234353

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

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

REBUTTAL EVIDENCE AND ARGUMENT OF SUNBELT CHLOR ALKALI PARTNERSHIP

Volume I: Narrative

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II. MARKET DOMINANCE

A. QUANTITATIVE MARKET DOMINANCE

NS does not contest that "using the challenged rate and URCS system-average variable costs, the issue movement generates revenue-to-variable-cost… ratios in excess of the 180% jurisdictional threshold…"[1] SunBelt agrees.

Details of SunBelt's variable cost calculations and revenue to variable cost ("R/VC") ratios are shown in Rebuttal Exhibit II-A-1. A summary of the results is shown in Table II-A-1 below.

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	$1,744	$1,732	$1,739	$1,764
2. Jurisdictional Threshold	$3,140	$3,117	$3,130	$3,175
3. Rate Per Car	$8,088	$8,088	$8,088	$8,088
4. R/VC Ratio	464%	467%	465%	459%

Source: Rebuttal Exhibit II-A-1

As indicated in Table II-A-1, NS's R/VC ratios at mid-third quarter 2011 ("3Q11") levels through mid-second quarter 2012 ("2Q12") levels range between 459 percent and 467 percent.

NS, however, does contest the use of unadjusted system average URCS Phase III results, stating that "the current version of URCS does not accurately reflect the full variable costs of transporting the issue movement."[2] NS goes on to state that, "[w]hile NS does not propose a TIH adjustment to URCS costs for purposes of the Board's threshold jurisdictional determination, Section III-H sets forth a rigorous approach that allocates some of the most

[1] See Reply Evidence of Norfolk Southern Railway Company, STB Docket No. NOR 42130, filed Jan. 7, 2013 ("NS Reply") at II-1.

[2] See NS Reply, at II-1.

significant TIH-related costs to TIH traffic for purposes of the …MMM analysis."[3] SunBelt disputes NS's attempt to apply movement-specific adjustments to URCS for any reason and responds to NS in detail in this Rebuttal Part III-H.

[3] Id. at II-3.

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III. STAND-ALONE COST

A. STAND-ALONE TRAFFIC AND REVENUES

The SBRR traffic group includes a broad range of commodities moving in intermodal, unit, manifest (mixed general freight) and local trains. The subject traffic includes local, interline, and cross-over movements. In Opening, SunBelt described the procedures it followed to identify and model the handling of this traffic under the hypothetical, optimally efficient presumptions inherent in the *Coal Rate Guidelines* given the nature, complexity and limitations of the NS data produced in discovery.[1]

This Rebuttal summarizes the dollar value impact of the differences between the parties' approaches, briefly discusses the approach each party used, and identifies the best evidence of record which is presented in this Rebuttal. This narrative also identifies where NS's Reply is based upon critical information not included in discovery, includes misstatements, assumes absurd and impermissible limits on traffic and revenue, and misapplies the accepted revenue allocation methodology.

This Part III-A addresses the differences between traffic and revenues included in SunBelt's Opening and in NS's Reply on both a base year level[2] and as forecasted over the ten (10) year discounted cash flow ("DCF") model life. The discussion is presented below under the following topical headings:

1. Stand-Alone Traffic Group
2. Forecasted Traffic Volumes
3. Stand-Alone Revenues
4. Forecasted Revenues

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[1] See SunBelt Opening Exhibits III-A-2, III-A-3.

[2] The SBRR began operations on July 30, 2011.

1. Stand-Alone Traffic Group

NS states that it "generally accepts SunBelt's selected traffic group for purposes of determining SARR traffic volumes and revenues, with two exceptions."[3] First, NS claimed that SunBelt double-counted certain traffic. Second, NS claimed that the Board should apply "appropriate limits on cross-over traffic."[4] SunBelt address traffic volumes in this subsection and revenues in subpart A.3, below.

Table III-A-1 below compares SunBelt's and NS's base period SBRR traffic volumes.

Table III-A-1
Comparison of SunBelt Opening and NS Reply
SBRR Base Period Traffic Volumes By Commodity -- 2011
(Tons)

Commodity (1)	SunBelt Opening[1/] (2)	NS Reply[2/] (3)	Difference Col (2) – Col (3) (4)
1. Agricultural Products (10)	2,831,592	2,619,483	212,109
2. Metals (20)	4,331,123	3,984,936	346,187
3. Construction Materials (25)	3,839,210	3,497,452	341,758
4. Paper (30)	3,915,579	3,595,668	319,911
5. Chemicals (40)	9,719,547	8,943,317	776,231
6. Automotive (60)	352,582	329,087	23,494
7. Coal (80)	1,320,452	1,178,567	141,885
8. Intermodal (IM)	4,151,968	3,822,385	329,583
9. Total	30,462,053	27,970,894	2,491,159

1/ SunBelt Opening, at III-A-5.
2/NS Reply e-workpaper "SBRR Traffic and Revenue Summary Reply.xlsx"

NS stated that "as a result of erroneous double-loading of individual waybills, over 25% of the waybills that SunBelt used for the third quarter of 2011 were second copies of the same waybill."[5]

Upon inspection of the NS Reply evidence and the corresponding waybills included in the traffic group, SunBelt agrees and has corrected its inadvertent inclusion of duplicate waybill

[3] See NS Reply, at III-A-1.

[4] Id.

[5] See NS Reply, at III-A-2.

records on Rebuttal. This adjustment reduces SBRR's 2011 traffic volume by 2.5 million tons, i.e., the difference shown in Table III A-1, Column (4).

In addition to the duplicate waybill issue, NS has challenged the composition of the SBRR's traffic group by asking the Board to restrict SunBelt's use of cross-over traffic. Specifically, NS has asked the Board to apply the limitations that the Board has proposed in Ex Parte No. 715, *Rate Regulation Reforms* (served July 25, 2012) ("*EP 715*"), regardless of whether the Board has completed that rulemaking, or whether it ultimately adopts any such measures in that proceeding.[6] This is a non-issue. In *EP 715*, the Board unequivocally stated that it would not apply any of the proposed or considered restrictions to pending rate cases, including this one. A complete discussion of the reasons the Board should not restrict the use of cross-over traffic is included in Rebuttal Exhibit III-A-1.

2. Forecasted Traffic Volumes

As it relates to the SBRR traffic forecast, NS challenges: (1) SunBelt's use of aggregated growth rates based on NS's system-wide commodity projections for 2012 through 2016; and (2) SunBelt's use of a compound annual growth rate ("CAGR") to project volumes for the 2017 through 2021 time period. Rebuttal Exhibit III-A-2 compares SunBelt's Opening and Rebuttal forecast procedures to NS's Reply forecast procedures.

Table III-A-2 below compares SunBelt's Opening and NS's Reply growth rates on a commodity group-by-commodity group basis.

[6] See NS Reply, at III-A-35.

Table III-A-2
SunBelt Opening and NS Reply SBRR Traffic Growth Rates by NS Commodity Group

Time Period (1)	Agriculture (Code 10) (2)	Chemicals (Code 40) (3)	Automotive (Code 60) (4)	Coal (Code 80) (5)	Other Freight (Code 20/25/30) (6)	Intermodal (Code IM) (7)
SunBelt Opening[1/]						
Developed from NS Internal Forecast Provided by NS						
1. 2012	3.0%	8.7%	5.7%	-5.6%	3.0%	5.2%
2. 2013	4.8%	6.1%	5.5%	10.3%	4.5%	6.9%
3. 2014	5.0%	3.4%	4.1%	2.7%	5.3%	7.2%
4. 2015	3.9%	3.8%	1.8%	-1.7%	4.3%	7.6%
5. 2016	4.2%	4.0%	1.3%	0.4%	4.1%	5.2%
6. 2017	3.9%	4.9%	4.6%	2.7%	5.7%	8.1%
7. 2018	3.9%	4.9%	4.6%	2.7%	5.7%	8.1%
8. 2019	3.9%	4.9%	4.6%	2.7%	5.8%	8.1%
9. 2020	3.9%	4.9%	4.6%	2.7%	5.8%	8.1%
10. 2021	3.9%	4.9%	4.6%	2.7%	5.8%	8.1%
NS Reply[2/]						
Developed from NS Internal Forecast Provided by NS (Using State to State Data)						
1. 2012	6.1%	4.6%	18.9%	-8.5%	8.3%	19.0%
2. 2013	4.6%	4.5%	-1.0%	7.9%	5.7%	14.1%
3. 2014	3.5%	3.4%	6.6%	4.2%	5.3%	6.6%
4. 2015	3.6%	3.9%	2.0%	2.3%	4.1%	8.0%
5. 2016	3.8%	3.9%	0.4%	-4.2%	4.8%	6.3%
NS's State to State Growth Rate for 2016 Carried Forward[3/]						
6. 2017	3.8%	3.9%	0.4%	0.5%	4.8%	6.3%
7. 2018	3.8%	3.9%	0.4%	5.1%	4.8%	6.3%
8. 2019	3.8%	3.9%	0.4%	-2.5%	4.9%	6.3%
9. 2020	3.8%	3.9%	0.4%	-8.7%	4.9%	6.3%
10. 2021	3.8%	3.9%	0.4%	24.7%	4.9%	6.3%

1/ SunBelt Opening, at III-A-7
2/ NS Reply at III-A-5 and Reply workpapers:
"General Freight Traffic and Revenue Forecast Reply.xlsx," "IM-Coal Traffic and Revenue Forecast Reply.xlsx."
3/ NS Reply 2017-2021 Coal forecast is based on EIA's Annual Energy Outlook 2012 ("AEO 2012"); NS Reply, at III-A-9.

An explanation of the differences shown in the table above and a restatement of SunBelt's forecasts, incorporating NS's valid criticisms (and incorporating updated independent third party information[7] that has become available since SunBelt filed its Opening evidence), is provided in the subsections below.

[7] The STB regularly accepts and incorporates updated forecast information from independent third parties during the course of a maximum rate proceeding. See *AEPCO 2011* at 22 and NS Reply, at III-A-17.

a. 2012-2016 Volume Forecasts

In discovery, NS provided volume forecasts for the commodity groups identified in Table III-A-2 above. The NS-provided volume forecasts cover the years 2012 to 2016 and include anticipated changes in NS system-wide traffic volumes. In Opening, SunBelt developed and applied commodity group-specific system-wide growth rates to forecast SBRR traffic volumes for the 2012-2016 time period.

In Reply, NS argued that system-wide growth rates did not reflect the regional growth rates that would be realized by SBRR traffic. NS developed and applied commodity group-specific growth rates based on a subset of its forecast data for the 2012-2016 time period. NS referred to this approach as a state-to-state forecast. In Rebuttal, SunBelt accepts NS's state-to-state forecast for the 2012-2016 time period.

b. 2017-2021 Volume Forecasts

In Opening, SunBelt projected 2017 through 2021 volumes for all commodities using a compound annual growth rate ("CAGR") based on NS actual and forecast data for the 2009 through 2016 time period. In Reply, NS claims that use of "the 2009 low traffic watermark as the baseline for developing a mean growth rate... overstates the likely growth rate in future years..."[8]

NS takes particular issue with two aspects of SunBelt's CAGR used in Opening: 1) the base year used by SunBelt is 2009, two-years prior to commencement of SBRR operations; and 2) 2009 incorporates recovery level growth rates into the future. NS claims that use of 2009 as the baseline "assumes that the rate of growth in NS traffic during the rebound from the bottom of the recession will continue at the same rate from 2017 to 2021."[9]

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[8] See NS Reply, at III-A-7.

[9] See NS Reply, at III-A-7.

In Rebuttal, SunBelt accepts this criticism and has adjusted its CAGR calculation to use 2011 as the starting point, aligning its base period with the start of the SBRR operations. SunBelt has also revised its CAGR calculation to reflect NS's "State-to-State" volume growth rates for the 2011-2016 time period.

However, SunBelt rejects NS's use of a year-over-year growth rate that NS developed from its internal state-to-state forecast for 2016 and applied to each year 2017 through 2021for all commodity groups except coal. The impact of using NS's approach for 2017 through 2021 is to reduce SBRR volumes by approximately 2.7 million tons.

NS claims that its use of a single year-over-year change (the change from 2015 to 2016)[10] applied to 2017 through 2021 produces "a more reasonable and accurate projection of traffic" than SunBelt's use of an eight-year average. Because SunBelt's approach is based on a time-series trend rather than a single point in time, it produces more reliable and accurate results than NS's one-year approach.

The CAGR is based on six (6) years of NS data, representative of how NS has performed (historic data) and how NS anticipates its business will perform (NS's internal forecasts). Using multiple years of data effectively smoothes out varying or anomalous annual changes. A compound or "average" growth rate flattens out the extreme growth and down turns a business or industry may experience over time.[11]

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[10] NS projections for 2017-2021 traffic volumes are based on the Last-Value Forecasting Method, which utilizes the projected 2016 traffic volume annual growth rate through 2021. Scholars of statistics refer to this practice as the "naïve" forecasting method because it is "naïve to use just a *sample size of one* when additional relevant data are available." See Frederick S. Hiller and Gerald D. Lieberman, *Introduction to Operations Research* (New York: McGraw Hill, 2001), 1016.

[11] SunBelt's Averaging Forecasting Method "uses *all* the data points in the time series and simply *averages* these points. This estimate is an excellent one if the process is entirely stable, i.e. if the assumptions about the underlying model are correct." See Hiller and Lieberman, 1017.

i. Coal

As noted above, NS applied projections from the Energy Information Administration's ("EIA") 2012 Annual Energy Outlook ("AEO") for the Alabama and Mississippi demand regions to forecast the SBRR's 2017 through 2021 coal volumes. In Rebuttal, SunBelt accepts NS's use of the EIA's coal demand forecast for Alabama and Mississippi for the 2017-2021 time period, in order to minimize the number of disputes between the parties.

c. Rebuttal Traffic

As discussed above, SunBelt accepted and incorporated NS's state-to-state forecasts for the 2012-2016 time period, but rejected NS's one-year forecast approach for the 2017-2021 time period. Table III-A-3 below compares SunBelt's Opening forecast of traffic volumes to NS's Reply forecast and to SunBelt's Rebuttal forecast.

Table III-A-3
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Forecasted Traffic Volumes
(Tons)

Year (1)	SunBelt Opening[1/] (2)	NS Reply[2/] (3)	SunBelt Rebuttal[3/] (4)
1. 2011	30,462,053	27,970,894	27,973,737
2. 2012	31,929,722	30,190,479	30,193,466
3. 2013	33,684,145	32,123,271	32,126,440
4. 2014	35,255,242	33,650,825	33,654,135
5. 2015	36,768,702	35,197,237	35,200,677
6. 2016	38,261,351	36,712,634	36,716,249
7. 2017	40,385,626	38,363,614	38,844,319
8. 2018	42,637,876	40,151,942	41,177,498
9. 2019	45,026,378	41,933,583	43,579,660
10. 2020	47,559,973	43,730,429	46,081,477
11. 2021	50,248,113	46,005,073	49,155,290

1/ SunBelt Opening e-workpaper "SBRR Traffic and Revenue Summry.xlsx."
2/ NS Reply e-workpaper "SBRR Traffic and Revenue Summary Reply.xlsx."
3/ SunBelt Rebuttal e-workpapers "SBRR Traffic and Revenue Summary – Rebuttal.xlsx."

By incorporating NS's valid criticisms, SunBelt Rebuttal traffic volumes (Column (4)) declined from SunBelt's Opening traffic volumes (Column (2)). However, SunBelt's volume is slightly greater than NS's Reply volumes (Column (3)).

3. Stand-Alone Revenues

NS "largely accepts SunBelt's calculations of historical and projected rates (revenues)"[12] but does identify a few exceptions. The exceptions result in revenue differences additional to the volume-related impact discussed above. Table III-A-4 below summarizes the differences between SunBelt's Opening, NS's Reply, and SunBelt's Rebuttal SBRR 2011 revenues.

Table III-A-4
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Revenues – 2011
($ in millions)

Item (1)	SunBelt's Rebuttal Position (2)	Amount[1/] (3)
1. SunBelt Opening – 2011 SBRR Revenues	xxx	$429.6
2. Application of Original ATC in place of Modified ATC	Partially Accepted	$29.1
3. Duplicate Record Revenues	Accepted	$42.4
4. TDIS Revenue Adjustment	Partially Accepted	$0.1
5. Handling Line Payments	Accepted	$4.1
6. Switching Payments	Accepted	$0.4
7. NS Reply – 2011 SBRR Revenues[2/]	xxx	$353.5
8. SunBelt Rebuttal – 2011 SBRR Revenues	xxx	$375.9
9. Difference Between SunBelt Rebuttal and NS Reply[3/]	xxx	$22.5

Source: SunBelt e-workpaper "Rebuttal Tables 4 and 9.xlsx."
[1/] The figures shown in this table represent the proportional impact of each item. However, the adjustments proposed by NS are interdependent and have synergistic effects on one another. If one or more changes are not implemented, or if the order in which the changes are implemented is changed, the dollar impact will change both in the aggregate and on a line-by-line basis.
[2/] Line 1 – (∑ Line 2 – Line 6).
[3/] Line 8 – Line 7.

[12] See NS Reply, at III-A-9.

As shown above, for calendar year 2011, NS Reply revenue adjustments reduce SBRR revenues included in SunBelt's Opening by $76.1 million.[13] The reasons for this difference are discussed below with explanations and restatements, as appropriate.

a. Application Of Original ATC In Place Of Modified ATC

On Opening, SunBelt utilized Modified ATC to determine revenue divisions for SBRR cross-over traffic. This is the only version of ATC that has been used in a rate reasonableness decision since *Major Issues*.[14]

On Reply, NS claims that utilization of the Modified ATC formula is inappropriate and instead states that revenue divisions should be calculated based on the original version of ATC ("Original ATC" or "OATC") first proposed by the Board in *Major Issues* but never implemented in any rate case. NS dedicates a lengthy portion of its Reply to issues concerning the utilization of the Original, Modified, and alternate approaches to making ATC calculations.[15] Despite its length, NS's evidence boils down to assertions that: (1) the Board improperly adopted Modified ATC in *WFA/Basin II*, and therefore, (2) the Board should apply the discredited Original ATC methodology, which it has never used, in this proceeding. Application of OATC in place of Modified ATC would reduce the SBRR's revenue by $29.1 million in 2011.[16]

NS's Reply evidence and conclusions are wrong because: (1) it would be arbitrary and capricious to use the discredited OATC methodology; and (2) Modified-ATC is superior to both OATC and other alternatives suggested by NS. SunBelt discusses these points in greater detail.

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[13] Table III-A-4, Line 1 minus Line 7. It is important to note that the absolute size of the impact of any particular change is dependent on the order in which it is applied.

[14] See *WFA/Basin* at 14; *AEP Texas* at 15-16; and, *WFA/Basin II* at 13.

[15] See NS Reply, at III-A-23 to -54.

[16] See Table III-A-5, Line 2.

On Rebuttal, SunBelt continues to use Modified ATC because the Board itself has declared that to be its currently applicable methodology for allocating cross-over traffic revenue.

i. It Would Be Arbitrary And Capricious For The Board To Apply The Discredited Original ATC Methodology

There can be no doubt that the Board itself considers Modified ATC to be the currently applicable methodology for allocating cross-over traffic revenue. In *Ex Parte 715*,[17] the Board twice referred to its "current modified ATC approach" [emphasis added]. Furthermore, the Board clearly has determined that Original ATC created "an illogical and unintended result,"[18] that was contrary to the fundamental ATC objective "to equitably distribute [cross-over] revenues in relation to the cost incurred to generate those revenues…."[19] According to the Board, "[s]uch a result would plainly conflict with our express purpose to find a non-biased, cost-based method."[20] Therefore, it would be arbitrary and capricious for the Board to resort to OATC when it has rejected that methodology as unsound and declared Modified-ATC to be its current methodology.

ii. Modified ATC Is Superior To Both Original And Alternate ATC

The reason the Board switched from Original ATC to Modified ATC in *WFA/Basin* was because the Original ATC formula produced illogical results when viewed through the spectrum of the incumbent's costs of providing service, i.e., divisions must at least cover the incumbent's variable cost before any contribution may be allocated. The Board's proposal of Alternate ATC

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[17] See *Ex Parte 715*, slip op. at 18.

[18] See *WFA/Basin II* at 13.

[19] See *Major Issues* at 25.

[20] See *WFA/Basin* at 14, citing *Major Issues* at 32.

will correct one of the critical flaws of Original ATC, but it will still produce illogical results in many instances.

(1) Modified ATC is Still Superior to Original ATC for the Reasons Articulated By The Board in WFA/Basin

The STB held in *Major Issues* that the goal in allocating revenue from cross-over traffic to the SARR segment and residual incumbent is to ensure that revenue is equitably distributed to the movement segments in relation to the cost incurred by the incumbent to move the traffic that generates the revenues. The STB found that consideration of the incumbent carrier's relative average variable and fixed costs (i.e., ATC) incurred to move a shipment for the on-SARR and off-SARR segments was necessary to achieve its stated goal. Using ATC in the revenue division formula serves to capture the effect of the economies of density inherent in the railroad industry while also reflecting the diminishing incremental economies as density increases. Pursuant to these considerations, the STB applied its ATC division methodology by multiplying the on-SARR ATC division percentage to the incumbent's total movement revenue to develop the amount of revenue allocated to the SARR. This approach subsequently became known as the Original ATC method.

In *WFA/Basin*, the STB modified its formula to reflect a refined and expanded understanding of the practical effect Original ATC had when applied to real-world movements in SAC cases. The STB correctly acknowledged that a reasonable cross-over traffic revenue division methodology must not only capture economies of density, it must also satisfy other economic axioms, including a requirement to allocate revenues to the movement segments sufficient to cover all segments' variable costs of service before any segment receives any contribution to fixed costs and profits. To this end, the STB modified its approach to correct for the flaws inherent in Original ATC. The corrected, new approach, Modified ATC, is a two-step approach that first calculates the variable costs of service for the on-SARR and off-SARR portions of a cross-over movement, and then, after assuming each segment recovers its full or pro-rata portion of variable costs, allocates any contribution based on the average total costs for each portion of the move.[21]

The defendant railroad in *WFA/Basin*, the BNSF Railway Company ("BNSF"), argued against the Board's logical and practical changes to its Original ATC formula, largely on procedural grounds, but also offered theoretical arguments in support of the continued use of the demonstrably flawed formula. As discussed below, the Modified ATC methodology that replaced Original ATC meets both of the Board's criteria where the Original ATC formula clearly fails in many regards.

