatives.[35] The way to not contradict these statutory factors is to continue to use the incumbent railroad's characteristics when calculating the MMM variable costs.

iii. <u>The Board Should Reject Any Adjustments To Variable Costs</u> -- Even if the STB were to decide that parties should adjust the variable costs used in the MMM model to reflect the SARR's operating characteristics, it should not accept the railroads' recommendation to use movement specific empty return ratios.

As indicated above, the incumbent railroads in *AEPCO 2011* asserted that the empty return ratio on the overhead movements should be adjusted from the URCS default of 2.0 to a movement specific factor. The STB must reject this position for several reasons.

The Board clearly indicated in *Major Issues* that parties need to use unadjusted URCS to estimate the variable costs for each movement in the MMM model:

> We will replace the percent reduction approach with the Maximum Markup Methodology. Under this method, the parties should use unadjusted URCS to estimate the variable cost of each movement in the traffic group, and then determine the maximum contribution of each movement towards SAC costs, expressed as a markup over variable cost.[36]

The Board used unadjusted Phase III URCS costs in its analyses for several reasons, including, but not limited to, reducing the complexity involved with maximum reasonable rate cases.[37] Making the movement specific adjustments recommended by the railroads clearly contradicts this intent. Second, adjusting the empty return ratio away from the 2.0 used when costing

[35] *See Major Issues* at 17.
[36] *See Major Issues* at 14.
[37] *See Major Issues* at 48.

trainload movements introduces piecemeal and incomplete adjustments to the variable cost calculations.

The railroads asserted in their *AEPCO 2011* filing that while it is proper to determine the variable costs for individual overhead traffic as if they moved in unit train service, it is improper to assign the Phase III default unit train empty return ratio of 2.0.[38] Instead, the railroads claimed that parties must override the Phase III model's default unit train empty return ratio and substitute a movement specific ratio based on traffic group types. The railroads argued this adjustment would reflect the fact that non-unit traffic does not have an empty car for every loaded car moved.

The problem with the railroads' position in *AEPCO 2011* is that it introduces incomplete adjustments to the variable cost calculation. The Board's URCS Phase III model calculates total unit train miles by multiplying the URCS short line miles by the empty return ratio. The Phase III model then uses the total unit train miles to develop locomotive unit mile ("LUM") dependent costs. If the empty return ratio used is different than the default Phase III empty return ratio, then LUM costs will be either overstated or understated. To solve this problem, a user would have to make another adjustment to LUM to remove the impact of the changed empty return ratio.

The Board chose not to allow movement specific adjustments, in part, because of the impact these onetime adjustments would have on unit costs and the complexity of a SAC case. The railroad's recommended adjustment to the empty return ratio would introduce additional complexity and piecemeal results to the variable cost calculation process.

[38] *See* "Defendants' Response To The Revised Variable Cost Calculations Of Complainant Arizona Electric Power Cooperative, Inc," filed July 19, 2011 at page 4.

b. Indexing Variable Costs
<u>In the MMM Model</u>

The Board indicated in *Major Issues* that parties in SAC cases should project the base year URCS variable costs used in the MMM forward using the hybrid RCAF approach used to index a SARR's operating expenses.[39] The Board revised this position in *WFA/Basin* saying that use of the hybrid RCAF would distort the actual distribution of R/VC ratios used to develop MMM rate reductions and the degree of differential pricing the carrier will need in the future.[40] Instead, the Board indicated that parties should use the RCAF-A to project forward the base year URCS variable costs because the RCAF-A would better reflect the future productivity of the incumbent railroad than the hybrid RCAF.

While the RCAF-A may better reflect future costs than the hybrid RCAF, the Board has also determined that in calculating variable costs to implement an R/VC ratio rate standard, the Board's standard URCS indexing approach produces the most accurate results.[41] SunBelt is relying on this determination, and uses the Board's URCS indexing procedure to forecast variable costs for the MMM calculation.

The STB's URCS index uses five (5) indexes: the AAR's Wage, Wage Supplements, Materials and Supplies and Fuel Indices, and the Producer Price Index – All Commodities ("PPI"), which are weighted by actual railroad costs reported in the Annual Report Form R-1. Global Insight publishes forecasts for each of the first four (4) indices, and the Board already accepts Global Insight's forecasts of the first three (3) 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

39 *See Major Issues* at 14, note 19.
40 *See WFA/Basin* at 30.
41 *See OG&E* at 11.

forecast.[42] To forecast NS URCS Phase III variable costs for MMM purposes, therefore, SunBelt uses the STB's URCS index, with the June 2012 Global Insight and most recent EIA forecasts for its components. Weighting factors are taken from NS's Annual Report Form R-1 data.

Following the calculation of the specific annual variable costs for each movement, SunBelt 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.[43]

Application of MMM yields the maximum R/VC ratios for each year of the DCF model summarized in Table III-H-2 below.[44]

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[42] The EIA lists its PPI forecasts as its Wholesale Price Index forecasts in its Annual Energy Outlook.

[43] According to the Board, this step reflects the assumption that the rates charged by NS on all non-issue traffic are profit-maximizing rates, such that the reapportionment represents "an appropriate application of demand-based differential pricing." *See Major Issues* at 14.

[44] In addition to the Table III-H-2 MMM results, the accompanying electronic workpapers contain the MMM results for the SBRR based on the following three different approaches: 1) assuming the BNSF alternative ATC revenues are substituted for ATC revenues based on the STB's modified approach; 2) assuming the *AEPCO 2011* suggested adjustments to the MMM are incorporated along with the ATC revenues based on the STB's modified approach; and 3) assuming the *AEPCO 2011* suggested adjustments to the MMM are incorporated along with the ATC revenues based on the BNSF alternative approach. *See* e-workpapers "SBRR MMM Model (BNSF Alt ATC).xlsm," "SBRR MMM Model (AEPCO Adjustment).xlsm," and "SBRR MMM Model (BNSF Alt ATC and AEPCO Adjustment).xlsm." These three analyses are included in our workpapers to demonstrate the minor impact each approach has on SunBelt's final results summarized in Table III-H-2. The fact that we have included these calculations in our workpapers should not be construed as our endorsement or acceptance of these approaches for determining MMM R/VC ratios.

Table III-H-2
MMM Results

Time Period (1)	Maximum R/VC Ratios (2)
July 30, 2011 – December 2011	130.9%
2012	124.9%
2013	122.6%
2014	117.1%
2015	113.3%
2016	110.6%
2017	107.3%
2018	104.4%
2019	101.7%
2020	99.0%
January 2021 – July 29, 2021	96.1%

Source: Exhibit III-H-3.

As indicated in Table III-H-2, the maximum R/VC ranges from 96.1 percent to 130.9 percent over the 10-year DCF period. The maximum reasonable rate for SunBelt's shipments based upon application of these maximum R/VC ratios to the unadjusted Phase III URCS variable costs at 3Q11 wage and price levels equals $2,187 per car.

The maximum lawful transportation rate for SunBelt traffic covered by Tariff NSRQ 65912 equals the greater of the jurisdictional threshold or the MMM maximum rate. Table III-H-3 compares NS' rate at 3Q11 to the jurisdictional threshold and the MMM maximum. As shown, the issue rate is substantially greater than both the jurisdictional threshold and the MMM rate.

Table III-H-3
Maximum Rate Comparison for the Movement of STCC 2812815
From McIntosh, AL to New Orleans, LA as of July 30, 2011
($ per Carload)

Item (1)	Source (2)	Rate Per Car (3)
1. NS Rate	Tariff NSRQ 65912	$8,088
2. Jurisdictional Threshold Rate	Exhibit II-A-1	$3,008
3. MMM Rate	1/	$2,187
4. Maximum Rate	2/	$3,008
5. Overcharge included in NS Rate	Line 1 – Line 4	$5,080

1/ Table III-H-2 MMM Ratio x NS 3Q11 variable cost per carload.
2/ Greater of Line 2 or Line 3

At 3Q11 levels, the maximum rate for the issue SunBelt traffic equals $3,008 per carload.

4. **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, 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 21 Founders Way, Queensbury, NY 12804.

Mr. Crowley is sponsoring portions of SunBelt's Opening Evidence in Parts II and III. Specifically, Mr. Crowley is co-sponsoring Part II-A with Witness Timothy D. Crowley, Part III-A with Witnesses Michael E. Lillis, Robert D. Mulholland and Sean Nolan, Part III-G with Witness Daniel L. Fapp 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 ICC in Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines - Nationwide*, the proceeding that established this methodology and before the 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.*

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 SunBelt Chlor Alkali Partnership 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 July 30, 2012

5. PHILIP H. BURRIS

Mr. Burris is Senior Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Queensbury, NY. The specific evidence Mr. Burris is sponsoring relates to the development of operating statistics based on the output of the RTC model and the operating plan (Part III-C), including the development of train crew personnel requirements (Part III-D), development of equipment lease, maintenance and servicing costs (Parts III-D-1 and III-D-2), operating expenses (Parts III-D-3, III-D-4 and III-D-6 through III-D-10) and compensation levels for all the SBRR transportation and operating (including engineering) employees, non-operating (General and Administrative) personnel, and training and recruiting costs (Parts III-D-3 and III-D-4). Mr. Burris is also sponsoring the non-road property investment (Part III-E) and the identification of land to be acquired through easements and the associated costs of that land (Part III-F-1).

Mr. Burris received his Bachelor of Science in Business Administration from Virginia Polytechnic Institute and State University in 1971. He was awarded a Masters in Business Administration, specializing in transportation economics, from American University in 1978. Mr. Burris has worked in the consulting industry for more than 30 years. In addition to his current position as Senior Vice President of L.E. Peabody & Associates, Inc., Mr. Burris has been an employee of the following consulting firms: A. T. Kearney, Wyer Dick & Associates, Inc. and George C. Shaffer & Associates.

Mr. Burris has extensive experience in the field of transportation economics as it pertains to transportation supply alternatives, plant location analysis, regulatory policy and dispute resolution before regulatory agencies as well as state and federal courts. He has designed, directed and executed analyses of the costs of moving various commodities by different modes of transportation including rail, barge, truck, pipeline, ocean and intermodal. He has also performed economic analyses of maximum reasonable rate levels for the movement of coal and other commodities using the Board's CMP methodology, and specifically the stand-alone cost constraint. Mr. Burris has submitted evidence regarding maximum reasonable rate levels using the stand-alone cost constraint to the Board and its predecessor and testified before the Railroad Commission of Texas, the Colorado Public Utilities Commission, the Illinois Commerce Commission, the Public Service Commission of Nevada and various state and federal courts and arbitration panels.

In the public sector, Mr. Burris has performed studies and written draft reports for the Railroad Accounting Principles Board, an independent body created by Congress to establish cost accounting principles for use in implementing the regulatory provisions of the Staggers Act of 1980.

Since 2005, Mr. Burris has served as a member of the Board of Directors of the South Central Florida Express Railroad, a wholly owned subsidiary of United States Sugar Corporation.

VERIFICATION

I, Philip H. Burris, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership 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.

Philip H. Burris

Executed on July 30, 2012

6. CHARLES A. STEDMAN

Mr. Stedman is a Vice President of L. E. Peabody & Associates, Inc., headquartered in Alexandria, VA. The specific evidence Mr. Stedman is co-sponsoring relates to the roadbed preparation/earthworks component of the road property investment cost of the SARR, exclusive of culverts, roadbed specifications and yard drainage (Part III-F-2). Mr. Stedman is also sponsoring the development of SARR route and track miles (Part III-B).

Mr. Stedman has been employed by L. E. Peabody & Associates, Inc. since October 1981. Since that time, he has performed and directed numerous extensive projects and analyses undertaken on behalf of utility companies, short line railroads, state and local governments and entrepreneurs. These projects include: (a) participation in the development of variable cost evidence presented to the ICC and the Board in numerous cases; (b) the development of variable costs contained in numerous reports and other analyses presented to clients; (c) the development of stand-alone cost evidence presented to the ICC and the Board in numerous cases; (d) the development of evidence in abandonment cases before the ICC; (e) the development of net liquidation values and rehabilitation costs for interested parties in abandonments and acquisitions; and (f) the preliminary design (including route layout), construction and maintenance costs associated with the construction of a new rail line.

Prior to joining L. E. Peabody & Associates, Inc., Mr. Stedman was employed by the United States Railway Association ("USRA") where he monitored the effectiveness of the operating plan of Consolidated Rail Corporation ("Conrail") using a computer model, participated in data manipulation and analyzed results in order to make projections about Conrail's future operations.

Mr. Stedman also worked as the chief research assistant on a transportation project for the Maryland Department of Transportation and was the co-author of the resulting Report

"International Air Cargo Potential at Baltimore-Washington International Airport." Recommendations in this Report were used to increase international air cargo shipment volumes through Baltimore-Washington International Airport. And, as a research assistant for the ICC, Mr. Stedman studied the effect of selected railroad mergers on the national railroad system using a computer model to aid in determining shifts in traffic patterns caused by specific rail mergers.

Mr. Stedman is a graduate of the University of Maryland where he obtained a Bachelor of Arts degree in Political Science with a minor in Business Transportation. He has attended numerous railroad construction and maintenance seminars across the country and is a Certified Track Foreman and a member of the American Railway Engineering and Maintenance-of-Way Association.

Mr. Stedman has conducted several field inspections of eastern and western carriers' rail lines in order to develop and determine the existing and potential operating and economic conditions of these lines. He has also conducted and directed detailed research into the valuation records of major eastern and western railroads. This research entailed, among other things, detailed reviews of both ICC and railroad valuation maps, land acquisition records (including title status and market value) and the ICC's Bureau of Valuation B.V. Form No. 561, commonly referred to as the ICC Engineering Reports.

VERIFICATION

I, Charles A. Stedman, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership 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.

Charles A. Stedman

Executed on July 30, 2012

7. **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 21 Founders Way, Queensbury, NY 12804. Mr. Lillis is co-sponsoring Part III-A along with Robert D. Mulholland and Thomas D. Crowley.

Mr. Lillis received a Bachelor of Arts degree in economics from the University of Virginia in 1985. 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 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 SunBelt Chlor Alkali Partnership 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

Executed on July 30, 2012

8. 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 21 Founders Way, Queensbury, NY 12804. Mr. Fapp is co-sponsoring the RTC modeling component of Part III-C with Mr. William W. Humphrey. Mr. Fapp is also co-sponsoring Part III-G, the discounted cash flow analysis and Part III-H, the results of the SAC analysis 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 Master of Business Administration degree specializing in finance and operations management from the University of Arizona's Eller College of Management. 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 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 the railroad dispatching functions. 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 Tour Operations Manager, where his duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses.

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"), Capital Asset Pricing Model ("CAPM"), Farma-French Three Factor Model and Arbitrage Pricing Model.

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 Ex Parte No. 661, *Rail Fuel Surcharges,* in Ex Parte No. 664, *Methodology To Be Employed In Determining the Rail Road Industry's Cost of Capital,* in 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*, and in Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital – 2006*, Ex Parte No. 661 (Sub No. 11), *Railroad Cost of Capital –*

2007, and Ex Parte No. 661 (Sub No. 12), *Railroad Cost of Capital – 2008.* In addition, his reports have been used as evidence before the Nevada State Tax Commission.

VERIFICATION

I, Daniel L. Fapp, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership 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 July 30, 2012

9. 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 21 Founders Way, Queensbury, NY 12804. Mr. Mulholland is co-sponsoring Part III-A along with Michael E. Lillis and Thomas D. Crowley.

Mr. Mulholland received a Bachelor's degree in Government & Legal Studies from Bowdoin College in 1995. In 2004, he received a Master's 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 and revenue data and forecasts of those volumes and revenues for hypothetical stand-alone railroads in several Surface Transportation Board ("STB") proceedings dealing with the calculation of maximum reasonable rail transportation rates for coal shippers. Mr. Mulholland has presented written testimony before the STB related to the development of rail traffic and operating patterns and forecasts, and economic principles concerning the maximum level of rates. He 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 developed studies analyzing delivered fuel prices to electric utilities using Federal Energy Regulatory Commission ("FERC") and related data. Mr. Mulholland also 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 economic and operational studies relative to the rail transportation of coal on behalf of electric utility companies, 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 Uniform Railroad Costing System ("URCS").

From 2004-2006, 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 2006-2008, 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 Federal Railroad Administration ("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 SunBelt Chlor Alkali Partnership 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 July 30, 2012

10. 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 21 Founders Way, Queensbury, NY 12804. Mr. Timothy D. Crowley is co-sponsoring SunBelt's opening quantitative market dominance evidence in Part II-A with Mr. Thomas D. Crowley.

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 Surface Transportation Board 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 Surface Transportation Board.

Mr. Crowley has experience with the Surface Transportation Board'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. This methodology includes calculations using the Revenue Shortfall Allocation Method ("RSAM"), in which Mr. Crowley was trained by members of the Surface Transportation Board. Mr. Crowley also has extensive experience with the Surface Transportation Board'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 SunBelt Chlor Alkali Partnership 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 July 30, 2012

12. **WILLIAM W. HUMPHREY**

Mr. Humphrey is an Assistant Vice President of L. E. Peabody & Associates, Inc. Mr. Humphrey is co-sponsoring SunBelt's opening evidence in Part III-C with respect to the simulation of the SARR's operations using the Rail Traffic Controller ("RTC") Model with Mr. Daniel L. Fapp.

Mr. Humphrey received a Bachelor of Science degree in Sociology with a minor in Computer Science from Boston College in 2001. He has been employed by L. E. Peabody & Associates, Inc. since 2002.

Mr. Humphrey has been the lead programmer for numerous cases utilizing the industry-standard RTC Model to simulate various real-world railroad operations over multiple railroads in all parts of the United States. He has used the RTC model to create and analyze railroad systems for capacity analyses, rate cases, infrastructure investment analyses, and various other studies.

Mr. Humphrey has developed Microsoft Visual Studio applications including the Railroad Operations Simulator ("ROS") program used to model railroad operations by using advanced physics models which utilize highly detailed track information, train specific train characteristics, and detailed operational guidelines. He has designed programs that update, analyze, and summarize data originating at the Energy Information Administration. Mr. Humphrey has written programs that organize, analyze, manipulate, and summarize mainframe databases containing various industry data.

Mr. Humphrey has provided analytical support for testimony sponsored by L. E. Peabody & Associates, Inc. through the gathering and manipulation of data originating at the Energy Information Administration, the Surface Transportation Board, the Federal Railroad Administration and other publicly available sources. Specifically, these analyses include the development of the delivered costs of fuels to electric utilities and development of detailed track statistics for various railroads located throughout the United States. Mr. Humphrey has conducted extensive research which has been used to support both fuel supply and transportation analyses developed by L. E. Peabody & Associates, Inc.

VERIFICATION

I, William W. Humphrey, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership 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.

William W. Humphrey

Executed on July 30, 2012

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

SUNBELT CHLOR ALKALI PARTNERSHIP Complainant, v. NORFOLK SOUTHERN RAILWAY COMPANY Defendant.	)	Docket No. NOR 42130

OPENING EVIDENCE AND ARGUMENT OF

SUNBELT CHLOR ALKALI PARTNERSHIP

Volume II: Exhibits

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Counsel for SunBelt Chlor Alkali Partnership

August 1, 2012

Filing Contains Color Images

PART II-A

TAB 1

Estimated Variable Cost, Jurisdictional Threshold and Revenue to Variable Cost Ratio for the Movement of Chlorine from McIntosh, AL to New Orleans, LA

Item (1)	3Q2011 (2)	4Q2011 (3)	1Q2012 (4)	2Q2012 (5)
A. Movement Parameters				
1. Railroad	NS	NS	NS	NS
2. Miles	585.0	585.0	585.0	585.0
3. Shipment Type	Originated & Delivered	Originated & Delivered	Originated & Delivered	Originated & Delivered
4. Cars per Shipment	1	1	1	1
5. Car Type	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons
6. Car Ownership	Private	Private	Private	Private
7. Tons per Car	89.8	89.8	89.8	89.8
8. Commodity	Chlorine (2812815)	Chlorine (2812815)	Chlorine (2812815)	Chlorine (2812815)
9. Movement Type	Single Car	Single Car	Single Car	Single Car
B. Variable Cost and Jurisdictional Threshold				
10. Phase III Cost Base Year 1/	$1,542	$1,542	$1,542	$1,542
11. Index to Applicable Quarter	1.08376	1.07569	1.07898	1.09487
12. Phase III Cost for Applicable Quarter 2/	$1,671	$1,659	$1,664	$1,688
13. Jurisdictional Threshold 3/	$3,008	$2,985	$2,995	$3,039
C. Rate and Rate to Variable Cost Ratio				
14. Rate Per Car 4/	$8,088	$8,088	$8,088	$8,088
15. Rate To Variable Cost Ratio 5/	4.84	4.88	4.86	4.79

1/ 2010 STB URCS Phase III Released December 9th, 2011.
2/ Line 10 x Line 11.
3/ Line 12 x 1.80.
4/ NSRQ 65912 Effective July 30, 2011 rate of $8,088 per car and not subject to a fuel surcharge. Rate is for NS only move from McIntosh, AL to New Orleans, LA.
5/ Line 14 ÷ Line 12.

TAB 2

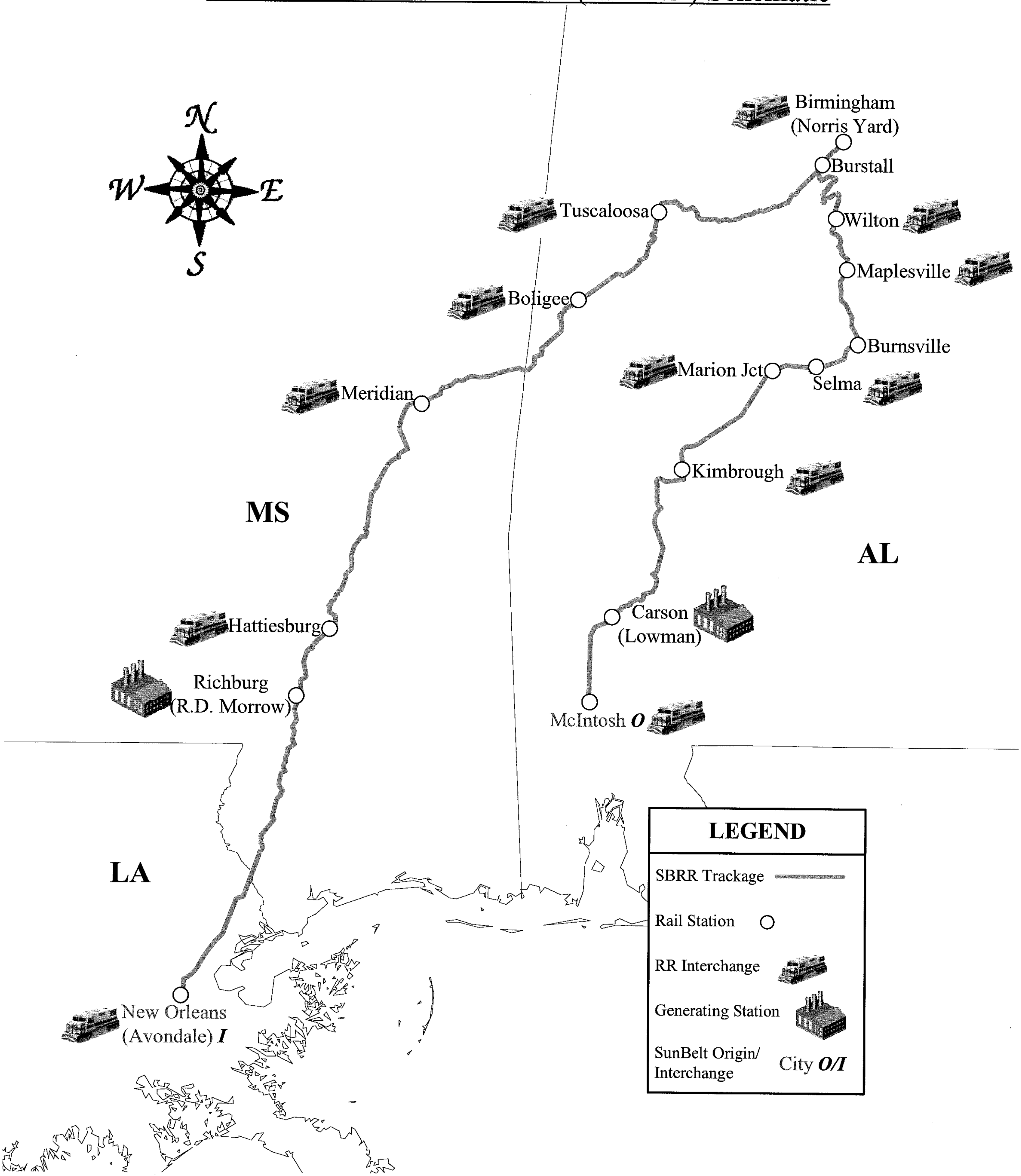
SunBelt Traffic and Operating Characteristics for the
Movement of Chlorine from McIntosh, AL to New Orleans, LA

Item (1)	Movement Parameters (2)
1. Railroad	NS
2. Miles	585.0
3. Shipment Type	Originated & Delivered
4. Cars per Shipment	1
5. Car Type	Tank Car < 22,000 Gallons
6. Car Ownership	Private
7. Tons per Car	89.8
8. Commodity	Chlorine (2812815)
9. Movement Type	Single Car

PART III-A

TAB 1

SunBelt Stand Alone Railroad ("SBRR") Schematic



TAB 2

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

The term "Traffic Data" is a catch-all for multiple, disparate electronic databases provided by NS[1] that must be joined, linked, and used together to: (1) evaluate traffic moving over the NS system; (2) identify movements traversing the stand-alone railroad ("SARR") system; (3) quantify tons and revenues associated with those movements; (4) develop revenue divisions for cross-over traffic included in the SARR traffic group; and (5) develop inputs to the forecast, operating plan, construction, discounted cash flow ("DCF"), and maximum markup method ("MMM") models used in the stand-alone cost ("SAC") analysis. Throughout the SARR development process, it is critical to maintain data integrity and ensure that each of the data reports produced from the analytical models used to develop the various components of the SARR are directly traceable to the source data and are capable of being cross-linked for downstream analyses. Shippers must use the provided traffic data to develop many key elements of the SAC presentation. The format, robustness, and number of reliable links between data sets (i.e., data fields that are common to the many disparate data sets and that enable record(s) from one data set to be paired with its corresponding record(s) in the other provided data sets) dictate the level of accuracy and robustness of the SAC analysis.