In *Ex Parte 715*, the STB proposed a further modified formula that it believes may offer a reasonable middle ground in the theoretical discussion regarding the validity of the two previously discussed options. The new alternate formula ("Alternate ATC") is based largely on an alternative BNSF proposed during the lengthy debate in the *WFA/Basin* proceeding. Although the new Alternate ATC formula is clearly superior to the Original ATC formula when applied to a narrow subset of railroad movements (i.e., very low-rated traffic), it still incorporates most of the critical flaws of the Original ATC formula that make it biased and demonstrably inferior to the current Modified ATC standard used by the Board. Below we discuss the relative merits of the three formulas.

(a) Original ATC's Critical Flaws

The STB originally proposed an ATC approach to cross-over revenue divisions because incorporating average total costs into the revenue division formula would help capture

[21] See *WFA/Basin* at 14.

the economies of density that in major part define the railroad industry. The *Major Issues* decision inferred that the ATC divisions could be calculated by applying the ATC division percentage to a movement's total revenue. Upon its first application of the formula to real world movements in a rate case, the STB was confronted with an obvious critical flaw inherent to the formula that it had failed to consider. The Original ATC approach produced illogical and biased results when applied to total revenue by allocating revenue to one segment that was insufficient to cover the segment's variable costs of service while allocating revenue to the other segment that not only covered the segment variable costs, but also provided additional revenues to defray fixed costs and contribute to profits.

In fact, Original ATC served to overstate the amount of revenue in excess of variable costs ("contribution") on several movements. For example, assume a 1,000 mile movement with variable costs per ton of $10 and revenues of $11 per ton. This movement clearly contributes $1 per ton in excess of variable costs to help defray fixed costs and contribute to the profits of the incumbent. Now assume the movement is split between two 500-mile segments, one over high-density lines and one over low-density lines. Assume Original ATC divided revenues such that the high-density segment was allocated $4.75 and the low-density segment was allocated $6.25. The high-density segment was allocated revenues insufficient to cover the railroad's variable costs ($5), while the low-density segment was allocated revenues sufficient to cover the railroad's variable costs ($5) and contribute $1.25 to defray fixed costs and provide profit. The hypothetical contribution on the 500-mile low-density segment was assumed to be greater than the actual contribution on the entire 1,000 mile real-world movement.

To address this erroneous outcome, the STB developed the Modified ATC approach. Such an approach is logical because it conforms to basic economic principles, while also reflecting the scale economies that exist in the railroad industry.

It is axiomatic that for an operation to continue in the long-run, its revenues must recover its total cost of operations. It is also axiomatic that in the short-run, an operation's revenue must cover its average variable cost of operations, or else the operation would be better-off shutting down.[22] This is because average variable costs by definition do not change with changes in production. While total variable costs will increase with increases in output, average variable costs per unit will remain constant across certain output ranges.[23] If an operation is not recovering its variable costs from its revenues, it would lose less money by producing no products or services at all and absorbing only the loss associated with its fixed costs.

From a revenue division stand-point, any revenue allocation approach must allow each segment to recover its variable costs of service before allowing another segment to make a contribution to fixed costs. Otherwise, the segment to which revenues were over allocated would be falsely reliant on assumed contributions to fixed costs that were in reality unavailable. Modified ATC meets this bedrock economic principle by assuring in the first step that a movement's revenue at least covers each segment's variable costs prior to allocating revenues in excess of variable costs to defray any segment's fixed costs or contribute to its profits.

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[22] See, e.g., "Principles of Micro-Economics," Amacher, Ryan, C., or any other introductory economics text.

[23] This is particularly the case with ATC since the variable costs used are URCS Phase III costs, which are the same regardless of the line density of the movements being costed. This point is shown by the fact that there are no density related inputs when developing variable costs using the URCS Phase III costing model. Whether a movement occurs in the heart of the Powder River Basin Joint Line or on lightly traveled branch line, the URCS Phase III model will produce the same variable costs for movements on high-density and low-density segments, holding all other factors constant.

(b) Alternate ATC's Shortcomings

The Board's proposed Alternate ATC formula would partially correct the illogical results of applying the Original ATC formula in the example above because it would ensure that both segments were allocated revenues sufficient to cover their respective variable costs. However, Alternate ATC would allocate all of the contribution that is spread over the entire movement in the real world to only a portion of the movement. This result is also illogical, albeit less glaring. The problems with the Alternate ATC formula become much more evident when it is evaluated with respect to its application to a wide spectrum of representative moves.

Both Original and Alternate ATC produce absurd results by making low density lines more profitable on a per ton basis than high density lines. In contrast, Modified ATC produces reasonable results that reflect basic economic principles. Modified ATC appropriately considers economies of density, but Original and Alternate ATC serve to systematically restrict high-density lines from the benefits of economies of density. Scale economies provide systems that enjoy them with greater profitability per unit than those that do not. Similarly, within a system, scale economies are not universal across all operations. For freight railroads, the greatest per-unit profitability on a movement is enjoyed on the highest density segments, all else being equal. Assuming equal revenues, a 100-mile unit coal train movement over a high-density line is more profitable than the same 100-mile unit coal train movement over a low-density line, specifically because less of the revenues on the high-density line are needed to defray joint and common costs. This fundamental principle is the very incentive railroads have to invest their capital strategically to maximize utility and by extension, scale economies. Application of Original and Alternate ATC strips the benefits of scale economies from high-density lines and reallocates them to low-density lines.

Economies of density reflect how per-unit profits for a network of a given size initially increase with increases in output. Railroads strategically invest to accommodate growth on high-density lines to leverage scale economies and *maximize profit on the traffic moving over those lines*. Original and Alternate ATC transfer the profitability associated with traffic moving on high-density lines to traffic moving on low-density lines, in effect robbing the high-density lines of the very scale economies that incented the railroads to invest in capacity enhancements on those high-density lines in the first place.

High-density lines *are* more profitable on a per-unit basis than low-density lines. A revenue allocation methodology should reflect that fundamental economic principle. In a hypothetical example, the Alternate ATC allocation would be as follows:

- A 1,000-mile movement is split between a 500-mile segment over a 50-million-ton line and a 500-mile segment over a 25-million-ton line.
- The variable costs for each 500-mile segment are $5.00 per ton.
- The fixed costs are $1.25 per ton for the high-density segment and $2.50 per ton for the low-density segment.
- The total costs are ($5.00 x 2) + $1.25 + $2.50, or $13.75 per ton.
- The rate for the movement is $15.00 per ton.
- Under Original and Alternate ATC, the high-density segment revenue allocation is $6.25/$13.75, or 45.5%.
- When applied to the movement revenue ($15.00), the resulting high-density segment revenues are $6.82 per ton.
- The high-density segment profit per ton is $6.82-$6.25, or $0.57 per ton.
- The revenues allocated to the low-density segment are $8.18 per ton.
- The low-density segment profit is $8.18-$7.50, or $0.68 per ton.

The move on the low-density segment is therefore more profitable, after total costs are subtracted, than the move on the high-density segment. This is an economically illogical result.

Under Modified ATC, the allocation would be as follows:

- $5.00 is allocated to both the high-density and low-density segments to cover the variable costs of service of both segments.
- The remaining $5.00 in revenue is allocated based on the percentage calculated above, 45.5% to the high-density segment and 54.5% to the low-density segment.
- The high-density segment receives $5.00 + (.455 x $5.00), or $7.27 per ton.

- The high-density segment profit on the move is $7.27-$6.25, or $1.02 per ton.
- The low-density segment receives $5.00 + (.545 x $5.00), or $7.73 per ton.
- The low-density segment profit is $7.73-$7.50, or $0.23 per ton.

The move on the high-density segment is therefore more profitable, *after total costs are subtracted*, than the move on the low-density segment. This is an economically logical result.

Original and Alternate ATC produce per-unit profits that do not comport with actual railroad economics. The problem is even more evident when a relatively high-rated move is evaluated. Table III-A-5 below assesses the impact of applying Original ATC to a move with a revenue-to-variable cost ratio ("R/VC") of 2.20.

Table III-A-5
Comparison of Revenue Division Methodologies - Movement R/VC = 2.20

Item	**Original and Alternate ATC**	**Modified ATC**
(1)	(2)	(3)
1. Rate per Ton	$22.00	$22.00
2. High-Density Segment Total Costs per ton	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. High-Density Segment Division	$10.00	$10.45
5. Low-Density Segment Division	$12.00	$11.55
6. High-Density Segment Profit	$3.75	$4.20
7. Low-Density Segment Profit	$4.50	$4.05
8. Result	Illogical	Logical

As Table III-A-5 above indicates, Original and Alternate ATC produce even more biased results on high revenue movements.

Finally, as a reminder of the reason why the STB properly introduced Modified ATC in the first place, it is helpful to consider a move with an R/VC of 1.00, as depicted in Table III-A-6 below.

Table III-A-6
Comparison of Revenue Division Methodologies - Movement R/VC = 1.00

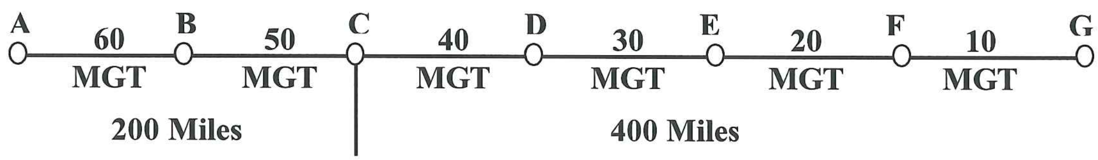
Item (1)	Original ATC (2)	Modified and Alternate ATC (3)
1. Revenue	$10.00	$10.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. High-Density Segment Division	$4.55	$5.00
5. Low-Density Segment Division	$5.45	$5.00
6. High-Density Segment Profit	($0.45)	$0.00
7. Low-Density Segment Profit	$0.45	$0.00
8. Result	Antithetical to rate-setting procedures: SARR does not recover incremental costs, Residual Incumbent recovers incremental costs and contribution to joint and common costs	Reflective of rate-setting procedures: SARR and Residual Incumbent recover incremental costs, no contribution to joint and common costs for either entity

In each of the examples above (R/VC=1.00 and R/VC=2.20), it is clear that Original ATC allocates far too much revenue to the low-density segment, making the low-density more profitable on a per-unit basis after all costs (variable and fixed) are covered for movements where revenues are greater than total costs, and turning the high-density segment into a money loser (allocated revenues are less than variable costs) while allocating variable costs plus contribution to the low-density segment on movements where revenues are less than total costs. Alternate ATC only corrects the most glaring problem on the movement where R/VC = 1.0, but it incorporates the critical flaws inherent to Original ATC when allocating revenues on movements with R/VC greater than 1.0.

(2) Alternate ATC Artificially Caps R/VC Ratios on High-Density Rail Segments

The newly-proposed Alternate ATC will not fairly allocate incumbent revenues between incumbent segments, but rather it will cap high-density segment revenues at levels well below the market rates the incumbent earns on the traffic. In Table III-A-7 below, we examine the allocation of revenues to high- and low-density line segments on a hypothetical system. The system consists of a 200-mile high-density segment and a 400-mile low-density segment. The system becomes ever lower in density in a graduated manner at 100-mile increments as it moves away from the high-density segment. Figure 1 below depicts the system described above.

Figure 1



Fixed costs for the system are assumed to equal $125,000 per route mile over the entire system, and variable costs for the traffic on the system are assumed to equal $0.01 per ton-mile per 100 miles. All traffic is assumed to originate at point A and flow towards point G, with 10 million gross tons terminating at the other six points on the network.

We evaluate the impact of applying Original, Alternate, and Modified ATC to all of the traffic that moves over both portions of the system under three hypothetical scenarios where movement revenues are assumed to equal: (1) 100% of variable costs, (2) 100% of total costs, and (3) 125% of total costs.

Table III-A-7
Demonstration of Problems with Original and Alternate ATC Allocations at Various Revenue Levels

Item (1)	High-density segment Portion of Total Costs (2)	% Original ATC Revenue (3)	% Modified and Alternate ATC Revenue (4)	Total Movement R/VC (5)	Original ATC High-density segment R/VC (6)	Original ATC Low-density segment R/VC (7)	Modified and Alternate ATC High-density segment R/VC (8)	Modified And Alternate ATC Low-density segment R/VC (9)
				Revenues = Variable Costs				
1. Moves A-D	65%	65%	67%	100%	**98%**	**104%**	100%	100%
2. Moves A-E	47%	47%	50%	100%	**95%**	**105%**	100%	100%
3. Moves A-F	36%	36%	40%	100%	**90%**	**107%**	100%	100%
4. Moves A-G	27%	27%	33%	100%	**81%**	**109%**	100%	100%

Item (1)	High-density segment Portion of Total Costs (2)	% Original and Alternate ATC Revenue (3)	% Modified ATC Revenue (4)	Total Movement R/VC (5)	Original and Alternate ATC High-density segment R/VC (6)	Original and Alternate ATC Low-density segment R/VC (7)	Modified ATC High-density segment R/VC (8)	Modified ATC Low-density segment R/VC (9)
				Revenues = Total Costs				
5. Moves A-D	65%	65%	66%	126%	**123%**	**131%**	125%	127%
6. Moves A-E	47%	47%	49%	130%	**123%**	**136%**	128%	131%
7. Moves A-F	36%	36%	39%	136%	**123%**	**145%**	133%	139%
8. Moves A-G	27%	27%	31%	151%	**123%**	**165%**	142%	156%

Item (1)	High-density segment Portion of Total Costs (2)	% Original and Alternate ATC Revenue (3)	% Modified ATC Revenue (4)	Total Movement R/VC (5)	Original and Alternate ATC High-density segment R/VC (6)	Original and Alternate ATC Low-density segment R/VC (7)	Modified ATC High-density segment R/VC (8)	Modified ATC Low-density segment R/VC (9)
				Revenues = 125% of Total Costs				
9. Moves A-D	65%	65%	66%	157%	**154%**	**164%**	156%	160%
10. Moves A-E	47%	47%	49%	162%	**154%**	**171%**	159%	165%
11. Moves A-F	36%	36%	38%	170%	**154%**	**181%**	163%	175%
12. Moves A-G	27%	27%	30%	189%	**154%**	**206%**	172%	197%

As shown in Table III-A-7 above, substantial problems arise when Original and Alternate ATC are applied in most situations. First, in the system where revenues equal variable costs for all movements (Line 1 through Line 4), Original ATC clearly under-allocates revenue to the high-density segment, as the segment is allocated less than its variable costs while the low-density segment is allocated its full variable costs plus some contribution to joint and common costs *that in the real world does not exist.* This is precisely the reason why the STB instituted Modified ATC in the first place.

Second, in the system where revenues equal 100% of total costs for all movements (Line 5 through Line 8), Original and Alternate ATC results are clearly nonsensical. Under this scenario, the R/VC ratios for the full movements increase steadily as the movements increase in length (fixed costs account for a larger portion of total costs). However, under Original and Alternate ATC, the high-density segment R/VC is capped at a level well below the total movement R/VC while the low-density segment R/VC increases at a far greater rate than the rate at which the overall R/VC increases. The trend is even more pronounced on a system where revenues equal 125% of total costs for all movements (Line 9 through Line 12). The application of Original and Alternate ATC clearly has the effect of restricting the high-density segment from access to real-world high-R/VC movements, and improperly diverting the revenues on those movements to low-density segments.

On Rebuttal, SunBelt rejects NS's suggestion that OATC should be used to develop revenue divisions for cross-over traffic and continues to rely upon the only reasonable allocation methodology available, i.e., Modified ATC.[24]

Also, on Reply, NS "corrects several less significant errors in SunBelt's cross-over revenue allocation approach.[25] Specifically, NS claims that SunBelt: (1) incorrectly identified as

[24] SunBelt previously provided the Board with cross-over revenue divisions for its Opening Evidence using three ATC variants. On Rebuttal, Sunbelt accepts NS Reply ATC calculations for Modified ATC and Alternate ATC.

issue traffic NS movements that originate at McIntosh and travel south to Mobile;[26] (2) incorrectly identified moves to and from Roberta, North Birmingham, Woodlawn, and Avondale, Alabama as local to the SARR;[27] and (3) incorrectly identified several movements that originate or terminate on NS outside the SARR States as local to the SARR because SunBelt did not calculate off-SARR mileages.[28] SunBelt has evaluated each of these issues raised by NS and disagrees with NS's assessment that these issues are insignificant. While SunBelt does not agree with NS's characterization of these issues, SunBelt accepts the changes made by NS on Reply for each of these three issues.

NS's characterization of these three (3) issues as "errors," however, completely ignores the fact that the results are based, in many instances, on the application of a single algorithm to bad NS data. Stated differently, NS's criticism assumes a level of precision that is not supported by the incomplete and inaccurate data that was provided by NS in discovery. NS's criticism or characterization of these issues as "errors" is based on their assumption that NS waybill data is completely accurate and correct in all instances. However, as explained throughout SunBelt's Rebuttal evidence, NS car and intermodal event data is not completely accurate and correct in all instances. SunBelt has no basis to conclude that NS's assessment regarding which data is accurate in certain instances is correct. NS produced all of the traffic data in this proceeding and had an obligation to review and correct any errors in the data so that SunBelt could rely on the NS-provided data to produce its evidence. On Opening, where NS data reported on-SARR miles but did not report off-SARR miles for certain shipments, SunBelt concluded that such a move

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[25] <u>See</u> NS Reply, at III-A-24.

[26] <u>See</u> NS Reply, at III-A-55.

[27] *Ibid.*

[28] *Ibid.*

was local to the SARR *based on the NS-produced car and/or intermodal event data.* SunBelt maintains that this conclusion is reasonable.

b. Duplicate Record Revenues

NS indicates on Reply that "as a result of erroneous double-loading of individual waybills, over 25% of the waybills that SunBelt used for the third quarter of 2011 were second copies of the same waybill."[29] SunBelt has corrected its inadvertent inclusion of duplicate waybill records for some of the selected traffic on Rebuttal. This adjustment reduces SBRR's 2011 traffic revenues by $42.4 million.[30]

c. TDIS Revenue Adjustments

As discussed in Opening, the NS revenue waybill data does not include all rail-related revenues associated with the movement of intermodal traffic of its Thoroughbred Direct Intermodal Services ("TDIS") subsidiary. Therefore, SunBelt was left to develop accurate movement revenues for these shipments from other materials and data provided by NS in response to SunBelt's discovery requests. SunBelt calculated what it reasonably assumed to be net rail revenue for TDIS shipments, excluding revenue associated with drayage activities—activities it reasonably assumed were trucking services from origin to intermodal facilities, lifts, and trucking services from intermodal facilities to final destination based on information provided by NS in discovery. SunBelt then replaced (not supplemented)[31] the line-haul revenues included in the NS waybill data records with the restated net rail-revenues NS actually earns on its TDIS traffic.

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[29] See Table III-A-4, Line 3.

[30] See NS Reply, at III-A-2.

[31] See, e.g., Rebuttal e-workpaper "2011 HL Sum Rebuttal.xlsx" at column W.

In Reply, NS rejects SunBelt's revenue adjustment on TDIS movements and includes only the line-haul revenue TDIS transfers directly to NS to cover the NS operating costs associated with moving the individual shipments. The NS methodology completely disregards the lion's share of the TDIS-generated revenues that NS reports on its books every year. The value of this adjustment is $150,000 in 2011.[32]

According to NS:

> Although TDIS technically is a subsidiary of NS, it functions as an NS customer that purchases rail transportation services from NS. The revenue the SBRR would obtain by 'stepping into NS's shoes' would be the rail line haul revenue NS collects from TDIS for NS's rail segment of intermodal movements. However, rather than treating TDIS as a customer of NS and accepting revenue that TDIS pays to NS, SunBelt replaced the revenue NS collects from TDIS (*i.e.*, the NS rail line haul revenue) with the total revenue collected by TDIS for all of the various services it provides to its third party customers (including, for example, trucking services from origin to the intermodal facility, revenues for rail line-haul services provided by NS as well as rail carriers other than NS, intermodal lifts, trucking services from the intermodal facility to the final destination, etc.)[33]

NS's language is intentionally misleading and wrong on many counts. SunBelt did not simply replace the NS line-haul revenues collected on the moves with the "total revenue collected by TDIS for all of the various services it provides to its third party customers." SunBelt very clearly explained the procedures it used to reduce the TDIS total revenues to net out all costs associated with the following 10 separately identified drayage activities as indicated in NS's provided work papers.

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[32] See Table III-A-4, Line 4.

[33] See NS Reply, at III-A-10.

1.	DRAY_ORIG_LD
2.	DRAY_ORIG_LDF
3.	DRAY_ORIG_MT
4.	DRAY_ORIG_MTF
5.	DRAY_DEST_LD
6.	DRAY_DEST_LDF
7.	DRAY_DEST_MT
8.	DRAY_DEST_MTF
9.	DRAY_OTR
10.	DRAY_OTRF

To better understand the scope of the adjustment SunBelt made to TDIS gross revenues to account for costs incurred by TDIS, TDIS gross revenues for the first three quarters of 2011 were $40.15 million,[34] "drayage" costs were $14.29 million,[35] and the revenues less drayage costs SunBelt calculated and applied to the TDIS shipments were $25.86 million ($40.15 - $14.29).[36] SunBelt therefore reduced total TDIS revenues by 36 percent before applying them to the NS moves.

As part of the discovery process, SunBelt specifically requested that NS define the 10 above-listed "DRAY" data fields and provide descriptions as to the contents of each field. On September 30, 2011, NS responded to SunBelt's requests by stating, in pertinent part, "Most of the column headings should be self-explanatory. NS is providing the following definitions of columns that may be unclear: OTR = over the road."[37] Based on NS's cryptic data field headers and its refusal to provide detailed descriptions when asked, it was totally reasonable for SunBelt

[34] See SunBelt Rebuttal work paper "TDIS 2011 Rev Data Reb.xlsx" at level "2011 NS Data Provided" cell T28907.

[35] Id., cell T28909.

[36] Id., cell T28911.

[37] See October 21, 2011 letter from Matthew Warren to Jeffrey Moreno (Rebuttal work paper "NS (Warren) to Sunbelt and DuPont Oct 21.pdf") and September 30, 2011 letter from Matthew Warren to Jason Tutrone (Rebuttal work paper "NS (Warren) to DuPont Sep 30 Letter.pdf").

to presume that the "DRAY" fields included costs associated with the very activities that NS claims SunBelt did not factor into its revenue adjustments. Specifically, SunBelt reasonably associated the fields listed above with "trucking services from the origin to the intermodal facility,... intermodal lifts, trucking services from the intermodal facility to the final destination, etc."

NS apparently believes SunBelt should only be allowed access to revenue reported in its line-haul revenue field in its traffic database, and not to the entire revenue stream associated with the traffic. As shown in Table III-A-8 below, NS is attempting to use an accounting device to restrict SunBelt's access to NS revenues. The revenues identified as "NS Railway Operating Revenues" reported in both NS's Annual Report, Form R-1 to the STB and NS's 10-K report to the SEC for 2010 equal $9,516 million.[38] Of those total revenues, the revenues identified in both official reports as "NS Intermodal Operating Revenues" equal $1,796 million for 2011.[39]

In Reply, NS asserts that SunBelt should only be allowed access to the portion of those total NS Operating revenues that is captured in the traffic data NS provided in this case. As shown in SunBelt's Rebuttal work papers, these revenues equal $1,440 million in 2010.[40]

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[38] See Rebuttal work papers "SUNBELT 2010 TCS TDIS Revenue Summary updated.xlsx" and "NS Revenue Reporting 2010.pdf."

[39] Id.

[40] See Rebuttal work paper "SUNBELT 2010 TCS TDIS Revenue Summary updated.xlsx" at level "Sheet3" cell C14. Note: 2010 is the last full year of data available for which this comparison can be made.

Table III-A-8
Comparison of NS Reported Intermodal Traffic Revenue to
NS Intermodal Traffic Revenue included in Provided Traffic Data

Item (1)	Total (2)	Source (3)
1. NS Total Railway Operating Revenues	$9,516	NS 2010 R-1 Report to the STB, Schedule 210, Line 13, Column (b)
2. NS Total Railway Operating Revenues	$9,516	NS 2010 Annual Report and 10-K filed with the SEC, Page K21
3. NS Intermodal Operating Revenues	$1,796	NS 2010 Annual Report and 10-K filed with the SEC
4. NS Intermodal Total Net Revenue on Line-Haul Moves in Provided Traffic Data	$1,440	SunBelt Reply Workpaper "SUNBELT 2010 TCS TDIS Revenue Summary updated.xlsx"
5. NS Intermodal Revenue not included in Provided Traffic Data	$356	Line 3 - Line 4

Source: SUNBELT 2010 TCS TDIS Revenue Summary updated.xlsx

The difference between the intermodal revenue NS reports in its R-1 and 10-K reports and the intermodal revenue captured in its provided traffic data ($356 million in 2010) is revenue earned primarily by two NS subsidiaries: TDIS and Triple Crown Services ("TCS"). NS freely admits that TDIS is a subsidiary of NS, and NS's financial reports to the SEC, the STB, and its shareholders clearly include revenues generated by its TDIS subsidiary as "NS Railway Operating Revenues." The TDIS reporting and operating status is clearly delineated in the NS R-1 Report. Specifically, at page 2 of the 2011 NS R-1, the reporting carrier is reported as "Norfolk Southern Combined Railroad Subsidiaries* (NS Rail) is comprised principally of Norfolk Southern Railway Consolidated." The asterisk notation reads: "See note on Page 4 'Principles of Combined Reporting'." A list appears at page 4 of the R-1 Report with the following header: "The following companies are included in the combined rail reporting to the Surface Transportation Board." The list includes "Thoroughbred Direct Intermodal Services, Inc."[41] To be clear, this means that TDIS revenues are "included in the combined [NS] rail reporting to the Surface Transportation Board." However, when it is time for SBRR to "step into NS's shoes" for purposes of developing SAC evidence, NS claims that SBRR should not be allowed access to the very same TDIS revenues that NS claims in its own financial reports. NS adjustments are self-serving and incorrect.

NS also claims that:

> [W]ith the exception of drayage costs, SunBelt's SAC evidence does not take into account the costs of facilities, equipment, personnel, materials, and other expenses necessary to provide the services required to earn the non-NS and non-rail revenues earned by TDIS. SunBelt failed to include large operating costs that TDIS incurs each year in order to provide non-rail line haul services. The accounts payable files NS produced in discovery show that TDIS paid expenses of {[redacted]} million in the first 9 months of 2011.[42]

The accounts payable files provided by NS include only entity names to which payments were made in 2011. The actual entity is not always clear from review of the entity names. What is clear is that many of the payments included in the accounts payable files are to trucking companies and terminal operators. Because NS refused to provide detailed descriptions of the nature of the "DRAY" costs included in the TDIS revenue data files it provided, SunBelt logically and correctly assumed that many of the payments reflected in the accounts payable files are duplicative of the "DRAY" costs included in the TDIS revenue files. NS cannot refuse to sufficiently describe the contents of its provided data files (disingenuously claiming that the cryptic headers should be "self-explanatory") and then criticize SunBelt for not completely understanding the precise nature of the data therein.

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[41] See e-workpaper "NS Revenue Reporting 2010.pdf."

[42] See NS Reply, at III-A-10.

In light of SunBelt's review of the more complete picture NS painted in Reply regarding its provided data, SunBelt has adjusted its TDIS net revenues calculation in Rebuttal appropriately. Specifically, in addition to the $14.29 million in drayage costs SunBelt initially netted out of the TDIS total revenues on Opening, SunBelt has further adjusted the TDIS revenues down by another $3.96 million to account for other cost items identified by NS for the first time on Reply.[43]

SunBelt's Opening Evidence inadvertently overstated TDIS intermodal revenues by 18 percent due to NS's failure to provide adequate support for its data.[44] In contrast, NS Reply Evidence intentionally understated TDIS intermodal revenue by 22 percent simply as a contrived way to limit SBRR's access to revenues NS elsewhere reports as "NS Intermodal Railway Operating Revenues" in its accounting documents.[45] In Rebuttal, SunBelt has adjusted its calculation of TDIS revenues downward to account for the small, inadvertent overstatement reflected in its Opening calculation that resulted from NS's refusal to provide sufficient detail regarding the nature of the TDIS revenue and cost data NS provided in discovery.

d. Handling Line Payments

On Rebuttal, SunBelt accepts NS's adjustment to handling line payments and its minor impact on the SBRR net revenues. However, SunBelt adamantly rejects NS's criticism of SunBelt's methodology for determining such payments, because that methodology was necessitated by the challenges that SunBelt encountered when interpreting and utilizing the many

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[43] See SunBelt Rebuttal work paper "TDIS 2011 Rev Data Reb.xlsx" at level "2011 NS Data Provided" cell T28929.

[44] Id., cell R28929.

[45] Id., cell R28931.

disparate sources of data provided by NS in discovery. SunBelt explained these challenges in great detail on Opening.[46]

One of the issues encountered was the utilization of an undefined date range to link NS car and waybill records to other provided data tables for the purpose of identifying NS payments to handling line and switching carriers. In Opening, SunBelt relied upon a process of linking waybill and handling line data records based on specific waybill and interchange dates to develop handling line charges for individual shipments. In Reply, NS linked handling line records to NS waybill records using a never-before specified and still undocumented date range of (-1) to (+30) days. The value of the differing approach to identify handling line payments in 2011 is $4.1 million.[47]

NS's data production included insufficient data to make reliable links between critical data sets and the scant file linking instructions that were provided were often vague or completely erroneous. Therefore, NS's statement that "SunBelt acknowledged in its Opening Evidence that NS's instructions that accompanied its production of the relevant records and data expressly advised that a date range must be used in the matching process [and that] despite this acknowledgement, SunBelt made no effort to actually use a date range," must be taken with a grain of salt. Rather than hash out all of the obstacles NS's production tactics forced SunBelt to overcome, SunBelt refers the Board to SunBelt Opening Exhibit III-A-2. It is notable that NS scarcely mentions the exhibit in question in its III-A narrative, and where it does attempt to address the ten (10) separate data production deficiencies SunBelt was forced to overcome in developing its Opening Evidence,[48] NS glosses over the fact that its data linking instructions

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[46] See SunBelt Opening Exhibits III-A-2, III-A-3, and III-C-2.

[47] See Table III-A-4, Line 5.

[48] See NS Reply Exhibit III-C-8.

were so often erroneous, incomplete, and/or vague. Rather, NS essentially states that, because SunBelt was able to successfully cobble together functioning links in most cases despite the lack of sufficient information from NS, it should not be afforded the right to point out those deficiencies it was forced to overcome.

Regardless of these challenges, it is critical to frame the data linking issue relative to the scope of its impact on the NS net revenue calculations. NS's linking methodology resulted in a net reduction of approximately $9.9 million in total handling line revenues in the first three quarters of 2011 (before ATC revenue divisions were applied) on the SBRR traffic group. This amounts to approximately one percent of the total NS net revenues associated with the SBRR traffic group for that time period.[49]

Although NS's methodology utilizes a range of one day before the waybill date (-1) through 30 days after the waybill date (+30), it completely fails to demonstrate in any way that NS's provided linking instructions were complete and reliable. In fact, it underscores the vague nature of the provided instructions. By NS's own admission, it used an arbitrary date range of 31 days in its so-called "corrected" approach on Reply. NS also freely admits that "[u]sing a wider range of dates would have captured additional records."[50] These admissions simply serve to underscore the fact that NS **still** has not provided detailed and reliable means by which to definitively link the data files it provided in response to SunBelt's data production and follow-up requests. SunBelt's methodology does not represent a complete matching process specifically because there is no way to efficiently link the provided data sets. NS cannot now, nor could it ever, claim that the linking procedures required to link its provided data sets has been clearly defined, much less implemented by either party.

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[49] See SunBelt Rebuttal work paper "2011 HL Sum Rebuttal.xlsx."

[50] See NS Reply, at III-A-21.

In addition, NS's admission that its so-called "corrected" linking procedures are arbitrary and incomplete raises serious concern that NS may have held out on the data keys and linking procedures it uses in the normal course of business to track movements and associated revenue adjustments. It is difficult to believe in this day and age that NS does not have the ability to precisely link all of its revenue movements with their revenue adjustments in its internal data system.

Despite the fact that NS's linking procedures are no less arbitrary than those used by SunBelt in developing its Opening Evidence, SunBelt accepts NS's adjustment and its minor impact on the SBRR net revenues in its Rebuttal.

e. Switching Payments

NS's position regarding SunBelt's calculation of switching payments is the same as its position regarding handling line payments. That is, SunBelt utilized incomplete linking procedures.[51] All comments above relating to handling line payments apply to switching payments, except NS's switching adjustment has an even smaller impact on the answer than its handling line adjustment. NS's adjustment to switching payments reduces SBRR revenues by $400,000 in 2011.[52]

Furthermore, SunBelt used similar linking procedures to link the revenue waybill data to three revenue adjustment files in Opening. They are: (1) NS handling line data, (2) NS switching data, and (3) NS haulage receivables data. Application of the first two revenue adjustments to the NS revenue waybill data result in net reductions in revenues, while application of the third revenue adjustment to the NS revenue waybill data results in net increases in revenues. It is notable that, in Reply, NS "corrected" only the linking procedures for the two revenue

[51] See NS Reply, at III-A-21 to -23.

[52] See Table III-A-4, Line 6.

adjustment files whose application results in net revenue reductions and did not make a similar "correction" to the linking procedures for the other revenue adjustment whose application results in offsetting net revenue increases. It is clear that NS's motivation was not to "correct" any technical items in order to facilitate "correct" linking, but rather to selectively implement only those "corrections" that resulted in the most favorable result to NS.

f. Rebuttal Restatement

As discussed above, SunBelt has accepted some of NS's changes to SunBelt's 2011 SBRR revenue calculations and rejected others. Table III-A-9 below summarizes SunBelt's position on Rebuttal.

Table III-A-9
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Revenues – 2011
($ in millions)

Item (1)	SunBelt's Position (2)	Amount[1/] (3)
1. SunBelt Opening - 2011 SBRR Revenues	xxx	$429.6
2. Application of Original ATC in Place of Modified ATC	Partially Accepted	$29.1
3. Duplicate Record Revenues	Accepted	$42.4
4. TDIS Revenue Adjustment	Partially Accepted	$0.1
5. Handling Line Payments	Accepted	$4.1
6. Switching Payments	Accepted	$0.4
7. NS Reply - 2011 SBRR Revenues [2/]	xxx	$353.5
8. SunBelt Rebuttal - 2011 SBRR Revenues	xxx	$375.9
9. Difference Between SunBelt Rebuttal and NS Reply 3/	xxx	$22.5

Source: SunBelt Rebuttal e-workpaper "Rebuttal Tables 4 and 9.xlsx."
[1/] The figures shown in this table represent the proportional impact of each item. However, the adjustments proposed by NS are interdependent and have synergistic effects on one another. If one or more changes are not implemented, or if the order in which the changes are implemented is changed, the dollar impact will change both in the aggregate and on a line-by-line basis.
[2/] Line 1 – (∑Line 2 – Line 6).
[3/] Line 8 – Line 7.

SunBelt's Rebuttal Evidence related to the 2011 SBRR revenues equals $376 million as shown on Table III-A-9, Line 8.

4. Forecasted Revenues

Each of the traffic forecast issues, addressed in Part III-A-2 above, and the base year revenue issues, addressed in Part III-A-3 above, impact SBRR's forecasted revenues. In addition, NS challenged SunBelt's calculation of intermodal revenue growth from 2011 to 2012, complained about SunBelt's use of EIA data to forecast fuel surcharge revenue and identified "some additional errors" in SunBelt's revenue calculations. The impact on revenue of each of these issues is discussed below. Rebuttal Exhibit III-A-2 compares SunBelt's Opening and Rebuttal forecast procedures to NS's Reply forecast procedures.

Table III-A-10 below compares SunBelt's Opening and NS's Reply base and forecasted SBRR revenues by year.

Table III-A-10
Comparison of SunBelt Opening and NS Reply SBRR Revenues
($ in Thousands)

Year	SunBelt Opening[1/]	NS Reply[2/]	Difference Cols (2) – (3)
(1)	(2)	(3)	(4)
1. 7/30 – 12/31/11	$182,414	$150,102	$32,312
2. 2012	457,957	384,606	73,351
3. 2013	496,039	419,455	76,583
4. 2014	549,149	455,029	94,120
5. 2015	613,098	495,281	117,818
6. 2016	680,688	549,582	131,106
7. 2017	745,615	596,861	148,754
8. 2018	812,102	650,914	161,188
9. 2019	883,663	708,244	175,419
10. 2020	961,145	762,235	198,910
11. 1/1 - 7/29/21	603,763	473,721	130,041
12. Total	$6,985,633	$5,646,030	$1,339,603

1/ SunBelt Opening e-workpaper "SBRR Traffic and Revenue Summary.xlsx."
2/ NS Reply e-workpaper "SBRR Traffic and Revenue Summary Reply.xlsx."

a. Development of 2012 Intermodal Revenue

NS claims that SunBelt miscalculated Intermodal revenue growth for 2011 to 2012 by "using a different and incorrect data source for 2011 NS rail revenues."[53] In Opening, SunBelt utilized NS's actual 2011 year end revenues and carloads from the NS Quarterly Financial Review to develop its intermodal revenue-per-unit. SunBelt then compared that value to the revenue-per-unit value for 2012 derived from NS's internal revenue forecast data to develop annual revenue growth rates. However, on Reply NS explained that "NS's internal forecast projects only the revenue that NS itself receives (in the case of TCS and TDIS, the NS line haul revenue) and does not include the revenues generated and collected by TCS for non-line-haul services."[54] Since the NS Quarterly Review captures all revenues for intermodal, SunBelt's Opening 2011 intermodal revenue-per-unit is overstated and its 2012 revenues for the selected intermodal traffic are understated. On Rebuttal, SunBelt has accepted NS's Reply 2011 to 2012 intermodal revenues-per-unit based on NS's state-to-state calculation as shown in Table III-A-11 below.

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[53] See NS Reply, at III-A-12.

[54] See NS Reply, at III-A-13.

Table III-A-11
SunBelt Opening, NS Reply and SunBelt Rebuttal SBRR
Intermodal Per Unit Revenues – 2011 and 2012

Year	SunBelt Opening	NS Reply	SunBelt Rebuttal
(1)	(2)	(3)	(4)
1. 2011	$594.86	$482.12	$482.12
2. 2012	465.91	502.32	502.32
3. % Change	-21.7%	4.2%	4.2%

Source:
Column (2): SBRR Traffic and Revenue Indices – OPEN.xlsx
Column (3): SBRR Traffic and Revenue Indices – REPLY.xlsx
Column (4): SBRR Traffic and Revenue Indices – REBUTTAL.xlsx

b. Fuel Indices

NS's position is that:

> SunBelt introduced a significant distortion into its SAC evidence by using two different indices to project changes in the price of fuel. To *minimize* SBRR fuel ***costs***, SunBelt used an index that predicts that the price of fuel will increase slightly or decrease over the relevant time period. But to *maximize* SBRR fuel surcharge ***revenues***, SunBelt uses an index that predicts that the price of that fuel will increase significantly over the identical time period.[55]

NS goes on to state that it "corrects SunBelt's self-serving attempt to have it both ways."[56] This is not a distortion, but instead a legitimate recognition of differences between "prices" and "costs" that NS exploits in its own real world fuel surcharge program. The SBRR is merely stepping into NS's shoes and applying NS's actual fuel surcharge program parameters to the SBRR movements.

While NS admits that both the indices and the procedures used by SunBelt in Opening to develop fuel costs and fuel surcharge revenue were adopted by the Board in *AEPCO 2011*, it also

[55] See NS Reply, at III-A-14 (italics in original; boldface added).

[56] Id.

states that the issue of "the mismatch" between the two indices was never addressed. This NS "so-called" mismatch was not addressed in *AEPCO 2011* because it did not exist. What NS is trying to sell is that the change in operating "cost" associated with burning railroad diesel fuel in locomotives is the same as EIA's projected change in the "price" of intermediate crude oil at trading hubs that is used as a surrogate benchmark in NS's fuel surcharge mechanism. The cost of fuel measures not only the acquisition price of fuel but also how efficiently that fuel is used to transport products. The "price" of fuel only measures the price per gallon or barrel to purchase fuel at an intermediate point in the supply chain. Price does not equal cost. Furthermore, the alleged "mismatch" between these indices that NS accuses SunBelt of exploiting in its SAC analysis is exploited by NS in the real-world on a daily basis.

i. Fuel "Cost" Index

In forecasting the cost of fuel to develop stand-alone operating costs, which is discussed later in SunBelt's Rebuttal, NS and SunBelt both use Global Insight's RCAF Fuel component forecast to develop fuel cost indices. This approach is consistent with *AEPCO 2011*.

ii. Fuel "Price" Index

In forecasting the price of fuel to develop fuel surcharge revenues, NS also utilizes the Global Insight Fuel component cost index forecast. By contrast, in Opening, SunBelt replicated NS's fuel surcharge program (NS Tariffs 8003 and 8004) and applied the EIA forecast of the WTI prices, which is the benchmark of NS's fuel surcharge program. Once again, SunBelt is consistent with *AEPCO 2011* and continues to employ these sound economic principles in forecasting fuel in Rebuttal.

Table III-A-12 below summarizes the fuel surcharge forecast percentages developed and used by SunBelt in Opening and Rebuttal and NS in Reply. SunBelt's Opening forecasts (Column (2)) were based on EIA's most current fuel price forecast available when Opening was filed. SunBelt's Rebuttal fuel price forecasts (Column (4)) are based on EIA's current forecast available when Rebuttal is filed. By contrast, NS's Reply forecasts (Column (3)) represent Global Insight's fuel cost index forecasts.

Table III-A-12
Summary of Fuel Surcharge Revenue Percentages

Year (1)	SunBelt Opening[1/] (2)	NS Reply[2/] (3)	SunBelt Rebuttal[3/] (4)
1. 2012	4.95%	5.65%	5.65%
2. 2013	3.75%	4.95%	5.30%
3. 2014	6.35%	4.25%	4.95%
4. 2015	8.80%	3.45%	5.30%
5. 2016	10.20%	5.30%	7.05%
6. 2017	11.95%	7.05%	9.50%
7. 2018	13.00%	9.15%	10.90%
8. 2019	14.05%	11.25%	12.65%
9. 2020	15.10%	12.30%	14.05%
10. 2021	16.50%	13.00%	15.80%

1/ Based on EIA Short Term Energy Outlook ("STEO") July 2012 and EIA Annual Energy Outlook ("AEO") June 2012 (Final)
2/ HIS Global Insight's Annual Fuel Component "Long-Term Railroad Cost Adjustment Factor Outlook" September 2012.
3/ Based on EIA Short Term Energy Outlook ("STEO") May 2013 and EIA Annual Energy Outlook ("AEO") May 2013 (Final)

SunBelt continues to apply the fuel surcharge procedures and indices accepted in *AEPCO 2011* and incorporates relevant actual EIA data and revised forecasts on Rebuttal.

c. Rebuttal Revenue

As discussed above, SunBelt has accepted some of NS's changes to SunBelt's SBRR revenue calculations and rejected others. Table III-A-13 below summarizes SunBelt's revenue position on Rebuttal and compares SunBelt's Rebuttal revenues to those developed in NS's Reply and SunBelt's Opening for each relevant time period. SunBelt's Rebuttal SBRR revenues are lower than SunBelt's Opening revenues as a result of incorporating NS's valid criticisms and updating publicly available economic forecasts.

Table III-A-13
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Revenues
($ in Thousands)

	Year	SunBelt Opening[1/]	NS Reply[2/]	SunBelt Rebuttal[3/]	Difference Cols (4) – (3)	% Change[4/]
	(1)	(2)	(3)	(4)	(5)	(6)
1.	2011	$182,414	$150,102	$159,642	$9,540	-12%
2.	2012	457,957	384,606	411,409	26,803	-10%
3.	2013	496,039	419,455	449,669	30,214	-9%
4.	2014	549,149	455,029	489,270	34,241	-11%
5.	2015	613,098	495,281	537,288	42,008	-12%
6.	2016	680,688	549,582	595,648	46,066	-12%
7.	2017	745,615	596,861	655,832	58,971	-12%
8.	2018	812,102	650,914	718,399	67,486	-12%
9.	2019	883,663	708,244	787,381	79,137	-11%
10.	2020	961,145	762,235	859,630	97,396	-11%
11.	1/1 – 7/29/21	603,763	473,721	545,418	71,697	-10%
12.	Total	$6,985,633	$5,646,030	$6,209,587	$563,557	

Source:
1/Table 10 Column (2).
2/ Table 10 Column (3).
3/ SunBelt Rebuttal e-workpaper "SBRR Traffic and Revenue Forecast - Rebuttal.xlsx."
4/ Column (4) divided by Column (2) – 1.0.