Because imperfect data will never produce perfect results, the goal from the outset is always the same, i.e., to produce the most reliable SAC evidence possible using the provided data. SunBelt processed multiple source data sets using dozens of intermediate links and dozens of sequential processing steps which required simple, repeatable, mechanical processes. These links and processes were tested on the provided NS data sets and then run with the data outputs

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[1] Traffic data is a term of art that encompasses all NS databases needed to design, build and evaluate the SARR. These include waybill data, car movement data, intermodal unit movement data, train movement data, mileage data, haulage data, handling line data, switching data, TCS movement and revenue data, TDIS revenue and movement data, density data, and all information and decoders needed to link, understand, and utilize the data.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

generated by each process flowing forward through the model. In other words, SunBelt did not manually adjust the NS data based on its judgment in developing intermediate reports and tables.

In response to SunBelt's Request for Production No. 20 through No. 23 seeking traffic data in this case, NS provided dozens of files in multiple structures and formats, with each set of files containing portions of the critical data for the years 2010[2] and 2011 (January through September). Upon placing the data into computer databases, SunBelt immediately began to encounter problems with the various data sets. Each of the major problems and SunBelt's method for dealing with them and moving its analysis forward is discussed below[3] under the following topics:

A. Incomplete Car and Intermodal Event Data

B. Inconsistent Data Records (Field Contents)

C. Incorrect Linking Instructions Provided

D. Vague, Non-Specific and Inefficient Linking Instructions Provided

E. Linking Fields Were Not Provided And Surrogate Link Development Was Required

F. Inconsistent Data File Types And Record Layouts

G. Non-Linkable Critical Data Sets

---

2 NS' 2010 traffic data were actually provided in STB Docket No. 42125: E.I. DuPont de Nemours & Company v. Norfolk Southern Railway Company ("*DuPont*"). The parties in this proceeding agreed that the 2010 NS traffic data and supporting documentation provided in *DuPont* would be used in developing the SAC evidence in this proceeding. As such, the development of SAC evidence in this proceeding from the 2010 NS traffic data required the use of data and data documentation provided in the *DuPont* case.

3 We will not chronicle the myriad of minor data issues encountered in our analytical process. It is understandable that there should be some minor data issues to overcome and some reasonable learning curve associated with becoming familiar with a given railroads' internal traffic data format and contents. Here we are discussing only the major items we encountered through the process that were unexpected, that caused significant delays and that required SunBelt to develop means to account for imperfect, incomplete, and incompatible data sets.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

A. INCOMPLETE CAR AND INTERMODAL EVENT DATA

Only after thorough evaluation of the individual data sets, building links between the provided data sets, including correcting for incorrect linking instructions provided by NS (discussed in detail below), and testing the initial and corrected links, was SunBelt able to determine that the provided car and intermodal event data sets were incomplete. Specifically, SunBelt determined that car/intermodal event data were missing for some waybill movements.

SunBelt overcame this deficiency using a two-pronged approach. In some cases, SunBelt was able to link a waybill data record for which no car/intermodal event data had been provided to an alternate car/container that moved in the same cut as the subject car/container in order to determine the route of movement for the car/container. As documented in e-workpaper "SBRR Traffic Selection Methodology v5.docx", SunBelt labeled the surrogate car/container used for movement routing analyses a "Trace Unit." In other cases, SunBelt was not able to link waybill data records with car/intermodal event data records for either the subject car/container or an alternate Trace Unit. In these cases, SunBelt was forced to manually evaluate the movements to determine whether the traffic moved over the SARR system and should be included in the SARR traffic group. After evaluation of the lanes for which no car event data were provided, SunBelt included some of the lanes based on the movements' origins, destinations, and commodity codes.[4]

4 The manually included lanes are shown in e-workpaper "SRR Traffic Summary Query Format v3 ADDED LANES.xlsx" at level "SRR Main Traffic Group ID" and are incorporated in Step 18 of the process outlined in e-workpaper "SRR Traffic Selection Methodology v5.docx."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

B. INCONSISTENT DATA RECORDS (FIELD CONTENTS)

NS provided (and presumably keeps in the normal course of business) its revenue waybill data in a very unique way. Specifically, NS reports volume and revenue data in its waybill file in a way that makes evaluation of data records for individual carloads impossible, at least for purposes of developing SAC evidence. This is because NS inconsistently reports the revenue data associated with individual cars in multiple-car and unit train shipments. A summary of these NS inconsistencies follows:

1. NS sometimes records the revenue and revenue adjustment data for *each individual car* in a multiple-car/unit train shipment *on the individual waybill records* associated with each car;

2. NS sometimes records *all* of the revenue and revenue adjustment data for *all cars* in a multiple-car/unit train shipment *on the waybill record associated with the lead car* in the shipment, and records *zero* revenues and revenue adjustments *on the waybill records associated with the trailing cars*; and

3. NS sometimes records: (1) the revenue and revenue adjustment data for *some cars* in a multiple-car/unit train shipment *on the waybill record associated with the lead car* in the shipment; (2) the revenue and revenue adjustment data for *some individual trailing cars* in a multiple-car/unit train shipment *on the individual waybill records* associated with those cars; and (3) *zero* revenues and revenue adjustments *on the waybill records associated with some of the trailing cars.*

NS fully explained this data nuance in the materials accompanying its initial traffic data production. However, SunBelt still needed to develop a method to account for the unusual record keeping. For instance, for waybill records where the revenue and revenue adjustments were set to zero (and the revenues for that particular car were included on the lead unit waybill record), there would be no way to determine the revenues associated with the movement for purposes of selecting traffic. Furthermore, assuming the movement was selected for inclusion in the SARR traffic group, there would be no way to develop revenue divisions using the average

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

total cost ("ATC") methodology, or to develop a revenue to variable cost ("R/VC") ratio for inclusion of that particular carload movement in the maximum markup methodology ("MMM") model. Similarly, for lead unit waybill records where the revenue and revenue adjustments were reflective of multiple cars, there would be no way to develop accurate revenue divisions and R/VC ratios using the ATC/MMM methodologies for those particular carload movement records.

SunBelt was forced to develop a different way of compiling the revenue waybill data before it could move forward with its traffic data analysis and traffic selection methodology. SunBelt chose to compile all of the individual waybill records associated with a particular waybill serial number into a single data record which contained total cars, total tons, and total revenues and revenue adjustments for all cars in the shipment. After this data compilation was made, SunBelt linked the compiled records to the other related data sets based on a single car's waybill serial number to determine route of movement, mileage, additional revenue adjustments, etc.[5]

C. INCORRECT LINKING INSTRUCTIONS PROVIDED

The initial NS traffic data production was accompanied by record layouts and field definitions for most of the provided data sets. A critical component of this part of the data production is the identification of the database links (the common data fields that can be used to link the various individual data tables). In key instances, the field descriptions NS provided for these linking fields were inaccurate. This led to the failure of SunBelt's first efforts to build a complete set of traffic data with functioning links that would enable meaningful analysis. As a

[5] SunBelt's methodology is outlined in full at e-workpaper "SRR Traffic Selection Methodology v5.docx."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

result, SunBelt's initial efforts to develop data reports from the provided data produced illogical and puzzling results.

Specifically, NS' waybill data contains a field titled "WB_SN_URRWIN," which is defined only as "Waybill serial number." The car and intermodal event data sets and the NS mileage data set contain a field titled "WB_SN," which is defined in all three provided record layouts as "Waybill serial number. Use to join with waybill info from revenue accounting."[6] SunBelt relied on these unambiguous field definitions to create direct links between these data sets as follows:

1. Waybill[WB_SN_URRWIN] = CarEvent[WB_SN]
2. Waybill[WB_SN_URRWIN] = IntermodalEvent[WB_SN]
3. Waybill[WB_SN_URRWIN] = NS_Miles[WB_SN]

SunBelt then moved forward with its analyses. After completing several phases of data processing, SunBelt determined that it was not linking a substantial percentage of waybill records to the corresponding event and mileage records. Upon evaluation of these preliminary results, SunBelt was forced to retrace all the steps it took in building, linking and processing the traffic data sets. Only after significant troubleshooting was SunBelt able to uncover the reason for its initial failure, i.e., NS provided incorrect file linking information.

The car and intermodal event data sets and the NS mileage data contain another data field titled "TRANS_WB_SN," defined as:

> "Transportation WBSN. Created from WBSN. One waybill per car – e.g., a single unit train WB will be broken down into one Trans WBSN for each car in the train."

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[6] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at levels "NS WAYBILL", "CAR EVENT", and "MILES."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

SunBelt eventually determined that this actually is the field that must be used to "join with waybill info from revenue accounting." After the correct link was established, the processes were rerun and the outputs were evaluated once more. The results were logical and finally correct. The correct links are shown below.

1. Waybill[WB_SN_URRWIN] = CarEvent[TRANS_WB_SN]
2. Waybill[WB_SN_URRWIN] = IntermodalEvent[TRANS_WB_SN]
3. Waybill[WB_SN_URRWIN] = NS_Miles[TRANS_WB_SN]

This saga led to wasted time and money and reinforces the importance of correct and accurate data and data support production on the part of NS. Furthermore, as described above, the provided linking instructions for this particular set of database tables were simple and straight-forward and more importantly wrong. As discussed in more detail below, this experience led SunBelt to question all other, less straight-forward linking instructions provided by NS.

D. VAGUE, NON-SPECIFIC, AND INEFFICIENT LINKING INSTRUCTIONS PROVIDED

SunBelt's cautious approach following its discovery of the inaccurate linking information described in the preceding section would prove to be needed, as several provided linking instructions were ambiguous or incomplete. As discussed in more detail below, several critical files were provided in data files and formats that are not conducive to efficiently processing and evaluating the massive volume of data that must be processed to develop SAC. To further complicate this hindrance, NS' guidance regarding the fields and parameters that should be used to link the various data sets was often vague and in several cases not the most efficient or reliable way to make the necessary links. SunBelt's determination of the most practical and efficient

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

linking methods for other files required an iterative process of trial and error troubleshooting similar to that detailed above.

For example, NS provided switching data in several files in five (5) different formats, each of which contains a different combination of data fields. The record layout associated with the largest (by data record count) switching file produced by NS included the following ambiguous instruction regarding the link between the provided switching data and the waybill data:

Matching Criteria:

1. Match WB SERIAL, CAR INITIAL and CAR NUMBER from switching file to WBSN, EQINIT and EQNUM on large revenue file.

2. Match WB SERIAL, CAR INITIAL and CAR NUMBER from switching file to MCXREFSN, EQINIT and EQNUM on large revenue file.

3. Match CAR INITIAL, CAR NUMBER and WB DATE from switching file to EQINIT, EQNUM and WBDT on large revenue file. (Note: Need to use a date range for waybill date on step 3).[7]

The record layouts associated with the other four provided switching data file formats did not include linking instructions. SunBelt tested the links between the large switching file and the waybill data using the provided instructions for the month of January 2010 and found that only 33% of switching data records could be linked to the waybill data file based on some combination of the provided linking instructions. Furthermore, a manual and very labor intensive verification process using commodity codes and shipper and consignee data was required to determine the validity of the positive links made using the suggested linking process.

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[7] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at level "SWITCHING DATA."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

SunBelt also tested the suggested linking process on the four (4) other data files for January 2010 and found that only a few dozen records could be linked using the suggested method.[8]

After thorough review and troubleshooting, SunBelt discovered that there were several reasons for the low link rate it achieved following NS' instructions. First, the switching data records were generally associated with railcars. This meant that there were no direct links between the switching data and the waybill data for intermodal records. This problem and its solution are discussed in greater detail in the following sections of this Exhibit. For non-intermodal records, it became apparent to SunBelt, after its manual review of individual data records in the relevant files, that NS' linking instructions were unnecessarily complicated and cumbersome, and still produced spotty results. SunBelt eventually determined that it would need to use the car event data as a bridge between the switching data and the waybill data, keying on the WB_SERIAL field in the switching data and the TRANS_WB_SN field in the car event data that corresponded with the WB_SN_URRWIN data field in the waybill data.

Similarly, NS' instructions for linking its haulage receivables data records to the corresponding waybill data records were:

> How to match receivable haulage amounts to waybills on revenue files:
> Match car initial, car number and waybill date on haulage spreadsheets to haulage waybills (haulage indicator = F) on revenue files. (Note: Need to use a range for waybill date.[9])

As with the switching data, SunBelt first tested the proposed linking method on January 2010 data. Using a combination of mechanical and manual data evaluation techniques, SunBelt determined that the "date range" NS indicated would be necessary to make the required link was surprisingly long. Specifically, in order to make positive links between the tested January 2010

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[8] *See* e-workpaper "Summary of NS Switching Mainframe.docx"
[9] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at level "HAULAGE RECEIVE."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

files using the suggested method and a date range, it would be necessary to go as far back as -25 days and as far forward as +29 days.[10] Stated differently, each haulage receivable data record evaluated would need to be tested against nearly two months of waybill and car event data in order to record all haulage receivables payments made to NS. Incorporating this scale of indexing into the linking structures required to process all of the NS traffic data is exceedingly cumbersome to the point of being impractical. In addition, as with the switching data discussed above, haulage receivable data records are generally associated with railcars, not intermodal units. As a result, SunBelt was forced to develop a three-way link using car event data as an intermediate file between waybill data and haulage receivables data. Therefore, SunBelt's ability to link haulage receivables data with corresponding waybill data records was hampered.

SunBelt encountered identical problems when it attempted to use the NS' linking instructions to link handling line data to waybill data. As with the haulage receivables data, NS instructed SunBelt to:

> Match CAR INITIAL, CAR NUMBER and INT DATE on handling line file to EQINIT, EQNUM and WBDT on large revenue file. (Note: Need to use a date range for waybill date/interchange date.)
>
> Additional note for cars with more than one record:
> If the values in the HANDLING LINE FSAC, CITY and STATE fields are different on records which have the same CAR INITIAL, CAR NUMBER, and INT DATE, the values on the P record (HANDLING LINE P/A/E/F) should be used instead of the values in the other records (A, E or F).

[10] *See* e-workpapers "Summary of NS Haulage Receivables.docx" and "Haulage Receivables Jan 2010_Linked to Waybill.pdf."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

As with the haulage received and switching data, the handling line data records are generally associated with railcars, which required SunBelt to develop a link using the car event data as an intermediate file between the waybill data and the handling line data.[11]

E. LINKING FIELDS WERE NOT PROVIDED AND SURROGATE LINK DEVELOPMENT WAS REQUIRED

In addition to the problems described above with the linking fields NS did identify in the supporting materials accompanying its traffic data production, SunBelt also had to deal with a few instances where NS provided no specific linking instructions. Specifically, NS provided no concrete direction with respect to how waybill records for intermodal data could be linked to the provided NS mileage data, switching data, handling line data, and haulage data, as discussed in the preceding section. When NS finally provided intermodal event data in response to SunBelt discovery requests, SunBelt set about evaluating the data and checking the various links NS did identify. It quickly became apparent that NS did not provide a way to link intermodal waybill records directly to the miles associated with each move. When SunBelt pointed this deficiency out to NS, the railroad responded that:

> In most cases, the intermodal event records NS has produced identify the specific flat car on which an individual container traveled. Thus, the miles for most intermodal container movements can be determined by linking the container movement to the corresponding flat car movement. [This linking procedure may not work for all intermodal containers. For example, for some container event records, data identifying the flat car on which the container moved is not available. And in a small number of instances a container may be associated with more than one flatcar (for instance, where a container moved in a double-stack on one flat car and was transferred to a different flat car because double-stack operations were

[11] The methodologies developed by SunBelt to overcome these linking challenges are documented in e-workpaper "SRR Traffic Selection Methodology v5.docx."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

> not possible for the remainder of the movement). In all cases, NS has produced all data that it has available.][12]

SunBelt did develop a means to link intermodal waybill records to mileage records via the intermodal event and car event records, which is outlined in e-workpaper "SRR Traffic Selection Methodology v5.docx." Additionally, SunBelt has developed e-workpaper "Carload vs IM linking.xlsx" which shows through color coding the two sets of links that were needed to process intermodal and non-intermodal data contained in all of the disparate files included under the traffic data umbrella.

F. INCONSISTENT DATA FILE TYPES AND RECORD LAYOUTS

NS provided haulage receivables data in dozens of Excel spreadsheets (many of which comprised multiple levels of data). The haulage data were stored in multiple formats within the various Excel spreadsheets. Also, as noted above, NS provided switching data in multiple files with five different record layouts which contained some common data fields and some data fields that were unique to the individual files. Before SunBelt could incorporate the data stored in these files into its analytical framework, SunBelt first had to convert and import the data to a database platform that would enable efficient programming. Even after the conversion process was completed, linking the various files was made difficult due to the inconsistent data content of the various files, as discussed in preceding sections.

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[12] *See* October 21, 2011 letter from Matthew Warren to Jeffrey Moreno, included as e-workpaper "IM Miles Response eDSF4BE.pdf - Adobe Acrobat.pdf." This letter was actually part of the correspondence in *DuPont*.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

G. NON-LINKABLE CRITICAL DATA SETS

SunBelt requested and NS provided TCS and TDIS revenue and drayage cost data for 2010 and January-September 2011. Upon receipt and inspection of the provided data, SunBelt determined that the provided data could not be linked on a movement-specific basis to the revenue waybill data because insufficient common fields were included. SunBelt responded to NS' production asking for supplemental data and/or instruction regarding how the TCS/TDIS revenue records could be linked to specific waybill data records. NS responded that, "There is no direct way to link these files to those produced on EHD-002."[13]

However, the data included in the files are critical to SunBelt's SAC analysis. As a result of the lack of provided links, SunBelt was forced to develop an alternate means by which to incorporate the TCS/TDIS revenue data into its analysis. As documented in file "SRR Traffic Selection Methodology v5.docx", SunBelt developed lane-specific monthly average net revenues (revenues less drayage costs) for both TCS and TDIS and applied those net revenues against the TCS/TDIS moves in the lanes for which TCS/TDIS waybill data had been provided on a month-by-month basis.

Specifically, SunBelt:

(1) Calculated average net TCS/TDIS revenues between ramp pairs for each month in the study;

(2) Developed a crosswalk between the ramp codes in the provided TCS/TDIS data and the station names in the waybill data;

(3) Linked the waybill data to the provided TCS/TDIS revenue data based on origin ramp, destination ramp, year, and month; and

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13 *See* September 30, 2011 letter from Matthew Warren to Jason Tutrone, pp. 10-11, included as e-workpaper "September 30 Letter.pdf." This letter was also part of the correspondence in *DuPont*.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

(4) Imported the monthly average net revenue per unit for TCS/TDIS units to the waybill file.

To avoid a revenue double count, the average net TCS/TDIS revenue was used in place of (not added to) the reported NS line-haul revenue for the movement.

TAB 3

PROBLEMS WITH NS PROVIDED TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

SunBelt requested that NS produce specific electronic traffic data files in order to calculate SARR revenues for cross-over traffic included in the SBRR traffic group using the STB's Modified Average Total Cost ("ATC") method.[1] To make the specific calculations required by the ATC methodology, SunBelt utilized specific inputs that NS either provided electronically or that were developed by SunBelt from the provided electronic data.

The NS information needed to develop ATC inputs includes:

1. The actual route of movement for each NS historical shipment;
2. The actual NS mileage for each NS segment for each historical NS shipment;
3. The actual NS density on a net ton basis for each unique NS segment for each historical NS shipment;
4. The actual NS fixed cost per mile; and
5. The actual NS historical data for each shipment to develop the inputs required to calculate variable costs using the Board's URCS Phase III variable cost model.

This Exhibit outlines the major problems that SunBelt encountered with NS provided data as they relate to the ATC methodology.[2] These problems are summarized in the remainder of this Exhibit under the following five topical headings which match the five areas of inputs needed from NS in order to calculate revenue divisions using the ATC methodology:

A. NS Actual Route Of Movement
B. NS Mileage By NS Segment
C. NS Density By NS Segment

[1] *See WFA/BASIN II* at 11-15.

[2] The problems with NS provided data are not limited to the ATC process. Exhibit III-A-2 identifies the myriad of problems SunBelt encountered when attempting to utilize NS-produced traffic data and Exhibit III-C-1 identifies a myriad of problems SunBelt encountered when attempting to utilize NS-produced train event data. The ATC calculations require certain data from each of these NS datasets and, to that extent, the same problems identified and explained in those Exhibits also affect the ATC calculations.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

D. NS Fixed Cost Per NS Route Mile

E. NS Variable Cost Of Service

A. NS ACTUAL ROUTE OF MOVEMENT

One of the critical pieces of information required for the ATC calculations is the actual route of movement over the segments of NS track used by each historical NS shipment. NS produced two types of route-based information, i.e., train movement data and car/intermodal event data.[3] For purposes of determining the actual historical route of movement for individual NS revenue shipments, SunBelt focused on the limited[4] car event data that was provided by the NS as the best source of general route information.

The Board's ATC methodology requires knowledge of the specific route of movement of NS revenue shipments in order to develop SARR/Non-SARR miles, SARR/Non-SARR fixed costs, and SARR/Non-SARR variable costs. Therefore, it was important to have this NS routing information on a segment by segment basis. However, the NS waybill and car event data provided only a general indication of the actual geographic route of movement. The NS waybill data produced only a very general description of the route of movement.[5] The NS car event data provided more detail than the NS waybill data but it was still deficient for ATC purposes. For example, the NS only produced car events for a few locations on the route of movement for a movement from New Orleans, LA to Greensboro, NC. Much more detail is needed for the ATC calculation to identify the ONSARR/OFFSARR interchange locations and to evaluate changes in

[3] The deficiencies with the train event data are discussed in great detail in Exhibit III-C-1 and the deficiencies with the car event data are discussed in great detail in Exhibit III-A-2.

[4] Limited in terms of the number of events reported for each car handled by NS.

[5] NS waybill data included a field named "FULL_ROUTE" that indicated a general route such as "UP NEWOR NS" for the route between New Orleans, LA and Greensboro, NC. This routing information is no more descriptive than identifying the origin and destination endpoints provided elsewhere in the NS waybill data and not sufficient for ATC calculations.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

density along the route, both integral parts of the ATC process. Also, in many instances, there were multiple routes between consecutive locations provided by NS in the car event data. This lack of routing detail in the NS car event records was a major problem to overcome prior to making the ATC calculations.

In light of these deficiencies, SunBelt was forced to perform a special study to create a detailed geocoded routing for each selected movement using publicly available routing and location information plus the limited location data provided by NS in the car/intermodal event data. This special study was undertaken to overcome the limitations and deficiencies of the NS-provided data and in order to adhere, as closely as possible, to the STB's ATC methodology.[6]

B. NS MILEAGE
BY NS SEGMENT

The second component of the ATC calculations is the specific mileage associated with the actual route of movement for each NS revenue shipment over the detailed segments of NS track. For ATC calculations, this mileage must be identified and aggregated as SARR miles, residual NS miles, and total NS miles. NS did produce mileage data files but none of this mileage information was particularly useful because each separate dataset produced by NS contained different pieces of location information and each dataset was lacking specific pieces of information that could be utilized to facilitate linking. For example, some NS datasets[7] provided specific NS mileposts but no station location name (station/city/state/SPLC) information. Other NS datasets[8] provided station location name information and/or SPLC information but no NS

[6] The special study initiated by SunBelt to implement the Board's ATC methodology (including the detailed routing development) is outlined in SunBelt Opening work paper "METHODOLOGY To Develop Detailed Routes And Best ONSARR/OFFSARR Locations For SBRR Traffic."

[7] *See*, for example, NS-produced electronic track chart data in files "t707_10", "t707_ns", "mgt_ns", "grd_ns", "curv_ns" and "spde_ns" (Bates No. NS-DP-C-DVD-004).

[8] *See,* for example, NS-provided car event data in file "REP20-Q22010.zip."

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

milepost information. These datasets could not be linked because the station location names were not spelled the same. NS also provided electronic track charts that contained a great deal of information but these track charts were produced in a document format that SunBelt could not utilize efficiently.[9] After multiple requests[10] from SunBelt, NS did produce a file that contained information to facilitate the linking of disparate pieces of NS location information. This file did not provide the detailed linking information that SunBelt required.[11]

SunBelt was forced to expand its special study to create detailed mileage data based on the specific routes created from NS car event data and publicly available routing and location information.

C. NS DENSITY BY NS SEGMENT

NS density data by detailed track segment on a net ton basis is needed for the ATC calculations. In response to SunBelt's request for density information, NS provided density data on a gross ton basis for various NS track segments. These segments were identified by operating station codes, NS milepost, NS line identifier and alpha location names. While this data could be linked to the car event data, it was deficient from an ATC calculation perspective for two primary reasons. First, as explained above, the NS car event data was not detailed enough to support the ATC calculations.[12] As a result, linking to this insufficient data was not useful for

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[9] NS did provide several files that they claimed included electronic data supporting the information presented in the NS track charts. Unfortunately, SunBelt evaluated these files but determined that it could not link the data included in these files on any common fields to produce useful detailed geo-code information.