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III. STAND-ALONE COST

B. STAND-ALONE RAILROAD SYSTEM

The SBRR is a limited system that replicates the NS from McIntosh, AL north to Birmingham, AL and then southwest from Birmingham through Mississippi to New Orleans, LA. NS "accepts the general scope and configuration of the SBRR posited by SunBelt."[1] However, NS includes additional sidings, yards, interchange track, set out track and industry track. NS also challenges SBRR's yard types, locations and sizes and its signals system.

The issues raised by NS in Reply are addressed separately below under the following topical headings:

1. Routes and Mileage
2. Track Miles and Weight of Track
3. Joint Facilities
4. Signals and Communications System
5. Turnouts, FEDs and AEI Scanners
6. RTC Model Simulation

1. Routes And Mileage

NS accepts SunBelt's Opening total of 578.24 constructed miles for the SBRR.[2]

2. Track Miles And Weight Of Track

Table III-B-1 below compares SunBelt's Opening and NS's Reply SBRR constructed track miles.

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[1] See NS Reply, at III-B-1.

[2] Id. at III-B-3.

Table III-B-1
Comparison of SunBelt Opening and NS Reply SBRR Constructed Track Miles

Description	SunBelt Opening[1/]	NS Reply[2/]	Difference Cols (3)-(2)
(1)	(2)	(3)	(4)
1. Main Line Track			
a. Single Main Line Track	578.24	578.24	0.00
b. Other Main Track	124.11	135.63	11.52
2. Setout Tracks	4.48	15.82	11.34
3. Customer Access Sidings	0.00	10.61	10.61
4. Yard and Interchange Track	63.62	141.23	77.61
5. Total Track Miles	770.45	881.53	111.08

1/ SunBelt Opening, at III-B-4.
2/ NS Reply, at III-B-5.

NS agrees with SunBelt's weight of rail specifications[3] but not SunBelt's track miles. NS claims that SunBelt's track capacity and configuration are insufficient to provide proper service to the customers included in the selected traffic. NS identifies four general criticisms that pertain to SunBelt's Opening RTC Model and also criticizes SunBelt's operating plan with regard to the classification and switching of general freight carload traffic.[4] As NS's RTC Model and classification and switching criticisms are discussed in detail in NS's Reply Part III-C, SunBelt addresses them in its Rebuttal Part III-C. SunBelt addresses mileage issues below.

a. Main Line Track

i. Single Main

As noted above, NS accepts SunBelt's 578.24 route miles for the SBRR.[5]

[3] See NS Reply, at III-F-140.

[4] Id, at III-B-4.

[5] The route miles of the SBRR are contained in SunBelt Rebuttal e-workpaper "SUNBELT RR Route Miles Rebuttal Grading.xlsx," tab "SUNBELT RR Miles" (filed with the III-F-2 workpapers). The route miles are also shown on the Rebuttal stick diagrams of the SBRR. See Rebuttal e-workpaper "SBRR Rebuttal Sticks.pdf."

ii. Other Main

SunBelt's other main and siding miles in Opening were determined from its RTC Model. On Reply, NS adds 11.52 miles of other main track and passing sidings that it claims are required to serve the SBRR's selected traffic group.

On Rebuttal, as explained in Part III-C, SunBelt has made a few modifications to its RTC Model simulation in response to NS's Reply. The results of those modifications result in a total of 130.31 miles of other main track and sidings on Rebuttal, an increase of 6.20 miles over Opening.[6] SunBelt notes that some of the sidings included in both Opening and Rebuttal are not passing sidings for through trains but rather short operational sidings used by local trains to pick up or drop off traffic.[7]

b. Branch Line Track

NS agrees with SunBelt that the SBRR has no branch line track miles.[8]

c. Helper Pocket and Setout Tracks

Helper service is not required on the SBRR so there are no helper pocket tracks.[9] NS states that the SBRR requires 15.82 miles of setout tracks.[10] NS accepted SunBelt's configuration of one 735-foot single-ended setout track on either side of each failed equipment detector ("FED").[11] Therefore, this increase in setout track miles is due solely to NS's increased number of FEDs caused by NS's decreased spacing, and increased count, of FEDs along the

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[6] See SunBelt Rebuttal e-workpaper "SUNBELT RR Route Miles Rebuttal Grading.xlsx," tab "Sticks." Other main track and sidings are also shown on the Rebuttal stick diagrams of the SBRR. See Rebuttal e-workpaper "SBRR Rebuttal Sticks.pdf."

[7] These tracks are shown as sidings in the RTC Model and not as yard track.

[8] See NS Reply, at III-B-2.

[9] See SunBelt Opening, at III-C-7. See also NS Reply, at III-C-169.

[10] See NS Reply, at III-B-6.

[11] Id at III-B-11; See also NS's Reply Exhibit III-B-2 (NS's stick diagrams for the SBRR).

SBRR. As discussed below, SunBelt has not modified its FED spacing from Opening and, therefore, does not include NS's additional setout tracks. The SBRR's 4.48 miles of setout tracks on Opening have remained the same on Rebuttal.

d. Customer Access Sidings

NS claims that "SunBelt's track configuration does not include the railroad-owned industrial and/or spur tracks at any of the customer locations that the SBRR must serve."[12] On Reply, NS adds 10.61 miles of "customer access sidings" at eleven (11) separate locations.[13] NS's additional track miles are erroneously calculated, unsupported and unnecessary.

One problem with NS's customer access sidings is that the track requirements are based on the weekly volume of cars from NS's MultiRail simulation.[14] As discussed in detail in Part III-C of this Rebuttal, NS's MultiRail simulation is unsupported and full of errors and, therefore, completely unreliable.

Another problem is that NS has not demonstrated that these tracks actually exist or, if they do, that they are paid for and owned by NS. The only support offered by NS as to the existence of these customer access sidings is the statement "[T]he spurs and industrial tracks that are owned by NS at customer facilities were shown on the track charts provided to SunBelt in discovery."[15] Using the from and to mileposts for these sidings as shown in NS's workpapers, SunBelt attempted to find these sidings in NS's track charts. In some instances, there were no sidings shown on the track charts at the milepost indicated by NS. In other instances, the

[12] See NS Reply, at III-B-7.

[13] NS also refers to this trackage as work sidings – See NS Reply Exhibit III-B-2 and e-workpaper "SUNBELT RR Route Miles Opening Grading NS Reply.xlsx," tab "New Work Sidings."

[14] See NS Reply e-workpaper "SUNBELT RR Route Miles Opening Grading NS Reply.xlsx," tab "New Work Sidings," note 1.

[15] See NS Reply, at III-C-149, note 241.

milepost indicated by NS was at a yard location with no track detail shown on NS's track charts. In a few instances, there appears to be a track at a location specified by NS but there is no identification of what the track is used for.[16]

Furthermore, it has been the experience of SunBelt's operating witness Mr. McDonald and engineering witness Mr. Crouch that, while railroads may construct track to reach an industry, the industry will either pay the cost for the track construction upfront or reimburse the railroad through a track lease payment.

SunBelt acknowledged on Opening that the SBRR would pay for the turnout from the SBRR's rail line to connect to industry track and included 61 turnouts for just this purpose.[17] SunBelt also notes that, as discussed above, its RTC Model includes a few short sidings (less than one (1) mile) that are used by local trains to pick up and drop off traffic.

Based on the above, SunBelt rejects NS's customer access siding track miles and continues to include 61 customer turnouts on Rebuttal[18] as well as the short sidings included in its RTC Model.

e. Yard And Interchange Track

As shown in Table III-B-1 above, the biggest difference between SunBelt's Opening and NS's Reply track is in yard and interchange track. On Opening, SunBelt included 63.62 miles of track for yards and interchange locations.[19] On Reply, NS included 141.23 miles of track for

[16] See SunBelt Rebuttal e-workpaper "Review of NS Work Sidings.pdf." In this file, SunBelt provides an explanation as to why it does not accept any of NS's customer access sidings.

[17] See SunBelt Opening e-workpaper "Track Construction Costs.xls," tab "User Input," cell K63.

[18] See SunBelt Rebuttal e-workpaper "Track Construction Costs Rebuttal.xls," tab "User Input," cell K63.

[19] See SunBelt Opening, at III-B-4 and e-workpaper "SBRR Yard Matrix.xlsx."

yards and interchange locations.[20] Table III-B-2 below compares SunBelt's Opening and Rebuttal yard and interchange track with NS's Reply yard and interchange track.[21]

Table III-B-2
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Yard and Interchange Locations and Track Miles

	SunBelt Opening		NS Reply		SunBelt Rebuttal	
Description	**No. of Locations**	**Track Miles**	**No. of Locations**	**Track Miles**	**No. of Locations**	**Track Miles**
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Yard Track for Trains						
a. Yard Track For Trains	5	29.45	5	54.66	5	29.45
b. Industrial Support Yards	---	0.00	15	6.63	---	0.00
c. Intermodal Facilities	---	0.00	2	1.95	2	1.95
d. Automotive Facilities	---	0.00	1	1.28	1	1.28
e. Interchange Tracks	8	11.19	12	23.48	8	17.28
f. Subtotal	---	40.64	---	88.00	---	49.96
2. Classification Tracks	5	19.23	7	50.01	7	39.71
3. Fixed Fueling Facility Tracks	1	0.52	2	0.00	1	0.52
4. Locomotive Shop Tracks	1	0.91	1	0.00	1	0.91
5. Locomotive Servicing Tracks	4	0.68	5	1.23	4	0.68
6. Car Shop Tracks	1	0.71	1	0.00	1	0.71
7. Rip Tracks	4	0.93	4	1.71	4	0.93
8. MOW Tracks	---	0.00	3	0.28	---	0.00
9. Total	---	63.62	---	141.23	---	93.42

Source: SunBelt Rebuttal e-workpaper "Yard Track Comparison – SunBelt v. NS.xlsx."

The basis for many of the differences shown in Table III-B-2 above is in the philosophies underlying the development of yard and interchange track miles. NS claims that SunBelt's "location, sizing, and configurations of the SBRR yards… were untethered to the workload that the SBRR actually would have to perform at each facility."[22] These claims underline NS's total lack of understanding of SunBelt's approach.

[20] See NS Reply, at III-B-5.

[21] NS's yard track components were difficult to separate into the categories shown in Table III-B-2. See SunBelt Rebuttal e-workpaper "Yard Track Comparison – SunBelt v. NS.xlsx" for the various sources of the Table III-B-2 components.

[22] See NS Reply, at III-B-7.

The yards proposed by NS, and their relative size, are derived from its new operating plan for the SBRR, which involves the creation of new trains with new blocking schemes that are unrelated to the real-world trains the SBRR interchanges with NS. As discussed in Part III-C, NS may not propose such an entirely new operating plan on Reply, and its operating plan therefore must be disregarded by the Board.

On Opening, SunBelt's operating plan specified the location of yards where activities such as train staging, car inspection, yard switching (for originating and terminating traffic plus intermediate blocking of cars), crew changes, local train operations and locomotive repairs, servicing and fueling would take place. At some of these locations, traffic would also be interchanged with NS and other railroads. The number and length of "running tracks" in each yard (the tracks necessary to handle the peak period trains moving through the yards of SBRR) were based on the results of the RTC Model. [23]

Additional interchange locations were identified by a review of SBRR carload data, and interchange track was added at interchange locations where the SBRR did not already have a yard.[24]

The number and length of utility and classification tracks were estimated based on the range of car counts at each yard.[25] The number and length of tracks needed for locomotive repair

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[23] See SunBelt Opening e-workpapers "SBRR Yard Matrix.xlsx" and "SBRR Opening Sticks.pdf," pp. 9-13. Yard track in the RTC Model is shown as gray.

[24] An example of this would be the interchange track added at Boligee, MS. See SunBelt Opening e-workpaper "SBRR Yard Matrix.xlsx," tab "SBRR YARDS," category "Other Yards."

[25] See SunBelt Opening e-workpaper "SBRR Yard Matrix.xlsx," tab "UTILITY TRK LENGTH."

and servicing facilities, fueling and car repair (rip tracks) were estimated by general yard size and included where necessary.[26]

All of the above were incorporated into the yard requirements of the SBRR resulting in 63.62 miles of yard and interchange track.

As explained above, the primary source of yard track requirements developed by SunBelt is the RTC Model in which the SBRR operates trains based on actual trains run by NS. NS's yard track requirements are based on trains created by its MultiRail simulation and, as discussed in detail in Part III-C, the MultiRail simulation has no relationship to actual NS trains. In other words, SunBelt's yard track requirements are based on actual trains while NS's yard track requirements are based on trains created by a simulation program. As explained in detail in Part III-C, NS's MultiRail simulation is unreliable and results in a gross overstatement of yard track.

The specific differences in yard and interchange track between SunBelt and NS are addressed below.

i. Yards

Following the procedures described above, SunBelt included a total of thirteen (13) yards, including one (1) major yard, four (4) mid-size yards, and eight (8) other yards. These yards are used for train staging, car inspections, servicing and fueling, interchanging traffic, crew changes and picking up/dropping off traffic.[27]

NS included seven (7) yards, fifteen (15) industrial support yards, two (2) intermodal facilities, one (1) automotive facility and twelve (12) interchange locations.[28]

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[26] Id, tab "ADDL TRACK."

[27] See SunBelt Opening, at III-B-5 to -6 and Opening e-workpaper "SBRR Yard Matrix.xlsx," tab "SBRR YARDS."

[28] See NS Reply e-workpapers "SBRR Yard List NS Reply.xlsx" and "SUNBELT RR Route Miles Opening Grading NS Reply.xlsx"

NS converted five (5) SBRR interchange yards to industrial support yards and added ten (10) industrial support yards at other locations. The main problem with NS's industrial support yards is that they are based on the MultiRail simulation which, as discussed in Part III-C, SunBelt has shown to be unreliable. Furthermore, NS has not shown whether these industrial support yards currently exist or are only necessary because of NS's use of the MultiRail simulation. Finally, it is not clear whether or not these industrial support yards, if they do exist, are owned by NS or owned by customers. NS has provided no support of ownership for these tracks. Therefore, SunBelt has not accepted NS's industrial support yards.

As discussed in Part III-C, SunBelt has made some modifications to its RTC Model in response to NS's Reply criticisms. However, these modifications do not impact the SBRR's yard requirements shown in the RTC Model.

As shown in Table III-B-2 above, the largest difference in yard track, by far, is in classification track. On Opening, SunBelt included 19.23 miles of classification and utility track at five (5) locations. On Reply, NS included 50.01 miles of classification track at seven (7) locations, over twice the amount included by SunBelt. As discussed in Part III-C, SunBelt shows that NS's methodology for calculating classification track requirements results in overstated track miles. In Part III-C, SunBelt also explains that it has reevaluated its classification track requirements based on the NS's criticisms. Using the number of classification tracks needed at each yard, the ladder track configuration used in Opening and the track lengths determined by SunBelt's operating witness based on the Rebuttal peak year car counts at each location, SunBelt has included 39.71 miles of classification and utility track at seven (7) locations on Rebuttal.[29]

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[29] See SunBelt Rebuttal e-workpaper "SBRR Yard Matrix Rebuttal Grading.xlsx," tab "UTILITY TRK LENGTH." SunBelt added classification tracks at Birmingham (Norris) Yard, Meridian Yard and Selma Yard. See SunBelt Rebuttal e-workpaper "SBRR Rebuttal

As shown in Table III-B-2 above, SunBelt included small amounts of track on Opening at selected yards for locomotive repair, fueling and servicing facilities as well as car repair and rip track facilities (Table III-B-2, lines 3-7, Column (2) and Column (3)). NS included track for locomotive servicing facilities as well as rip and MOW tracks (Table III-B-2, lines 3-8, Column (4) and Column (5)). NS did not criticize SunBelt's locations or track miles for these facilities on Reply. Locomotive repair, car repair and fixed fueling facilities are discussed in Part III-F-8, Buildings and Facilities. As NS has offered no criticisms of SunBelt's Opening track miles for these items, SunBelt has made no changes to the track at these facilities on Rebuttal. SunBelt did not include MOW tracks in yards on Opening because SunBelt's maintenance of way witness, Mr. Crouch, did not deem them necessary. NS did not provide any evidence on Reply demonstrating that these tracks are necessary and SunBelt has continued to exclude them on Rebuttal.

ii. Intermodal Facilities

On Reply, NS included two (2) intermodal facilities in Birmingham, AL and New Orleans, LA.[30] SunBelt agrees that the SBRR needs these two (2) intermodal facilities and, on Rebuttal, has accepted these facilities and NS's track miles.

iii. Automotive Facilities

On Reply, NS included one (1) automotive facility in New Orleans, LA.[31] SunBelt agrees that the SBRR needs an automotive facility in New Orleans and, on Rebuttal, has accepted this facility and NS's track miles.

Sticks.pdf," pp. 9-13. SunBelt also notes that its interchange yards at Wilton, AL and Hattiesburg, MS now have classification tracks based on SunBelt's Rebuttal car counts. The addition of classification tracks at these two (2) locations is in agreement with NS's Reply evidence.

[30] See NS Reply, at III-B-9 and e-workpaper "SBRR Yard List NS Reply.xlsx," tab "IM Facilities."

iv. Interchange Track

As discussed above, interchange track was included by SunBelt on Opening in two ways. First, interchange track was included in the yard track identified by the RTC Model because interchange trains were included in the trains moving over the SBRR during the peak period. Second, additional interchange yards were added at locations where there were no yards in the RTC Model based on a review of the SBRR's traffic data.[32]

On Reply, NS identified the same interchange locations, with one exception,[33] and included 23.48 miles of interchange track.[34] NS included additional interchange track at all SBRR yard locations. Yards appearing in the RTC Model do not need additional interchange tracks as the interchange trains have already been accounted for in the RTC Model's determination of track requirements. For the remaining interchange locations that do not appear in the RTC Model, SunBelt has accepted NS's miles of interchange track in order to accommodate the interchange of complete trains.[35]

v. Rebuttal SBRR Yards

As discussed above, and shown earlier in Table III-B-2 above, SunBelt has increased its yard and interchange track from 63.62 track miles to 93.42 track miles. This is still substantially lower than NS's overstated 141.23 track miles.

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[31] See NS Reply, at III-B-9 and e-workpaper "SBRR Yard List NS Reply.xlsx," tab "Auto Facilities."

[32] SunBelt included interchange yards at Boligee, MS, Birmingham, AL, Tuscaloosa, AL, Maplesville, AL, Marion Jct., AL, Wilton, AL, Hattiesburg, MS and Kimbrough, AL. See SunBelt Opening e-workpaper "SBRR Yard Matrix.xlsx," tab "SBRR YARDS."

[33] NS did not include downtown Birmingham, AL as an interchange point. SunBelt's RTC Model included one track at this location for interchange traffic.

[34] See NS Reply e-workpaper "SUNBELT RR Route Miles Opening Grading NS Reply.xlsx," tab "New Interchange Tracks."

[35] See SunBelt Rebuttal e-workpaper "SBRR Yard Matrix Rebuttal Grading.xlsx."

f. Rebuttal SBRR Track Miles

As discussed above, SunBelt has added track miles where appropriate. Table III-B-3 below summarizes the SBRR track miles presented by SunBelt in Opening and compares NS's Reply track miles to those included by SunBelt on Rebuttal.

Table III-B-3
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR Constructed Track Miles

Description	SunBelt Opening[1/]	NS Reply[2/]	SunBelt Rebuttal[3/]	Difference Cols (3)-(4)
(1)	(2)	(3)	(4)	(5)
1. Main Line Track				
a. Single Main Line	578.24	578.24	578.24	0.00
b. Other Main (incl. sidings)	124.11	135.63	130.31	5.32
2. Helper Pocket and Setout Track	4.48	15.82	4.48	11.34
3. Customer Access Sidings	0.00	10.61	0.00	10.61
4. Yard and Interchange Track	63.62	141.23	93.42	47.81
5. Total Track Miles	770.45	881.53	806.45	75.08

1/ SunBelt Opening, at III-B-4.
2/ NS Reply, at III-B-5.
3/ See SunBelt Rebuttal e-workpapers "SUNBELT RR Route Miles Rebuttal Grading,.xlsx" Tab "Sticks" and "SBRR Yard Matrix Rebuttal Grading.xlsx," tab "SBRR YARDS."

3. Joint Facilities

SunBelt included 2.4 miles of trackage rights in Opening.[36] NS accepted SunBelt's joint facility miles.[37]

4. Signals And Communications System

SunBelt equipped the SBRR with a Positive Train Control system ("PTC") from the outset of operations in July 2011. NS's position on Reply is that, because all of the technology required to implement PTC did not exist in 2011, the SBRR must start out with a Centralized Traffic Control System ("CTC") and overlay PTC by December 31, 2015.

As discussed in Part III-F-6, the SBRR's inclusion of PTC at the beginning of the SBRR's operations is feasible (technology did exist) and in Rebuttal SunBelt continues to implement PTC in July 2011.

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[36] See SunBelt Opening, at III-B-7 and e-workpaper "SUNBELT RR Route Miles Opening.xlsx."

[37] See NS Reply, at III-B-9.

NS accepts SunBelt's communications and microwave system with microwave towers placed at 20-mile intervals along the SBRR.

5. Turnouts, FEDs And AEI Scanners

NS accepts SunBelt's turnout specifications and count of twenty (20) AEI scanners[38] but challenges SunBelt's spacing for Failed Equipment Detectors ("FED").[39]

SunBelt placed FEDs at 35-mile intervals throughout the SBRR system with single-ended setout tracks on either side of each FED.[40] NS accepts SunBelt's setout track specifications but rejects SunBelt's FED spacing. NS states that it has placed FEDs according to their actual placement today based on NS track charts resulting in FEDs spaced approximately every 15 miles. This spacing more than doubles both the number of FEDs and setout tracks on the SBRR.

SunBelt's 35-mile spacing was based on the experience of its operating witness. NS did not demonstrate that SunBelt's FED spacing was not feasible. NS merely said it was "unreasonable," for the sole reason that it is "more than twice the distance between FEDs as is NS's practice in the real world."[41] The SBRR is not a replication of NS and it has no requirement to conform to existing NS configuration. The SBRR only needs to be feasible. Spacing FEDs every 35 miles is certainly feasible. In fact, NS's actual FED placement demonstrates this. For example, a review of NS's track charts between Bellevue, OH and

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[38] See NS Reply, at III-B-11 to -12.

[39] Both SunBelt and NS included Dragging Equipment Detectors ("DED") as well as Failed Equipment Detectors ("FED") at each location but the text only refers to FEDs. See NS Reply, at III-B-11. FEDs and DEDs are also discussed in Rebuttal Part III-F-6.

[40] See SunBelt Opening, at III-B-8.

[41] See NS Reply, at III-B-11.

Walton, VA revealed three instances of NS actual FED spacing in excess of 35 miles, including one instance of nearly 100 miles.[42]

SunBelt has also reviewed a limited number of publicly available track charts for other railroads and found several instances of FED spacing in excess of 35 miles.[43]

Based on the above, NS's FED spacing is not necessary for the SBRR and SunBelt's FED spacing is feasible. SunBelt continues to use its Opening 35-mile spacing for FEDs in Rebuttal.

6. RTC Model Simulation

SunBelt addresses RTC Model Simulation issues in detail in Part III-C.

[42] 56.38 miles between milepost ("MP") RR 62.61 and MP RR 6.23; 38.50 miles between MP WV 171.80 and MP WV 133.30; and 94.74 miles between MP WV 189.98 and MP V 366.48. See SunBelt Rebuttal e-workpaper "NS FED Spacing Examples.pdf."

[43] See SunBelt Rebuttal e-workpaper "FED Spacing on Other Railroads.pdf."

Table of Contents

III. STAND-ALONE COST

C. STAND-ALONE RAILROAD OPERATING PLAN

This section of SunBelt's Rebuttal Evidence responds to NS's Reply evidence on the SBRR's operating plan. This section also responds to NS's Reply Evidence related to the RTC Model simulation of the SBRR's operations conducted by SunBelt, as well as the "MultiRail" model used by NS to create an entirely new (and unworkable) operating plan for the SBRR.

NS devotes nearly 118 pages of its Part III-C Reply Narrative to a critique of the alleged shortcomings of SunBelt's operating plan. NS then spends over 70 pages presenting an entirely new operating plan that NS developed, from scratch, to handle the SBRR's traffic in a manner that supposedly corrects the shortcomings of SunBelt's operating plan and provides for "full-service" handling of all cars moving on SBRR's merchandise and intermodal trains (both cars containing SBRR traffic and cars containing other, non-SBRR traffic).

NS's position is that SunBelt's operating plan does not account properly for intermediate pickups and setouts, or yard/local switching, needed to move all of the cars on the SBRR's merchandise and intermodal trains between their SBRR origins and SBRR destinations. In fact, however, SunBelt has accounted for all of these activities. SunBelt's operating plan, which was developed by Mr. Richard McDonald, an acknowledged railroad operating expert with over 40 years of operating, maintenance and engineering experiences with both Eastern and Western railroads, provides for pickup or delivery of cars at all local origins and destinations, and it accounts for intermediate and other yard switching by applying an I&I switching cost or a yard/local switching cost every time one of these activities could be identified from the car event and train event data produced by NS in discovery. SunBelt also included an intermodal lift and ramp cost to reflect the cost of adding/removing trailers and containers at local origins and destinations for the SBRR's intermodal trains. The only thing SunBelt did not do is include, in some instances, the time for these activities in its RTC Model simulation. As explained in more detail below, SunBelt could not model these activities on Opening because of unresolved problems with NS's electronic data detailed in SunBelt's Opening Exhibits III-C-1 and III-A-2. In its Rebuttal, SunBelt has addressed these cases where NS's own data was unclear, but still greatly questions the accuracy of the spurious and conflicting NS data.

Rather than correcting for the claimed "errors" committed by SunBelt, NS instead chose to develop an entirely new operating plan. NS's operating plan involves the creation of new SBRR merchandise and, to some extent, intermodal trains, assembled from blocks of cars removed from various NS trains at interchange points where the traffic first touches the SBRR system. NS's operating plan must be rejected by the Board because there is no link between the real-world trains that move SBRR traffic to the on-SARR points and the new SBRR trains created by NS to move traffic from the on-SARR points to local destinations or off-SARR interchange points. Essentially, NS's use of the MultiRail software to develop its operating plan draws a "wall" around the SARR, without accounting for the effect on the residual NS and other connecting railroads. This means NS has not demonstrated that its operating plan is capable of providing the end-to-end service required by the SBRR's customers, which is an essential factor for Board approval of a SARR operating plan.[1]

Moreover, the "MultiRail" data made available to SunBelt and the Board is a read-only copy of the results of NS's analyses. As discussed in more detail below, this means SunBelt was unable to verify that the inputs used by NS produce the results or to test alternative scenarios to ascertain whether these results are indeed the most efficient. What is clear is that NS's operating

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[1] See *Duke/NS* at 99.

plan is extremely costly and does not in any way reflect the flow of the SBRR's traffic in the real world, much less the flow of cross-over traffic between NS and the SBRR and vice versa.

In the following sections of this Part III-C, SunBelt explains in more detail why its operating plan is feasible and supported by the best evidence available, and why NS's operating plan must be rejected. SunBelt also responds to NS's criticisms of its inputs to the RTC Model, corrects those inputs where warranted, and presents the results of its Rebuttal RTC Model simulation of the SBRR's peak-period operations.

1. SunBelt's Operating Plan is Feasible

In its Reply narrative, NS went to great lengths in an attempt to portray SunBelt's SBRR operating plan as unfeasible. NS alleges that SunBelt did not include all the trains necessary to transport the SBRR's traffic, did not follow SunBelt's own instructions for treatment of traffic at its McIntosh Plant, did not operate the trains included in the SBRR traffic group in a manner that provides the same services as the NS, did not classify the SBRR trains properly in its yards, and did not interchange the SBRR trains with connecting carriers in the same fashion as NS. In addition, NS took the unprecedented step of saying SunBelt's operating witnesses were incompetent.

NS's overheated Reply rhetoric is designed to distract from, and disguise, the flaws in its own alternative operating plan based upon the MultiRail software. As SunBelt clearly indicated in Opening, SunBelt developed its operating plan specifically to use the <u>same</u> basic operating practices NS uses in its real world operations. In other words, SunBelt operated the <u>same</u> trains as NS operates in its real world operations in the <u>same</u> basic fashion.[2] Any indictment of the SBRR operating plan is an indictment of NS's own operations. Moreover, any minor flaws in

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[2] SunBelt did make some adjustments to certain train operations where NS's operations where less efficient than the SBRR's operations.

the SBRR operating plan stemmed primarily from the inconsistent and error filled data NS provided in discovery.[3]

SunBelt discusses the flaws in NS's Reply evidence and its Rebuttal Operating Plan below.

a. SunBelt's Operating Plan Is Based On NS's Own Operations

i. SunBelt Used NS's Own Operations As The Template For its Operating Plan

NS's underlying Reply theme is that SunBelt's SBRR operating plan is unfeasible because it does not provide the same level of service as that provided by NS in its real world operations.[4] NS's Reply position is a bit of a quandary because, as SunBelt indicated in its Opening Narrative, SunBelt ran the same trains in the same fashion as NS operates in its real world operations.[5] In essence, NS is indicting its own operations.

The STB has made it abundantly clear in its prior decisions in SAC cases that SARR operating plans that stray too far from the incumbent's real world operations run the risk of being rejected as unfeasible. In *FMC*, the shipper based its operating plan on the use of average train sizes instead of using actual train sizes used by the defendant railroad, UP. For example, FMC estimated the number of coal trains operating over the *FMC* stand-alone system by using the average number of cars per train for all trains moving over the specific interchange points and

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[3] NS's data was so lacking that its own experts acknowledged its flaws and did not use it for its own Reply evidence. See SunBelt Rebuttal Exhibit III-C-1 for a listing of data flaws acknowledged by NS.

[4] See NS Reply, at III-C-13 to -19, -52 to -60.

[5] See SunBelt Opening, at III-C-2 "[t]he 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…"

interchanges, but limited the maximum length of the trains to 115 railcars.[6] Similarly, FMC developed its grain train requirements by consolidating its multiple-car shipments into unit train shipments, while ignoring the actual number of cars on the trains operated by UP.[7] The Board rejected FMC's operating plan because it did not reflect the actual number of trains UP operated, nor did it reflect the actual number of cars UP operated on those trains.[8]

In a similar fashion, the Board rejected the shipper's operating plan in the *Duke/CSXT* decision for failing to conduct operations in a similar fashion to the defendant CSXT. As stated by the Board:

> To limit operating expenses, Duke selected an operating plan for the ACW [the SARR in the case] that is different from how CSXT conducts its coal-hauling operations in the Central Appalachian Region.[9]

As with the operating plan presented by the shipper in *FMC*, the STB rejected Duke's operating plan because it would not provide the same level of service as that provided by the incumbent railroad.[10]

Based on the Board's decisions in *FMC* and *Duke/CSXT*, as well as other Board decisions,[11] shippers in SAC cases have developed their operating plans to mimic the operations of the incumbent railroad. This has taken the form of operating the SARR trains in virtually the same manner as the incumbent, including using the same consist sizes, and using virtually the same mainline track infrastructure. In this way, shippers in SAC cases can best ensure that their operating plans meet the needs of the incumbent's customers. This is the approach taken by the

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[6] See *FMC* at 736.

[7] Id. at 737.

[8] Id. at 738.

[9] See *Duke/CSXT* at 426

[10] Id. at 430.

[11] See *Duke/NS* and *CP&L* for example.

shipper in *AEPCO 2011*, the most recent SAC case decided by the Board, and one in which the Board found the shipper's SARR operating plan feasible. As stated by *AEPCO 2011*:

> The ANR's train sizes are the same as those for comparable BNSF and UP trains operated in the most recent twelve-month period (2Q08 through 1Q09, also referred to as the "Base Year") for which the defendants produced usable train and car movement data. Non-coal trains move exclusively in overhead service so they use the same cars (or mix of cars) as the comparable BNSF and UP trains that moved between the same points in the same year.[12]

This also is the approach SunBelt used in developing its operating plan. As indicated in its Opening Narrative, Mr. McDonald developed the SBRR configuration based on NS's present main-track/passing siding configuration for all the NS lines replicated by the SBRR.[13] In a similar fashion, Mr. Fapp identified the trains operating over the SBRR system based on the trains operated by the NS. This includes identifying the number of loaded and empty railcars moving on these trains.[14] Mr. McDonald then used the list of real world NS cars to develop the specific parameters of the SBRR operating plan.

Unlike the shippers in the *FMC* and *Duke/CSXT* cases, SunBelt's operating plan does not attempt to stray too far from NS's own operations by developing train sizes and consists different from those used by the incumbent carrier. Instead, SunBelt used the same train sizes and consists as those used by NS and identified in NS supplied data. NS cannot realistically claim that SunBelt's operating plan is not feasible, because in many important ways, it is NS's own real-world operating plan. As discussed in section A-3 below, it is NS which has developed an unfeasible operating plan that strays far from its own operations.

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[12] See Opening Evidence of Complainant Arizona Electric Power Cooperative, Inc. (Public Version) at III-C-7 to -8.

[13] See SunBelt Opening, at III-C-2.

[14] Id.

Nevertheless, NS questions the feasibility of the SBRR's operating plan based on a series of allegations regarding missing or incomplete trains and facilities, and improper service design processes.[15] NS also alleges that "SunBelt's Operating Plan is not a complete and feasible plan even for the issue traffic" and "fails to properly account for the facilities, personnel and time required to transport the substantial volume of general freight traffic that it selected for the SBRR in accordance with customer needs…."[16] Although SunBelt provides a detailed response to these claims elsewhere within this Part III-C, as well as in Sections III-B and III-F of this Rebuttal, SunBelt summarizes below why NS's allegations are wrong and/or overstated, and why SunBelt has developed a feasible operating plan based on NS's own operations that is capable of providing service to carload shippers.

(a) The SBRR Provides Local Train Service

NS alleges that the SBRR operating plan is infeasible because SunBelt did not provide all the trains necessary, including local trains, to move the SBRR traffic, and did not operate those trains in a manner that would allow for the origination and delivery of traffic along the SBRR route.[17] NS is wrong. SunBelt included all of the local trains readily identifiable as moving over the SBRR route in the NS train event data. In contrast, NS included trains in its Reply operations that are completely divorced from NS's own operations and that do not necessarily move on the SBRR route at all. In addition, NS included trains that do not even appear on-SARR in its car and train event data.

Contrary to NS's allegations, SunBelt did model local traffic in its RTC model and stopped trains along the routes of service where SunBelt could reliably identify the stops in NS's

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[15] See NS Reply, at III-C-4 to -6.

[16] See NS Reply, at III-C-1 (emphasis omitted).

[17] See NS Reply, at III-C-13 to -19.

faulty traffic data. However, given the extreme flaws in NS's car and train event data, SunBelt had to make certain assumptions about where and when trains stopped to provide local service, and the consist of those trains in the RTC model.

In this Rebuttal, SunBelt has updated its RTC model to address certain criticisms leveled by NS, including stopping trains en route, and changes in consist sizes on SBRR local and road trains. SunBelt has included consist changes in its RTC model, even though it continues to believe that NS's car and train event data is so flawed that it is an unreliable source of information as to what actually moved on the NS trains. SunBelt also explains where it added trains to its Opening base year SBRR train group in response to the limited number of valid NS criticisms.

(b) SunBelt Did Not Develop a Trainload Operating Plan

NS alleges that SunBelt designed a "trainload railroad," and did not develop its operating plan to allow for the delivery of individual shipments.[18] In addition, NS contends that SunBelt should have built "trip plans" for each shipment, and, using these individual trip plans, should have built trains to move individual cars across the SBRR system. NS intentionally misconstrues SunBelt's statements about the SBRR and its train operations, and ignores the fact that the SBRR provides service to all customers.

Contrary to NS's claim, SunBelt did not state that it designed a "trainload railroad," but stated that it designed its operating plan to meet the transportation needs of the SBRR traffic group by operating the same train sizes with the same mix of traffic as NS.[19] Additionally, NS

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[18] See NS Reply, at III-C-41.

[19] See SunBelt Opening, at III-C-8. NS misstates SunBelt statement on page I-53 of its Opening narrative that SunBelt would operate a trainload railroad. SunBelt's statement reflected the calculation of the SBRR's operating expenses and how SBRR employees would handle trainload

exploits the working assumptions SunBelt was forced to make in order to work with NS's flawed and deficient data when it asserts that the SBRR would not change consists at yards or along train routes. From this misnomer that the SBRR would not change consist sizes, NS jumps to the incorrect conclusion that the SBRR is a "train only" railroad.[20] In actuality, as explained on Opening at page III-C-15, SunBelt stopped trains in route for spotting and pulling cars from trains, which is the very definition of changing train consists and providing services to its customers. The only thing that SunBelt did not do, because of data limitations, was model the consist changes in the RTC Model, which has very little effect on the RTC simulation.

Finally, NS's statement that SunBelt's operating plan fails because it did not develop individual trip plans for each shipment is a case of misdirection.[21] SunBelt operates the same trains with the same consists as NS does in its normal course of operations. Because the SBRR is operating NS's own trains, SunBelt has effectively adopted NS's own trip plans for each shipment and has no need to develop new trip plans divorced from NS's own operations. In contrast, instead of adopting the trip plans that it uses in the normal course of its business, NS's Reply developed new trip plans based on the MultiRail software program. These new trip plans

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quantities of goods. NS's own workpapers show that the SBRR handles more road trains than local trains meaning most trains are handled with trainload quantities.

[20] As it explained in its Opening Exhibit III-C-1, SunBelt stopped trains along the route of movement to reflect the spotting and pulling of cars for SBRR customers. SunBelt did not change the numbers of loaded and empty cars because of concern about the legitimacy of NS data. SunBelt does not believe this materially impacted the RTC model because it is the stopping and dwelling that has the larger impact on a train's operations and not necessarily incremental changes in train sizes. For example, a train moving along the route with 10 loaded and 10 empty cars will operate in a very similar way as a train with 15 loads and 5 empty cars.

[21] NS's analogy of a trip plan on a railroad to a package plan used by FedEx or UPS is misguided and demonstrates NS's complete misunderstanding of current package shipment operations. FedEx's and UPS's highly sophisticated operations find the most efficient routing for packages, which may or may not include shipments to a main sorting hub, which NS incorrectly equates to a railroad's classification yard. Instead, UPS or FedEx may send packages to a regional hub were a parallel sort is used to route packages to their final destinations.

are convoluted and inefficient. There was no reason for SunBelt or NS to develop new trip plans, when NS already had adequate trip plans based upon its real world operations. By operating the same trains as the real-world NS, the SBRR effectively implements the real-world NS trip plans, and thus SunBelt has no need to reinvent the wheel.

(c) The SBRR Uses The Same Car Classification and Blocking Plans As NS's Real World Operations

NS also asserts that the SBRR operating plan is infeasible because SunBelt did not provide for yards to classify cars, nor did it provide blocking plans used in classifying groups of railcars.[22] Once again, NS is wrong. As discussed below, SunBelt's Opening evidence included the yards necessary to build SBRR's trains, and, in Rebuttal, SunBelt has expanded those yards to meet the needs of SBRR operations where NS identified legitimate issues.

Additionally, NS's assertion that SunBelt did not construct car blocking plans to assist in building SBRR trains is also wrong because SunBelt, in adopting the same trains used by NS, has effectively adopted NS's existing blocking plans. NS has provided no information or data showing that its own real-world blocking plans are incapable of providing the services required, and is, in effect, arguing that its own blocking plans used in its every day operations are insufficient. NS cannot use its own blocking plans in the normal course of its business, and then turn around and argue in litigation that these same blocking plans are insufficient. In subpart 5 of this Part III-C, SunBelt has modified its Yard classification tracks based upon real-world NS data, and tested their sufficiency using SunBelt's Rebuttal RTC model. This results in yard sizes

[22] See NS Reply p. III-C-45 to -46.

and configurations that can accommodate SBRR's peak period traffic volumes, and are consistent with NS's real world operations.[23]

(d) SunBelt Provided The Facilities To Operate Road And Local Trains

NS claims that SunBelt did not provide sufficient time and facilities to provide local train service to the SBRR's merchandise traffic customers.[24] This claim is largely predicated upon NS's assertion that SunBelt omitted over 1,600 local trains. As noted above and addressed in detail further below, SunBelt included all of the local trains readily identifiable as moving over the SBRR route in the NS train event data. Although SunBelt has identified some local trains that were inadvertently omitted, they are far fewer than NS contends, and SunBelt has added those trains to its Rebuttal operating plan.

NS also claims that SunBelt omitted railroad-owned spur and industrial tracks needed to access many of the SBRR's customers. As described in Section III-B, SunBelt provided all the tracks necessary to serve the customers in Opening that SunBelt could reasonably identify in NS's flawed and deficient data. In Rebuttal, SunBelt has added even more track and structures to serve the additional customers SunBelt identified based on certain legitimate issues raised by NS. SunBelt has further confirmed the feasibility of its network in its Rebuttal RTC model.

(e) SunBelt Provided Sufficient Time For Local Trains To Pick-Up and Set-Out Cars

NS claims that the SBRR operating plan is infeasible because SunBelt's RTC Model simulation did not provide sufficient time to service customers along the SBRR's route served by

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[23] Because SunBelt has included some, but not all of NS's traffic, the SBRR yards may not match in all cases NS's current yard configurations since it would be contradictory to the idea of SAC to include unnecessary infrastructure for traffic the SARR would not carry.

[24] See NS Reply, at III-C-50 to -51.

both local and road trains.[25] NS bases this claim on SunBelt's alleged failure to provide sufficient time to switch customer operations and to perform operations such as switching power from one end of a train to the other in trains operating in turn service. Once again, NS is incorrect. As described below, SunBelt included time at each location necessary to place and pull cars and to provide all necessary switching activities that could be identified from the traffic data that NS produced in discovery. But as SunBelt has noted, the quality of the NS data was inadequate to determine actual dwell times and locations in most instances. Indeed, even NS itself did not use its own data to develop dwell times, but instead relied upon the opinions of its experts. Similarly, SunBelt's dwell times are based on the vast experience of its operating expert, Richard H. McDonald, and are consistent with normal railroad operating practices and prior STB case precedent.

(f) SunBelt Did Include Adequate Crews To Provide Service To Its McIntosh Plant

NS claims that SunBelt failed to provide adequate crews to serve the McIntosh plant. NS claims that SunBelt "does not even present an operating plan that is capable of handling the TIH issue traffic" and ""'every aspect of SunBelt's operating plan fails to meet the service requirement associated with the issue traffic."[26] Further, NS claims that the SunBelt plant is served twice each day by local trains on weekdays and once each day on Saturday and Sunday.[27]

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[25] Id.

[26] See NS Reply, at III-C-51, -60.

[27] See NS Reply, at III-C-53. Contrary to NS's claim that SunBelt's plant receive service twice daily five days per week and once daily on weekends, SunBelt employees at McIntosh indicate that this service was instituted on NS's own initiative in January of 2013 and prior to that time NS provided service once daily seven days per week. SunBelt's analysis is based on trains actually moving in the McIntosh area in the Base Year.

Contrary to NS's statements, in Opening, SunBelt's operating plan included 323 local trains serving McIntosh in the Base Year.[28] In response to NS's criticism that SunBelt has omitted trains required to serve the issue traffic, SunBelt has increased the number of local trains serving McIntosh in Rebuttal to 584[29] trains from the 323 trains included in Opening. Clearly, these 584 trains are able to provide adequate service to SunBelt's McIntosh plant.

ii. SunBelt's Operating Plan Was Prepared By Experts With Many Years Of Railroad Operating Experience

NS attempts to distract the Board from more relevant issues in the case by questioning the competence of SunBelt's operating witnesses and inferring that they do not have the qualifications to address certain operating issues.[30] NS's salacious allegations are far from the truth.

First, as indicated in its Opening Narrative, SunBelt's Operating plan, including the development of the train service plan, was performed by SunBelt's witness Richard H. McDonald.[31] Mr. McDonald has over 42 years experience in increasingly responsible positions with Eastern railroad companies, including the New York Central ("NYC") and Penn-Central ("PC"), and with Western railroad companies, primarily the Chicago and Northwestern Railroad ("CNW"). While with the NYC and PC, Mr. McDonald worked as an officer in the railroads' operating departments and was assigned duties in the states of Ohio, Indiana and New York.

Since his retirement from the CNW, Mr. McDonald has been actively involved in the railroad consulting industry, including working for both eastern and western Class I railroads

[28] See SunBelt Opening workpaper "Sunbelt Base Year Trains.xlsx."

[29] See SunBelt Rebuttal workpaper "SRR Train Selection Reconciliation V06.xlsx", worksheet "Rebuttal Additions." For a further explanation of SunBelt's response to NS claims regarding SunBelt's failure to include all necessary trains, see Part III-C-1-b, *infra*.

[30] See NS Reply, at III-C-13 to -14.

[31] See SunBelt Opening, at III-C-1.

performing operational adjustments and analyses. He also played a key role in the restructuring of the Ferrocarriles Nacionales de Mexico ("FNM") into an independent, modern transportation company before its privatization and disposition into four separate railroad companies. Clearly Mr. McDonald is intimately familiar with the operating requirements of carload railroads, including eastern carload railroads like the SBRR.