[10] *See* Exhibit III-A-2 at p 15.

[11] NS produced data file "SPLC OS MP" which provided some, but not all of the required linking information. This file was produced on November 21, 2011 (*See* Bates No. NS-DP-HC-DVD-046).

[12] Also, the data provided in the NS density data that is used to link to the NS car event data did not produce links for all of the information. Incomplete matching of NS density and car event data would result in inaccurate data for the ATC calculations.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

ATC purposes. Second, the density data was provided on a gross ton basis (including locomotives) and was not useful for the specific requirements of the ATC methodology.

SunBelt was again forced to expand its special study to create net density data on a detailed segment basis using the NS revenue traffic that historically moved over ONSARR and OFFSARR track segments. SunBelt employed the STB accepted approach in *WFA/Basin*[13] which measured individual density segments.

D. NS FIXED COST PER NS ROUTE MILE

The calculation of NS fixed cost per route mile is also required by the STB's ATC methodology. In *WFA/Basin,*[14] the railroad fixed cost per route mile was calculated the following two ways: (1) a fixed cost per route mile for system owned track segments; and (2) a fixed cost per route mile for trackage rights segments.[15] In this case, NS failed to provide SunBelt with reliable data that indicates whether a specific track segment is system owned or a trackage rights segment. As a result of the problems with NS-provided traffic data, SunBelt was forced to develop the segments along each route of movement based upon publicly available data. This publicly available data did not indicate whether a segment of track was NS owned or trackage rights track. Without this trackage rights data, SunBelt developed and utilized an average fixed cost per route mile for all NS segments (the sum of system owned and trackage rights miles).

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[13] *See WFA/Basin* at 13.
[14] Id.
[15] The Board has not settled on a specific methodology for allocating fixed costs that, by definition, are not allocable. In *WFA/Basin*, the Board accepted BNSF's proposed methodology that distinguished between owned track and trackage rights segments but offered future litigants an opportunity to explain why this approach should not be used.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

Conceptually, the creation of fixed unit costs is an arbitrary exercise but one that the STB developed in an attempt to identify economics of density in the ATC calculation. In *WFA/Basin*,[16] the STB developed two fixed unit costs as part of the calculation of ATC, i.e., one for railroad owned track and one for joint facility track. This calculation resulted in more revenues being assigned to the residual incumbent (BNSF) than were allocated following the STB's initial proposal of one fixed unit cost based on all miles (owned plus trackage rights).

While the STB accepted the two fixed unit cost approach in *WFA/Basin* that approach contains a mathematical error which if corrected would mean the development of additional fixed unit costs. The mathematical error is demonstrated below.

In calculating the fixed unit cost assignable to trackage rights miles, the STB added the aggregate fixed "above-the-rail" costs to the aggregate fixed costs related to general overheads. The sum of these aggregate fixed costs was divided by the sum of railroad owned miles plus trackage rights miles. In calculating the fixed unit cost assignable to railroad owned miles, the STB added the first fixed unit cost (described above) to the following fixed unit cost: aggregate fixed "below-the-wheel" costs divided by railroad owned miles.

The mathematical problem exists because the aggregate fixed "below-the-wheel" costs include joint facility costs[17] which based on the STB's logic in *WFA/Basin* should be assigned to joint facility miles not railroad owned miles. To correct this problem, additional fixed unit costs would need to be developed. As explained above, we were unable to develop and apply these fixed costs to the on-SARR and off-SARR segments because of the lack of joint facility data provided by NS, therefore this problem is not applicable here.

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[16] *See WFA/Basin* at 12-13.
[17] *See* URCS, Worktable D1, lines 129, 131, 133, 135 and Worktable D2, lines 129, 131, 133 and 135.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

E. NS VARIABLE COST OF SERVICE

The final piece of information needed to calculate revenue divisions using the ATC methodology is the variable cost of service for the movement of NS revenue traffic over the SARR segments and the residual NS segments. To be consistent with *WFA/Basin,* SunBelt did not include interchange costs between the SBRR and the NS in its ATC variable cost calculations. In order to perform these calculations, SunBelt developed, from NS-provided data, a unique set of nine (9) inputs used in the Board's URCS Phase III program. To develop these nine inputs for each movement, SunBelt utilized the NS-provided waybill data and the routing/mileage data from the SunBelt special study outlined above. The NS-provided waybill data was deficient in many respects for many of the revenue shipments included in the SBRR traffic group. Specific examples of these deficiencies include certain records contained incomplete or incorrect data, missing mileage data (because there was no NS car event data to link to the revenue waybill data), missing STCC data, incorrect AAR car type data, and data that produced incorrect tons per car. SunBelt developed averages to include in the data fields for each of these records that contained incomplete or incorrect NS provided data.

PART III-C

TAB 1

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

Train event data, also known as train movement data, plays a key role in stand-alone cost ("SAC") presentations. Shippers and railroads use train event data to develop many key inputs of the SAC presentation, including, but not limited to, the revenue trains moving over the stand-alone railroad ("SARR") system and the routes taken by those trains on and off-SARR, where those trains stop, switch cars or dwell, the peak period train lists used to simulate SARR operations, and the Base Year train statistics required to calculate the SARR's operating expenses. The accuracy and robustness of the train event data, therefore, will in many ways dictate the degree of accuracy and robustness of the SAC presentation.

In response to SunBelt's Request for Production Nos. 21 and 22 seeking train event data in this case, Norfolk Southern Railway Company ("NS") provided eleven (11) text files that included limited train event data for the years 2009, 2010 and 2011. The provided files contained the following eleven (11) data fields:

1. Train Symbol ("TRN")
2. Train Origin Date ("TRN_ORGN_DT")
3. Crew District ("TRN_CREW_DIST")
4. Train Section ("TRN_SECTION")
5. Event Date and Time ("TRN_EVENT_TS")
6. Train Event Type (Arrival or Departure) ("TRN_EVENT_TYPE")
7. Number of Loaded Railcars ("LOADS")
8. Number of Empty Railcars ("EMPTIES")
9. Train Tons ("TONS")
10. Train Length ("LENGTH")
11. Event Milepost ("MILEPOST")

According to the limited NS information provided describing the train event data, SunBelt could identify a unique train by joining the train symbol (TRN), the train origin date (TRN_ORGN_DT) and train section (TRN_SECTION). Linking these three key fields together allowed SunBelt to identify a particular train's movements. However, SunBelt immediately saw

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

problems and limitations with the NS-provided train event data when it placed the data into a computer database. These problems permeated the data and limited its effectiveness and usefulness. SunBelt lists these infirmities and their impacts below under the following headings:

A. Milepost Information

B. Station Information

C. Train Events

D. Train Statistics

A. MILEPOST INFORMATION

The NS provided train event dataset contained 5,915 distinct milepost names. The milepost name could include:

1) A letter prefix and a number;

2) A number by itself;

3) A number with a letter suffix or letter prefix; or

4) A number and letter suffix.

The "MILEPOST" field was the only field contained within the train event data that provided location information and NS provided no single decoder to completely document each provided milepost.[1]

After importing the provided text files into a relational database, SunBelt found three (3) problems with the milepost data. First, the train event data included different geographic locations with duplicate mileposts. Second, certain train event records contained no milepost

[1] Given the importance of geographically locating the train events, SunBelt used various additional files provided in discovery to attach stations, cities and states to the milepost information in the train event data.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

information. Third, the milepost information that was provided was erroneous. Each of these three problems is discussed below.

1. Duplicate Milepost

After augmenting the NS train event data with station and state information provided at different times in discovery, SunBelt found that the train event data indicated trains were making unaccounted for geographic "jumps." For example, the NS train event data would show a train moving through stations in Alabama, and then unaccountably jump to a station in Virginia, and then move immediately back to a station in Alabama. SunBelt realized that these seemingly random geographic leaps were due to the inclusion of duplicate milepost information within the train event data.

SunBelt found 267 mileposts within the NS train event data where the various NS data sources provided significantly different location information for the same milepost.[2] Some of these occurrences are because the milepost name is associated with two different NS rail lines. As an example, Milepost "160.10" is located both at "SWEET.SC VA" and "MCCALLA AL." Attachment No. 1 to this Exhibit III-C-1 contains the list of duplicate mileposts identified by SunBelt.

These 267 duplicate milepost names were associated with 2,015,257 train event records. It is obvious that such a large number of duplicate milepost entries would wreak havoc in identifying locations along a train's route, especially if the duplicate occurred in the first or last train event record. As has been the norm in prior SAC cases, shippers and railroads classify traffic

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[2] Even though the SunBelt SARR is limited to three states, Alabama, Mississippi and Louisiana, SunBelt needed to test the accuracy of all the data included in the NS train event data since off-SARR information is critical to developing SAC evidence under the Board's average total cost ("ATC") division methodology.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

and train movement data based upon the movement's origin and destination stations. An ambiguous initial milepost could incorrectly classify a train within the incorrect origin/destination categories. For example, NS data indicates milepost 259.00 is associated with three different locations – Riedsville, NC, Harrimon Junction, TN and Livingston, AL – of which only the last station, Livingston, AL is on the SunBelt SARR. Only rigorous review of the train event data would allow one to accurately associate the correct location with the duplicate milepost. SunBelt manually assigned what it believes to be the proper stations where it noticed illogical geographic sequences caused by duplicate mileposts.

2. Missing Milepost Information

There were 886,923 train event records with no milepost identified. Instead, the fields included blanks. While the number of records with blank mileposts is relatively small, their mere presence created problems when attempting to use automated programming to work with data.

3. Erroneous Milepost Information

Finally, the supporting documents NS provided which would link train event milepost information to other geographic information (station, state, etc.) appeared to provide erroneous information. For example, the file "SPLC OS MP.xlsx," provided by NS to link milepost with other operating station information, lists milepost "141.50H" as being in Crab Orchard, TN, a station west of Knoxville, TN. However, all other mileposts with "H" suffixes within this milepost range (130-150) are located in the state of Georgia. Attachment No. 2 to this Exhibit III-C-1 lists other mileposts with apparently erroneous information.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

As with the other milepost infirmities, erroneous location information caused problems when attempting to route trains, identify origin and destination locations and develop ATC divisions. SunBelt attempted to identify and fix these issues when found, but given the voluminous amount of data, not all corrections were likely made.

B. STATION INFORMATION

SunBelt came upon two (2) issues with the operating station or "station" information provided by NS. First, there were approximately 281 mileposts in which NS did not provide any station information. Second, there were over 1,559 stations included in the train event data that were covered by multiple mileposts.

1. No Station Information

In reviewing the NS train event data, SunBelt identified 281 mileposts that could not be definitively linked to a station. While a seemingly innocuous number, these mileposts showed up in 448,151 train event records. Because of this missing information, SunBelt had to manually impute station information for these 281 mileposts.

2. Multiple Mileposts Per Station

SunBelt identified 1,559 stations in the NS supporting documents that had more than one milepost. More importantly, of these 1,559 stations with multiple mileposts, 1,040 were included in the train event data. In describing this phenomenon, NS stated:

> Typically there is only one milepost per operating station/SPLC, however in many cases there can be multiple mileposts per operating station. This most commonly occurs for one of two reasons. One reason for multiple mileposts is that milepost locations are more granular than operating stations. As a result, many specific locations along the line will map to a single, more general operating station. The second reason is that there are

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

> locations where lines cross, in which case that single point will have a milepost location on each line.[3]

The second reason cited by NS in its explanation (that a location may have two milepost identifiers where rail lines cross) causes significant issues in developing SAC evidence. Classifying whether any one particular location is "on-SARR" or "off-SARR" is critical in SAC cases, especially under the procedures adopted by the STB in *Major Issues*. One example of this is the calculation of SARR revenues. Prior to the STB's decision in *Major Issues*, the calculation of SARR revenues was a fairly straight-forward process that could be accomplished with a minimal amount of location information.[4] The STB's adoption of the ATC revenue division methodology in *Major Issues* made location information much more critical in developing SARR revenues. Not only do participants in SAC cases need to know the beginning and ending points of the SARR's and incumbent's movements, they also need to know explicit locations along the route of movement in order to identify the proper traffic densities to calculate the average fixed cost component of ATC. This requires the accurate mapping of routes and route locations, which becomes a major issue when route locations are identified by multiple mileposts.

Because of the fact that the same station could be identified by multiple mileposts, it was not possible without manually adjusting records and data to identify how many times a train went off and on-SARR.[5] This has clear implications for the routing used in revenue calculations and for the calculation of SARR operating costs.

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3 *See* November 21, 2011 letter from Matthew J. Warren to Jeffrey O. Moreno in *DuPont*.

4 Under the modified straight-mileage prorate method used prior to the *Major Issues* decision, parties in a SAC proceeding only needed to know whether the traffic originated and terminated on-SARR or off-SARR and the number of on-SARR and off-SARR miles.

5 For example, a train movement may be local to the SARR, but move through a station with multiple milepost identifiers. If the milepost included in the train event data is different than the milepost identified in the SARR location database, the train event data would show this train exiting the SARR and then reentering the SARR.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

C. TRAIN EVENTS

As indicated above, NS' train data contained in the field "TRN_EVENT_TYPE" consisted of either an arrival code ("ARIL") or a departure code ("DFLC"). There were three (3) problems with this limited data. First, there was an extreme imbalance in the arrival and departure events reported in the files. This imbalance was to such a degree that many trains never reported any arrival events. Second, the arrival and departure were so out of chronological sequence in all cases as to make them nearly useless in accurately defining a train's location. Third, the train events were truncated or missing for many trains. These issues are discussed below.

1. Arrival and Departure Imbalance

The 2009, 2010 and 2011 train event data provided by NS included approximately 48 million individual train events. Within these train events, 95.1 percent, or 45.6 million, were departure events and 4.9 percent, or 2.3 million, were arrival events. In other words, there was more than a 19-to-1 imbalance between train departure events and train arrival events. Attachment No. 3 to this Exhibit contains an example of the imbalance in departure and arrival notices inherent in the NS train event data as demonstrated by the train event data for a sample train.

This imbalance had serious ramifications for the development of train dwell times used in the SAC analysis. In prior SAC presentations, parties used the difference between train arrival and departure times to develop dwell times at particular locations. These dwell times were then used in various portions of the SAC presentation, including, but not limited to, establishing

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The only way to fix these issues is to manually correct the milepost location or manually enter the alternative milepost into the SARR location database.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SARR service standards against actual incumbent operations and as inputs into the SARR simulation model. In this instance, however, because of the severe imbalance in the train event data reported (and due to other train event issues discussed further below), SunBelt was unable to calculate actual NS dwell times using the train event data. Instead, SunBelt was forced to rely upon other sources of dwell time data.

2. Out of Sequence Arrival and Departure Events

In addition to the lopsided ratio of arrival to departure codes, an even more severe problem was the out of sequence nature of the arrival and departure information. Simple logic dictates that a train will arrive at a location prior to departing from the location (unless it is the first reported location). However, as shown in the sample train movement data included in Attachment No. 3 to this Exhibit III-C-1, this logic does not hold with the NS train event data. As Attachment No. 3 shows, Train 172-09/11/2010-0, a loaded Merchandise train with a reported 66 loaded railcars and 2 empty railcars, departed Terminal Junction, LA (milepost 007.70NT) on September 11, 2010 at 9:27 pm. The train event data shows the train moving through milepost 007.50NT, identified as New Orleans, LA, and then further north to milepost 295.44 in Meridian, MS. Inexplicably, the train data next shows the train arriving at milepost 007.50NT six (6) hours after departing the same location. The train moves further north and is shown to depart Birmingham, AL (milepost 142.00), and one (1) minute later, the train event data indicates arrival at milepost 295.44 in Meridian, Mississippi. This example is not a single isolated event. Almost all the train event records produced by NS show this disconcerting mismatch in departure and arrival data. The only trains that do not have this arrival-departure issue are those train records that do not show any arrival events at all.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

In addition to the out of sequence nature of the arrival and departure events, many of the departure events themselves were found to be out of sequence or included illogical time and date stamps. Attachment No. 4 to this Exhibit III-C-1 shows the train movements for an NS Intermodal train moving between Fields, Georgia and New Orleans, Louisiana. The train data also shows the train departing repeatedly from the same location at different times. This could be due to pre-departure switching activity, but the nature of the train movement data limited our ability to clearly identify the train's actions.[6]

Because of the out-of-sequence nature of the NS train event data, it was impossible to use the train event data in any sort of automated process to identify routing without making certain assumptions and modifications. The assumptions made by SunBelt include:

1. SunBelt assumed that because of the mismatched nature of the arrival and departure information that the arrival data was irreparably damaged. Therefore, in summarizing and using the NS train event data, SunBelt ignored the arrival events in the train event data.

2. Because the arrival event information was obviously flawed, SunBelt relied upon the first reported departure location to identify origin locations, and the last identified departure location to identify destination locations. This created an extreme problem in identifying origin and destination locations as the NS data that was reported for a particular TRN symbol was not always consistent.[7] To work around this issue, SunBelt spent extensive time and effort developing normalized NS origin and destination locations and normalized SBRR origin and destination information for the trains in the NS train event data. SunBelt based its

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6 This train also shows the same infirmity discussed earlier for trains departing locations hours before they arrive at the location.

7 For example, according to NS train schedule data provided by NS in discovery, TRN symbol 385 is a general merchandise train that operates between MP 791 at Birmingham, AL and MP 149.0MB at Mobile, AL. NS train event data shows ten (10) TRN 385 trains originating during the SBRR's base year, of which only one (1) originated at the scheduled location. The train event data shows the other nine (9) trains originating either at MP 134.96 (Birmingham, AL) or MP 137.50 (Brussel, AL).

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

normalization on limited data provided by NS in discovery, and on assumptions made by SunBelt.[8]

3. Because of the apparently random sequencing of the train event data, SunBelt could not accurately know when a train stopped along a route to set out or pick up cars. Therefore, when modeling train operations in its SARR simulation, SunBelt identified dwell locations for general merchandise trains based upon the two following criteria:[9]
   a. SunBelt only dwelled trains where the train event information indicated a change in consist size. This allowed SunBelt to account for train dwells due to servicing customers along the route of movement.
   b. SunBelt only stopped a train at the first instance of a specific location shown in the train event data. In other words, if the data showed a train moving between the same location multiple times, SunBelt only stopped at the location a single time.

The out of sequence train event information played particular havoc on local trains as these trains had many fewer reported train events than road trains, and therefore, much less information available to try to discern actual train operations.[10] SunBelt undertook a separate analysis of car event information for local trains in an attempt to determine how these particular trains operated, including attempting to identify were local trains stopped along their routes to set-out and pick-up railcars.[11] SunBelt began by separating local trains into "turn" trains, or trains that originated and terminated at the same location, and "straight-a-way" trains, or trains that originated at one station and terminated at a different station.

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[8] Specifically, SunBelt relied upon NS produced file "Schedule.xls," which shows the scheduled operating stations for NS coal, general merchandise, intermodal and unit bulk trains, and file "Local Jobs.xls," which shows origin and destination points for local trains.

[9] In this instance "dwell locations" refer to locations along the route where the SBRR may switch, set-out or pick-up cars. It does not include the time to change crews, service locomotives, inspect trains, etc., which are already accounted for in the simulation modeling.

[10] The train movement data shown in Attachment Nos. 3 and 4 to this Exhibit III-C-1 provide an example. Attachment No. 3 contains 189 train event records while Attachment No. 4 contains 102 train event records. In contrast, most local trains would only report 9 or 10 train events.

[11] Exhibit III-A-2 describes the many issues SunBelt had with the NS car event data, and the limitations these issues had on SunBelt's car event analyses.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

For turn trains, SunBelt manually inspected the data extracted from the car event data to identify the location a train completed its outbound journey and turned before returning to its origin station. For straight-a-way trains, SunBelt manually inspected the stops along the route indicated by the car event data to identify the stops to include in the SARR simulation. Manual inspections were required in both instances since the car event data, like the train event data, contained many redundant entries for the same stations that made a purely programming solution impractical.[12]

3. Missing and Truncated Event Data

SunBelt experienced significant difficulties in identifying the proper routing for many of these NS trains due to missing or truncated train event data. While not steadfastly uniform by any means, NS trains followed certain patterns and schedules. An example of this is shown by reviewing the train records for a particular train symbol. NS data provided in discovery indicated that TRN symbol 130 is a daily general merchandise train operating between New Orleans, LA and Chattanooga, TN. The NS train event data generally shows this pattern to hold true, but there were 16 times throughout 2010-2011 when the data for this movement was either truncated, e.g., the train events only show the train moving part of the way to between New Orleans and Chattanooga, or the data was missing, e.g, no train event data for a known train. Once again, this was not an uncommon occurrence with the NS train event data. NS event data would show trains originating or terminating half-way along the route of movement based on the movement of comparable trains.

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[12] *See* e-workpaper "Sunbelt 2011 Peak Period Local Train Summary.xlsx."

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt was required to make certain allowances for its inability to definitively identify each train's origin and destination (and indentify arrival and departure times due to the arrival/departure issues discussed above). One allowance was made in developing the peak period unit coal trains due to an inability to link unit trains at their destinations. In prior SAC cases, parties linked the loaded and empty unit coal trains at the origin mines and destination plants served directly by the SARR. In this way, when modeling the SARR system, a loaded coal train will not leave a mine served by the SARR before the preceding empty train arrives at the mine. The extreme limitations and flaws with the NS train movement data in this instance did not allow SunBelt to link the trains in this way. Instead, SunBelt looked at the number of peak period loaded and empty coal trains, and preformed a reconciliation analysis of the loaded and empty trains. It then added "balancing trains" to equalize the number of loaded and empty trains moving during the peak period.. These balancing trains were in addition to the trains SunBelt added to account for growth in future traffic, and were added by SunBelt to account for the estimated number of trains moving over the system in the peak period.

D. TRAIN STATISTICS

The NS train event data reports the following four (4) operating statistics about each train: 1) Number of loaded railcars on the train; 2) Number of empty railcars on the train; 3) Train tons; and 4) Train length. SunBelt incurred two (2) major issues when trying to utilize this data. First, the train statistical information was not consistently reported or not reported at all on some trains. Second, much of the data that was reported was clearly erroneous.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

1. Inconsistent or No Train Statistics

NS train event data did not consistently show train statistics in its train movement records, but instead only showed train statistics a limited number of times for each train movement. This is clearly shown in Attachment Nos. 3 and 4 to this Exhibit III-C-1, which show train statistics reported sporadically for two different train movements. Analysis of all of the NS train event records shows that train statistics were not recorded in approximately 94.3 percent of the NS provided train event records.[13]

Even more troublesome was the number of trains that reported "no" statistics. This tended to occur mostly on local trains, but examples could be found in all the NS train types. SunBelt found that 20.4 percent of the trains, as identified by the train symbol, train date and section number included in the train event data, had no statistics reported with the train data.

2. Erroneous Train Statistics

As indicated above, the NS train event data included only a limited set of train statistics, including total train tons and total train length.[14] SunBelt initially intended to rely upon these statistics for identifying its peak operating period and for developing the characteristics for the trains included in its SARR simulation. However, it eventually realized that the statistics as reported in the train event data were so erroneous as to make the original analysis unusable.

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[13] In other words, if a specific train, identified by its train symbol, train date and section number, had 100 train event records associated with its movements, on average only a little over 5 of those 100 records contained information on the number of loaded and empty railcars, train tons and train length.

[14] The NS document provided with the NS train event data did not indicate whether the train tons and train length included in the train event data reflected total tons and length or trailing tons and length. However, based on observations of the data which showed no loaded or empty railcars, but included tons and train length consistent with average locomotive dimensions, SunBelt assumed the statistics reflected total train statistics and not trailing statistics.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

The first indication of the extremely flawed nature of the train statistical data came in using the train statistics to identify the SARR's peak operating period. As has been the norm in prior SAC cases, SunBelt applied its forecasted growth in SARR traffic to Base Year train movements to identify the peak operating week in the peak operating year. SunBelt began by dividing its traffic between coal movements and non-coal movements. Since coal movements on modern railroads move almost uniformly in unit train service, SunBelt developed its future number of coal trains by applying the forecasted growth rate in coal by identifiable destination to the current number of trains operating to those destinations.[15] In simple terms, SunBelt used the forecasted growth rates to determine the number of complete coal trains that would be needed in the future. This approach is consistent with real world railroad operations which move coal in relatively uniform unit train sizes to destinations.

SunBelt used a different methodology (which was used in prior SAC cases) for non-coal traffic. It is generally accepted that railroads will grow the size of existing trains before adding a new train to their traffic mix. Running longer trains where practicable leads to greater overall productivity by maximizing crew production and minimizing traffic congestion. In order to increase the SARR's non-coal trains to their maximum efficient sizes, SunBelt needed to identify the largest trains currently operated by NS based upon operating train symbol. SunBelt therefore looked at NS' train movement data to identify the largest trains currently operated by NS by train type and symbol. SunBelt then planned to increase the size of the existing trains before adding additional trains to its network to account for future growth in SBRR traffic.

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[15] As indicated above, SunBelt could not always accurately identify a coal trains' origin and destination. In those instances where a destination could not be accurately identified, SunBelt applied an average SBRR coal growth rate.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt began this process by identifying the largest train operated by NS by train ("TRN") symbol. It soon became apparent though, that many of the train sizes included in the NS train event data were erroneous. Table 1 below shows the 10 largest trains by train length and train symbol included in the Base Year train data.