Second, contrary to NS's inferences, SBRR's operating plan was developed exclusively by Mr. McDonald and not SunBelt witnesses Burris, Fapp and Humphrey. As SunBelt indicated in its Opening narrative, Mr. Burris was responsible for the development of the operating statistics based on the output of the RTC model and the operating plan, while Messrs. Fapp and Humphrey were responsible for inputting the operating plan as prepared by Mr. McDonald into the RTC model. Mr. Burris has over 30 years experience consulting in the railroad industry both for shippers and freight railroads, and is more than qualified to develop operating statistics based on the operating plan developed by Mr. McDonald.[32] Likewise, both Messrs. Fapp and Humphrey are eminently qualified to run simulations in the RTC model, and, in fact, were responsible for the RTC simulation in the *Otter Tail* case, which was the first SAC case in which a shipper's operating plan was accepted by the STB.[33] NS's claims that SunBelt witnesses Burris, Fapp and Humphrey developed the SBRR operating plan are simply wrong.

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[32] It is because of this vast experience that Mr. Burris was selected to be an outside director for the South Central Florida Express, a Class III common carrier freight railroad.

[33] NS also misstated and mischaracterized Mr. Fapp's prior railroad experiences in its narrative. As indicated in his resume included in SunBelt's Opening narrative, Mr. Fapp was an officer of three railroad companies, The San Manual Arizona Railroad, The Magma Arizona Railroad (later the BHP Arizona Railroad) and the BHP Nevada Railroad. Contrary to NS's inference, these three railroads were not simply "proprietary" railroads, but three separate and distinct Class III common carrier freight railroads under the purview of the STB and the Federal Railroad Administration. See Rebuttal e-workpaper "The Pocket List of Railroad Officials.pdf." In addition to his financial and administrative responsibilities, Mr. Fapp was also responsible for

b. Any Limitations On SunBelt's Operating Plan Are A Result Of NS's Failure To Provide Accurate Data

i. NS Cannot Run Away From Its Own Flawed Data

In Exhibits III-A-2 and III-C-1 of its Opening Narrative, SunBelt detailed the numerous flaws and inconsistencies with NS's car and train movement data. The flaws included, but were not limited to:

- Duplicate milepost
- Missing milepost
- Missing stations
- Severe imbalances in arrival and departure statistics
- Out of sequence train and car movement data
- Missing car and train event records
- Missing load and empty statistics
- Incorrect train statistics

Because of the extreme discrepancies in the car and train event data, SunBelt had to spend an inordinate amount of time attempting to cleanse and massage the data into something useable.

In its Reply narrative, NS attempted to dismiss the flawed data it provided by claiming "competent" witnesses would have known the NS data was flawed, and used other sources of data to develop an operating plan.[34] NS's position is wrong for several reasons, but primarily it is wrong because NS cannot run away and hide from its own deeply flawed data provided in discovery without any qualifications as to its accuracy or completeness.

In its November 19, 2003 *AEPCO* decision, the STB stated that the railroads have a responsibility to provide the information necessary for the STB to exercise its regulatory oversight:

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the operations of the railroad's dispatchers and dispatching function, and is intimately familiar with train operations and regulations.

[34] See NS Reply, at III-C-19 to -24.

> Rail rate cases are not ordinary commercial litigation, given the regulated nature of rail rates charged to captive shippers. Operating in an industry subject to regulatory oversight of rates charged on captive traffic, railroads have a responsibility to provide information needed by the Board.[35]

In this instance, NS has failed to meet its responsibility. NS cannot provide flawed and deficient data in discovery, data that NS acknowledges is flawed as discussed below, and then turn around and hide from this data by stating the shipper should have used different data. As stated by the Board, NS has a responsibility to provide the information necessary for the STB to perform its regulatory oversight. The STB cannot allow regulated common carriers to shirk their responsibility to provide the data necessary to develop a SAC analysis.

ii. NS Acknowledges The Flaws In Its Own Data

As indicated above, SunBelt included as part of its Opening Narrative Exhibit III-C-1, which listed the numerous flaws with NS's train event data, and Exhibit III-A-2, which listed the major issues with NS's car event data. In response to these Opening Exhibits, NS submitted Reply Exhibit III-C-8, in which NS claims to address the flaws highlighted by SunBelt. SunBelt has prepared Rebuttal Exhibit III-C-1, which addresses NS's Reply Exhibit III-C-8, and discusses why NS's statements are misleading or, in most cases, simply wrong.

One of the compelling facets of Reply Exhibit III-C-8 is the number of times NS acknowledges that its own data is flawed. As discussed in more detail in SunBelt Rebuttal Exhibit III-C-1, NS acknowledges that its train event and car event data contains the following critical flaws:

1. The same milepost assigned to multiple stations in different states.[36]
2. Train event data contains erroneous milepost.[37]

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[35] See *AEPCO 2011* at 224-225.

[36] See NS Reply Exhibit III-C-8, at 37.

[37] Id. at 40.

3. Train event data and car event data contains missing station information mileposts.[38]

4. Train event data contains multiple-mileposts per station.[39]

5. Train event data contains an imbalance in arrival and departure events.[40]

6. Train event data contains out of sequence events.[41]

7. Train event data contains incorrect train statistics.[42]

NS attempts to diminish its data flaws by making dismissive comments such as calling the flaws minor data issues, or stating the data was available elsewhere. As SunBelt addresses below and in Rebuttal Exhibit III-C-1, NS's responses are nothing but hot air.

(a) Train and Car Event Data Cannot Be Accurately Combined

Throughout its Reply Exhibit III-C-8, NS repeatedly stated that SunBelt could have solved many of the flaws in NS's train event data by supplementing the train event data with car event data.[43] NS's claim is in fact a red herring. As discussed above and in Rebuttal Exhibit III-C-1, NS's car event data was replete with errors as was its train event data. The impact of combining one set of erroneous data with another set of erroneous data just leads to greater distortions.

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[38] Id. at 40.

[39] Id. at 41.

[40] Id. at 42-44.

[41] Id. at 44-49.

[42] Id. at 49-51.

[43] See, e.g., NS Reply Exhibit III-C-8 at 44 ("this issue would have easily been remedied had SunBelt not excluded the car-event data from its analysis"), or NS Reply Exhibit III-C-8 at 45 ("car-specific data could easily have been used to clarify any inconsistencies in the train sheets.")

SunBelt includes several examples of this issue in its Rebuttal Exhibit III-C-1, but repeats one of the examples here to demonstrate the problem with combining car and train event data.

Figure 1 below depicts the routing for train {{[redacted]}, the same train illustrated in SunBelt's Opening evidence and NS's Reply. This train moves from {{[redacted]}} to {{[redacted]}}, through {{[redacted]}}. Based on Train Event departure times, it appears to make an incongruous jump at {{[redacted]}}.

PUBLIC VERSION

Figure 1

Plot of Partial Route of Train {{[redacted]}}

<u>Based on Departure Train Events</u>

[redacted]

Such back and forth movements as shown in Figure 1 would be expected on a local train that is working a short section of a track out of a nearby yard, but that is not the situation here. Instead, NS data appears to show a long-haul road train (NS schedule data indicates this train takes three (3) days to complete its New Orleans to Linwood route) working a section of track like a local.

NS's proffered solution to this discontinuous train event was to use combined car and train event data arrival and departure information; but when both car and train event data are combined for this train, the route of movement becomes even more muddled as shown in Figure No. 2 below.

PUBLIC VERSION

Figure 2

Plot of Partial Route of Train {{[redacted]}}
<u>Based on Departure Train Events Merged with Car Events</u>

[redacted]

As shown in Figure 2 above, the combination of car and train event data provides no usable information on the true routing of this train.

The additional illustrations included in SunBelt Rebuttal Exhibit III-C-1 demonstrate that this is not an isolated issue. Both the NS car event data and train event data contain numerous flaws. These individual flaws create data analysis problems when they are encountered singularly. In other words, a missing milepost or a misstated date stamp in one train record can be overcome. The real issue is the flaws in NS's data are so numerous that they compund themselves. Combining a missing milepost with an inaccurate date stamp and with an out of sequence station leads to a distorted picture of the train's true operation. The diagram in Figure 2 above illustrates the problem with the compounding of errors when trying to combine NS's car and train event data.

(b) NS Had To Resort To Opinions To Develop Dwell Times Because They Could Not Be Identified From NS Data

In its Opening evidence, SunBelt explained that it could not calculate train dwell times from NS train movement data because of the lack of arrival event information, and the out of sequence nature of the arrival events that did exist in the train movement data.[44] Because of this, SunBelt had to rely upon other sources to develop train dwell times.

In its Reply Exhibit III-C-8, NS stated that SunBelt could have developed train dwell times from the car event and locomotive event data provided in discovery, which SunBelt ignored.[45] NS may "talk the talk" about using car event and locomotive event data to develop train dwell times, but it does not "walk the walk" because even its own experts could not use these sources to develop train dwell times for NS's own Reply analyses. As discussed in

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[44] See SunBelt Opening Exhibit III-C-1 at 8.

[45] See NS Reply Exhibit III-C-8 at 42-43.

Rebuttal Exhibit III-C-1, NS's workpapers show that its experts considered using car event data to develop dwell times, but apparently rejected the use of this data for dwell calculations for the same reason SunBelt did not use car event data to develop train dwell times. Namely, car event data does not produce consistent train dwells because cars move on multiple trains and loading and unloading stations can handle multiple trains at a time.[46]

Instead of using car event data to develop dwell times for its operating plan as it stated SunBelt should have done, NS relied on the opinions of its operating experts to estimate dwell times at different locations along the route.[47] The reason for this is obvious from examining NS's Reply workpapers. NS's car event data has so many flaws as to make it unusable for dwell time calculations on most traffic.

In Rebuttal, SunBelt is continuing to rely on its opening dwell time of 30 minutes per location for non-coal trains switched at non-SunBelt industry locations. This dwell time figure is based on the expert opinion of SunBelt's operating witness Richard McDonald, who, as explained above, has extensive experience in eastern railroad operations. The 30 minutes per industry train switch is also consistent with times used in other SAC cases. For example, in its filing with the Board in *IPA*, IPA included the testimony of railroad operating expert Paul H. Reistrup, an expert with over 50 years of railroad operating and engineering experience and former President of Amtrak.[48] In developing dwell times for switching at industries along the

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[46] <u>See</u> NS Reply e-workpaper "Coal Terminations.SQL."

[47] <u>See</u> NS Reply e-workpaper "SBRR Locals Work Events Dwells.xlsx."

[48] <u>See</u> *IPA* Opening Evidence (Public Edition) at IV-1.

stand-alone right of way, Mr. Reistrup allocated 30 minutes to place and pull cars from industry along the route.[49]

The 30 minutes allowed for industry switching is also conservative when compared to times shown by other railroad companies to switch industries, and shows the extreme overstatements in NS's assumed dwell times. In *FMC*, the UP, the defendant railroad in the case, performed a study to determine the time it took to switch a chemical manufacturing plant in Lawrence, KS. UP determined that it took on average 41 seconds per car to switch the industry.[50] Assuming, for argument's sake, that UP's estimated time was low, and the actual time it takes to switch industry operations is twice this amount (82 seconds), it would take an average of approximately 26 minutes to switch the average industry based on the average 19 cars per industry switch shown in NS's car event data.[51] This demonstrates that the 30 minutes used by SunBelt is more than adequate to service SBRR industries. Moreover, it clearly demonstrates that the times NS's experts used, some of which exceed 3 hours, are dramatically overstated and out of line with current railroad operations.

Based on the fact that SunBelt's dwell time at industry for non-coal shipments developed by Mr. McDonald is consistent with the opinion of other railroad experts, and based on the time that other railroads have determined it takes to switch industry locations (which is significantly

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[49] See *IPA* Opening Evidence (Public Edition) at III-C-30. Mr. Reistrup noted that these times could be achieved because the railroad pre-blocked cars before delivery. As discussed further below, the SBRR also pre-blocks cars on trains based on NS's own blocking plans. Therefore, like in *IPA*, it is reasonable to assume 30 minutes is sufficient to place and pull cars from industry.

[50] See *FMC* at 753, note 105. The shipper in the case determined it only took 24 seconds per car to switch the industry.

[51] See SunBelt Rebuttal e-workpaper "Rebuttal Non-Coal RTC List.xlsx," worksheet "Local RTC List," Columns AD to BC."

lower than the times assumed by NS's experts), SunBelt continues to use its Opening position on dwell times to switch non-SunBelt industries along the SBRR route.

As for the time to switch cars at the SunBelt plant at McIntosh, SunBelt received input from its plant personnel about the time actually spent working the location. As confirmed by the SunBelt staff, the McIntosh plant is a unique operation unlike other operations along the SBRR route. Because of its unique nature, SunBelt in Rebuttal has adjusted the dwell times included in its Rebuttal RTC model to reflect train dwell times of 4 hours at the SunBelt Operation. However, unlike NS, SunBelt properly modeled this operation in its RTC model as to not block the mainline passing by the McIntosh plant as described in greater detail at III-C-2-g below.

In its Reply evidence, NS also submitted a study of dwell times for unit coal train origins and destinations along the SBRR route based on locomotive event data.[52] SunBelt has reviewed NS's calculations and accepts NS's dwell time estimates for unit coal trains. SunBelt has updated its RTC model to assume NS's unit coal train dwell times.[53]

iii. SunBelt included All Trains NS's Data Indicated Moved Over The SBRR

NS saves the majority of its overheated rhetoric for its allegation that SunBelt improperly excluded over 1,700 trains from its train group.[54] NS further states that SunBelt had all of the data it needed in SunBelt's so-called "Car/Train Database," which allegedly shows that SunBelt had substantially understated the number of SBRR trains. Finally, NS claims that SunBelt

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[52] As discussed further below, NS was unable to determine non-coal dwell time statistics from its train or car event data.

[53] SunBelt has also determined the penalties paid by the coal shippers for holding trains beyond the contractual dwell time, and included these penalties as offsets to its operating expenses.

[54] NS asserts that SunBelt "missed" 1,622 trains and categorically excluded 134 trains for a total of 1,756 trains eliminated by SunBelt. See NS Reply, at III-C-16. In Rebuttal, SunBelt identified a total of 1,726 trains, with the 30 train difference attributable to the definition of the base time period.

should have looked beyond car and train event data and used "other" sources of data to add trains to the SBRR system.

In actuality, NS's claims are nothing more than an artifice to increase the number of trains operated by the SBRR, and thereby overstate the SBRR's operating costs. NS relied upon an overly-broad definition of "on-SARR" to include trains that both car and train event data show only touch the SBRR at one location, and do not actually traverse the SARR. To include trains that may cross the SARR at a single location, but not operate over the SARR, is not representative of the SBRR's traffic. Moreover, NS included over 128 trains, which, based on car event data, never touch the SARR in any location, but NS alleges should be included in the SBRR train group. Overall, NS dramatically overstated the number of trains moving on the SBRR.

(a) Train Event Data Shows More Trains On SARR Than Car Event Data

In its Opening evidence, SunBelt identified 13,400 trains that moved over the SBRR system during its base year. NS claims that this number is understated, and if SunBelt had used car event data instead of train event data, it would have identified substantially more trains moving over the SBRR system. NS's claim is wrong.

SunBelt compared the trains included in its opening train group, which are primarily based on train movement data, to the same trains included in the NS's car event data. In other words, SunBelt looked to see how many of the trains it included in its train group also were included in the car event data NS contends is the panacea for its data issues. As shown in Table III-C-1 below, the number of trains included in NS's car event data is equal to the number of comparable trains shown in the NS train event data.

Table III-C-1
Car Event Trains versus Train Event Trains

Item (1)	Number of Trains (2)
1. Car Event Trains With Multiple Points On-SARR	13,377
2. Car Event Trains With One-Point On-SARR	23
3. Total Trains In Car Event Data	13,400
4. Total Trains Included in SBRR Train List	13,400

Source: e-workpaper "SRR Train Selection Reconciliation V06.xlsx."

As shown in Table III-C-1 above, SunBelt included 13,400 trains in its Opening base year train list. When looking at these same trains using car event data, what one sees is that only 13,377 trains report more than one point on-SARR. As we indicated above, saying a train traverses a SARR because it shows a single point on the stand-alone system would overstate the trains included because it would include trains that may cross the SARR, or use a yard along the SARR route, but do not actively move over the stand-alone system.[55] Even if SunBelt were to expand its analysis to include trains in the car event data that showed one or more points on the SBRR, the total number of trains would equal the number of trains included in the SBRR's base year train group as shown in Table III-C-1 above.

The vast majority of the trains that NS alleges SunBelt improperly excluded from its train group (1,316 of the alleged 1,726 missing trains) were included in the NS train event data but showed only one (1) location on the SBRR route. In other words, over 76 percent of the trains

[55] For example, NS included in its traffic group trains that originate or terminate at Wilton, AL, which is the meeting point of NS's 3B North District and Anniston District. The SBRR replicates the NS's 3B North District but not the Anniston District. Under NS's "one touch" approach, a train that originates in Wilton and then moves directly to the Anniston District would be included in the SARR traffic group since it reported one (1) location on the SARR even though it did not transport traffic on the lines replicated by the SARR.

allegedly missing are included in the NS train event data, but cannot be shown moving over the SBRR system. This is not because NS's train event data is not picking up these trains, but rather because these trains simply are not moving over the SBRR system based on the NS's own train data.

Most of the omitted trains are local trains that, according to the NS train event data, touch the SARR in only one location (indicating that the train does not move <u>over</u> the SARR at all, but simply comes to a point <u>on</u> the SARR, such as a yard, and either ceases movement or continues over a different line of the residual incumbent). NS claims that, despite what the train event data reports, these omitted trains in fact do move over the SARR because "for consistency" NS identifies local trains that frequently work in and around a single operating station "by a single milepost designation....".[56] NS, however, never provided this explanation when it produced the train event data to SunBelt. Moreover, this explanation based on "consistency" is actually inconsistent with the fact that many local trains that work in and around a single operating station do in fact report multiple mileposts in the train event data and thus were included in SunBelt's opening evidence.[57] Nevertheless, based upon this NS explanation, SunBelt has added missing trains in Rebuttal where the train touches the SARR at only one location and that location is not near a junction with the residual NS, which makes it unlikely that the train moved from that location to an off-SARR point on the residual NS.

In Rebuttal, SunBelt reviewed the 1,316 trains that show only one location on-SARR in both the car event data and the train event data, and 210 trains that are shown in the car event

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[56] <u>See</u> NS Reply III-C-25

[57] For example, if NS "consistently" identified all local trains that operate around a single station by a single milepost designation, SunBelt would not have picked up any A32 and A33 trains in its Opening Evidence. But, NS concedes that SunBelt did identify some, even if it did not identify all, of these trains. NS Reply, at III-C-25, note 51.

data but not the train event data. Based on this review, SunBelt had added to its Rebuttal analyses 261 trains out of the 1,526 trains discussed above (1,316 with one On-SARR location and 210 trains with no train event data) where NS waybill data indicated the train carried or switched issue SunBelt traffic.

Additionally and out of an abundance of conservancy, SunBelt also added those trains that originate at a station on the SBRR that likely would carry SBRR traffic on a train that would operate over the SBRR route. For example, SunBelt identified 39 trains that originate at Tuscaloosa, AL. NS has only one line running through Tuscaloosa, and the NS rail lines in either side of Tuscaloosa are replicated by the SBRR. This means there is a high likelihood these 39 trains operated on the SBRR even though this cannot be confirmed in NS car or train event data.

SunBelt continues to exclude those trains that it could not confirm or reasonably infer would operate on the SBRR system. One such location is Wilton, AL. As discussed above, two NS lines meet at Wilton, the 3B North District line and the Anniston District line, with only one line, the 3B North District Line, being replicated by the SBRR. SunBelt did not add certain trains at locations like Wilton since there is no proof that the train actually moved on the SBRR system. Based on this additional review, SunBelt added 698 trains to its Rebuttal SBRR traffic group.

Finally, in reviewing NS's Reply analysis, SunBelt agrees that it inadvertently omitted 72 of the more than 1,726 allegedly missing trains that should have been in its traffic group, but were inadvertently excluded due to a train coding error. SunBelt has added these inadvertently excluded trains to its Rebuttal train list.

In total, SunBelt has added 1,031 trains to its Rebuttal train list.

(b) NS Included Trains That Are Not Shown Moving On SARR In The Car Event Data

NS repeatedly complains that, if SunBelt had used car event data instead of train event data, it would have identified all the allegedly missing trains. However, even if this were true, which it clearly is not based on the discussion above, the number of trains allegedly missing would have been 128 trains fewer than NS has counted. This is because NS included over 128 trains even though the car event data shows none of these trains moving over the SBRR system. Simply stated, NS included these trains even though neither the car event data nor the train event data indicated these trains should be moving over the SARR system.

NS ostensibly included these trains based on other data, including train schedules and train lists provided in discovery. One of the files that contain local train schedules that NS stated SunBelt should have used to develop its train list does not provide any routing information.[58] Instead, the file shows only origin and destination locations. While this can provide some assistance on local trains that operate in straight-away service, it provides no help on routing when the train operates in turn service, e.g., moving to and from the same yard. This is especially true on trains moving from a yard that may be on the SBRR route, but has other line segments not built by the SBRR. In this way, there is no way to tell from this data whether the train moved over the SBRR or not. Strategies such as this do nothing but artificially increase the number of trains moving over the SBRR.

c. SunBelt's Operating Plan Accounts For Reciprocal Operations

In Reply, NS argues that SunBelt's operating plan is flawed to the extent it does not account for reciprocal operations with connecting carriers consistent with the joint use and

[58] See SunBelt Rebuttal e-workpaper "Yards.xlsx."

interline agreements NS has with other carriers.[59] Specifically, NS claims that SunBelt's operating plan: 1) does not provide for reciprocal blocking of cars being interchanged with its connecting partners; 2) assumes all interchange agreements provide for run-through power when in fact several agreements specifically exclude run-through power; 3) allocates responsibility for fueling and inspecting locomotives inconsistent with inter-carrier agreements and real world operating practices; and 4) makes no provision for running repairs to foreign railcars on the SBRR network. For the most part NS's claims are incorrect or intentionally misconstrue SunBelt's operating plan for the SBRR. In those few instances where NS's arguments have merit, SunBelt has adjusted its operations in Rebuttal to account for proper handling of each of these issues. Each item is discussed below.

i. Pre-Blocking Cars Forwarded To Connecting Carriers

In Opening, SunBelt's operating plan only accounted for classification of cars originating or terminating in specific yards but not others. As discussed *infra*, SunBelt has adjusted its operating plan to account for required classification switching in all yards. SunBelt adjusted the car counts by first examining the car counts NS proffered that require classification in the SBRR yards. SunBelt rejected NS's cars counts for the following reasons. First, NS's car counts are a result of NS's use of the MulitRail program. As fully discussed later in this Part III-C, NS's made for litigation MultiRail results are unsupported and unreasonable. For example, the classification car counts provided by NS in Reply,[60] which NS sources to MultiRail,[61] are hard-coded numbers and unverifiable. Further, when NS did finally provide access to MultiRail on a limited basis, SunBelt's analysts were able to review the classification car counts included in

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[59] See NS Reply, at III-C-60 to -73.

[60] See NS Reply e-workpaper "SBRR Reply Yard Operations.xlsx."

[61] See NS Reply, at III-C-139.

MultiRail and found that they did not match the car counts that NS attributes to MultiRail.[62] NS's multiple choice classification car counts are clearly unsupported and unreliable.

NS, however, did explain that it develops classification car counts based on cars originating, terminating and moving through yards based on MultiRail that need to be classified, excluding "block swaps" or cars that move through yards without being classified.[63] As fully addressed later in Part III-C, NS's MultiRail analysis is fatally flawed and cannot be relied on for operating statistics including car counts. As a result, in Rebuttal, SunBelt has developed classification car counts from the car event data provided by NS in discovery in the same manner as NS described above, i.e., cars originating, terminating and moving through yards requiring classification, excluding block swaps.[64] The loaded and empty cars included in SunBelt's classification car counts correspond to NS's *actual* trains that move on the lines than comprise the SBRR rather than the "made for litigation" trains in NS's MultiRail analysis.

ii. Handled Run Through Power

NS states that SunBelt's operating plan improperly assumes that all interchange agreements allow for run though power and that "this assumption contradicts the clear terms of NS interline service agreements, which do not universally provide for run-through power."[65] NS is correct that some interline service agreements do not permit run-through power. In Rebuttal,

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[62] See SunBelt Rebuttal e-workpaper "SunBelt Yard Volume by Traffic 2011-mmNdcVol.prt.pdf.," this document was created by running the MultiRail Report function under Report Manager, Traffic Volume, "Yard Summary" and printing to a pdf file.

[63] See NS Reply e-workpaper "Terminal Capacity Requirement Tracking Process for Hump Classification Yards.docx" pp. 10-11." This document can be found in NS's III-C workpapers.

[64] To accomplish this, SunBelt examined car event records associated with locations on the SBRR and included in the car counts all cars moving through yards that changed train symbols, unless the block name remained the same. Specifically, if an entire block of cars changed train symbols, but did not change block name it was considered a "block swap." See Rebuttal e-workpaper "SunBelt Plan Block Analysis V05.xlsx."

[65] See NS Reply, at III-C-67.

SunBelt's experts reviewed each of the run-through agreements and found that in nine (9) instances the agreements prohibited run-through power at specific locations and with a specific connecting carrier.[66] In Rebuttal, SunBelt examined the train event data for trains moving in the peak period and found that no trains were interchanged to or from the specified carriers at locations in the peak period. Had any trains met these criteria, the interchange time in the peak period would have been adjusted to reflect the additional time required to remove or add SBRR locomotives to these trains.

iii. Fueling and Inspecting Locomotives

NS incorrectly argues that "SunBelt assumes that fueling and inspecting locomotives used in interline service would, in most instances, be the responsibility of connecting carriers rather than the SBRR."[67] NS bases its argument on the statement in SunBelt's Opening evidence that the "locomotive on some trains will need fueling."[68] NS intentionally misinterprets SunBelt's statement in order to make it appear that SunBelt's operating plan does not fulfill the common reciprocity with connecting carriers. In fact, all of SunBelt's locomotives on originating trains are fully fueled and serviced prior to departure from the originating yard. Moreover, in the calculation of operating expenses, the cost associated with fuel required to power all locomotives on the SBRR is included. Stated differently, in no instance are connecting carriers bearing any expense for fuel consumed on the SBRR. NS is fully aware of this and the implication that SunBelt's operating plan results in the SBRR somehow shirking its

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[66] A list of the carrier/location specific interchanges where run-through power is prohibited is included with SunBelt III-C Rebuttal workpapers in electronic file "Rebuttal Analysis NO run through.xlsx.."

[67] See NS Reply, at III-C-69.

[68] Id.

responsibility by providing locomotives without sufficient fuel is nothing more than inaccurate and inflammatory rhetoric.

iv. Running Repairs To Foreign Railcars

NS argues that SunBelt's operating plan fails to meet its reciprocity obligations with connecting carriers because it fails to provide car repair facilities and personnel required to make running repairs to foreign railcars while they are on the SBRR system, even though such repairs are required pursuant to the AAR interchange rules.[69] NS's argument is incorrect for three reasons. First, NS fails to recognize that, in Opening, SunBelt provided a total of 1.64 miles of track in car shops and car repair tracks at five (5) yards. In contrast, NS provided only 1.71 miles of car repair tracks at four (4) yards. In Rebuttal, SunBelt relies on the same car shop and car repair tracks as provided in Opening.[70]

Second, in Opening, SunBelt provided 19 railcar equipment inspectors, part of whose task is to make minor (running) repairs to railcars during the inspection process. In Reply, NS provided 28 equipment inspectors, and in Rebuttal, SunBelt also provides 28 car inspectors at seven (7) locations.

Third, while NS argues that SunBelt has failed to provide car repair facilities and personnel required to make running repairs (i.e., car shops) and states that the AAR Interchange Rules require participating carriers to make such repairs to foreign equipment, NS fails to mention the part of the AAR Interchange rules that requires the owning carrier to pay for any such repairs.[71] Stated differently, although SBRR has an obligation to make running repairs to foreign cars, the owning carrier must pay for these repairs and such payment is sufficient to

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[69] See NS Reply, at III-C-75.

[70] See SunBelt Rebuttal Table III-B-2.

[71] See SunBelt Rebuttal e-workpaper "AAR Interchange Rule 1.2.a.(6).pdf."

cover the cost of any facilities and personnel that the SBRR would incur. As neither SunBelt nor NS has included the revenue from foreign car repairs, it is not appropriate to include the cost of the facilities or personnel required to make these reimbursable repairs.

d. SunBelt's Operating Plan Properly Handles TIH Shipments

NS alleges that SunBelt's operating plan fails to properly handle TIH shipments and makes no provision to comply with federal and state laws and regulations regarding these shipments. Specifically, NS claims that SunBelt's operating plan:[72]

1. Is not capable of tracking the movement and location of individual TIH cars as required by law...and makes no attempt to track the movement [of] TIH shipments...
2. SunBelt's operating plan and RTC simulation do not limit the speed of trains carrying TIH commodities to 50 mph, as required by federal law and industry best practice.
3. SunBelt's operating plan does not provide the personnel that the SBRR would need to comply with the rules and best practices associated with the movement of TIH commodities and other hazardous materials.

NS's allegations are without merit, with the exception of speed limits on TIH trains. First it must be pointed out that SunBelt relies on NS actual trains for the movement of all traffic on the SBRR. Therefore, SunBelt handles the TIH shipments in exactly the same manner as does NS today. This includes not only specific trains, but as discussed in the previous section of Part III-C, SunBelt's operating plan accounts for yard classification switching of all cars based on NS's actual car event data. Thus to the extent TIH shipments are actually classified en-route, the SBRR provides that switch service. Each of the NS arguments is addressed below.

i. The SBRR Can Track TIH Shipments

NS's claim that the SBRR is not capable of tracking TIH shipments is completely unwarranted. SunBelt's operating plan tracks all shipments using two different methods. First,

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[72] See NS Reply, at III-C-77 to -87.

SunBelt's SBRR employs a Positive Train Control ("PTC") communications system which allows for tracking and tracing of all trains on the SBRR system via satellite on an ongoing basis. Thus, the SBRR knows the exact whereabouts of all trains moving TIH shipments at any time. Second, as explained in SunBelt's Opening evidence,[73] the SBRR uses the services of RMI's Transportation Management System, which includes modules for yard and inventory control, waybilling, train operations, EDI consists, etc. This system allows the tracking and tracing of all cars on the SBRR system at all times. NS's claim that the SBRR is not capable of tracking the movement and location of TIH shipments is totally without merit.

ii. SBRR Trains Carrying TIH Shipments Are Limited To 50 MPH

NS correctly points out that, in SunBelt's Opening evidence, its operating plan and RTC simulation did not limit trains handling TIH commodities to a maximum of 50 mph. In Rebuttal this oversight has been corrected and all trains moving TIH commodities in the RTC simulation have been specifically identified and restricted to a maximum speed of 50 mph.

iii. The SBRR Has The Appropriate Personnel To Handle TIH Shipments

NS argues that SunBelt's staffing plan does not provide sufficient personnel to comply with Federal safety regulations and functions related to SBRR's shipments of TIH traffic. Contrary to NS's assertions, SunBelt has provided the necessary personnel to comply with Federal Regulations related to shipments of TIH traffic. As stated in SunBelt's Opening evidence, the Manager – Environmental has overall responsibility for complying with Federal regulations regarding TIH shipments. The Manager – Environmental is aided by all regional transportation officers and managers who are responsible for shipments of TIH commodities in

[73] See SunBelt Opening Exhibit III-D-2 at 11-13.

the territories for which they are responsible. Each of these officers and managers are well versed in the rules and regulations covering TIH shipments and other environmental issues. It is their responsibility to ensure that the handling of TIH commodities is performed in accordance with those rules and regulations and for immediate reporting of any accidents or other issues to the proper authorities. SBRR's Operations Control Office is the single point designated to make this contact in the case of an accident or mis-handling. Attempting to report from multiple sources, as suggested by NS, complicates and confuses the issue and is inappropriate. The training of all SBRR field officers on environmental and TIH shipment rules and regulations is handled by the Safety Department, in concert with the Manager – Environmental Testing.

NS's suggestion that another separate department, with separate employees is necessary to handle TIH shipment issues that are not separate from other tasks performed by responsible field officers is another example of NS unnecessarily adding layers of employees and management to the SBRR system.

2. SunBelt's RTC Simulation Proves The Feasibility Of The SBRR Operating Plan

The Berkeley Simulation Software's RTC model has long been the preferred testing method for proving the feasibility of a stand-alone railroad.[74] NS acknowledges that "an RTC simulation indicates whether the complainant's proposed SARR configuration is adequate to enable the SARR to execute"[75] an operating plan.

SunBelt witnesses Fapp and Humphrey input exhaustive amounts of data into the RTC Model in order to completely and accurately simulate the SBRR. The few criticisms NS had of SunBelt's opening RTC simulation have all been refuted or corrected in SunBelt's Rebuttal RTC

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[74] See, e.g., *AEPCO 2011* at 28, *WFA/Basin* at 15.

[75] See NS Reply, at III-C-90.

simulation as described below. The SunBelt Rebuttal RTC Simulation demonstrates that the SBRR would be able to serve all of its customers, deliver all of the selected traffic, and achieve cycle times comparable to NS (or better). All of this was achieved while observing the proper speed limits, the proper network configuration, a conservative number of system outages, and utilizing SunBelt's Rebuttal operating plan.

a. SunBelt's Modeling Of NS's Own Operations Proves Its Feasibility

Whereas NS has opted to contrive an operating plan using the mathematical computations and algorithms of the MultiRail software, SunBelt elected to mimic NS's real world operations, real world trains, and real world schedules. NS's time tested real world operations more accurately represent the operations of a railroad that is "stepping into the shoes" of NS than does a mathematical algorithm contained within a software program not used by the railroads in their daily operations.

It seems clear that, when developing an operating plan, a simulation or model will be no substitute for the decades of experience and fine tuning employed by NS's own operating experts. Indeed, there are no factors in MultiRail to account for train routes requiring a turn move, special case customers, rebalancing of locomotives, or any of the thousands of other minute details that real-world experts encounter – and plan for – during NS's day to day operations. By emulating NS's own operations, SunBelt has developed an operating plan that considers all of those details. Therefore, SunBelt's operating plan is superior in both realism and detail to NS's MultiRail derived operating plan. In addition, the knowledge that the SunBelt Railroad operates similarly to the way NS does in the real world lends credibility and feasibility to its operating plan.

b. SunBelt Used Correct Grade Information

In Reply, NS claims that SunBelt erroneously input incorrect grade information into 1,215 links, and that those errors invalidated SunBelt's Opening RTC simulation.[76] NS grossly overstates the error and, more importantly, the impact of the error. NS also neglects to mention that 49% of the grade "error" nodes originated in NS's own RTC simulations provided by NS to SunBelt in discovery.[77]

Notably, NS did not provide any analysis or workpapers to support its claim of 1,215 incorrectly coded links and therefore failed to support its claim of Sunbelt's grade input errors. Sunbelt agrees, however, that there were very minute grade discrepancies between Sunbelt's opening RTC model and NS's track chart supported grades. As a result, Sunbelt has developed its own analysis of the error and found that NS's claims are misleading. Sunbelt discovered that 86% of the purported grade "errors" were inaccurate by a margin of less than 0.5 percent.[78] To put that number into perspective, NS reported grades as significant as -5.91 percent in discovery, almost 12 times the margin of error described above.[79] Stated differently, the vast majority of the grade "errors" as defined by NS were still accurate to within a margin of error of less than +/-6 inches over a run of 100 feet.

As shown in the illustration contained in Rebuttal Exhibit III-C-2, the difference in these grades is immaterial. Moreover, the average length of the grade "errors" is only 0.15 miles for errors greater than 1% grade.[80] The impact of a grade is amplified by the length of the grade. A

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[76] See NS Reply, III-C-104.

[77] See SunBelt Rebuttal e-workpaper "Top Impact Grade Changes_Sunbelt Rebuttal v2.xlsx"

[78] Id.

[79] See NS Discovery File "grd_ns.txt."

[80] See Sunbelt Rebuttal e-workpaper "Top Impact Grade Changes_SunBelt Rebuttal v2.xlsx"

train that is 1.5 miles in length will only experience the effect of these grades on 10% of its cars. The average length of these inaccurate grades underscores the fact that the impact of these grades is minimal. NS also fails to acknowledge that SunBelt's opening RTC simulation contained 4,294 grades in total,[81] a fact that reiterates the miniscule nature of NS's criticism.

NS also claims that correcting the above mentioned grade inaccuracies "caused several SBRR trains to stall."[82] In fact, the changes resulted in only 2 of 523 trains stalling.[83] In other words, the correction of SunBelt's grade input errors caused 0.38 percent of the trains to stall, an effect that is easily resolved by the addition of power to those 2 trains.

i. SunBelt Relied On The Grade Information Included In NS's RTC Models Provided In Discovery

In building its Opening RTC model, SunBelt utilized multiple RTC cases provided by NS in discovery. By copying these cases into its Opening RTC network, SunBelt was able to rely upon RTC data used by NS in its every day course of business to simulate portions of its route replicated by the SBRR. Thus SunBelt was able to capitalize on the modeling labor already performed by NS, and to benefit from NS's knowledge of its own network. As an unfortunate side-effect, by copying NS's RTC networks into the SBRR RTC Model, SunBelt also copied any errors or inaccuracies contained in NS's own RTC models.[84] This exposes the source for 49% of the nodes in the above mentioned grade errors as coming directly from NS supplied RTC cases.

ii. Rebuttal RTC Grades

Though SunBelt believes that the group of inaccurate grades is small, the margin of error is miniscule, and the number of impacted trains negligible, SunBelt has adopted the grades as

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[81] See SunBelt Opening e-workpaper "Sunbelt RR Final.zip."

[82] See NS Reply, at III-C-105.

[83] See NS Reply e-workpaper "SBRR_GradeTest.zip"

[84] See SunBelt Rebuttal e-workpaper "Top Impact Grade Changes_Sunbelt Rebuttal v2.xlsx."

corrected by NS in its Reply. While the overall impact is minute, SunBelt's Rebuttal RTC model contains the corrected grades to ensure ultimate accuracy and validity of its results.[85]

c. Track Outages

In its Opening RTC simulation, SunBelt included numerous track outages based on train delay information provided by NS in discovery.[86] In its Reply, NS claimed that SunBelt significantly understated the number of track outages that would occur on the SBRR, and identified 85 train, car, and maintenance related outages on the SARR. SunBelt reviewed its Opening RTC outages, and agrees that it understated the number of outages that would occur on the SBRR. However, in reviewing NS's alleged track outages, SunBelt found that NS included numerous nonsensical outages in its Reply RTC model discussed below.

i. NS Used Outages To Block The Mainline Entering The Sunbelt Facility

As indicated above, NS asserted that the SBRR would incur 85 track outages during the RTC simulation period. However, twenty two (22) of those outages input by NS occurred on the single track mainline entering the Sunbelt plant for 4 hours each day. Stated differently, NS coded the outages within its Reply RTC model so that the single mainline track required to enter the yard at McIntosh would be blocked for an astonishing 88 hours staggered during the peak period. This 88 hour blockage accounts for 36% of the entire peak period. Therefore, in NS's Reply RTC model, all traffic destined for or originating from the McIntosh Yard (or any points south of McIntosh) will be completely blocked 36% of the time.

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[85] In order to incorporate the grades as corrected by NS, SunBelt imported NS's Reply .EQUATION, .LINK and .NODE files into its Rebuttal RTC model (3 of the 28 included files) before conforming the network to fit its operations.

[86] <u>See</u> SunBelt Opening e-workpaper "Sunbelt RR Final.zip."

ii. Rebuttal RTC Outages

Upon reviewing the 85 outages included in the NS Reply RTC, SunBelt concluded that the 22 outages at McIntosh were nonsensical, 8 outages were made for litigation "maintenance" outages, and 4 were outages that are not applicable to the SBRR.[87] SunBelt corrected all of these errors and has included additional outages to properly simulate the impact of foreign traffic resulting in 83 outages in its rebuttal RTC simulation. To account for the issue of "Serving the Sunbelt Facility" mentioned above, Sunbelt elected to properly model the movement of 11 trains dwelling at the Sunbelt Facility for 2 periods of 4 hours per train. This effectively accounts for the 88 hours of dwell purported by NS, but properly models it through the use of trains, thus allowing the trains to use the various tracks available in the vicinity.

d. Foreign Railroad Crossings

NS Claims that SunBelt did not account for foreign railroad crossings in its opening RTC simulation. SunBelt accounted for delays by foreign railroads by inputting those delays in the form of random outages. A query error caused SunBelt to understate the number of outages on its SARR. This error has been corrected in Rebuttal. In its Rebuttal RTC simulation, SunBelt input 32 outages attributed to a foreign railroad. SunBelt also accepts NS's track modeling of foreign railroad at grade crossings as submitted in NS's Reply RTC simulation.

However, SunBelt does not agree that foreign trains should be randomly input into the model and has not included randomly generated foreign trains crossing at grade. This is an inappropriate and inaccurate method to simulate delays encountered by foreign trains. By inputting foreign trains into the same peak period train list that is being simulated, the RTC model will dispatch the foreign trains to avoid conflict with the SARR trains. If input properly,

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[87] See SunBelt Rebuttal e-workpaper "List of Outages in RTC Model V04.xlsx."

the RTC model will choose to hold foreign trains out of the way of SARR trains based on the priority setting used in the model. However, in NS's Reply RTC simulation, NS has aggressively set the priority of foreign trains to be higher than that of most of the SBRR's traffic. NS coded its "Foreign" train types to have a dispatch priority greater than or equal to the SBRR's own Triple Crown, Coal, Automotive, Merchandise, Special, Grain, Unit, Local, and Shuttle train types. SunBelt witness McDonald noted that this priority setting would be against proper protocol, stating that, like real world railroads, the SBRR would work with the foreign railroads to coordinate train priorities at crossings. This improper coding of its "Foreign" trains would cause all of the above-mentioned SBRR traffic to yield to any foreign traffic of any type. For example, a SBRR Triple Crown train could be asked to yield to a foreign Empty Coal train. Clearly that would not be standard practice in the real world. Given the massive volume of foreign traffic NS included in its Reply RTC model, this error has a profound impact on NS's SBRR traffic.

This is an unrealistic representation of the handling of foreign train crossings. NS's modeling of foreign train crossings is incorrect for a plethora of other reasons as well, discussed below. SunBelt believes that the real-world delays experienced by NS are a more accurate portrayal of the effect and has appropriately included those outages in its Rebuttal model without the inclusion of randomly generated foreign trains. Indeed, NS's own evidence indicated when and where delays caused by foreign trains actually occurred in the real world. It is inexplicable why NS would opt to develop "imaginary" foreign trains rather than incorporate its own real world data to represent those delays.

e. At Grade Highway Crossings

NS Claims that Sunbelt included "some" road crossings in its opening RTC model but failed to include 158 other locations.[88] Again, NS grossly misrepresents the facts. In reality, Sunbelt's Opening RTC model contained 169 at grade road crossings distributed across the entire SARR.[89] Many of the 158 "other locations" claimed by NS to be missing are mainline road crossings that have little bearing on the Simulation. As stated by NS, the potential impact could occur where trains could potentially dwell where an ordinance imposes a fine to the railroad for dwelling beyond a designated time limit. Road crossings on the mainline generally have no impact on the simulation because trains typically do not dwell on the mainline and therefore would not be affected by the modeling of road crossings on the mainline. Furthermore, city ordinances do not exist for all road crossings, and the limit to the dwell time can vary greatly. In these scenarios where no ordinance exists, or the dwell limit is lengthy, the existence of a properly modeled road crossing would have no impact.

Even though Sunbelt believes that the addition of the road crossings identified by NS has minimal impact on the simulation, Sunbelt has accepted the addition of these road crossings and has included them in its Rebuttal RTC simulation.

f. Light Engine and Hi-Rail Movements

As discussed above, due to the many flaws included in NS's data, SunBelt made the reasonable assumption in developing its train operations in its RTC model that the number of cars shown on each train reflected the average number of cars on the train over the route. NS took exception with this assumption, and stated that SunBelt should have changed consist sizes

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[88] NS Reply III-C-114.

[89] See Sunbelt Rebuttal e-workpaper "Road Crossing in Sunbelt Opening RTC Model.xlsx"

on its trains. Based on NS's direct Reply criticism, SunBelt has updated its model to reflect the change in consists while in route.