Exhibit III-C-1
Table 1
NS Train Event Data Maximum Train Lengths

	Train Symbol	Train Type	Maximum Length In Train Event Data (Feet)
	(1)	(2)	(3)
1.	U87	Coal - Shuttle	91,010
2.	A40	Local - Alabama Division	88,888
3.	A60	Local - Alabama Division	88,888
4.	61G	Unit Bulk	88,888
5.	304	General Merchandise	81,863
6.	811	Coal - Empty	81,233
7.	83E	Coal - Loaded	80,183
8.	61G	Unit Bulk	77,777
9.	071	Haulage	77,777

Source: e-workpaper "Max Train Size.xls."

As shown in Table 1 above, NS train event data indicated some trains reached over 90,000 feet in length or 17 miles.[16]

This clearly erroneous data required SunBelt to use car event data to build-up the size of NS trains operating over the SBRR. After importing these revised car event statistics into its base year train list, SunBelt then applied its growth rates to what it believed to be corrected train lengths to develop the SARR's peak year train count and indentified its peak operating week.[17]

[16] The above list is not exhaustive and shows only the maximum by train symbol/type.
[17] *See* "Peak Weak Indentification.xlsx."

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt next developed the train statistics for the individual trains that were to be modeled in the SARR simulation. The Rail Traffic Controller ("RTC") simulation software used to model the SARR requires the input of each train's trailing tons and length. This required SunBelt to develop trailing train statistics because, as indicated above, NS' train movement data included only total train statistics. SunBelt developed trailing length and tons consistent with the approach used in prior SAC cases by multiplying the aggregate number of railcars as reported in the car event data by average car lengths, by multiplying the number of loaded railcars by average gross weights by train type and by multiplying the number of empty railcars by average tare weights by train type. The resultant train statistics were then entered into the SARR RTC simulation model.

Highly Confidential Information
Redacted

TAB 2

SBRR RTC MODELING PROCEDURES AND RESULTS

The SunBelt Stand-Alone Railroad ("SBRR") utilized the Rail Traffic Controller ("RTC") model[1] to optimize the SBRR's system track configuration and provide the basis for many of the SBRR's annual operating metrics. The RTC model has been relied upon by the STB in numerous prior maximum rate reasonableness cases[2] to evaluate the feasibility of the SARR's operating plan and to demonstrate the maximization of the SARR's infrastructure.

The process followed to develop the needed metrics for SBRR's rail operations based on the RTC model simulation is discussed in the remainder of this Exhibit under the following topical headings:

A. Development of The SBRR System

B. Operating Inputs Used in The RTC Model

C. Development of The Peak Train List

A. DEVELOPMENT OF THE SBRR SYSTEM

The SBRR system is made up of 580.24 route miles located in Alabama, Mississippi and Louisiana. The track, elevation and speed inputs were derived from NS track charts and time-tables. This system is made up of two (2) segments and thirteen (13) yards.

B. OPERATING INPUTS USED IN THE RTC MODEL

The following elements of the SBRR's operating plan were developed by Mr. McDonald and input into the RTC Model by Messrs. Fapp and Humphrey for purposes of simulating the SBRR's peak-period operations and developing train transit times:

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[1] Version 64K.

[2] *See*, e.g., *AEPCO 2011* at 28, *WFA/Basin* at 16, *PSCo/Xcel* at 613 and *Otter Tail* at 24.

SBRR RTC MODELING PROCEDURES AND RESULTS

1. Road Locomotives
2. Train size
3. Maximum train speeds
4. Dwell times
5. Time required to interchange trains with other railroads
6. Crew-change locations/times
7. Time for a train to reverse direction
8. Track inspections and maintenance windows
9. Time for random outages

Each of these elements is discussed below.

1. Road Locomotives

The RTC simulation demonstrated that most road trains can operate over the SBRR system with two ES44AC locomotives in a 1/1 DP configuration, except some heavy trains needing additional power at certain locations. The additional locomotives were generally placed on the head-end of the train, usually at crew-change locations, during crew-change time.[3]

The SBRR will operate its local trains with a single GP38 locomotive where possible. Where this is not possible due to local train sizes or topography, the SBRR adds a second GP38 locomotive or instead uses ES44AC locomotives. In addition, SBRR work trains will utilize GP38 locomotives. Finally, the SBRR will use SW1500 in its yards to perform its switching operations.

The SBRR locomotive requirements, which were developed from the RTC simulation, are shown in Table 1 below.

[3] In some cases, additional locomotives were added to the rear of the train to equalize power and minimize train slack.

SBRR RTC MODELING PROCEDURES AND RESULTS

Exhibit III-C-2
Table 1
SBRR Locomotive Requirements
(First Year of Operations)

Unit Type (1)	Number of Units (2)
1. ES44AC	26
2. GP38	16
3. SW1500	4
4. Total Units	46

Source: e-workpaper "SBRR Operating Statistics.xls."

2. Train Size

The peak period trains forecast for the RTC simulation are based on corresponding actual 2010-2011 trains. The maximum train size is equal to the largest trains, by train type and symbol, currently operated by NS. All growth trains are limited to the same size and weight of actual 2010-2011 trains, and no growth train has more than four (4) locomotives.

3. Maximum Train Speeds

The maximum permissible train speeds input into the RTC model are 60 mph (50 mph for loaded coal) on the SBRR's main lines. These maximum speeds are consistent with NS's real-world practice on the lines being replicated by the SBRR.

Maximum train speeds are reduced below those specified above where a speed restriction is required by NS's operating timetables for the divisions and subdivisions in question. These restrictions exist for safety reasons (such as to maintain a safe braking distance), to reduce underbalance in curve super elevation per FRA track safety regulations and reduce track/curve wear, and to avoid high-speed gage separation on curves exceeding 3 degrees. In addition, trains do not reach maximum authorized speed in some areas due to grades and curves. All of these

SBRR RTC MODELING PROCEDURES AND RESULTS

restrictions and limitations have been incorporated into the RTC model for application to the SBRR's peak-period operations.

4. Dwell Times

Dwell times have been allotted for trains at the SBRR's yards based on the kinds of activities being performed. These activities include 1,000/1,500-mile car inspections and associated bad-order car switching, locomotive fueling and 92-day inspections, and crew changes.

Mr. McDonald has allotted a total of five (5) hours of dwell time at the Birmingham Yard for through coal trains requiring an inspection. This includes time for the inspection itself (three hours) and removal of any bad order cars from the train and addition of spare or repaired cars (one hour).

Locomotives requiring FRA-mandated 92-day inspections are removed from the train upon arrival and replaced with fresh locomotives when the inspection and bad-order switching processes are completed. If locomotives that are not removed for a 92-day inspection require fueling, it is performed while the car inspection is taking place and the train is "blue-flagged." Another hour of dwell time has been allotted for these procedures, as well as for train staging time and contingencies.

Mr. McDonald has allotted three (3) hours of dwell time at the SBRR's Birmingham Yard for non-coal trains requiring a 1,000-mile inspection. In general, these trains have fewer cars than the SBRR's coal trains, and inspections using the procedures specified by Mr. McDonald can be accomplished in two (2) hours. An additional hour is allotted for bad-order switching and for removing and replacing locomotives requiring a 92-day inspection. A total of three (3) hours of dwell time at a yard is appropriate for intermodal and general freight trains.

SBRR RTC MODELING PROCEDURES AND RESULTS

Since the RTC model simulation is a snapshot of the SBRR's operations over a seven (7) day simulation period, there is no way to tell in advance which road locomotives on which trains require a 92-day inspection or fueling upon arrival at one of the SBRR's yards during that period. Based on Mr. McDonald's experience, it is likely that trains received in interchange from NS or another railroad will have locomotives with full fuel tanks and that do not require a 92-day inspection while on the SBRR. However, to be conservative, Mr. McDonald has assumed that the locomotives on some trains will need fueling and or a 92-day inspection at the Birmingham Yard, as well as a 1,000-mile or 1,500-mile car inspection.

5. Time Required to Interchange Trains With Other Railroads

As described in Section III-B, the SBRR interchanges complete trains, including locomotives, with six (6) Class I railroads (BNSF, CN, CSXT, KCS, NS and UP) as well as five (5) regional or short-line railroads – ABS, MNBR, MSF, NOPB and AGR.[4]

Mr. McDonald has allotted 30 minutes for the interchange of trains at each of these points. All that is required for the interchange of run-through trains is a change of crews, a brake set/release and a roll-by inspection, which can easily be accomplished within 30 minutes. The same 30 minutes of SARR interchange time were accepted by the Board in *WFA/Basin II.*[5]

A train received in interchange may have more locomotives than the SBRR needs to move the train over its system, or may not have the locomotives arranged in a DP configuration. The inbound SBRR road crew removes any extra locomotives and leaves them on the setout track at the interchange point during the time allotted for the interchange, and the outbound

4 The SBRR does not interchange traffic with all of these railroads during its peak period modeled in the RTC model.

5 *See WFA/Basin II* at 16.

SBRR RTC MODELING PROCEDURES AND RESULTS

SBRR crew rearranges locomotives into a DP configuration, if necessary, during the interchange time.[6]

6. Crew Change Locations/Times

At SBRR crew change points where the change of crews is the only function performed, Mr. McDonald has allotted 15 minutes for this function. Again, this is consistent with the time allotted for SARR crew changes in *WFA/Basin*.[7]

The RTC simulation confirms that the distance for each crew assignment, as well as the allotted time at other points served by turn crews, can be covered by a single tour of duty including an allowance of one hour for crew preparation/taxi time. A few crews expire under the Hours of Service law and need to be taxied to their next terminal, while some trains are able to skip a crew change point and the crew can run through to the next crew change point. Since the SBRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum efficiency. The SBRR crew districts are summarized in Table 2 below.

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6 The Class I railroads are converting to DP at a rapid pace; for example, Union Pacific reported at a recent RTC Model users' conference that 70 to 75 percent of its road trains now have a DP locomotive configuration. With the peak RTC simulation period ten years hence, it is reasonable to assume that the SBRR will have in place run-through agreements that specify trains are to be received with DP power and that foreign-road locomotives will be equipped for DP operation.

7 See *WFA/Basin* Opening Evidence of Complainants (Public Version) at page III-C-30.

SBRR RTC MODELING PROCEDURES AND RESULTS

Exhibit III-C-2
Table 2
SBRR Crew District Assignments

	Assignment Location (1)	Away Locations (2)	Turn Location (3)
1.	Birmingham, AL	Selma, AL	Kimbrell, AL
		McIntosh, AL	Wilton, AL
		Marion Jct. AL	Mercedes, AL
		Boligee, AL	
		Carson, AL	
		Meridian, MS	
		Jackson, AL	
2.	Selma, AL	McIntosh, AL	
3.	Meridian, MS	Wilton, AL	Richburg, MS
4.	New Orleans, LA	Meridian, MS	

Source: e-workpaper "SBRR Crew Assignments.docx."

7. Time for a Train to Reverse Direction

The SBRR's track configuration is such that certain of the SBRR's trains must reverse direction. This occurs exclusively with local "turn trains" that reverse direction at the terminus of their outbound movement. The reversal of direction at these locations is facilitated by the SBRR's use of DP locomotives on all trains.

Mr. McDonald has allotted 45 minutes of dwell time to reverse direction for trains that do not change crews at the reverse-direction point. This accounts for any switching occurring at the turn location and the time needed for the crew to walk to the other end of the train and board the locomotive on that end. No additional time is allotted for reversing direction if the procedure occurs at a location where the train is interchanged with another railroad or otherwise undergoes a crew change. At these locations, the outbound SBRR crew boards the locomotives at the opposite end of the train from the locomotive where the inbound crew leaves the train. No extra

SBRR RTC MODELING PROCEDURES AND RESULTS

time is needed beyond the normal 30 minutes allotted for interchange or 15 minutes allotted for crew changes at non-interchange locations.

8. Track Inspections and Maintenance Windows

FRA rules require twice-weekly inspections for Class 4 track, which is the classification for the SBRR's main tracks. As described in Part III-D (which describes the SBRR's maintenance-of-way plan), the SBRR's main and branch lines are inspected twice a week by the railroad's Track Inspectors using hi-rail vehicles (SUV-type vehicles equipped with retractable flanged wheels so they can operate either on highways or on railroad tracks). These inspections have to be performed during the peak traffic (RTC simulation) period. However, they can be performed between train movements and during periods of heavy traffic or 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 inspection in the RTC Model.

Consistent with the STB's decision in *AEPCO 2011*, Messrs. Fapp and Humphrey have included delay times in the RTC simulation to account for maintenance being performed on the SBRR's line. Specifically, they identified the times that NS trains were delayed due to maintenance activity based on train delay time data provided in discovery by NS.[8] This includes delays due to bridge gangs, maintenance of way gangs and rail gangs.

9. Time for Random Outages

Random events that affect track, signals and equipment are a part of everyday railroading. It is unrealistic to expect that no such events would occur during the SBRR's peak

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8 *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

SBRR RTC MODELING PROCEDURES AND RESULTS

traffic period used for the RTC simulation, or that such events would not affect train operations during that period. Accordingly, time for random outages has been input into the RTC Model.

Track capacity is also impacted by program maintenance performed by the SARR. The STB indicated in its *AEPCO 2011* decision that while parties in prior SAC proceedings had not included track delays caused by program maintenance in their SARR simulations, such maintenance was common in the "real world" and therefore should be reflected in a SARR's hypothetical world.[9]

It is impossible to determine exactly what events would impact train operations during the July 30, 2020 through July 29, 2021 Peak Year, or when they will occur. However, NS did provide data in discovery on events of an unexpected or "random" nature that affected train operations on the lines being replicated by the SBRR in 2010 and 2011, including train-related, track-related and signal-related events. It also identified delays caused by maintenance of way, and bridge gangs.[10] Mr. McDonald utilized this data to identify the outages and delays that occurred on NS track replicated by the SBRR during the peak period's comparable time during the Base Year. He then provided them to Messrs. Fapp and Humphrey for input into the RTC Model during the 10-day simulation period.

Mr. McDonald selected the kinds of outages that he deemed most likely to occur including operational outages, such as a broken knuckle or drawbar, a train going into emergency braking mode, or a broken rail. Mr. McDonald excluded, however, those outages experienced by NS that would not be incurred by the SBRR due to differences in the two railroads' operations. For example, Mr. McDonald excluded delays caused by Amtrak operating on the SBRR's line,

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9 *See AEPCO 2011* at 28.

10 *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

SBRR RTC MODELING PROCEDURES AND RESULTS

since Amtrak would not be a SBRR tenant railroad. Similarly, Mr. McDonald also excluded outages caused by NS' traditional signaling system as the SBRR would operate from the beginning with a purpose built PTC system in place of traditional signals. Additionally, SBRR trains would not be stranded and block track as all through trains operate with at least two (2) locomotives and in the event of the failure of one locomotive would move under the remaining operational power to the next yard, where the inoperative locomotive would be replaced.

Consistent with the STB's decision in *AEPCO 2011*, Mr. McDonald also identified program maintenance work performed by NS that would cause train delays. This includes delays caused by maintenance-of-way gangs, bridge gangs and rail gangs. These delays are in addition to the random maintenance outages caused by such things as broken rails and power switch failures.

Mr. McDonald also assumed an average duration for each outage indicated in NS train delay data would occur in the Peak Year operations. In other words, if NS experienced a one hour delay in its 2010-2011 operation at a particular location, then the SBRR would experience a one hour delay in 2020-2021 at the same location. Mr. McDonald then instructed Messrs. Fapp and Humphrey to include the outages on the SBRR's lines (including the date and time for each outage) at the same location where NS experienced the outage.[11]

The end result of the analysis was to include 25 operational and maintenance outages as inputs to the RTC Model. The 25 total outages included in the RTC simulation are shown, by date and time, location and type in SunBelt's workpapers.[12]

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[11] The NS delay data provided in discovery indicated the date, location and duration of the delays, but not the time of day the delay occurred. Messrs. Fapp and Humphrey assigned a delay time using a random number generator to develop random delay times.

[12] *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

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C. DEVELOPMENT OF THE PEAK TRAIN LIST

Once the SBRR network was developed and tested in the RTC model and the operating inputs were identified, the next step in the process was to identify the peak period trains that would be included for evaluation in the RTC model.

The modeling period included a two-day warm-up, the peak week and a one-day cool down.[13] Messrs. Fapp and Humphrey were able to use a shorter warm-up period than in prior cases because the peak period train list includes all trains moving from the beginning of the simulation.

SARR's presented in prior maximum reasonable rate cases have been primarily coal railroads that transport unit coal train traffic between mines and generating stations. In those cases, the SARR simulation usually began with either all the loaded coal trains beginning at the mines and moving loaded to the generating stations, or all the empty coal trains beginning at the generating stations and cycling back to the mines. In either case, additional warm-up time was needed to allow the loaded and empty trains to make a complete cycle to reflect the congestion of loaded and empty coal trains meeting along their respective routes.

In this case, SunBelt did not begin with only loaded or empty coal trains, but instead began by moving all trains, including loaded and empty unit traffic simultaneously. SunBelt was able to do this by identifying both loaded and empty unit trains as part of its peak period process. This meant loaded and empty unit trains were meeting along their routes from the beginning of

[13] The trains included in the RTC train list consist of trains originated within a 10-day period. Because many trains take more than 24 hours to reach their destination, the model actually simulated an 11-day period to allow trains dispatched on Day 10, the cool down day, to reach their destination.

SBRR RTC MODELING PROCEDURES AND RESULTS

the simulation. In this way, SunBelt could shorten the warm-up period since much of the operational congestion was in place from the start of the simulation.

The peak period was based on the peak volume of trains required to move traffic selected for inclusion in the SBRR's traffic group. Statistics for the peak period trains were then developed from NS car event data provided in discovery for the January 2010 to September 2011 time period. In particular, Messrs. Fapp and Humphrey matched the SBRR's revenue carloads to the NS trains that moved the relevant cars (including loaded and empty cars). The trains that the SBRR will transport during the peak period and corresponding study period for the RTC simulation are shown in SunBelt's workpapers.

Messrs. Fapp and Humphrey then determined the number of SBRR trains that would transport the general freight, coal and intermodal traffic included in the SBRR traffic group in the period of July 30, 2020 through July 29, 2021, which is the peak volume year during the DCF period. They did this by applying the traffic percentage increase between the Base Year and the Peak Year for each movement to the car/train movement data provided by NS in discovery. The "growth" trains thus developed were added to the trains that moved during the peak week on a random basis. The 10-day study period used in the RTC simulation was May 19, 2021 through May 28, 2021.[14] A total of 523 trains were analyzed during this period, of which 379 operated in the peak week.[15]

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[14] The 10-day period includes a 2-day warm-up period based on preliminary modeling that indicated this would be the maximum time any train would spend on the SBRR.

[15] The list of peak period trains is included in SunBelt's Opening workpapers at "Coal RTC Train List.xlsx," and "Non-Coal RTC Train List.xlsx."

PART III-D

TAB 1

SBRR OPERATING PERSONNEL

The SBRR has a traffic group that moves primarily in trainload quantities. Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical alternative to the incumbent, the SBRR is a non-union railroad that is built from the ground-up to handle a defined traffic group.[1]

SunBelt's experts have developed a staffing plan and associated personnel for the SBRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost.

A. STAFFING REQUIREMENTS

The SBRR's operating personnel include train crew, line supervisory and field employees in Administration, Transportation, Engineering/Maintenance-of-Way and Mechanical departments. The Operations staff (headquartered at Birmingham, AL) report directly to the Vice President – Operations or respective Assistant Vice President ("AVP"). The SBRR's operating personnel requirements are discussed below.

1. Train/Switch Crew Personnel

The SBRR requires a total of 140 Train & Engine ("T&E") crew members to transport its Base Year trains, increased to reflect Base Period traffic levels. This count, which includes switch crews located at the SBRR's yards, is based on the number of trains that would move over the various parts of the SBRR system during the Base Year; the crew assignments developed by Mr. McDonald (as described in Part III-C-1), and the switch assignments at the SBRR's yards. The RTC Model simulation performed by Messers. Fapp and Humphrey was used to confirm

[1] The Board has accepted the concept of a non-unionized SARR. *See TMPA* at 687; *PSCo/Xcel* at 651.

SBRR OPERATING PERSONNEL

that train crews operating in these crew districts generally could complete each tour of duty within twelve (12) hours and otherwise comply with the federal Hours of Service law, as amended.[2]

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.[3] In this instance, crews were determined for all trains moving in the Base Year. The total crew starts were adjusted upward to reflect Base Period traffic levels and to reflect the 0.3 percent re-crewing requirements indicated by the RTC simulation showing the number of crews whose on-duty time expired under the Hours of Service law. The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the Board to determine how many crews are required to cover the number of crew starts assuming that each crew member is available 270 days a year.[4]

2. Non-Train Operating Personnel

The SBRR's staffing requirements for operating personnel other than train and switch crews and maintenance-of-way ("MOW") personnel are summarized in Table 1 below. MOW personnel are discussed separately in Part III-D-5 and Exhibit III-D-3.

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2 *See* e-workpaper "Sunbelt TRAIN file analysis.xlsx".
3 *See PSCo/Xcel* at 645.
4 This number is not affected by the hours-of-service provisions of RSIA.

SBRR OPERATING PERSONNEL

Exhibit III-D-1
Table 1
SBRR Non-Train Operating Personnel

Operations Department Position (1)	No. of Employees (2)
a. Vice President - Operations	1
i. Assistant Vice President – Administration & Budget	1
(1) Manager – Operations, Planning & Joint Facilities	1
(2) Manager – Safety, Rules & Training	1
Assistant Manager – Safety, Rules & Training	1
(3) Customer Service Agent & Car Distributor (24/7)	5
ii. Manager – Field Operations	4
Assistant Manager – Field Operations	6
iii. Manager – Locomotive Operations	2
iv. Chief Dispatcher	1
Dispatchers (2 desks 24/7)	9
Crew Callers (1 desk 24/7)	5
v. Assistant Vice President - Engineering	1
vi. Assistant Vice President – Mechanical	1
(1) Manager – Locomotive Maintenance	1
(2) Manager – Testing & Environmental	1
(3) Manager – Equipment Maintenance	1
(a) Car Inspectors	19
Total Non-Train Operating Personnel	61

Source: e-workpaper "SBRR Operating Expense.xls"

A description of each operating position is provided below.[5]

a. Vice President - Operations

This position reports to the President-CEO, is a member of the SBRR Board of Directors, and is responsible for all operating functions. The AVPs Administration, Engineering and Mechanical, plus the Chief Dispatcher and Managers Field Operations and Locomotive Operations all report to the Vice President – Operations.

i. Assistant Vice President – Administration & Budget -- The AVP – Administration & Budget is responsible for all Operations Department administrative functions

[5] Marketing personnel are considered G&A personnel (*see* Exhibit III-D-2) as per *AEP Texas* at 51, 54.

SBRR OPERATING PERSONNEL

on the SBRR. The Manager – Operations, Planning & Joint Facilities, the Manager – Safety, Rules & Training and Customer Service Agents/Car Distributors report to the AVP – Administration & Budget.

(1) **Manager – Operations, Planning & Joint Facilities** -- The Manager – Operations, Planning & Joint Facilities is responsible for preparing and monitoring joint facilities and other contracts, and the design of current and projected movement of traffic on the SBRR.

(2) **Manager – Safety, Rules & Training** -- The Manager – Safety, Rules & Training with the help of the Assistant Manager – Safety, Rules & Training, monitors safety and conduct rules and training classes for the SBRR's transportation, maintenance, and mechanical operating personnel. They are also responsible for developing and maintaining the operating timetable, rules, and related instructions and for interfacing with the FRA and other government agencies in matters pertaining to rules and operating practices.

(3) **Customer Service Agent/Car Distributor** -- The SBRR has one Customer Service Agent/Car Distributor desk manned 24/7, thus requiring five (5) employees to fill the position. This position is responsible for monitoring train locations, maintaining contact with connecting carriers and destination facilities, answering customers' questions concerning the location of specific trains and cars, and responding to customers' requests for diversion of trains/cars to different origins or destinations. This position is also responsible for interacting with customers and field personnel to ensure equipment needs are met on a real time basis.

ii. Manager – Field Operations -- The SBRR also has four (4) Managers – Field Operations located at Birmingham, AL, Meridian, MS, New Orleans, LA and Selma, AL.

SBRR OPERATING PERSONNEL

All Managers report directly to the Vice President – Operations. These positions are equivalent to a Trainmaster on a Class I railroad. The Managers – Field Operations are responsible for train operations in their respective territories and for supervising train crews. They also perform FRA-mandated and other appropriate testing, and respond to and investigate accidents and day-to-day operating problems. The four (4) Managers – Field Operations are supported by six (6) Assistant Managers – Field Operations, with two (2) positions assigned to the Birmingham Yard, and one at each at Meridian, MS, New Orleans, LA, Selma, AL and McIntosh, AL.

iii. Managers – Locomotive Operations -- The SBRR has two (2) Managers – Locomotive Operations ("MLO"), who are responsible for the safe and efficient handling of locomotives and trains by the SBRR's engineers. The MLOs also report directly to the Vice President – Operations and are headquartered at Birmingham, AL and Meridian, MS. Their duties are similar to those of a Road Foreman of Engines or Traveling Engineer on a Class I railroad. They are FRA-certified locomotive engineers and qualified on their respective territories. They perform FRA-mandated training and observation of engineers in train handling, efficiency testing, and assist the Managers – Field Operations as needed.

iv. Chief Dispatcher -- The SBRR has one (1) Chief Dispatcher. The Chief Dispatcher is responsible for managing the dispatching staff and is ultimately responsible for dispatching trains, track inspection vehicles and work equipment on the SBRR. In addition, this position is responsible for all locomotive assignments, coordinating and maintaining records of run-thru operations, and in concert with the Mechanical Department, handling the timely dispatch of locomotive power to required inspections. The dispatching staff is made up of nine (9) dispatchers (two (2) desks manned 24/7) and five (5) crew callers (one desk manned 24/7).

SBRR OPERATING PERSONNEL

The Dispatchers are responsible for dispatching trains, track inspection vehicles and work equipment.

The SBRR utilizes an automated crew-management system designed to handle virtually all basic crew interactions via automated calling and response systems (including identifying the proper crews for the proper jobs and automatically routing calls from crews to the appropriate dispatcher). The Crew Callers augment this system. These positions are all based at the Birmingham, AL headquarters, working as directed by the Dispatch Center.

v. Assistant Vice President – Engineering -- The AVP – Engineering is responsible for all engineering matters on the SBRR. This primarily involves MOW since the SBRR does not need to construct any new facilities during the 10-year DCF period. In addition to supervising the MOW function and personnel (described in detail in Exhibit III-D-3), the AVP – Engineering is responsible for the annual MOW capital and operating budgets, and for interfacing with the contractors involved in program and other MOW work. Other engineering and MOW personnel are addressed in Exhibit III-D-3.

vi. Assistant Vice President – Mechanical -- This position supervises the SBRR's mechanical function, which largely involves overseeing the acquisition and maintenance of the SBRR's equipment (including rolling stock) as well as administration of the AAR Interchange Rules with respect to the SBRR's use of other railroads' locomotives and equipment on trains that operate in interline service. The AVP – Mechanical is also responsible for interfacing with the SBRR's locomotive and car maintenance contractors. Reporting to the AVP – Mechanical are the Manager – Locomotive Maintenance, the Manager – Testing & Environmental, and the Manager – Equipment Maintenance.

SBRR OPERATING PERSONNEL

(1) **Manager – Locomotive Maintenance** -- The SBRR has one (1) Manager – Locomotive Maintenance. This position is responsible for maintenance of the locomotive fleet and ensuring the correct complement of power and locomotive consists are available as requested by the Dispatch Center.

(2) **Manager – Testing & Environmental** -- The SBRR has one (1) Manager – Testing & Environmental who reports to the AVP – Mechanical. This individual is responsible for testing of materials and environmental compliance, including investigation of any problems involving cars containing hazardous commodities while on the SBRR (and related federal reporting requirements).

(3) **Manager – Equipment Maintenance** -- There is one (1) Manager – Equipment Maintenance that reports to the AVP – Mechanical. This position is responsible for equipment repairs and for supervision of the Car Inspectors at the SBRR's yards. This individual is also responsible for the day-to-day interface with the SBRR's car maintenance contractors, as well as contract administration.

(a) **Car Inspectors** -- The SBRR's nineteen (19) Car Inspectors have duties similar to those of Carmen on a Class I railroad. They are located at the SBRR's yards where the railroad performs inspections on originating trains and trains receiving 1,000-mile/1,500-mile car inspections. The number of Car Inspector positions is based on the number of daily trains requiring inspection that move through the SBRR's inspection points during the peak week. Car inspection procedures are described in Part III-C-3.

The Inspectors at Birmingham, where the highest volume of trains are inspected, are comprised of one three-person crew on duty 24/7 assigned a small ATV-type vehicle which can

SBRR OPERATING PERSONNEL

travel on the roadways between the inspection tracks during the inspection process. This enhances the productivity of the crew, and the SBRR has invested capital for roadways between the inspection tracks to achieve these savings. The inspection vehicle is equipped with tools and parts (such as brake shoes) needed for performing light car repairs.

At Meridian, MS, New Orleans, LA, Selma, AL and McIntosh, AL where only originating trains are inspected, one inspector is assigned one (1) shift per day five (5) days per week.[6] Train crews are responsible for inspecting their trains in the event an inspector is not on duty or unavailable.

B. COMPENSATION

Compensation for the T&E personnel and other non-train operating personnel is derived from NS's 2010 Wage Forms A&B and is established at the same levels as those paid by NS for comparable positions, indexed to 3Q11. The wages for the 140 T&E personnel are based on the average amount paid by NS to its T&E personnel including all constructive allowances paid by NS to its train and enginemen. In 2010, NS paid its engineers and conductors an average of { [redacted]} and { [redacted]}, respectively (indexed to 3Q11 levels and excluding fringes). Based on these amounts, indexed to 3Q11 levels, the SBRR pays its T&E personnel a total of { [redacted]} million (excluding fringes) in the Base Period.

Salaries for non-train operating personnel are also derived from NS's 2010 Wage Forms A&B, indexed to 3Q11, except for the salary of the Vice President – Operations, which is based on compensation paid by P&W to its chief operating officer level personnel. Salaries and total compensation for the SBRR's non-train operating personnel are shown in Table 2 below.

[6] *See* e-workpaper "Inspection Crews.xlsx" for inspector employee counts at each location.

SBRR OPERATING PERSONNEL

Exhibit III-D-1
Table 2
SBRR Non-Train Operating Personnel Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
a. Vice President Operations	1	{[redacted]}	{[redacted]}
i. AVP – Administration & Budget	1	{[redacted]}	{[redacted]}
(1) Manager – Ops Planning & Joint Facilities	1	{[redacted]}	{[redacted]}
(2) Manager – Safety, Rules & Training	1	{[redacted]}	{[redacted]}
Assistant Manager – SR&T	1	{[redacted]}	{[redacted]}
(3) Customer Service Agent/Car Distributor	5	{[redacted]}	{[redacted]}
ii. Manager – Field Operations	4	{[redacted]}	{[redacted]}
Assistant Manager – Field Ops	6	{[redacted]}	{[redacted]}
iii. Managers – Locomotive Operations	2	{[redacted]}	{[redacted]}
iv. Chief Dispatcher	1	{[redacted]}	{[redacted]}
Dispatchers (2 desks 24/7)	9	{[redacted]}	{[redacted]}
Crew Callers (1 desk 24/7)	5	{[redacted]}	{[redacted]}
v. AVP – Engineering	1	{[redacted]}	{[redacted]}
vi. AVP – Mechanical	1	{[redacted]}	{[redacted]}
(1) Manager – Locomotive Maintenance	1	{[redacted]}	{[redacted]}
(2) Manager – Testing & Environmental	1	{[redacted]}	{[redacted]}
(3) Manager – Equipment Maintenance	1	{[redacted]}	{[redacted]}
(a) Car Inspectors	19	{[redacted]}	{[redacted]}
Total Non-Train Operating Personnel	61	xxx	$4,540,675

Source: e-workpaper "SBRR Operating Expense.xls"

Fringe benefits for all SBRR employees are based on 37.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid in 2011 to all railroad operating employees as reported by the Association of American Railroads.[7] This method of determining the fringe benefit ratio was approved by the Board in *WFA/Basin* at 66. In addition, it is the same method used by Complainants and accepted by both Defendants and the Board in *AEPCO 2011*.[8]

[7] *See* e-workpaper "III-D-4 Salaries.pdf."

[8] The Public Version of AEPCO's Opening Evidence shows the derivation of the fringe benefit ratio in that proceeding, see AEPCO's January 25, 2010 Opening Evidence, Public Version, page III-D-25. Review of Defendants Reply evidence shows that they did not object to this fringe benefit ratio. *See* Defendants Reply Evidence dated May 7, 2010, pp. III.D-29 to 30. Moreover the STB accepted this evidence without comment in *AEPCO 2011*.

SBRR OPERATING PERSONNEL

The SBRR also incurs taxi and overnight expenses for train crews. The number of taxi trips required, the cost per trip, the number of overnight stays and the cost per stay were identified for each crew.[9]

Consistent with Board precedent, taxi trips and overnight stays were developed using the actual train counts (and the crews' related taxi and hotel requirements) over the entire Base Year.[10] The requirements for each service type were developed.

The SBRR's unit cost for taxi trips is estimated based on current rates for taxi service at each location. The cost per overnight stay ranges from $35 to $99 and is based on hotel room rates throughout the SBRR.[11]

C. MATERIALS, SUPPLIES AND EQUIPMENT

Materials, supplies and equipment for operating personnel (other than MOW personnel) include office furniture and equipment, office supplies, safety equipment, EOTDs, motor vehicles including railcar inspection vehicles, and tools and supplies. The total annual operating expense for these items equals $675,365 in the Base Period.[12] The transportation materials, supplies and equipment expense includes the cost of twelve (12) Ford Explorers, five (5) 4WD pick-up trucks and one (1) ATV vehicle for the car inspection team.

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9 *See* e-workpaper SBRR_Overnight Hotel and Taxi Costs.xlsx."
10 *See WFA/Basin* at 48 and *PSCo/Xcel* at 652.
11 *See* e-workpaper "SBRR_Overnight Hotel and Taxi costs.xls."
12 *See* e-workpaper "SBRR Materials and Supplies.xls" and "SBRR Operating Expense.xls."

TAB 2

GENERAL & ADMINISTRATIVE EXPENSE

The General and Administrative ("G&A") expenses for the SBRR include its headquarters (corporate) management and administrative staff, buildings and equipment, and other expenses, including Information Technology ("IT") requirements, training and recruiting expense, and outsourced expenses. These expenses have been developed on the basis of the experience of SunBelt's Witnesses McDonald and Burris. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable NS or (where appropriate) other railroad personnel. SunBelt's IT expert, Joseph Kruzich, developed the SBRR's IT requirements and costs including computer hardware, systems, software, and support personnel as well as out-sourcing needs.

A. STAFFING REQUIREMENTS

The SBRR's personnel have all been designated as operating personnel or as non-operating personnel. The SBRR operating personnel are discussed in Exhibit III-D-1, the maintenance-of-way ("MOW") employees, while considered operating personnel, are discussed separately in Exhibit III-D-3. Employees considered non-operating personnel on a Class I railroad are included in the G&A staff discussed below. The SBRR's G&A staff is consistent with the G&A staffing for the SARRs approved by the Board in recent SAC cases, including *PSCo/Xcel*, *AEP Texas II*, *WFA/Basin* and *AEPCO 2011*.

The G&A staff are based at Birmingham, AL, where the SBRR's corporate headquarters building is located. This staff covers all executive and administrative functions including marketing, legal services, accounting and bookkeeping, budgeting, financial reporting, payroll, information systems, secretarial and clerical services, and supervising contractors in the performance of some out-sourced functions.

GENERAL & ADMINISTRATIVE EXPENSE

The SBRR's G&A staff is summarized in Table 1 below. This table does not include the operating and MOW employees located at the Birmingham headquarters, who are discussed elsewhere in Exhibit III-D-1 and Exhibit III-D-3, respectively.

Exhibit III-D-2
Table 1
SBRR General & Administrative
Personnel Requirements

Position	**Personnel**
(1)	(2)
1. Outside Directors	2
2. President and CEO	1
Administrative Assistant	1
3. Controller/Treasurer	1
a. Manager – Payrolls	1
Analysts	2
b. Manager – Budgets and Purchasing	1
c. Manager – Claims & Internal Auditing	1
4. Director – Real Estate & Security	1
a. Security Agents	2
b. Manager – Information Technology	1
c. IT Specialists	6
5. Director – Sales & Marketing	1
6. Director – Human Resources	1
7. Total General & Administrative	22

Source: e-workpaper "SBRR Operating Expense.xls."

1. Board of Directors

The SBRR is not a publicly-owned company, so it does not need the kind of large board of directors with numerous outside directors that is typical of such companies. Rather, it has a four-person Board, consisting of the President (who serves as its Chairman), the Vice President – Operations and two (2) outside directors. The outside directors would likely include a representative of the SBRR's customer group and an independent director with no other connection to the SBRR.

GENERAL & ADMINISTRATIVE EXPENSE

2. President and CEO

The President serves as the railroad's CEO and is an attorney by training. He is responsible for the SBRR's external relations (other than marketing of its transportation services). This includes community and government relations including legal and financial matters. Operating issues are the responsibility of Vice President – Operations who reports to the President. The President does not need a large staff to assist him with these functions because the company is not publicly-owned/traded and does not have to compete for business with other railroads or modes of transportation. As such, this position is only supported by an Administrative Assistant.

3. Controller/Treasurer

The SBRR's Controller/Treasurer is responsible for all accounting functions, including direction of all billing, vendor payment processing, payroll, budgeting, and auditing as well as managing the company's cash and investments. This position also manages the receipt of funds from customers and the SBRR's connecting carriers and monitors and supervises debt payment requirements.

The Manager – Payrolls, the Manager – Budgets and Purchasing, and the Manager – Claims & Internal Auditing all report to the Controller/Treasurer.

a. Manager – Payrolls

The Manager – Payrolls is responsible for overseeing all accounts payable, including employee and payroll processing, issuing vendor payments, advising the Controller/Treasurer on cash requirements, and reviewing all contracts with outside suppliers. He is assisted by two (2) Analysts.

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b. Manager – Budgets and Purchasing

The Manager – Budgets and Purchasing is responsible for preparation of the annual budget and for the company-wide purchasing function. The SBRR is a new railroad with new track and bridges and new locomotives, cars and other equipment, so equipment and track-material purchases should be limited during the first five years of its existence. Purchases are limited on a daily basis, and the SBRR does not have anything remotely approaching the purchasing demand of a major railroad like NS.

c. Manager – Claims & Internal Auditing

Although the SBRR employs an outside auditing firm, SunBelt's experts have added a Manager – Claims & Internal Auditing to ensure adequate oversight of the company's various financial and accounting functions.[1] This position is also responsible for the administration of claims on a system-wide basis (including supervision of the out-sourced risk and claims management contractor), for government safety reporting and representing the SBRR in industry associations and safety forums.

4. Director – Real Estate & Security

The Director – Real Estate & Security is responsible for sales, acquisitions and easements of real estate on the SBRR. The Manager – Information Technology and the Security Agents report to the Director – Real Estate & Security.

a. Security Agents

The SBRR's security needs can be met with two (2) Security Agents, one assigned to Birmingham, AL and the other assigned to Meridian, MS. The Security Agents may also call in

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[1] *See AEP Texas* at 56-57.

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local public police forces, should assistance to handle a particular incident be required. This is common practice for railroads which rely increasingly on local police.

b. Manager – Information Technology

The Manager – Information Technology oversees the IT function of the SBRR and ensures the IT requirements of the various company departments are met. The six (6) IT Specialists report to the Manager – IT. The SBRR's IT systems and associated personnel were developed by SunBelt Witness Kruzich, who has considerable experience with the IT function at Class I and other railroads. The SBRR does not have a main-frame environment, but rather a NT/PC-based system. This means far less IT effort is required than a typical Class I railroad due to the relative simplicity of a NT/PC-based system and the fact that much of the IT requirements will be outsourced to RMI (i.e., Transportation, Revenue, Intermodal and Car Hire functions).

The Manager – Information Technology also 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 primary function of the IT staff is to trouble-shoot various problems with vendors, coordinate the transportation software applications with the outside vendor (RMI, Oracle, Scat, Alstom) and the business users, and monitor the network infrastructure and critical security systems. There will also be occasions when enhancements will be required to the crew-calling, accounting, human resources and dispatching systems. The SBRR's staff of management and IT specialists will be active participants in this effort.

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c. Information Technology Specialists

In addition to the Manager – Information Technology, the SBRR has six (6) IT Specialists. These include: 1) an RMI Technician, responsible for all RMI applications and who serves as a liaison to RMI and other user Departments; 2) a Help Desk Technician who takes calls from the various users and reroutes the call to the appropriate IT personnel for immediate handling. This individual also follows up with the user to ensure the problem has been resolved. This assignment is during regular business hours with an answering machine to take calls during nights and weekends; 3) a Network Engineer who is responsible for network security matters and local area network ("LAN") and wide area network ("WAN") functionality. This position is responsible for planning, designing and managing transmission facilities and cabling and communications devices, and also handling any telecommunications issues that may occur; 4) a Programmer Development Technician who is responsible for maintaining and upgrading the crew calling, accounting, human resources and dispatchers systems. This position helps manage the crew calling, dispatching and accounting systems and is also responsible for a corporate information website; 5) an Exchange 2007 Engineer who is responsible for messaging design and implementation of the Windows 2007 Exchange server environment. This individual will also have responsibility for data management which includes design, configuration and implementation of data base systems, backup data bases for recovery, recovery and system monitoring; and 6) a Security Technician responsible for defining the security model to protect against cyber security vulnerabilities, protecting internal and external railroad data from malicious attack.

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5. Director – Sales & Marketing

This position is responsible for the SBRR's marketing functions which include communications with the railroad's customers. The great majority of SBRR's traffic does not originate or terminate on the SBRR, rather it is interchange received or forwarded from or to other carriers in interchange operations. Therefore the SBRR has minimal direct customer contacts, as these are customers of SBRR's connecting carriers.[2] The Director – Sales & Marketing reports to the President.

6. Director – Human Resources

The SBRR's start-up and training needs are met largely by out-sourcing. This means that the primary responsibility of the in-house human resources staff is to interface with the outside contractor and assure that the SBRR has a pool of employees that enable it to engage in ongoing operations.

Human Resources lends itself well to out-sourcing, and plenty of external resources exist that could support a small operation like the SBRR.

B. COMPENSATION

The salaries and benefits for the SBRR's G&A personnel described above are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries).

Specifically, annual salaries for the G&A personnel are based on data contained in NS's 2010 Wage Forms A and B, with the following exceptions. The salary for the President is based on the salary, including bonuses, paid by the Providence and Worcester Railroad ("P&W") to its

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[2] The concept of out-sourcing part of a SARR's marketing function with supervision/supplementation by a small in-house marketing staff was accepted by the Board in *WFA/Basin* at 45-46 and *AEP Texas* at 54.

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Chairman of the Board and Chief Executive Officer. As discussed in Exhibit III-D-1, the salary for the Vice President – Operations is based on the salary, including bonuses paid by the P&W to its Chief Operating Officer and the salaries paid to the Assistant Vice Presidents are based on those paid by the P&W to its Vice Presidents. The P&W is a publicly traded, regional railroad that operates 516 route miles in five states in the Northeastern United States. The size of the P&W is very similar to the SBRR which operates about 580 route miles in three states in the Southern United States. As shown in Exhibit III-D-1, fringe benefits for all employees are 37.5 percent of wages based on information developed by the AAR. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance and other programs.

The G&A staff salary requirements are summarized in Table 2 below.

Exhibit III-D-2
Table 2
SBRR General & Administrative Salary Requirements

Position	Personnel	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. Outside Directors	2		
2. President and CEO	1	$437,231	$437,231
Administrative Assistant	1	{[redacted]}	{[redacted]}
3. Controller/Treasurer	1	{[redacted]}	{[redacted]}
a. Manager – Payrolls	1	{[redacted]}	{[redacted]}
Analysts	2	{[redacted]}	{[redacted]}
b. Manager – Budgets and Purchasing	1	{[redacted]}	{[redacted]}
c. Manager – Claims & Internal Auditing	1	{[redacted]}	{[redacted]}
4. Director – Real Estate & Security	1	{[redacted]}	{[redacted]}
a. Security Agents	2	{[redacted]}	{[redacted]}
b. Manger – Information Technology	1	{[redacted]}	{[redacted]}
c. IT Specialists	6	{[redacted]}	{[redacted]}
5. Director – Sales & Marketing	1	{[redacted]}	{[redacted]}
6. Director – Human Resources	1	{[redacted]}	{[redacted]}
7. Total General & Administrative	22	xxx	$1,828,957

Source: e-workpaper "SBRR Operating Expense.xls."

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C. MATERIALS, SUPPLIES AND EQUIPMENT

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

The SBRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs. Costs for this equipment have been included in the calculation of the SBRR's annual operating expenses.[3]

Company vehicles are needed at the SBRR's Birmingham, AL headquarters and by field operating personnel. A pool of Ford Explorers (a small SUV with all-wheel drive) is maintained at headquarters for use primarily by the headquarters G&A, Operating and Engineering staffs and Security personnel while traveling to the field on SBRR business. Four (4) Ford Explorers are included as G&A vehicles. These are in addition to the eight (8) Ford Explorers and five (5) Pick-up trucks and one (1) ATV vehicle included in the materials, supplies and equipment expense in the Operations Department.

The SBRR also acquires miscellaneous office equipment and supplies including desks, chairs, copiers, etc. are included in the materials and supplies expenses.[4]

D. OTHER

1. IT Systems

The SBRR does not require a data center facility such as those that Class 1 railroads typically have to house mainframe computer systems and associated peripheral equipment. Since the SBRR IT system design is NT/PC based, this system can be housed in a room approximately 20 feet x 30 feet, with normal office environment heating and air conditioning

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3 *See* e-workpaper "SBRR Operating Expense.xls" and "SBRR Materials and Supplies.xls."
4 *See* e-workpaper "SBRR Materials and Supplies.xls."

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accommodations. This room would be located in the SBRR headquarters at Birmingham, AL. It should be further noted, that most of SBRR's computer requirements will be outsourced to RMI in Atlanta. The SBRR has an average of 54 train movements per day in the peak week, as well as a limited number of local customers and interchange points. It also handles primarily train-load movements, with multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the computer and communication systems required to support operations and renders unnecessary, the colossally expensive mainframe systems that large carriers such as NS use. Thus, the SBRR does not require a large data facility to house a mainframe computer system and associated peripheral equipment.

The SBRR's computer and IT communications systems have been designed to meet the company's mission-critical technology needs to achieve operating efficiencies, customer satisfaction, optimum staffing,[5] maximum productivity, and safe train operations.

Based on the SBRR operating plan and G&A staff departments, the capital requirements for IT and communications systems equal $1.8 million and the annual annuitized capital costs are $312,762.[6] The annual operating cost for IT and related communications equals $2.5 at 3Q11 price levels.[7] Table 3 below shows the capital and annual operating expenses separately for information technology and related communications systems.

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[5] The SBRR'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.
[6] *See* e-workpaper "SBRR-Capital Budget.xls."
[7] *See* e-workpaper "SBRR Operating Budget.xls."

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Exhibit III-D-2
Table 3
Capital And Operating Costs For
SBRR IT And Communications Systems

Item	Capital Cost	Operating Expense
(1)	(2)	(3)
1. Information Technology	$1,758,627	$2,321,668
2. Communications	32,509	130,914
3. Total	$1,791,136	$2,452,582

Source: e-workpaper "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."

These costs are based on the SBRR's highest daily train counts and number of annual carload transactions.

a. Transportation System

The key item in the SBRR information technology architecture is RMI's Transportation Management Services ("TMS") package. TMS is an integrated system for managing day-to-day rail operations that is currently used by several regional railroads, such as Genesee & Wyoming, Inc., the second largest operator of short line and regional railroads in North America. 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 Birmingham, AL (where the major transaction reporting occurs) to Atlanta, GA, where RMI is located. Field personnel access the RMI system via the Internet. The annual operating expense equals $1,397,037 for the RMI system.[8]

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[8] *See* e-workpaper "SBRR-Operating Budget.xls."

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b. Crew Management System

A crew management system is needed to efficiently manage the SBRR train crews and equipment. The SBRR 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 140 train/engine/yard employees and four (4) crew-change points over the SBRR system. It also minimizes the need for a large staff of crew callers or other crew management personnel. Total capital costs for the crew management system equal $464,975.[9]

c. Dispatching System

A computerized dispatching system, assisted by two (2) dispatcher positions[10] on a 24/7 basis, monitors the movement of trains and other equipment at all times, and distributes traffic efficiently across the railroad. The SBRR will purchase and implement a PTC system for train control and communications. The IT system requirements of the PTC system are included in the signal and communications investment account.

d. Revenue Accounting

The SBRR needs a revenue system to handle interline settlements for all the trainload transactions and the multiple-car transactions (the smallest revenue block of cars handled by the SBRR in a single transaction is a single car). RMI has a revenue system that meets the SBRR'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

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9 *See* e-workpaper "SBRR-Capital Budget.xls."

10 A total of nine (9) dispatchers are required to man these two (2) positions on a 24/7 basis.

ISS. ISS/Connect provides complex rate management, EDI management, freight billing, support for industry reference files, revenue protection, and additional functionality. The RMS costs are based on the total monthly settlements. The SBRR has an estimated 667,500 carloads annually that are processed through the revenue management system at a cost of $542,160.[11]

e. Car Accounting

The SBRR needs a receipt and payable car hire system because the SBRR 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 for the SBRR to keep track of its cars off-line and foreign cars on-line. This system computes charges due SBRR from foreign railroads and the SBRR's payables to foreign roads. The system separates car earnings by designnated owner groups, issues remittance and settlement summaries, flags non-moving cars and missing junctions, and helps keep track of assets with on-line access to car movement data. The annual operating expense for this system ($74,796) is based on the number of non-private interchange cars handled per month.[12]

f. General Accounting

The SBRR uses the Saga MAS 200 for its general accounting system. MAS 200 offers fully automated solutions to support the complete Financial Control and Reporting process – from establishing and managing controls, creating and interfacing transactions from operational sources, transforming ledger balances 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. The software is designed

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[11] *See* e-workpaper "SBRR-Operating Budget.xls."
[12] Id.

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to run on Windows 7 and Windows NT operating systems. The total operating and capital costs for this system, including hardware and training, is $83,468, which includes a Dell OptiPlex 390 PC, cables, HP LaserJet 2055n printer and Dell PowerEdge T410 Servers. [13]

g. Human Resource Management

The SBRR will use Optimum Solutions package for its Human Resources ("HR") System. Optimum Solutions Human Resources Package delivers comprehensive HR capabilities, from workforce management to compensation management. Extensive business process automation and rich self-service capabilities free HR teams to perform value-added services while reducing operational costs. This system covers the SBRR's human resource data needs at an affordable cost. The software package includes all basic employee reporting features, employee profile tracking, attendance reports, benefit, insurance and COBRA reports, compensation/job history reports, EEO and citizenship reports, organizational reports, and all OSHA and workers' compensation reports. The system uses a Dell OptiPlex 390 PC, cables, an HP Laser Jet 2055 printer and a Dell PowerEdge T410 Server. The total operating and capital cost for this system, including hardware and training, is $27,606.[14]

h. Network and Router Equipment

The SBRR needs networking capability and routers because it has a number of computers in multiple locations. Networking and router equipment permit these computers to communicate with one another. The SBRR needs one router at each field reporting location and one at its headquarters. The SBRR will need e-mail capabilities for most of its employees to communicate among themselves on various issues which is provided using Microsoft Cloud, the most efficient

[13] *See* e-workpaper "SBRR-Capital Budget.xls."
[14] Id.

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method. The details are identified in the Capital and Operating Budget Statements. The SBRR's communications network consists of a microwave and commercial telephone system. The costs for these items are included in the network infrastructure costs discussed in Part III-F. The IT operating-expense budget includes a network computer system for LAN and WAN, routers at various locations, and internet access for headquarters and field locations.[15]

i. Workstations and Printers

Both desktop and laptop PC's are provided, and included in the SBRR'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 the 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 equals $120,970.[16]

The SBRR needs a variety of printers for work orders, safety bulletins and normal office work such as printing contracts, correspondence and reports. A color printer is needed for various maps, charts and diagrams. Printers are also 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 printer at headquarters, and one line printer at each of the SBRR's yards. The total capital cost for printers for the SBRR equals $33,364.[17]

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[15] *See* e-workpaper "SBRR-Operating Budget.xls."
[16] *See* e-workpaper "SBRR-Capital Budget.xls."
[17] Id.

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j. Voice and Data Communications

The SBRR needs a telephone system and telephone service to handle external and internal telephone activity. NexPath provides this service for all of SBRR telephone service needs. This system includes traditional telephone for each administrative employee, the NTS telephone system, a voicemail system and a calling card system. NexPath telephone Server – NTS Server Rack Mounted system is capable of handling 51 outside lines and 85 extensions. 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, toll-free incoming calls, paging and faxing service.

Data telecommunications to support the RMI transportation system from Birmingham, AL to Atlanta, GA is 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. Cellular phones and pagers are provided for employees who need them to perform their work efficiently. The capital costs for this system equals $32,509[18] and the annual operating expenses equal $130,914.[19]

k. Automatic Equipment Identification

Automatic equipment identification ("AEI") includes a track-side scanner that reads information from each car (car number and initial) in a manner similar to reading a bar code. That information is accumulated on a PC while the train passes a specific site where the scanner is installed. These readings are then compared to the train consist residing on a computer to

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[18] Id.
[19] *See* e-workpaper "SBRR-Operating Budget.xls."

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determine if there are any discrepancies. If discrepancies exist, the consist record is adjusted to agree with the reading from the scanner.

The SBRR's AEI scanner locations are discussed in Part III-F-6. The capital costs for AEI scanners are included in the SBRR's road property investment costs.

l. 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 Optimum Solutions Products , 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 upgrade announcements from time to time with a specified charge for the upgrade. The annual software maintenance fees, payable by the SBRR, equal $14,250.[20]

m. Railinc Services

The SBRR requires some Railinc services to pass and receive car location information to/from NS and its other interchange partners for the various interchange locations. The annual cost for Railinc service equals $34,776.[21]

n. Network Security

The SBRR also needs security software to protect its network from exterior intrusion due to the large amount of data that is transmitted to Atlanta and other parts of the railroad. The system to be used is the Watchguard Firebox X6500e UTM Software Suite. The Watchguard

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[20] Id.
[21] Id.

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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.[22]

2. Other Out-Sourced Functions

As described earlier, several functions customarily provided in-house by large Class I railroads can be efficiently out-sourced by the SBRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, out-sourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Out-sourced functions, in addition to those described in the preceding section, include initial training of operating employees (discussed in more detail below), several finance and accounting functions, including preparation of income, property and payroll tax returns and financial/account auditing, legal services, including claims administration and investigation, and administration of the company's retirement plan.[23]

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 SBRR's internal human resources staff.

Estimated annual costs of $615,900 have been developed for outsourcing all of the functions described above.[24]

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[22] *See* e-workpapers "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."
[23] *See* e-workpaper "SBRR GA Outsourcing."
[24] Id.

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3. Start-Up and Training Costs

The SBRR's start-up and training costs have been calculated using the procedures approved by the Board in *WFA/Basin* at 51-54. Initial training costs for the SBRR's train crew personnel equal $4.4 million. Training for the T&E employees is based on information provided by NS in discovery as to the actual expense it incurs for training engineers and conductors.

The duration of training for conductors is based on information provided by NS in discovery. Conductors and engineers are compensated during classroom training at a rate of {[redacted]} per week and {[redacted]} per week, respectively. The duration of training for conductors is also based on information provided by NS in discovery and equals {[redacted]} weeks of classroom training and {[redacted]} weeks of on the job training for a total of {[redacted]} weeks. The duration of training for engineers is {[redacted]} weeks for classroom training and {[redacted]} weeks for on the job training, also based on information provided by NS in discovery.[25] The average training cost for train and enginemen is {[redacted]} per individual, including tuition and salary as appropriate.[26]

Training for the SBRR's dispatchers is based on information provided by NS in discovery, {[redacted]} weeks of classroom training and {[redacted]} weeks of field training. According to NS's data, dispatchers are paid a salary of {[redacted]} per week during training. The total cost of training for dispatchers equals {[redacted]} including the wages and the cost of training.

Training costs for the SBRR's MOW employees are based on the training costs incurred by NS. The training cost for all MOW field employees (except welders and signal maintainers) equals ${[redacted]} for technical training and two (2) week's pay equal to 52 percent of their

[25] *See* e-workpaper "SBRR Training Cost.xlsx."
[26] *See* e-workpaper "SBRR Operating Expense.xls" tab "T&E Training."

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salary.[27] Training cost for welders and signal maintainers equals salary of {[redacted]}, respectively, plus the {[redacted]} for technical training. Salaries are increased to reflect fringe benefits and the training costs includes wages, fringes, training cost and room and board – *i.e.*, this is an all-inclusive training cost paid by NS to train MOW employees.[28]

IT Specialists are paid five (5) weeks' salary to set up the SBRR's computer system.[29]

Recruiting costs have been added at {[redacted]} per employee based on information provided by NS in discovery. The amounts provided in discovery include expenditures for advertising, outside professional and consulting services, communications, temporary services, college funding, testing, travel and meetings. The expenses provided by NS cannot be distinguished between rank and file and managerial and executive employees and as a result one amount per employee is calculated for all employees.[30] Subsequent annual recruitment and training expenses are based on a 1.8 percent average annual attrition rate, which was determined from the Report of Dr. Robert Topel, PhD., submitted to the Emergency Board No. 243 on behalf of the Railroads Represented by the National Carriers' Conference in National Mediation Board Case Nos. A-13569; A-13570; A-13572; A-13573; A-13574; A-13575; A-13592 on October 10, 2011.[31]

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[27] The 52 percent of salary for MOW field employee wages is based on the percent of salary paid to other trainee employees as calculated from data in NS discovery, *see* e-workpaper "SBRR Training Cost.xlsx", tab "Program Summary."

[28] *See* e-workpaper "SBRR Operating Expense.xls, tab "T&E Training."

[29] The public version of AEPCO's Opening Evidence in Docket No. 42113, AEPCO proposal four (4) weeks of entry cost for IT Specialists to set-up the SARR's computer systems. *AEPCO* at 63-64 shows Defendants and the Board accepted this cost which is only 80 percent of that provided for herein.

[30] *See* e-workpaper "SBRR Recruiting Cost.xlsx."

[31] A copy of the pertinent pages from Dr. Topel's report are attached in e-workpaper "Attrition Rate.pdf."

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A total amount of $5.3 million has been provided for initial SBRR training and recruiting costs.[32] Consistent with *WFA/Basin*, start-up training and recruitment costs are treated as operating expense in the SBRR's first year of operations.

Travel expenses have been included for all SBRR employees at the Manager level and higher and for the two (2) outside members of the Board of Directors. Annual travel expenses of $10,475 per employee are included. This amount is based on the most recent available annual survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.[33] The SBRR's other start-up costs, road property investment costs including construction of fixed facilities, which are included in the SBRR's capital costs, and equipment acquisition are discussed in other sections of Part III.

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[32] *See* e-workpaper "SBRR Operating Expense.xls", tab "Training."
[33] *See* e-workpapers "SBRR Operating Expense.xls" and "III-D-3 G&A Other.pdf."

PART III-F

TAB 1

ROAD PROPERTY INVESTMENT

($ in Millions)

Item (1)	Amount (2)
1. Land	$199
2. Roadbed Preparation	244
3. Track Construction	537
4. Tunnels	0
5. Bridges	316
6. Signals and Communications	95
7. Buildings and Facilities	17
8. Public Improvements	8
9. Subtotal	$1,416
10. Mobilization	33
11. Engineering	122
12. Contingencies	137
13. Total	$1,708

Source: See e-workpaper "III-F Total.xlsx"

PART III-H

TAB 1

TABLE A: SRR 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)	SRR 's Cost of Debt (6)	SRR 's Cost of Preferred Equity (7)	SRR '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)
2009	10.43%	5.72%	0.00%	12.37%	5.72%	0.00%	12.37%	29.10%	0.00%	70.90%	10.43%	1.1043	29.10%
2010	11.03%	4.61%	0.00%	12.99%	4.61%	0.00%	12.99%	23.37%	0.00%	76.63%	11.03%	1.1103	23.37%
2011	11.57%	3.97%	0.00%	13.57%	3.97%	0.00%	13.57%	20.83%	0.00%	79.17%	11.57%	1.1157	20.83%
2012					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2013					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2014					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2015					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2016					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2017					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2018					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2019					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2020					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2021					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	

1/ Cost of railroad industry debt from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.
2/ No preferred equity was issued in 2009 - 2011.
3/ Cost of railroad industry common equity from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.
4/ Railroad industry capital structure from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.

TABLE B: SRR INFLATION INDEXES

Period (1)	Land 1/ (2)	Hybrid RCAF 2/ (3)	MWSExFuel 3/ (4)	Mat & Suppl 4/ (5)	Wages & Supps 5/ (6)
1Q 2009	100.0		423.9	319.5	444.1
2Q 2009	96.9		422.7	305.5	445.8
3Q 2009	94.7		425.8	312.5	448.0
4Q 2009	93.3		421.7	302.2	445.4
1Q 2010	93.7		451.4	311.2	479.7
2Q 2010	95.1		448.8	305.2	477.9
3Q 2010	97.0		448.1	304.5	477.1
4Q 2010	99.3		451.7	322.0	477.5
1Q 2011	101.1		453.9	314.7	481.9
2Q 2011	103.0		454.5	309.1	484.0
3Q 2011	105.1	100.0	460.7	329.4	486.8
4Q 2011	107.2	100.1	466.7	331.8	493.5
1Q 2012	109.5	96.9	466.4	331.4	493.2
2Q 2012	111.3	98.2	476.6	344.5	502.7
3Q 2012	113.1	97.0	486.1	346.2	513.8
4Q 2012	115.0	99.0	495.0	348.3	524.0
1Q 2013	116.9	99.7	504.1	350.7	534.5
2Q 2013	118.9	100.3	504.7	351.8	535.0
3Q 2013	120.9	100.7	509.3	355.0	539.9
4Q 2013	122.9	101.3	514.1	356.7	545.3
1Q 2014	124.9	101.7	519.3	358.5	551.3
2Q 2014	127.0	102.1	520.1	360.3	551.8
3Q 2014	129.1	102.6	526.0	362.5	558.4
4Q 2014	131.3	103.4	532.1	365.7	565.1
1Q 2015	133.5	103.9	537.5	368.2	571.1
2Q 2015	135.7	104.4	542.9	370.6	577.2
3Q 2015	138.0	105.0	548.4	373.1	583.3
4Q 2015	140.3	105.5	553.9	375.6	589.4
1Q 2016	142.7	105.9	558.5	377.3	594.7
2Q 2016	145.1	106.4	563.2	379.0	600.0
3Q 2016	147.5	106.8	567.9	380.7	605.3
4Q 2016	150.0	107.2	572.6	382.4	610.7
1Q 2017	152.5	107.7	577.5	383.8	616.2
2Q 2017	155.0	108.2	582.4	385.2	621.9
3Q 2017	157.6	108.7	587.3	386.7	627.5
4Q 2017	160.3	109.1	592.3	388.1	633.3
1Q 2018	163.0	109.6	597.4	389.6	639.2
2Q 2018	165.7	110.1	602.6	391.2	645.2
3Q 2018	168.5	110.6	607.9	392.8	651.2
4Q 2018	171.4	111.0	613.2	394.3	657.3
1Q 2019	174.3	111.5	618.4	395.8	663.3
2Q 2019	177.2	111.9	623.6	397.3	669.4
3Q 2019	180.2	112.3	628.9	398.7	675.5
4Q 2019	183.3	112.8	634.2	400.2	681.6
1Q 2020	186.4	113.1	639.4	401.7	687.7
2Q 2020	189.5	113.5	644.7	403.2	693.8
3Q 2020	192.7	113.8	650.0	404.7	700.0
4Q 2020	196.0	114.1	655.4	406.2	706.2
1Q 2021	199.3	114.9	660.8	408.2	712.3
2Q 2021	202.7	115.6	666.2	410.3	718.4
3Q 2021	206.1	116.3	671.6	412.3	724.6
Annual Inflation Rate 6/	7.00%		3.88%	2.85%	4.02%

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 National Council of Real Estate Investment Fiduciaries.
2/ Used to index expenses in Table K. Based on the RCAF-U and RCAF-A through 3Q12 then Global Insight 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 2Q12 then Global Insight forecast.
4/ Used to index Road Property Accounts 8, 9, and 11. Based on RCR indexes - East Region through 2Q12 then Global Insight forecast for remaining periods.
5/ Used to index Road Property Accounts 1, 1A and 12. Based on RCR indexes - East Region through 2Q12 then Global Insight forecast for remaining periods.
6/ 1Q2009 ÷ 3Q2021^(1/12.5) - 1. The Annual Rate is used to develop asset replacement values at the end of asset lives.

TABLE C: SRR PROPERTY INVESTMENT VALUES

Construction of the SRR occurs between February 28, 2009 and July 29, 2011.
Investments are assumed to be in July 30, 2011 dollars.

Property Account (1)	Property Component (2)	Service Life In Years 1/ (3)	Investment In 7/30/2009 Dollars 2/ (4)	Investment In 7/30/2010 Dollars 3/ (5)	Investment In 7/30/2011 Dollars 4/ (6)	2009 Investment Value 5/ (7)	2010 Investment Value 6/ (8)	2011 Investment Value 7/ (9)	Total Property Investment 3Q 2011 8/ (10)
1	Engineering	NA	$123,271,586	$131,278,736	$133,947,786	$96,856,246	$28,131,158	$0	$124,987,404
2	Land	NA	179,177,216	183,467,600	$198,900,000	179,177,216	0	0	179,177,216
3	Grading	95	241,014,263	253,636,664	$260,768,603	103,291,827	144,935,236	0	248,227,063
5	Tunnels	120	0	0	$0	0	0	0	0
6	Bridges & Culverts	96	344,391,387	362,427,855	$372,618,864	0	265,780,427	99,365,030	365,145,457
8	Ties	23	116,025,411	113,055,161	$122,300,065	0	75,370,107	40,766,688	116,136,795
9	Rails and OTM	40	275,743,766	268,684,726	$290,655,989	0	179,123,150	96,885,330	276,008,480
11	Ballast	40	79,653,521	77,614,391	$83,961,183	0	51,742,927	27,987,061	79,729,988
12	Labor	36	100,643,558	107,180,896	$109,360,009	0	71,453,931	36,453,336	107,907,267
13	Fences and Roadway Signs	95	576,023	606,191	$623,236	0	404,127	207,745	611,872
16	Stations and Office Buildings	43	0	0	$0	0	0	0	0
17	Roadway Buildings	44	16,996,727	17,886,880	$18,389,836	0	17,886,880	0	17,886,880
19	Fuel Stations	31	394,014	414,650	$426,309	0	414,650	0	414,650
20	Shops and Enginehouses	50	996,822	1,049,027	$1,078,524	0	1,049,027	0	1,049,027
26	Communications Systems	26	26,917,437	28,327,157	$29,123,681	0	4,721,193	24,269,734	28,990,927
27	Signals and Interlockers	56	71,891,762	75,656,877	$77,784,252	0	12,609,480	64,820,210	77,429,690
39	Public Improvements	13	7,905,271	8,319,286	$8,553,214	0	5,546,191	2,851,071	8,397,262
	Total		$1,585,598,765	$1,629,606,096	$1,708,491,551	$379,325,290	$859,168,483	$393,606,206	$1,632,099,980

1/ 1 ÷ Depreciation Rate shown in Schedule 332 of NS' 2011 Annual Report R-1.
2/ July 30, 2011, indexed to 2009 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2009 ÷ 3Q2011.
3/ July 30, 2011, indexed to 2010 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2010 ÷ 3Q2011.
4/ July 30, 2011, indexed to 2011 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2011 ÷ 3Q2011.
5/ Column (4) x Percent constructed in 2009.
6/ Column (5) x Percent constructed in 2010.
7/ Column (6) x Percent constructed in 2011.
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 and 5 Investment 2/ (5)	Timing of Accounts 6, 13 through 20 and 39 Investment 2/ (6)	Timing of Accounts 8 through 12, 26 and 27 Investment 2/ (7)	Total Investment by Month 3/ (8)	Interest During Construction 4/ (9)	Cost of Debt 5/ (10)	Deductible Interest During Construction 6/ (11)
Feb-09	0.83%	$8,805,113	$0	$0	$0	$0	$8,805,113	$0	0.46%	$0
Mar-09	0.83%	8,805,113	0	0	0	0	8,805,113	73,132	0.46%	11,905
Apr-09	0.83%	8,805,113	0	0	0	0	8,805,113	146,871	0.46%	23,908
May-09	0.83%	8,805,113	0	0	0	0	8,805,113	221,222	0.46%	36,011
Jun-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	296,192	0.46%	48,215
Jul-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	584,380	0.46%	95,127
Aug-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	874,961	0.46%	114,384
Sep-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	1,167,956	0.46%	152,687
Oct-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	1,463,385	0.46%	191,308
Nov-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	2,047,234	0.46%	267,635
Dec-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	2,635,933	0.46%	344,595
Jan-10	0.88%	9,377,053	0	36,233,809	0	0	45,610,862	3,405,632	0.38%	341,931
Feb-10	0.88%	9,377,053	0	36,233,809	24,161,857	0	69,772,719	3,834,943	0.38%	385,034
Mar-10	0.88%	9,377,053	0	36,233,809	27,386,950	0	72,997,811	4,479,637	0.38%	449,762
Apr-10	0.88%	0	0	36,233,809	27,386,950	0	63,620,759	5,158,225	0.38%	517,894
May-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	5,760,627	0.38%	578,376
Jun-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	6,470,966	0.38%	649,695
Jul-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	7,187,526	0.38%	721,638
Aug-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	7,910,362	0.38%	707,892
Sep-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	8,639,529	0.38%	773,145
Oct-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	9,346,836	0.38%	836,441
Nov-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	10,060,338	0.38%	900,292
Dec-10	0.88%	0	0	0	24,905,647	64,541,937	89,447,584	10,780,089	0.38%	964,702
Jan-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	12,199,629	0.32%	900,975
Feb-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	13,172,515	0.32%	972,825
Mar-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	14,154,318	0.32%	1,045,334
Apr-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	15,145,120	0.32%	1,118,507
May-11	0.92%	0	0	0	0	17,817,989	17,817,989	16,145,003	0.32%	1,192,352
Jun-11	0.92%	0	0	0	0	0	0	16,456,291	0.32%	1,215,341
Jul-11	0.92%	0	0	0	0	0	0	16,607,120	0.32%	1,226,480
Total		$124,987,404	$179,177,216	$248,227,063	$393,505,148	$686,203,147	$1,632,099,980	$196,425,973		$16,784,391

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 (7).
4/ February 2009 equals Column (2) x prior Column (8), all other periods equal Column (2) x ((Sum of Column (8) for all prior periods) + (Sum of Column (9) for all prior periods)).
5/ ((1 + Cost of Debt from Table A for the applicable year)^(1/12) - 1) x 100.
6/ February 2009 equals prior Column (8) x Column (10) x Table A, Column (9) for 2009, all other periods equal Column (10) x ((Sum of Column (8) for all prior periods) + (Sum of Column (9) for all prior periods)) x Table A, Column (9) for the applicable year.

TABLE E: SRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL

INTEREST SCHEDULE FOR THE SRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP			INTEREST SCHEDULE FOR THE SRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP			INTEREST SCHEDULE FOR THE SRR 2011 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$379,325,290	1/	1. TOTAL INVESTMENT	$859,168,483	1/	1. TOTAL INVESTMENT	$393,606,206	1/
2. IDC	$9,511,266	2/	2. IDC	$83,034,710	2/	2. IDC	$103,879,997	2/
3. PRINCIPAL	$113,151,438	3/	3. PRINCIPAL	$220,192,886	3/	3. PRINCIPAL	$103,626,376	3/
4. INTEREST	5.72%	4/	4. INTEREST	4.61%	4/	4. INTEREST	3.97%	4/
5. TERM (QUARTERS)	80	5/	5. TERM (QUARTERS)	80	5/	5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,584,472	6/	6. QUARTERLY COUPON	$2,494,996	6/	6. QUARTERLY COUPON	$1,013,525	6/

Quarter (1)	Interest 7/ (2)	Quarter (3)	Interest 7/ (4)	Quarter (5)	Interest 7/ (6)
1	$1,584,472	1	$2,494,996	1	$1,013,525
2	1,584,472	2	2,494,996	2	1,013,525
3	1,584,472	3	2,494,996	3	1,013,525
4	1,584,472	4	2,494,996	4	1,013,525
5	1,584,472	5	2,494,996	5	1,013,525
6	1,584,472	6	2,494,996	6	1,013,525
7	1,584,472	7	2,494,996	7	1,013,525
8	1,584,472	8	2,494,996	8	1,013,525
9	1,584,472	9	2,494,996	9	1,013,525
10	1,584,472	10	2,494,996	10	1,013,525
11	1,584,472	11	2,494,996	11	1,013,525
12	1,584,472	12	2,494,996	12	1,013,525
13	1,584,472	13	2,494,996	13	1,013,525
14	1,584,472	14	2,494,996	14	1,013,525
15	1,584,472	15	2,494,996	15	1,013,525
16	1,584,472	16	2,494,996	16	1,013,525
17	1,584,472	17	2,494,996	17	1,013,525
18	1,584,472	18	2,494,996	18	1,013,525
19	1,584,472	19	2,494,996	19	1,013,525
20	1,584,472	20	2,494,996	20	1,013,525
21	1,584,472	21	2,494,996	21	1,013,525
22	1,584,472	22	2,494,996	22	1,013,525
23	1,584,472	23	2,494,996	23	1,013,525
24	1,584,472	24	2,494,996	24	1,013,525
25	1,584,472	25	2,494,996	25	1,013,525
26	1,584,472	26	2,494,996	26	1,013,525
27	1,584,472	27	2,494,996	27	1,013,525
28	1,584,472	28	2,494,996	28	1,013,525
29	1,584,472	29	2,494,996	29	1,013,525
30	1,584,472	30	2,494,996	30	1,013,525
31	1,584,472	31	2,494,996	31	1,013,525
32	1,584,472	32	2,494,996	32	1,013,525
33	1,584,472	33	2,494,996	33	1,013,525
34	1,584,472	34	2,494,996	34	1,013,525
35	1,584,472	35	2,494,996	35	1,013,525
36	1,584,472	36	2,494,996	36	1,013,525
37	1,584,472	37	2,494,996	37	1,013,525
38	1,584,472	38	2,494,996	38	1,013,525
39	1,584,472	39	2,494,996	39	1,013,525
40	1,584,472	40	2,494,996	40	1,013,525

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 E: SRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL
(Continued)

INTEREST SCHEDULE FOR THE SRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP			INTEREST SCHEDULE FOR THE SRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP			INTEREST SCHEDULE FOR THE SRR 2011 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$379,325,290	1/	1. TOTAL INVESTMENT	$859,168,483	1/	1. TOTAL INVESTMENT	$393,606,206	1/
2. IDC	$9,511,266	2/	2. IDC	$83,034,710	2/	2. IDC	$103,879,997	2/
3. PRINCIPAL	$113,151,438	3/	3. PRINCIPAL	$220,192,886	3/	3. PRINCIPAL	$103,626,376	3/
4. INTEREST	5.72%	4/	4. INTEREST	4.61%	4/	4. INTEREST	3.97%	4/
5. TERM (QUARTERS)	80	5/	5. TERM (QUARTERS)	80	5/	5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,584,472	6/	6. QUARTERLY COUPON	$2,494,996	6/	6. QUARTERLY COUPON	$1,013,525	6/

Quarter (1)	Interest 7/ (2)	Quarter (3)	Interest 7/ (4)	Quarter (5)	Interest 7/ (6)
41	$1,584,472	41	$2,494,996	41	$1,013,525
42	1,584,472	42	2,494,996	42	1,013,525
43	1,584,472	43	2,494,996	43	1,013,525
44	1,584,472	44	2,494,996	44	1,013,525
45	1,584,472	45	2,494,996	45	1,013,525
46	1,584,472	46	2,494,996	46	1,013,525
47	1,584,472	47	2,494,996	47	1,013,525
48	1,584,472	48	2,494,996	48	1,013,525
49	1,584,472	49	2,494,996	49	1,013,525
50	1,584,472	50	2,494,996	50	1,013,525
51	1,584,472	51	2,494,996	51	1,013,525
52	1,584,472	52	2,494,996	52	1,013,525
53	1,584,472	53	2,494,996	53	1,013,525
54	1,584,472	54	2,494,996	54	1,013,525
55	1,584,472	55	2,494,996	55	1,013,525
56	1,584,472	56	2,494,996	56	1,013,525
57	1,584,472	57	2,494,996	57	1,013,525
58	1,584,472	58	2,494,996	58	1,013,525
59	1,584,472	59	2,494,996	59	1,013,525
60	1,584,472	60	2,494,996	60	1,013,525
61	1,584,472	61	2,494,996	61	1,013,525
62	1,584,472	62	2,494,996	62	1,013,525
63	1,584,472	63	2,494,996	63	1,013,525
64	1,584,472	64	2,494,996	64	1,013,525
65	1,584,472	65	2,494,996	65	1,013,525
66	1,584,472	66	2,494,996	66	1,013,525
67	1,584,472	67	2,494,996	67	1,013,525
68	1,584,472	68	2,494,996	68	1,013,525
69	1,584,472	69	2,494,996	69	1,013,525
70	1,584,472	70	2,494,996	70	1,013,525
71	1,584,472	71	2,494,996	71	1,013,525
72	1,584,472	72	2,494,996	72	1,013,525
73	1,584,472	73	2,494,996	73	1,013,525
74	1,584,472	74	2,494,996	74	1,013,525
75	1,584,472	75	2,494,996	75	1,013,525
76	1,584,472	76	2,494,996	76	1,013,525
77	1,584,472	77	2,494,996	77	1,013,525
78	1,584,472	78	2,494,996	78	1,013,525
79	1,584,472	79	2,494,996	79	1,013,525
80	1,584,472	80	2,494,996	80	1,013,525

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: SRR PRESENT VALUE OF REPLACEMENT COST

Property Account (1)	Property Component (2)	Service Life In Years 1/ (3)	Investment 2/ (4)	Salvage 3/ (5)	Replacement Year Asset Net Cost 4/ (6)	Replacement Cost Adjusted To Reflect An Infinite Life 5/ (7)	Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2011 Dollars) 6/ (8)
3	Grading	95	$11,154,519,902	$0	$9,509,087,481	$9,521,401,703	$454,633
5	Tunnels	120	0	0	0	0	0
6	Bridges & Culverts	96	16,990,524,875	0	11,452,137,131	11,466,047,793	497,537
8	Ties	23	264,859,815	0	168,633,550	211,206,276	19,234,873
9	Rails and OTM	40	1,016,776,389	65,289,165	610,275,741	650,075,493	9,956,962
11	Ballast	40	293,714,053	0	187,004,750	199,200,455	3,051,079
12	Labor	36	529,624,951	0	337,206,820	367,363,263	8,725,851
13	Fences and Roadway Signs	95	27,495,564	0	18,532,857	18,556,857	886
16	Stations and Office Buildings	43	0	0	0	0	0
17	Roadway Buildings	44	114,536,819	0	77,201,344	80,935,064	811,741
19	Fuel Stations	31	1,595,612	0	1,075,491	1,218,569	49,443
20	Shops and Enginehouses	50	8,423,934	0	5,677,991	5,856,341	31,556
26	Communications Systems	26	93,521,741	0	59,544,341	71,078,008	4,679,514
27	Signals and Interlockers	56	786,682,398	22,650,911	489,128,546	498,998,854	1,409,845
39	Public Improvements	13	16,226,237	0	10,936,984	18,710,350	5,027,806
	Total		$31,298,502,289	$87,940,076	$22,926,443,028	$23,110,649,026	$53,931,724

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: SRR 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 3Q 2011 Investment (4)	Depreciable Base (5)
1	Engineering	5	$124,987,404	$124,987,404
2	Land	N/A	179,177,216	0
3	Grading	50	248,227,063	248,227,063
5	Tunnels	50	0	0
6	Bridges & Culverts	15	365,145,457	365,145,457
8	Ties	7	116,136,795	116,136,795
9	Rails and OTM	7	276,008,480	276,008,480
11	Ballast	7	79,729,988	79,729,988
12	Labor	7	107,907,267	107,907,267
13	Fences and Roadway Signs	15	611,872	611,872
16	Stations and Office Buildings	15	0	0
17	Roadway Buildings	15	17,886,880	17,886,880
19	Fuel Stations	15	414,650	414,650
20	Shops and Enginehouses	15	1,049,027	1,049,027
26	Communications Systems	7	28,990,927	28,990,927
27	Signals and Interlockers	7	77,429,690	77,429,690
39	Public Improvements	15	8,397,262	8,397,262
	Total		$1,632,099,980	$1,452,922,763

1/ Applicable Depreciation Method: 200 or 150 percent
Declining Balance Switching to Straight Line
Applicable Recovery Periods: 7, 15 and 50 a/ years
Applicable Convention: Mid-quarter(property placed in service in third quarter)

The Depreciation Rates are as follows for the corresponding
Recovery Period and Recovery year:

Recovery Year	--- Recovery Period --- 5-Year	7-year	15-year	50-year
1	20.00%	10.71%	3.750%	2.00%
2	20.00%	25.51%	9.630%	2.00%
3	20.00%	18.22%	8.660%	2.00%
4	20.00%	13.02%	7.800%	2.00%
5	20.00%	9.30%	7.020%	2.00%
6		8.85%	6.310%	2.00%
7		8.86%	5.900%	2.00%
8		5.53%	5.900%	2.00%
9		0.00%	5.910%	2.00%

Recovery Year	--- Recovery Period --- 7-year	15-year	50-year
10	0.00%	5.900%	2.00%
11	0.00%	5.910%	2.00%
12	0.00%	5.900%	2.00%
13	0.00%	5.910%	2.00%
14	0.00%	5.900%	2.00%
15	0.00%	5.91.0%	2.00%
16	0.00%	3.690%	2.00%
17	0.00%	0.000%	2.00%
18	0.00%	0.000%	2.00%
19-50	0.00%	0.000%	2.00%

a/ 50 year property uses the Straight Line Method for all time periods

2/ Bonus Depreciation Per the **Economic Stimulus Act of 2008,** the **American Recovery & Reinvestment Act**, and **The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010** for the following depreciable assets:

MACRS Lives (1)	**50% Bonus Depreciation (2)**	**100% Bonus Depreciation**
7	$100,717,364	$484,768,419
15	$99,050,110	$195,404,928

TABLE G: SRR TAX DEPRECIATION SCHEDULES
(Continued)

	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 15 Years			Depreciation - MACRS 50 Years			
Year (1)	Unamortized Investment 1/ (2)	Rate 2/ (3)	Annual Amort. 3/ (4)	Undepreciated Investment 4/ (5)	Rate 2/ (6)	Annual Amount 5/ (7)	Undepreciated Investment 6/ (8)	Rate 2/ (9)	Annual Amount 7/ (10)	Unamortized Investment 8/ (11)	Rate 2/ (12)	Annual Amount 9/ (13)	Total Annual Depreciation 10/ (14)
1	$124,987,404	20.00%	$24,997,481	$100,717,364	10.71%	$10,786,830	$99,050,110	3.75%	$3,714,379	$248,227,063	2%	$4,964,541	$924,404,052
2	99,989,923	20.00%	24,997,481	89,930,534	25.51%	25,693,000	95,335,731	9.63%	9,538,526	243,262,522	2%	4,964,541	65,193,547
3	74,992,443	20.00%	24,997,481	64,237,535	18.22%	18,350,704	85,797,205	8.66%	8,577,740	238,297,981	2%	4,964,541	56,890,465
4	49,994,962	20.00%	24,997,481	45,886,831	13.02%	13,113,401	77,219,466	7.80%	7,725,909	233,333,440	2%	4,964,541	50,801,332
5	24,997,481	20.00%	24,997,481	32,773,430	9.30%	9,366,715	69,493,557	7.02%	6,953,318	228,368,898	2%	4,964,541	46,282,055
6				23,406,715	8.85%	8,913,487	62,540,240	6.31%	6,250,062	223,404,357	2%	4,964,541	20,128,090
7				14,493,229	8.86%	8,923,558	56,290,178	5.90%	5,843,957	218,439,816	2%	4,964,541	19,732,056
8				5,569,670	5.53%	5,569,670	50,446,221	5.90%	5,843,957	213,475,274	2%	4,964,541	16,378,168
9							44,602,265	5.91%	5,853,862	208,510,733	2%	4,964,541	10,818,403
10					100.00%		38,748,403	5.90%	5,843,957	203,546,192	2%	4,964,541	10,808,498
11							32,904,447	5.91%	5,853,862	198,581,651	2%	4,964,541	10,818,403
12							27,050,585	5.90%	5,843,957	193,617,109	2%	4,964,541	10,808,498
13							21,206,629	5.91%	5,853,862	188,652,568	2%	4,964,541	10,818,403
14							15,352,767	5.90%	5,843,957	183,688,027	2%	4,964,541	10,808,498
15							9,508,811	5.91%	5,853,862	178,723,486	2%	4,964,541	10,818,403
16							3,654,949	3.69%	3,654,949	173,758,944	2%	4,964,541	8,619,490
17										168,794,403	2%	4,964,541	4,964,541
18								100.00%		163,829,862	2%	4,964,541	4,964,541
19										158,865,321	2%	4,964,541	4,964,541
20										153,900,779	2%	4,964,541	4,964,541
21										148,936,238	2%	4,964,541	4,964,541

1/ From Table G, Page 8, Column (5), Road Property Accounts 1 minus Page 8, 5-Year Bonus Depreciation.
2/ From Table G, Footnote 1/, Page 8.
3/ Column (2), Year 1 x Column (3).
4/ From Table G, Page 8, Column (5), Road Property Accounts 8, 9, 11, 12, 26 and 27 minus Page 10, 7-Year Bonus Depreciation.
5/ Column (5), Year 1 x Column (6).
6/ From Table G, Page 8, Column (5), Road Property Accounts 6, 13, 16, 17, 19, 20 and 39 minus Page 8, 15-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, 5, 7 & 15 Year Bonus Depreciation.

TABLE H: SRR AVERAGE ANNUAL INFLATION IN ASSET PRICES

Development of average annual inflation factors for all capital assets	
1. 3Q2011 Land value	$179,177,216 1/
2. 3Q2011 Property asset value accounts 3, 5, 6, 13, 17, 26, 27, 39 and 52	$748,152,828 1/
3. 3Q2011 Road Property asset value accounts 8, 9, and 11	$471,875,264 1/
4. 3Q2011 Road Property asset value accounts 1 and 12	$232,894,672 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)	3Q2011 Inflation Index 8/ (9)
0		1.000	1.000	1.000	1.000	$179,177,216	$1,452,922,763	1.000
1	July 30-Sep 30, 2011	1.020	1.014	1.066	1.006	182,783,609	1,495,466,104	1.028
2	2011 4 Qtr	1.040	1.027	1.073	1.020	186,430,696	1,512,230,529	1.041
3	2012 1 Qtr	1.062	1.026	1.072	1.019	190,371,496	1,510,981,698	1.042
4	2012 2 Qtr	1.080	1.049	1.115	1.039	193,533,283	1,552,341,802	1.070
5	2012 3 Qtr	1.098	1.070	1.120	1.061	196,749,543	1,575,925,609	1.086
6	2012 4 Qtr	1.116	1.089	1.127	1.083	200,021,244	1,598,677,785	1.102
7	2013 1 Qtr	1.135	1.109	1.135	1.104	203,349,372	1,622,446,731	1.119
8	2013 2 Qtr	1.154	1.111	1.138	1.105	206,734,929	1,625,342,530	1.123
9	2013 3 Qtr	1.173	1.121	1.148	1.115	210,178,937	1,639,970,613	1.134
10	2013 4 Qtr	1.193	1.131	1.154	1.127	213,682,436	1,653,149,548	1.144
11	2014 1 Qtr	1.212	1.143	1.160	1.139	217,246,484	1,667,447,249	1.155
12	2014 2 Qtr	1.233	1.144	1.166	1.140	220,872,161	1,671,721,124	1.160
13	2014 3 Qtr	1.253	1.157	1.173	1.154	224,560,563	1,687,854,785	1.172
14	2014 4 Qtr	1.274	1.171	1.183	1.168	228,312,810	1,706,132,115	1.185
15	2015 1 Qtr	1.296	1.183	1.191	1.180	232,130,038	1,721,591,491	1.197
16	2015 2 Qtr	1.317	1.194	1.199	1.192	236,013,407	1,737,195,688	1.209
17	2015 3 Qtr	1.339	1.207	1.207	1.205	239,964,099	1,752,946,097	1.221
18	2015 4 Qtr	1.362	1.219	1.215	1.218	243,983,313	1,768,844,125	1.233
19	2016 1 Qtr	1.385	1.229	1.221	1.229	248,072,274	1,781,533,209	1.244
20	2016 2 Qtr	1.408	1.239	1.226	1.240	252,232,229	1,794,319,585	1.254

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 H: SRR AVERAGE ANNUAL INFLATION IN ASSET PRICES
(Continued)

Development of average annual inflation factors for all capital assets

1. 3Q2011 Land value	$179,177,216 1/
2. 3Q2011 Property asset value accounts 3, 5, 6, 13, 17, 26, 27, 39 and 52	$748,152,828 1/
3. 3Q2011 Road Property asset value accounts 8, 9, and 11	$471,875,264 1/
4. 3Q2011 Road Property asset value accounts 1 and 12	$232,894,672 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	3Q2011 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21	2016 3 Qtr	1.431	1.250	1.232	1.251	$256,464,445	$1,807,204,032	1.264
22	2016 4 Qtr	1.455	1.260	1.237	1.262	260,770,215	1,820,187,336	1.275
23	2017 1 Qtr	1.480	1.271	1.242	1.273	265,150,856	1,833,025,566	1.286
24	2017 2 Qtr	1.505	1.281	1.246	1.285	269,607,705	1,845,963,939	1.296
25	2017 3 Qtr	1.530	1.292	1.251	1.297	274,142,129	1,859,003,281	1.307
26	2017 4 Qtr	1.556	1.303	1.256	1.308	278,755,515	1,872,144,425	1.318
27	2018 1 Qtr	1.582	1.314	1.261	1.321	283,449,279	1,885,846,304	1.329
28	2018 2 Qtr	1.609	1.326	1.266	1.333	288,224,861	1,899,658,249	1.341
29	2018 3 Qtr	1.636	1.337	1.271	1.345	293,083,728	1,913,581,193	1.352
30	2018 4 Qtr	1.663	1.349	1.276	1.358	298,027,375	1,927,616,075	1.364
31	2019 1 Qtr	1.691	1.361	1.280	1.370	303,057,321	1,941,292,206	1.375
32	2019 2 Qtr	1.720	1.372	1.285	1.383	308,175,117	1,955,075,388	1.387
33	2019 3 Qtr	1.749	1.384	1.290	1.396	313,382,340	1,968,966,503	1.398
34	2019 4 Qtr	1.779	1.395	1.295	1.408	318,680,596	1,982,966,443	1.410
35	2020 1 Qtr	1.809	1.407	1.300	1.421	324,071,521	1,996,773,210	1.422
36	2020 2 Qtr	1.839	1.419	1.304	1.433	329,556,782	2,010,685,442	1.434
37	2020 3 Qtr	1.870	1.430	1.309	1.446	335,138,074	2,024,703,986	1.446
38	2020 4 Qtr	1.902	1.442	1.314	1.459	340,817,126	2,038,829,698	1.458
39	2021 1 Qtr	1.934	1.454	1.321	1.472	346,595,697	2,053,677,561	1.471
40	2021 2 Qtr	1.967	1.466	1.327	1.484	352,475,578	2,068,638,402	1.483
41	July 1 - July 29 2021	2.001	1.478	1.334	1.497	358,458,595	2,083,713,108	1.496
Annual Average 9/								3.52%

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: SRR DISCOUNTED CASH FLOW
(Road Property)

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. 3Q2011 Road Property Investment	$1,635,315,969 1/	Federal Tax Rate	35.0%
2. Interest During Construction (3Q2011 Invest.)	$196,425,973 2/		
3. Total 3Q2011 Investment	$1,831,741,942 3/	Route Mile Weighted	
4. Present Value Of Replacement Cost for the SRR	$53,931,724 4/	Average State Tax Rate	6.19% 6/
5. Total Cost Recovered From Quarterly Revenue Flow	$1,885,673,666 5/		

Period (1)	Quarter (2)	Quarterly Levelized Capital 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	July 30-Sep 30, 2011	$27,817,477	$3,487,593	$375,725,518	$0	$0	$27,817,477	$27,457,382	$27,457,382
2	2011 4 Qtr	41,116,412	5,092,994	548,678,534	0	0	41,116,412	39,540,248	66,997,630
3	2012 1 Qtr	41,181,571	5,092,994	16,298,387	0	0	41,181,571	38,584,233	105,581,863
4	2012 2 Qtr	42,259,232	5,092,994	16,298,387	0	0	42,259,232	38,575,481	144,157,344
5	2012 3 Qtr	42,907,933	5,092,994	16,298,387	0	0	42,907,933	38,160,154	182,317,498
6	2012 4 Qtr	43,537,846	5,092,994	16,298,387	0	0	43,537,846	37,724,392	220,041,889
7	2013 1 Qtr	44,193,735	5,092,994	14,222,616	0	0	44,193,735	37,307,728	257,349,618
8	2013 2 Qtr	44,345,777	5,092,994	14,222,616	0	0	44,345,777	36,473,139	293,822,757
9	2013 3 Qtr	44,783,215	5,092,994	14,222,616	0	0	44,783,215	35,885,494	329,708,251
10	2013 4 Qtr	45,187,016	5,092,994	14,222,616	0	0	45,187,016	35,277,688	364,985,939
11	2014 1 Qtr	45,619,363	5,092,994	12,700,333	0	0	45,619,363	34,699,119	399,685,058
12	2014 2 Qtr	45,810,574	5,092,994	12,700,333	0	0	45,810,574	33,948,277	433,633,335
13	2014 3 Qtr	46,290,370	5,092,994	12,700,333	0	0	46,290,370	33,421,463	467,054,798
14	2014 4 Qtr	46,823,600	5,092,994	12,700,333	0	0	46,823,600	32,936,874	499,991,672
15	2015 1 Qtr	47,290,194	5,092,994	11,570,514	0	0	47,290,194	32,409,435	532,401,107
16	2015 2 Qtr	47,761,894	5,092,994	11,570,514	0	0	47,761,894	31,890,747	564,291,854
17	2015 3 Qtr	48,238,763	5,092,994	11,570,514	0	0	48,238,763	31,380,662	595,672,516
18	2015 4 Qtr	48,720,864	5,092,994	11,570,514	0	0	48,720,864	30,879,033	626,551,549
19	2016 1 Qtr	49,126,979	5,092,994	5,032,022	0	0	49,126,979	30,335,528	656,887,077
20	2016 2 Qtr	49,537,168	5,092,994	5,032,022	0	0	49,537,168	29,802,003	686,689,080
21	2016 3 Qtr	49,951,481	5,092,994	5,032,022	0	0	49,951,481	29,278,271	715,967,352
22	2016 4 Qtr	50,369,966	5,092,994	5,032,022	0	0	50,369,966	28,764,147	744,731,499
23	2017 1 Qtr	50,786,752	5,092,994	4,933,014	0	0	50,786,752	28,256,155	772,987,655
24	2017 2 Qtr	51,207,806	5,092,994	4,933,014	0	0	51,207,806	27,757,579	800,745,234
25	2017 3 Qtr	51,633,183	5,092,994	4,933,014	0	0	51,633,183	27,268,239	828,013,473

TABLE I: SRR DISCOUNTED CASH FLOW
(Road Property Continued)

Period (1)	Quarter (2)	Quarterly Levelized Capital 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)
26	2017 4 Qtr	$52,062,934	$5,092,994	4,933,014	$0	$0	$52,062,934	$26,787,959	$854,801,432
27	2018 1 Qtr	52,508,204	5,092,994	4,094,542	0	0	52,508,204	26,322,124	881,123,556
28	2018 2 Qtr	52,958,119	5,092,994	4,094,542	0	0	52,958,119	25,864,799	906,988,355
29	2018 3 Qtr	53,412,736	5,092,994	4,094,542	0	0	53,412,736	25,415,822	932,404,177
30	2018 4 Qtr	53,872,115	5,092,994	4,094,542	14,294,694	2,692,736	36,884,685	17,099,688	949,503,866
31	2019 1 Qtr	54,324,899	5,092,994	2,704,601	15,277,314	2,877,835	36,169,750	16,336,928	965,840,794
32	2019 2 Qtr	54,782,401	5,092,994	2,704,601	15,427,536	2,906,133	36,448,732	16,039,474	981,880,268
33	2019 3 Qtr	55,244,680	5,092,994	2,704,601	15,579,326	2,934,726	36,730,628	15,747,761	997,628,029
34	2019 4 Qtr	55,711,796	5,092,994	2,704,601	15,732,704	2,963,618	37,015,474	15,461,676	1,013,089,705
35	2020 1 Qtr	56,176,480	5,092,994	2,702,124	15,886,097	2,992,513	37,297,870	15,178,892	1,028,268,597
36	2020 2 Qtr	56,646,000	5,092,994	2,702,124	16,040,265	3,021,554	37,584,181	14,901,978	1,043,170,574
37	2020 3 Qtr	57,120,417	5,092,994	2,702,124	16,196,040	3,050,898	37,873,479	14,630,420	1,057,800,995
38	2020 4 Qtr	57,599,795	5,092,994	2,702,124	16,353,445	3,080,549	38,165,801	14,364,112	1,072,165,106
39	2021 1 Qtr	58,099,062	5,092,994	2,704,601	16,516,567	3,111,277	38,471,218	14,106,625	1,086,271,731
40	2021 2 Qtr	58,603,516	5,092,994	2,704,601	16,682,205	3,142,479	38,778,832	13,853,665	1,100,125,396
41	July 1 - July 29 2021	18,633,516	1,605,400	852,537	5,311,277	1,000,502	12,321,737	4,344,935	1,104,470,331
	Future	3,356,617,484	289,194,711	69,267,716	984,448,975	185,443,699	2,186,724,810	781,203,335	1,885,673,666

1/ From Table C, Column (10) + Rail Grinding Capital Costs from [MOW Costs - Final.xls].
2/ From Table D, Column (8).
3/ Line 1 + Line 2.
4/ Table F Column (8).
5/ Line 3 + Line 4.
6/ Alabama, Mississippi and Louisiana corporate income tax rates weighted on SRR 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 SRR and is calculated by taking the Period 40, Column (3) value and dividing it by the SRR 's estimated quarterly Real Cost of Capital.
8/ Value from Table E.
9/ Value from Table G, Page 12, Column (14) divided by 4 quarters.
10/ Table J: Part 1 Page 16 of 20.
11/ Table J: Part 2 Page 17 of 20.
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 SRR 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)
2009	($1,285,775)	($1,285,775)	($1,285,775)	$0	($1,285,775)	($1,285,775)	$0	($1,285,775)	$0	$0
2010	(7,826,802)	(7,826,802)	(9,112,576)	0	(9,112,576)	(9,112,576)	0	(9,112,576)	0	0
Jan 1-Jul 29, 2011	(7,671,815)	(7,671,815)	(16,784,391)	0	(16,784,391)	(16,784,391)	0	(16,784,391)	0	0
July 30-Sep 30, 2011	(351,395,634)	(351,395,634)	(368,180,026)	0	(368,180,026)	(368,180,026)	0	(368,180,026)	0	0
2011 4 Qtr	(512,655,116)	(512,655,116)	(880,835,142)	0	(880,835,142)	(880,835,142)	0	(880,835,142)	0	0
2012 1 Qtr	19,790,191	0	(880,835,142)	19,790,191	(861,044,950)	(861,044,950)	0	(861,044,950)	0	0
2012 2 Qtr	20,867,852	0	(861,044,950)	20,867,852	(840,177,099)	(840,177,099)	0	(840,177,099)	0	0
2012 3 Qtr	21,516,552	0	(840,177,099)	21,516,552	(818,660,546)	(818,660,546)	0	(818,660,546)	0	0
2012 4 Qtr	22,146,465	0	(818,660,546)	22,146,465	(796,514,081)	(796,514,081)	0	(796,514,081)	0	0
2013 1 Qtr	24,878,125	0	(796,514,081)	24,878,125	(771,635,955)	(771,635,955)	0	(771,635,955)	0	0
2013 2 Qtr	25,030,167	0	(771,635,955)	25,030,167	(746,605,788)	(746,605,788)	0	(746,605,788)	0	0
2013 3 Qtr	25,467,605	0	(746,605,788)	25,467,605	(721,138,183)	(721,138,183)	0	(721,138,183)	0	0
2013 4 Qtr	25,871,407	0	(721,138,183)	25,871,407	(695,266,777)	(695,266,777)	0	(695,266,777)	0	0
2014 1 Qtr	27,826,037	0	(695,266,777)	27,826,037	(667,440,740)	(667,440,740)	0	(667,440,740)	0	0
2014 2 Qtr	28,017,247	0	(667,440,740)	28,017,247	(639,423,492)	(639,423,492)	0	(639,423,492)	0	0
2014 3 Qtr	28,497,044	0	(639,423,492)	28,497,044	(610,926,448)	(610,926,448)	0	(610,926,448)	0	0
2014 4 Qtr	29,030,274	0	(610,926,448)	29,030,274	(581,896,174)	(581,896,174)	0	(581,896,174)	0	0
2015 1 Qtr	30,626,687	0	(581,896,174)	30,626,687	(551,269,487)	(551,269,487)	0	(551,269,487)	0	0
2015 2 Qtr	31,098,387	0	(551,269,487)	31,098,387	(520,171,100)	(520,171,100)	0	(520,171,100)	0	0
2015 3 Qtr	31,575,256	0	(520,171,100)	31,575,256	(488,595,844)	(488,595,844)	0	(488,595,844)	0	0
2015 4 Qtr	32,057,357	0	(488,595,844)	32,057,357	(456,538,488)	(456,538,488)	0	(456,538,488)	0	0
2016 1 Qtr	39,001,963	0	(456,538,488)	39,001,963	(417,536,524)	(417,536,524)	0	(417,536,524)	0	0
2016 2 Qtr	39,412,152	0	(417,536,524)	39,412,152	(378,124,372)	(378,124,372)	0	(378,124,372)	0	0
2016 3 Qtr	39,826,465	0	(378,124,372)	39,826,465	(338,297,907)	(338,297,907)	0	(338,297,907)	0	0
2016 4 Qtr	40,244,950	0	(338,297,907)	40,244,950	(298,052,958)	(298,052,958)	0	(298,052,958)	0	0
2017 1 Qtr	40,760,744	0	(298,052,958)	40,760,744	(257,292,213)	(257,292,213)	0	(257,292,213)	0	0
2017 2 Qtr	41,181,799	0	(257,292,213)	41,181,799	(216,110,415)	(216,110,415)	0	(216,110,415)	0	0
2017 3 Qtr	41,607,175	0	(216,110,415)	41,607,175	(174,503,240)	(174,503,240)	0	(174,503,240)	0	0
2017 4 Qtr	42,036,927	0	(174,503,240)	42,036,927	(132,466,313)	(132,466,313)	0	(132,466,313)	0	0
2018 1 Qtr	43,320,669	0	(132,466,313)	43,320,669	(89,145,644)	(89,145,644)	0	(89,145,644)	0	0
2018 2 Qtr	43,770,583	0	(89,145,644)	43,770,583	(45,375,061)	(45,375,061)	0	(45,375,061)	0	0
2018 3 Qtr	44,225,201	0	(45,375,061)	44,225,201	(1,149,860)	(1,149,860)	0	(1,149,860)	0	0
2018 4 Qtr	41,991,844	0	(1,149,860)	1,149,860	0	0	0	0	40,841,984	14,294,694
2019 1 Qtr	43,649,470	0	0	0	0	0	0	0	43,649,470	15,277,314
2019 2 Qtr	44,078,674	0	0	0	0	0	0	0	44,078,674	15,427,536
2019 3 Qtr	44,512,360	0	0	0	0	0	0	0	44,512,360	15,579,326
2019 4 Qtr	44,950,584	0	0	0	0	0	0	0	44,950,584	15,732,704
2020 1 Qtr	45,388,849	0	0	0	0	0	0	0	45,388,849	15,886,097
2020 2 Qtr	45,829,327	0	0	0	0	0	0	0	45,829,327	16,040,265
2020 3 Qtr	46,274,401	0	0	0	0	0	0	0	46,274,401	16,196,040
2020 4 Qtr	46,724,128	0	0	0	0	0	0	0	46,724,128	16,353,445
2021 1 Qtr	47,190,191	0	0	0	0	0	0	0	47,190,191	16,516,567
2021 2 Qtr	47,663,443	0	0	0	0	0	0	0	47,663,443	16,682,205
July 1 - July 29 2021	15,175,077	0	0	0	0	0	0	0	15,175,077	5,311,277
Future	2,812,711,358	0	0	0	0	0	0	0	2,812,711,358	984,448,975

1/ Table I, Page 13, Column (3) - Table E, Page 5, Columns (2),(4) & (6) - Table G, Column (14) / 4 - Table J Part 2, Page 15, Column (11).
Values for 2009- July 29, 2011 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 SRR 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)
2009	($1,285,775)	($1,285,775)	($1,285,775)	$0	($1,285,775)	($1,285,775)	$0	($1,285,775)	$0	$0
2010	(7,826,802)	(7,826,802)	(9,112,576)	0	(9,112,576)	(9,112,576)	0	(9,112,576)	0	0
Jan 1-Jul 29, 2011	(7,671,815)	(7,671,815)	(16,784,391)	0	(16,784,391)	(16,784,391)	0	(16,784,391)	0	0
July 30-Sep 30, 2011	(351,395,634)	(351,395,634)	(368,180,026)	0	(368,180,026)	(368,180,026)	0	(368,180,026)	0	0
2011 4 Qtr	(512,655,116)	(512,655,116)	(880,835,142)	0	(880,835,142)	(880,835,142)	0	(880,835,142)	0	0
2012 1 Qtr	19,790,191	0	(880,835,142)	19,790,191	(861,044,950)	(861,044,950)	0	(861,044,950)	0	0
2012 2 Qtr	20,867,852	0	(861,044,950)	20,867,852	(840,177,099)	(840,177,099)	0	(840,177,099)	0	0
2012 3 Qtr	21,516,552	0	(840,177,099)	21,516,552	(818,660,546)	(818,660,546)	0	(818,660,546)	0	0
2012 4 Qtr	22,146,465	0	(818,660,546)	22,146,465	(796,514,081)	(796,514,081)	0	(796,514,081)	0	0
2013 1 Qtr	24,878,125	0	(796,514,081)	24,878,125	(771,635,955)	(771,635,955)	0	(771,635,955)	0	0
2013 2 Qtr	25,030,167	0	(771,635,955)	25,030,167	(746,605,788)	(746,605,788)	0	(746,605,788)	0	0
2013 3 Qtr	25,467,605	0	(746,605,788)	25,467,605	(721,138,183)	(721,138,183)	0	(721,138,183)	0	0
2013 4 Qtr	25,871,407	0	(721,138,183)	25,871,407	(695,266,777)	(695,266,777)	0	(695,266,777)	0	0
2014 1 Qtr	27,826,037	0	(695,266,777)	27,826,037	(667,440,740)	(667,440,740)	0	(667,440,740)	0	0
2014 2 Qtr	28,017,247	0	(667,440,740)	28,017,247	(639,423,492)	(639,423,492)	0	(639,423,492)	0	0
2014 3 Qtr	28,497,044	0	(639,423,492)	28,497,044	(610,926,448)	(610,926,448)	0	(610,926,448)	0	0
2014 4 Qtr	29,030,274	0	(610,926,448)	29,030,274	(581,896,174)	(581,896,174)	0	(581,896,174)	0	0
2015 1 Qtr	30,626,687	0	(581,896,174)	30,626,687	(551,269,487)	(551,269,487)	0	(551,269,487)	0	0
2015 2 Qtr	31,098,387	0	(551,269,487)	31,098,387	(520,171,100)	(520,171,100)	0	(520,171,100)	0	0
2015 3 Qtr	31,575,256	0	(520,171,100)	31,575,256	(488,595,844)	(488,595,844)	0	(488,595,844)	0	0
2015 4 Qtr	32,057,357	0	(488,595,844)	32,057,357	(456,538,488)	(456,538,488)	0	(456,538,488)	0	0
2016 1 Qtr	39,001,963	0	(456,538,488)	39,001,963	(417,536,524)	(417,536,524)	0	(417,536,524)	0	0
2016 2 Qtr	39,412,152	0	(417,536,524)	39,412,152	(378,124,372)	(378,124,372)	0	(378,124,372)	0	0
2016 3 Qtr	39,826,465	0	(378,124,372)	39,826,465	(338,297,907)	(338,297,907)	0	(338,297,907)	0	0
2016 4 Qtr	40,244,950	0	(338,297,907)	40,244,950	(298,052,958)	(298,052,958)	0	(298,052,958)	0	0
2017 1 Qtr	40,760,744	0	(298,052,958)	40,760,744	(257,292,213)	(257,292,213)	0	(257,292,213)	0	0
2017 2 Qtr	41,181,799	0	(257,292,213)	41,181,799	(216,110,415)	(216,110,415)	0	(216,110,415)	0	0
2017 3 Qtr	41,607,175	0	(216,110,415)	41,607,175	(174,503,240)	(174,503,240)	0	(174,503,240)	0	0
2017 4 Qtr	42,036,927	0	(174,503,240)	42,036,927	(132,466,313)	(132,466,313)	0	(132,466,313)	0	0
2018 1 Qtr	43,320,669	0	(132,466,313)	43,320,669	(89,145,644)	(89,145,644)	0	(89,145,644)	0	0
2018 2 Qtr	43,770,583	0	(89,145,644)	43,770,583	(45,375,061)	(45,375,061)	0	(45,375,061)	0	0
2018 3 Qtr	44,225,201	0	(45,375,061)	44,225,201	(1,149,860)	(1,149,860)	0	(1,149,860)	0	0
2018 4 Qtr	44,684,579	0	(1,149,860)	1,149,860	0	0	0	0	43,534,720	2,692,736
2019 1 Qtr	46,527,305	0	0	0	0	0	0	0	46,527,305	2,877,835
2019 2 Qtr	46,984,807	0	0	0	0	0	0	0	46,984,807	2,906,133
2019 3 Qtr	47,447,085	0	0	0	0	0	0	0	47,447,085	2,934,726
2019 4 Qtr	47,914,202	0	0	0	0	0	0	0	47,914,202	2,963,618
2020 1 Qtr	48,381,362	0	0	0	0	0	0	0	48,381,362	2,992,513
2020 2 Qtr	48,850,882	0	0	0	0	0	0	0	48,850,882	3,021,554
2020 3 Qtr	49,325,299	0	0	0	0	0	0	0	49,325,299	3,050,898
2020 4 Qtr	49,804,677	0	0	0	0	0	0	0	49,804,677	3,080,549
2021 1 Qtr	50,301,468	0	0	0	0	0	0	0	50,301,468	3,111,277
2021 2 Qtr	50,805,921	0	0	0	0	0	0	0	50,805,921	3,142,479
July 1 - July 29 2021	16,175,578	0	0	0	0	0	0	0	16,175,578	1,000,502
Future	2,998,155,057	0	0	0	0	0	0	0	2,998,155,057	185,443,699

1/ Table I, Page 15, Column (3) - Table E, Page 5, Columns (2),(4) & (6) - Table G, Column (14) / 4.
Values for 2009- July 29, 2011 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: SRR OPERATING EXPENSES

Item (1)		2011 (2)	2012 (3)	2013 (4)	2014 (5)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)	2021 (12)
1. Train & Engine Personnel		$14,095,300	$14,834,003	$15,669,095	$16,344,373	$17,015,538	$17,701,412	$18,662,331	$19,679,429	$20,756,222	$21,896,458	$23,104,135
2. Locomotive Lease Expense		3,976,920	4,185,341	4,420,958	4,611,484	4,800,851	4,994,366	5,265,485	5,552,454	5,856,266	6,177,978	6,518,718
3. Locomotive Maintenance Expense		8,919,309	9,386,750	9,915,184	10,342,491	10,767,195	11,201,206	11,809,262	12,452,868	13,134,247	13,855,773	14,619,974
4. Locomotive Operating Expense		43,591,142	45,875,656	48,458,264	50,546,627	52,622,276	54,743,411	57,715,149	60,860,628	64,190,719	67,717,015	71,451,878
5. Railcar Lease Expense		11,715,087	12,329,048	13,023,122	13,584,368	14,142,198	14,712,251	15,510,903	16,356,249	17,251,208	18,198,897	19,202,639
6. Material & Supply Operating		675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365
7. Ad Valorem Tax		5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822
8. Operating Managers		6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429
9. General & Administration		11,400,295	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429
10. Loss and Damage		600,803	632,290	667,885	696,668	725,276	754,511	795,470	838,823	884,720	933,322	984,799
11. Trackage Rights		0	0	0	0	0	0	0	0	0	0	0
12. Intermodal Lift Costs		416,446	438,271	462,943	482,894	502,724	522,988	551,379	581,429	613,243	646,931	682,612
13. Switching Costs		1,058,436	1,113,906	1,176,615	1,227,322	1,277,721	1,329,224	1,401,381	1,477,756	1,558,614	1,644,236	1,734,922
14. Insurance	3.89%	4,797,758	4,765,989	4,960,355	5,117,525	5,273,738	5,433,374	5,657,026	5,893,754	6,144,375	6,409,763	6,690,848
15. Maintenance of Way		15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628
16. Total Operating Expenses		$128,188,739	$127,339,926	$132,533,096	$136,732,426	$140,906,190	$145,171,417	$151,147,059	$157,472,063	$164,168,288	$171,259,046	$178,769,198
17. Expense Per Quarter		$32,047,185	$31,834,981	$33,133,274	$34,183,107	$35,226,547	$36,292,854	$37,786,765	$39,368,016	$41,042,072	$42,814,762	$44,692,300

TABLE K: SRR OPERATING EXPENSES, INDEXED
(Continued)

Period (1)	Quarter (2)	Hybrid Index 1/ (3)	Operating Expense Indexed For Inflation 2/ (4)	Period (5)	Quarter (6)	Hybrid Index 1/ (7)	Operating Expense Indexed For Inflation 2/ (8)
1	July 30-Sep 30, 2011	100.000	$21,945,355	27	2018 1 Qtr	109.613	$43,152,465
2	2011 4 Qtr	100.148	32,094,673	28	2018 2 Qtr	110.092	43,341,215
3	2012 1 Qtr	96.898	30,847,487	29	2018 3 Qtr	110.574	$43,530,791
4	2012 2 Qtr	98.215	31,266,588	30	2018 4 Qtr	111.043	$43,715,579
5	2012 3 Qtr	97.046	30,894,619	31	2019 1 Qtr	111.474	45,751,375
6	2012 4 Qtr	99.025	31,524,717	32	2019 2 Qtr	111.907	45,928,929
7	2013 1 Qtr	99.660	33,020,589	33	2019 3 Qtr	112.341	46,107,171
8	2013 2 Qtr	100.313	33,237,088	34	2019 4 Qtr	112.762	46,279,742
9	2013 3 Qtr	100.705	33,366,889	35	2020 1 Qtr	113.110	48,427,669
10	2013 4 Qtr	101.325	33,572,403	36	2020 2 Qtr	113.459	48,577,140
11	2014 1 Qtr	101.734	34,775,982	37	2020 3 Qtr	113.809	48,727,073
12	2014 2 Qtr	102.115	34,906,028	38	2020 4 Qtr	114.142	48,869,665
13	2014 3 Qtr	102.566	35,060,096	39	2021 1 Qtr	114.861	51,333,978
14	2014 4 Qtr	103.391	35,342,310	40	2021 2 Qtr	115.584	51,657,253
15	2015 1 Qtr	103.915	36,605,797	41	July 1 - July 29 2021	116.312	16,385,808
16	2015 2 Qtr	104.442	36,791,394				
17	2015 3 Qtr	104.972	36,977,932				
18	2015 4 Qtr	105.495	37,162,290				
19	2016 1 Qtr	105.928	38,444,391				
20	2016 2 Qtr	106.363	38,602,237				
21	2016 3 Qtr	106.800	38,760,730				
22	2016 4 Qtr	107.225	38,915,193				
23	2017 1 Qtr	107.703	40,697,549				
24	2017 2 Qtr	108.183	40,878,857				
25	2017 3 Qtr	108.665	41,060,973				
26	2017 4 Qtr	109.136	41,238,829				

1/ 3Q11 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) or Column (7) ÷ 3Q11.

TABLE L : SRR - Stand-Alone Costs and Revenues

Revenue Requirements to Cover Total Stand-Alone Costs

Period (1)	Quarter (2)	Quarterly Capital Requirement Road Property (3)	Quarterly Operating Expense (4)	Annual Stand-Alone Requirement (5)	Quarterly Stand-Alone Revenues (6)	Annual Stand-Alone Revenues (7)	Overpayments Or Shortfalls In Revenues (8)	PV Difference (9)	Cumulative PV Difference (10)
1	July 30-Sep 30, 2011	$27,817,477	$21,945,355		$74,142,504				
2	2011 4 Qtr	41,116,412	32,094,673	$122,973,917	108,271,594	$182,414,098	$59,440,182	$59,440,182	$59,440,182
3	2012 1 Qtr	41,181,571	30,847,487		114,489,236				
4	2012 2 Qtr	42,259,232	31,266,588		114,489,236				
5	2012 3 Qtr	42,907,933	30,894,619		114,489,236				
6	2012 4 Qtr	43,537,846	31,524,717	294,419,993	114,489,236	457,956,942	163,536,950	147,348,944	206,789,126
7	2013 1 Qtr	44,193,735	33,020,589		124,009,637				
8	2013 2 Qtr	44,345,777	33,237,088		124,009,637				
9	2013 3 Qtr	44,783,215	33,366,889		124,009,637				
10	2013 4 Qtr	45,187,016	33,572,403	311,706,713	124,009,637	496,038,547	184,331,835	149,645,139	356,434,265
11	2014 1 Qtr	45,619,363	34,775,982		137,287,193				
12	2014 2 Qtr	45,810,574	34,906,028		137,287,193				
13	2014 3 Qtr	46,290,370	35,060,096		137,287,193				
14	2014 4 Qtr	46,823,600	35,342,310	324,628,325	137,287,193	549,148,773	224,520,448	164,228,794	520,663,059
15	2015 1 Qtr	47,290,194	36,605,797		153,274,526				
16	2015 2 Qtr	47,761,894	36,791,394		153,274,526				
17	2015 3 Qtr	48,238,763	36,977,932		153,274,526				
18	2015 4 Qtr	48,720,864	37,162,290	339,549,128	153,274,526	613,098,105	273,548,977	180,285,016	700,948,075
19	2016 1 Qtr	49,126,979	38,444,391		170,172,106				
20	2016 2 Qtr	49,537,168	38,602,237		170,172,106				
21	2016 3 Qtr	49,951,481	38,760,730		170,172,106				
22	2016 4 Qtr	50,369,966	38,915,193	353,708,146	170,172,106	680,688,426	326,980,280	194,167,811	895,115,887
23	2017 1 Qtr	50,786,752	40,697,549		186,404,753				
24	2017 2 Qtr	51,207,806	40,878,857		186,404,753				
25	2017 3 Qtr	51,633,183	41,060,973		186,404,753				
26	2017 4 Qtr	52,062,934	41,238,829	369,566,883	186,404,753	745,619,011	376,052,128	201,203,189	1,096,319,076
27	2018 1 Qtr	52,508,204	43,152,465		203,026,495				
28	2018 2 Qtr	52,958,119	43,341,215		203,026,495				
29	2018 3 Qtr	53,412,736	43,530,791		203,026,495				
30	2018 4 Qtr	53,872,115	43,715,579	386,491,223	203,026,495	812,105,979	425,614,755	205,179,808	1,301,498,884
31	2019 1 Qtr	54,324,899	45,751,375		220,916,882				
32	2019 2 Qtr	54,782,401	45,928,929		220,916,882				
33	2019 3 Qtr	55,244,680	46,107,171		220,916,882				
34	2019 4 Qtr	55,711,796	46,279,742	404,130,992	220,916,882	883,667,528	479,536,536	208,291,132	1,509,790,016
35	2020 1 Qtr	56,176,480	48,427,669		240,287,295				
36	2020 2 Qtr	56,646,000	48,577,140		240,287,295				
37	2020 3 Qtr	57,120,417	48,727,073		240,287,295				
38	2020 4 Qtr	57,599,795	48,869,665	422,144,240	240,287,295	961,149,180	539,004,940	210,946,808	1,720,736,824
39	2021 1 Qtr	58,099,062	51,333,978		258,756,565				
40	2021 2 Qtr	58,603,516	51,657,253		261,631,638				
41	July 1 - July 29 2021	18,633,516	16,385,808	$254,713,133	83,377,115	$603,765,318	349,052,185	126,333,616	1,847,070,440

TAB 2

Railroad Industry Debt - 1998 to 2009

($ in Thousands)

	Railroad (1)	Bonds (2)	ETC (3)	CSA (4)	Other (5)	Total (6)
	1998					
1.	BNSF	$3,567,245	$384,003	$0	$1,465,800	$5,417,048
2.	Conrail	1,315,232	164,531	0	486,888	1,966,651
3.	CSX	4,751,927	606,877	165,555	1,167,181	6,691,540
4.	NS	5,553,302	382,253	0	2,196,875	8,132,430
5.	UP	6,083,074	374,485	121,483	1,856,527	8,435,569
6.	Total	$21,270,780	$1,912,149	$287,038	$7,173,271	$30,643,238
	1999					
7.	BNSF	$3,788,968	$434,180	$0	$1,633,315	$5,856,463
8.	CSX	4,646,421	675,181	150,904	1,235,278	6,707,784
9.	NS	5,586,787	411,447	0	2,096,136	8,094,370
10.	UP	6,400,711	324,661	95,627	1,835,651	8,656,650
11.	Total	$20,422,887	$1,845,469	$246,531	$6,800,380	$29,315,267
	2000					
12.	BNSF	$3,874,165	$479,450	$0	$1,616,226	$5,969,841
13.	CSX	4,301,219	722,600	130,993	777,661	5,932,473
14.	NS	5,303,625	399,607	0	1,880,779	7,584,011
15.	UP	5,900,352	264,294	72,433	1,900,215	8,137,294
16.	Total	$19,379,361	$1,865,951	$203,426	$6,174,881	$27,623,619
	2001					
17.	BNSF	$4,753,585	$477,866	$0	$1,491,266	$6,722,717
18.	CSX	5,322,289	757,043	130,975	268,512	6,478,819
19.	NS	6,830,019	506,733	0	356,197	7,692,949
20.	UP	5,923,562	237,954	54,863	1,775,176	7,991,555
21.	Total	$22,829,455	$1,979,596	$185,838	$3,891,151	$28,886,040
	2002					
22.	BNSF	$5,346,700	$431,510	$0	$1,271,585	$7,049,795
23.	CSX	5,398,556	608,004	124,985	675,212	6,806,757
24.	NS	7,059,667	338,868	0	506,454	7,904,989
25.	UP	6,038,802	187,827	32,287	1,711,672	7,970,588
26.	Total	$23,843,725	$1,566,209	$157,272	$4,164,923	$29,732,129
	2003					
27.	BNSF	$5,718,153	$386,023	$0	$1,098,941	$7,203,117
28.	CSX	5,237,473	490,636	115,990	174,600	6,018,699
29.	NS	6,952,242	293,619	0	939,125	8,184,986
30.	UP	6,332,851	168,355	2,773	2,019,969	8,523,948
31.	Total	$24,240,719	$1,338,633	$118,763	$4,232,635	$29,930,750

Railroad Industry Debt - 1998 to 2009

($ in Thousands)

	Railroad (1)	Bonds (2)	ETC (3)	CSA (4)	Other (5)	Total (6)
	2004					
32.	BNSF	$5,444,619	$324,213	$0	$790,901	$6,559,733
33.	CSX	6,418,995	427,920	159,558	136,431	7,142,904
34.	NS	6,911,770	246,784	0	784,506	7,943,060
35.	UP	6,132,695	247,642	0	1,301,462	7,681,799
36.	Total	$24,908,079	$1,246,559	$159,558	$3,013,300	$29,327,496
	2005					
37.	BNSF	$5,464,515	$368,458	$0	$1,195,009	$7,027,982
38.	CSX	5,062,299	366,722	142,197	306,737	5,877,955
39.	NS	6,787,492	195,483	0	326,245	7,309,220
40.	UP	5,812,182	208,593	0	1,251,308	7,272,083
41.	Total	$23,126,488	$1,139,256	$142,197	$3,079,299	$27,487,240
	2006					
42.	BNSF	$5,948,542	$315,007	$0	$1,472,626	$7,736,175
43.	CSX	4,637,108	287,070	74,489	293,002	5,291,669
44.	NS	6,409,527	157,391	0	147,213	6,714,131
45.	UP	5,966,313	169,828	0	1,166,408	7,302,549
46.	Total	$22,961,490	$929,296	$74,489	$3,079,249	$27,044,524
	2007					
47.	BNSF	$6,194,580	$262,421	$0	$1,201,743	$7,658,744
48.	CSX	4,959,289	221,209	63,389	230,126	5,474,013
49.	NS	6,034,279	131,643	0	286,067	6,451,989
50.	UP	4,931,853	189,350	0	1,140,434	6,261,637
51.	Total	$22,120,001	$804,623	$63,389	$2,858,370	$25,846,383
	2008					
52.	BNSF	$7,098,663	$227,997	$0	$1,443,114	$8,769,774
53.	CSX	6,785,450	192,631	54,389	179,534	7,212,004
54.	NS	5,860,071	112,996	0	273,935	6,247,002
55.	UP	6,142,454	233,118	0	1,468,746	7,844,318
56.	Total	$25,886,638	$766,742	$54,389	$3,365,329	$30,073,098
	2009					
57.	BNSF	$7,915,817	$236,659	$0	$1,554,082	$9,706,558
58.	CSX	7,657,784	158,159	43,349	78,462	7,937,754
59.	NS	6,685,553	97,756	0	124,709	6,908,018
60.	UP	7,288,352	215,499	0	2,075,919	9,579,770
61.	Total	$29,547,506	$708,073	$43,349	$3,833,172	$34,132,100

Sources: STB Ex Parte No. 558 - Railroad Cost of Capital.

TAB 3

SunBelt MMM Results

	Year (1)	MMM R/VC Ratio (4)
1.	2011	130.9%
2.	2012	124.9%
3.	2013	122.6%
4.	2014	117.1%
5.	2015	113.3%
6.	2016	110.6%
7.	2017	107.3%
8.	2018	104.4%
9.	2019	101.7%
10.	2020	99.0%
11.	2021	96.1%

Source: "SBRR MMM Model.xlsm."