By modeling actual changes in consists along the train route, SunBelt has also modeled the movement of light engines on the SBRR. Light engine movements happen in the real world daily; however, railroads attempt to minimize their movements. Trains leave their origin station and head to their customer's location to deliver their product. During the delivery the trains will unhook their railcars and leave them at the customer's location for delivery. The engines will then return to the yard "light." Conversely, locomotives may leave the yard "light," and proceed to industry where they will pick-up railcars. To account for this real world phenomenon, SunBelt has included 41 light engine movements in its Rebuttal RTC Model based on the changes in consists shown in NS car event data[90]

NS has also stated that SunBelt failed to include hi-rail vehicles operating over the SBRR route in its RTC model. NS is mistaken. Movement of hi-rail vehicles is accounted for in the maintenance outages that SunBelt included in its RTC simulation where the hi-rail movements were due to track maintenance.

Where hi-rail movements are not used as part of maintenance outages, such as for required track inspections, any competent operating expert will tell you that it is common industry practice to have a vehicle trail an operating train using its clearance or warrant. SunBelt's operating witness McDonald, who has operated both eastern and western railroads for over 40 years, has performed and observed such practices across all railroads, from Class I to Class III. There is no reason that hi-rails cannot operate safely in this manner. Moreover, unlike

[90] The light engine event occurs, for example, when a train leaves a yard with loaded railcars, and drops these cars at industry, and returns to the yard with no other railcars.

maintenance outages, railroads time and perform their inspections around the following of prevailing traffic. There is simply no need to model this type of activity in the RTC model.

g. The SBRR Provides Appropriate Service to the McIntosh Plant

NS is critical of SunBelt's operating plan for serving the Olin/SunBelt plant in McIntosh, AL. However, as explained below, it is NS's proposed SARR operations at McIntosh that are inefficient and inconsistent with actual operations as well as the least cost, most efficient operations of a SARR.

NS claims that SunBelt "does not even present an operating plan that is capable of handling the TIH issue traffic" and ""every aspect of SunBelt's operating plan fails to meet the service requirement associated with the issue traffic."[91] NS claims that the SunBelt plant is served twice each day by local trains on weekdays and once each day on Saturday and Sunday.[92] NS also states that it does more than just drop cars off and picks cars up at SunBelt's facility, that it is provided detailed instruction by SunBelt for sorting and blocking inbound cars and placing cars on specific tracks. Further, SunBelt requires NS to block outbound cars for further movement to Birmingham, Selma or Mobile.

NS goes on to explain that it does not currently have a yard in McIntosh. Rather, NS does have the mainline track, one parallel lead track that runs the length of the SunBelt facility, and an 8,233 foot siding north of the SunBelt plant where inbound cars destined to SunBelt are dropped off by road trains and outbound SunBelt cars are placed for pick-up by road trains.[93]

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[91] See NS Reply, at III-C-51 and III-C-60.

[92] See NS Reply, at III-C-53. Contrary to NS's claim that SunBelt's plant receive service twice daily five days per week and once daily on weekends, SunBelt employees at McIntosh indicate that this service was instituted on NS's own initiative in January of 2013 and prior to that time NS provided service once daily seven days per week. SunBelt's analysis is based on trains actually moving in the McIntosh area in the Base Year.

[93] See NS Reply, at III-C-56

NS states that McIntosh was served by 498 trains in the time period January 2011 through September 2011 and these trains worked up to 12 hours per day, implying that SunBelt was served by every one of these trains.

NS claims that the lack of sufficient car storage capacity within the SunBelt plant and the uneven flow of inbound empty cars frequently require NS to place empty cars on the NS lead track until they can be moved into the SunBelt facility.[94] NS also claims that the limited track capacity at McIntosh requires local trains to perform most of the switching and car blocking required to meet SunBelt's requirements.[95]

Based on the above infrastructure limitations and SunBelt's switching requirements, NS claims that SunBelt's operating plan does not account for the time and resources required for the SBRR to satisfy the requirements of the issue traffic and states SunBelt's plan fails primarily because it does not include all the trains required to move the issue traffic, and because SunBelt's operating plan and RTC simulation incorporate an assumption that trains performing pickups and setoffs at customer facilities could complete those work events in 30 minutes.

Contrary to NS's statements, in Opening, SunBelt's operating plan included 323 local trains serving McIntosh in the Base Year[96] and 24 local trains serving McIntosh in the 11 day peak period modeled in the RTC simulation.[97] Further, the RTC model SunBelt submitted in Opening evidence expands NS's actual infrastructure by including a three track yard in addition to the mainline track in McIntosh. This yard is designed to provide necessary interchange

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[94] Id.

[95] Id.

[96] See SunBelt Opening workpaper "Base Year Train List_Open.xlsx."

[97] See SunBelt Opening workpaper "Non-Coal RTC List.xlsx."

facilities and to represent the infrastructure required to effectively provide the additional switching services to the SunBelt facility.

In Reply, NS adopted SunBelt's three (3) track McIntosh yard and 30 minute dwell time at the SunBelt plant. However in its RTC simulation, NS restricted the use of the yard, without any explanation or support, by instituting twenty-two (22) mainline track outages, each with a duration of four (4) hours, between the yard and entry to SunBelt's plant. As these "outages" occur just north of the McIntosh yard, they effectively block the yard from providing any service to the SBRR system during the outage periods and render the yard useless (non-existent) during these periods. As a result, NS's proposed McIntosh operations cause congestion in the RTC simulation, which the yard is designed to eliminate. One can only assume that NS's mainline track "outages" are meant to represent NS's use of the mainline to perform switching and blocking service to the SunBelt plant.

In response to NS's criticism that SunBelt has omitted trains required to serve the issue traffic, SunBelt has increased the number of local trains serving McIntosh in Rebuttal to 584[98] trains from the 383 trains included in Opening. In its Rebuttal RTC model, Sunbelt has added 11 local trains serving McIntosh raising the total number of locals in McIntosh during the 11 day peak period from 24 to 35.[99] SunBelt also accepts NS's 22 four (4) hour outages, but includes them as four (4) hour switching dwells in the McIntosh yard on local trains serving the SunBelt plant rather than as mainline track outages. In doing so, SunBelt uses the McIntosh yard for its intended purpose, i.e., to accommodate the needs of the SunBelt plant and to eliminate any mainline congestion in the McIntosh area. {{[redacted]

[98] See SunBelt Rebuttal workpaper "SRR Train Selection Reconciliation V06.xlsx," worksheet "Rebuttal Added." For a further explanation of SunBelt's response to NS claims regarding SunBelt's failure to include all necessary trains, see Part III-C-1-b, *supra*.

[99] See SunBelt Rebuttal workpaper "Base Year Train List_Statistics_Rebuttal.xlsx."

[redacted]}}[100]

h. The SBRR Provides The Same Or Better Service Quality Than NS

In its Opening narrative, SunBelt explained how its modeling of the SBRR network using the RTC simulation program proved the SARR's feasibility to handle the issue and non-issue traffic operating over the network. In its Reply, NS alleges that not only did SunBelt fail to prove the feasibility of the SBRR, but it also did not prove it was providing the same level of service as the NS provides its customers. NS reaches this latter conclusion based upon what it deems to be a transit time comparison.[101] In addition, NS expands the definition of providing "better service" beyond providing the same or better transit times as the incumbent to include other factors.[102]

As SunBelt explained in Opening in great detail, the numerous errors and flaws in the NS provided train and car event data limited the ability to develop broad operating analyses. This includes dwell time calculations, as discussed in detail above and in SunBelt's Opening Exhibit III-C-1, and transit time calculations for most trains.[103] As explained in SunBelt's Opening Exhibit III-C-1, NS train event data does not always report consistent departure times from

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[100] See NS Reply WP "McIntosh AL 3B final report Aug 2011.pdf."

[101] See NS Reply, at III-C-117 to -118.

[102] See NS Reply, at III-C-116 to -117.

[103] Train transit times are calculated by subtracting the arrival time at the trains final destination from the departure time from the origin. SunBelt explained in its Opening Exhibit III-C-1 that NS's train event data contains an extreme imbalance in arrival and departure train events, with a nearly 20 to 1 ratio of departure messages to arrival messages. SunBelt also explained that the arrival events that are included are in most cases out of sequence and show trains arriving before they depart. Given these infirmities, it is not possible to accurately calculate train transit times in almost all cases with the NS data.

stations, and in almost all cases does not report arrival times. Without consistent and accurate departure and arrival time and location information, a true transit time cannot be determined.

It is an undeniable fact that the NS train event data is so deficient and inaccurate that accurate transit times cannot be developed from it, which renders NS's "transit time" analysis fatally flawed. One of the more consistent flaws in the NS's train event data is the failure to report accurate origin and destination locations. For example, SunBelt identified in its base year traffic group 356 trains with the TRN symbol 339, which, based on NS train schedule data provided in discovery, moves between Birmingham, AL and Meridian, MS.[104] NS's train event data shows that only 67 percent of the trains depart from Birmingham, and the remaining 33 percent depart from a point south of the true origin.[105] Even more glaring, 85 percent report the last on-SARR station as a station other than Meridian.[106] One need only take a cursory review of SunBelt's Opening base year train file to see there is no consistency in the first and last on-SARR locations reported in the NS train data.[107]

Another flaw is NS developed its study times by subtracting the departure time from the last reported on-SARR station from the departure time from the first reported on-SARR station. This means that NS's "transit times" are based on the time when a train departed its origin (if it was correctly reported in the train data), and the time the train departed the last station prior to the destination station, instead of the time the train arrived at the destination station. So, on a train moving from Birmingham to New Orleans, NS would report the time from when the train

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[104] <u>See</u> SunBelt Opening e-workpapers "Sunbelt Base Year Trains.xlsx," and "Schedule.xlsx."

[105] <u>See</u> SunBelt Rebuttal e-workpaper "TRN 339.xlsx."

[106] <u>Id.</u>

[107] Compare for example Column Q in SunBelt Opening e-workpaper "Sunbelt Base Year Trains.xlsx," which contains the unadjusted first on-SARR location from NS's train event data, with Column AJ, which contains the normalized on-SARR location.

left Birmingham to the time it departed the station prior to New Orleans. This clearly is not a true transit time.

NS's whole point is moot in any case, since SunBelt's Rebuttal average transit times from the RTC model are shorter in all cases than NS's abridged "transit times." As shown in Rebuttal Exhibit III-C-3, the SunBelt's RTC transit times are on average 5 hours shorter than the times developed by NS.

It is important to keep in mind one other aspect of this comparison. The SBRR's speeds shown in Rebuttal Exhibit III-C-2 reflect the SBRR's peak period average train times, meaning they reflect the average times during the busiest point of the SBRR's shipping year at the peak year of its operations. In contrast, the NS speeds shown are from 2010 and 2011, when less traffic is moving over the SBRR system. Stated differently, the SBRR's transit times in its peak year of operation are still shorter than NS's current times, even when the so-called transit times are improperly calculated.

NS also alleges that "service quality" includes other factors besides delivery speed. Specifically, NS states that service reliability is also a factor, and that SunBelt has not shown that the SBRR will provide comparable service reliability to NS based on the trains SunBelt allegedly failed to include in its SBRR train list. NS's argument for "reliability" as a definitive quality metric is just a case of misdirection in order to divert the Board's attention from NS's failed operating plan. The simple fact that SunBelt is running the same trains as NS, and doing so at higher average speeds indicates the SunBelt is providing the same or better service than the incumbent. NS, which has developed completely new trains, has not demonstrated in any way that it would provide the same services NS currently provides to its own customers. Moreover, as SunBelt discussed above, it has included all the trains necessary to serve the SBRR's traffic group based on the trains identified from NS's flawed data, so it is providing the same level of reliability as the current NS operation.

3. NS's MultiRail-Based Operating Plan Is Unnecessary And Erroneous, And It Complicates The SAC Analysis While Providing No Advantage Over SunBelt's Tried And Tested Model

NS severely criticizes SunBelt's operating plan and claims that it is "fatally deficient" and "infeasible."[108] However, SunBelt developed the SBRR operating plan based on the real-world NS operations over the SBRR network. Specifically, SunBelt's traffic group was selected based on the real-world route of movement of cars and containers, and the NS trains on which they moved in both the loaded and empty direction during the base period. The SBRR trains are of identical consist (including loaded and empty cars), and follow the identical routes (with identical pick-up and set-out locations along the way), as the corresponding NS trains.

Nonetheless, NS claims to have "developed, from the ground up, a complete Operating Plan that, unlike the plan submitted by SunBelt, is capable of meeting the service requirements of the SBRR's customers."[109] This argument is dubious on its face. The SBRR was based upon NS's real-world operations. If NS believed that the SBRR failed to provide the service that NS provides in the real-world, it could have fixed what it believed to be flaws <u>without</u> resorting to an operating plan utterly divorced from NS's own real-world operations, using an untried program and unprecedented and arbitrary procedures. As further discussed below, NS's wonderland operating plan is utterly inadequate. Simply stated, there was no reason for NS to reinvent the wheel.

It is important to remember that *SunBelt used the same general approach* to developing its operating plan *that has been used by all parties* (complainants and railroads alike) *in all rate*

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[108] <u>See</u> NS Reply, at III-C-118.

[109] <u>See</u> NS Reply, at III-C-119.

reasonableness proceedings that have been decided in the last decade. Specifically, SunBelt selected its traffic group and associated trains from real-world railroad traffic and operating data, modeling the SARR operations based on those real-world trains and operations. This established precedent has been used and endorsed by shippers, railroads, and the Board as recently as the very last case decided by the Board, including traffic groups that contained large amounts of manifest (i.e., "carload") and intermodal traffic.

Specifically in *AEPCO 2011*, the complainant selected its traffic group and train list from not one, but two western Class I railroads. The SARR in that case was an expansive system that traversed eight (8) western states.[110] The traffic group in that case included traffic moving across the entire western Class I railroad system in manifest, intermodal, and unit train service that was interchanged with the residual incumbents at eighteen (18) locations.[111] The complainants based the SARR operations on real-world train data provided by the defendants in discovery. The defendants accepted and used that methodology and those train lists in their reply models with no problems. Not only were the railroads, using the same consultants that NS employed in this case, able to understand and adjust the traffic selection and train modeling methodologies the complainants employed in that case, but they were able to implement it themselves to develop an alternate traffic group for alternate SARR configurations that they proposed to use on Reply.

In this case, however, NS and its consultants, who have years of experience over multiple SAC cases, claim to be unable to use or adjust the model presented by the complainants on Opening. This claim suggests one of two things: either NS realized that the data it provided in discovery was so deficient as to not allow the complainants to develop the operating plan using the *de facto* standard data and models, or NS, realizing that more modest fixes to the SBRR

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[110] See *AEPCO 2011* at 7.

[111] Id.

operating plan would not raise the SAC enough to justify its exorbitant rates, simply wished to introduce an additional, unnecessary level of cost and complexity to the case in an attempt both to raise the cost of bringing a complaint before the Board and to increase the "answer" that it submitted to the Board. In either case, NS's claims that SunBelt's methods and models are deficient are disingenuous.

Below, SunBelt discusses NS's use of its alternate MultiRail-based model under the following nine (9) topical headings:

1. Substituting Modeled SARR Routing and Operations for Actual Routing and Operations is Unnecessary;
2. NS's MultiRail-Based Modeling Exercise Relies on Simple Mathematical Algorithms Rather than Real-world Operations;
3. Substituting Modeled SARR Routing and Operations for Actual Routing and Operations Distorts the SAC Analysis;
4. NS Uses a Model That is Superior to MultiRail in Developing its Real-World Operating Plan;
5. NS's MultiRail-Based Modeling Exercise Fails to Consider Downstream Impacts on Both SBRR Traffic and Other Non-Selected NS Traffic;
6. NS's MultiRail-Based Modeling Exercise Fails to Account for All Selected SBRR Traffic;
7. NS's MultiRail-Based Modeling Exercise Decreases the Average Cars per Train and Increases Transit Time for SBRR Traffic;
8. NS's Handling of TIH Traffic in MultiRail is Improper and Contrary to NS Claims; and
9. NS's MultiRail-Based Modeling Exercise is Riddled with Faulty and Unalterable Inputs and Assumptions that Render its Outputs and All Downstream SAC Analyses Invalid.

a. Substituting Modeled SARR Routing And Operations For Actual Routing And Operations Is Unnecessary

NS proposes to replace SBRR's operating plan, which is based on NS's real-world operations, with an operating plan that was "developed by a group of operating experts."[112] NS claims that its made-for-litigation operating plan is somehow superior to the SBRR operating plan, which incorporates the train operations that were actually developed by NS's operating staff and implemented in the real-world. NS's operating plan development exercise is akin to a student constructing a Rube Goldberg mousetrap – deliberately complicated and unnecessary, providing no more effective results than the tried and trusted, readily available alternative.

The NS-created SBRR Operating plan includes four major components: (1) a car blocking and train service plan; (2) a network of yards, terminals, tracks, and facilities; (3) a statement of the equipment and personnel needed; and (4) an RTC model simulation. The car blocking and train service plan drives the development of the other three analyses and was developed by NS's witnesses using a software package called MultiRail.

The car blocking and train service plan was developed based on a series of inputs to the MultiRail modeling tool. It relies on four major input databases: 1) the rail network being evaluated; 2) a blocking plan that defines the available car blocks (intermediate route segments) over which non-trainload traffic may be moved; 3) a train list to which individual car blocks may be assigned; and 4) the traffic data that must be flowed through the network. There are several specific problems associated with NS's use of the four listed inputs, as discussed in the following sections.

In the first phase of the MultiRail analysis, the traffic is assigned to pre-determined car blocks (in this case the actual NS blocks used in the real-world over the SBRR). This is

[112] See NS Reply, at III-C-119.

generally an automated process based on mathematical algorithms, although it is iterative and dependent on certain rules determined by the user. In the second phase of the analysis, the blocks are assigned to trains. This is a totally manual process, based entirely on the operator's judgment. As NS acknowledged, "Witness Smith assigned one or more blocks of cars to each train, based upon the train's direction of movement, the distance it would travel along the SBRR network, and the intermediate stops it was scheduled to make en route."[113] Statements made by Oliver Wyman's[114] training staff during a training session attended by SunBelt's consultants confirms that this is the most labor intensive part of the analysis. It logically follows that it is difficult to gauge the effectiveness of the manual block assignment process, because there is no control scenario available to use as a benchmark. Moreover, there is no way to test these assignments in the real-world.

SunBelt's acceptance of NS actual train consists and incorporation of them into its operating plan is predicated on the assumption that the NS personnel who do this for a living have the benefit of years of experience and have perfected the blocking assignment through years of trial and error. In contrast, NS's Reply experts gave it one shot and declared that their ad hoc assignment, "provides for the movement of every carload shipment across the SBRR network in an efficient manner..."[115] This declaration is hardly proof that NS's modeling exercise actually provided service at least-cost, most-efficient SARR standards. *More importantly, acceptance of such a procedure in SAC cases would fatally change the SARR modeling exercise from one grounded in reality to another with <u>no</u> link to reality whatsoever.*

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[113] <u>See</u> NS Reply, at III-C-125 to -126

[114] Oliver Wyman is the consulting company that created the MultiRail software.

[115] <u>See</u> NS Reply, at III-C-125.

This first phase of the MultiRail analysis is utterly unnecessary and distances the SARR operations from efficient real-world practices. Because NS has already assigned traffic using the NS system, NS blocks, and NS trains in the real-world, there is no need to reassign the same traffic to the same universe of blocks and trains for the SBRR. NS already successfully did this, so all of the inputs are inherently incorporated in the provided train and car event data. Furthermore, under SunBelt's approach, its train schedules are guaranteed to be coordinated "to provide service in the least-cost, most efficient manner, consistent with customer requirements and in accordance with applicable laws and safe operating practices."[116] In Opening, SunBelt logically assumed that NS put sufficient thought and effort into streamlining its real-world railroad operations, and incorporated those efforts into its SBRR operating plan. In essence, what NS did in Reply was to reshuffle the deck and overwrite NS's actual operations with a more costly, parallel universe version of the same. Specifically, NS's experts substituted their chosen model's algorithms for assigning cars to blocks for the car blocking algorithms inherent in NS's real-world internal model, and substituted their own judgment regarding the best assignment of blocks to trains for the judgment of the NS staff actually responsible in the real-world for assigning blocks to trains.

William Rennicke, of Oliver Wyman, the consulting firm that developed the MultiRail program upon which NS relies so heavily in support of its Reply evidence, acknowledged that the process NS undertook to generate its operating plan in Reply is "complex". Specifically, Mr. Rennicke stated that "changing an operating plan, even with the advanced software tools available today, is an extremely complex process" which can lead to "railcars stranded or

[116] See NS Reply, at III-C-119.

introduce expensive inefficiencies into the system."[117] Furthermore, Mr. Rennicke confirmed that NS's real world operations should not be changed without a "formal process, generally involving discussion with operations, commercial and field offices to make sure that the plan can be executed and errors leading to service disruption for shippers are avoided."[118] Nowhere in its Reply evidence does NS state that such a process as Mr. Rennicke describes has taken place.

b. NS's MultiRail-Based Modeling Exercise Relies On Simple Mathematical Algorithms Rather Than Real-World Operations

NS complains at length that portions of SunBelt's operating plan were based on "mathematical calculations," which NS claims are unsupported and inconsistent with a credible operating plan. For example:

> SunBelt's classification track lengths are transparently the product of a "mathematical" exercise that assigns track lengths in 400-foot…increments…[119]
>
> ***
>
> The size and configuration of the SBRR's yards, and the number of yard locomotives and yard crews assigned to those facilities, are based upon mathematical calculations that are unsupported by credible evidence and inconsistent with the daily workload at each location.[120]

Notwithstanding the fact that NS's statements are based on NS's assessment of SunBelt's SBRR facilities relative to the NS operating plan (which is a meaningless evaluation), *all* models are based on mathematical calculations. MultiRail is no different in this regard. Neither are models derived from MultiRail outputs.

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[117] See page 68 of Verified Statement of William J. Rennicke, submitted on behalf of the AAR in its Opening Comments in STB EP 711, Petition for Rulemaking to Adopt Revised Competitive Switching Rules.

[118] Id.

[119] See NS Reply, at III-C-142, fn 226

[120] See NS Reply, at III-C-88.

At the most basic level, MultiRail's modeling framework is set up to model operations on an average basis. More specifically, the MultiRail Traffic Manager restates the aggregated annual (or monthly or quarterly, etc.) traffic statistics reflected in the traffic data on an average cars per day basis before assigning the traffic to blocks. Therefore, the MultiRail model does not model actual railroad operations, which are lumpy, but rather models *average daily railroad operations* which are smoothed out and flat from day to day, and *includes fractional cars*. The average daily railroad operations on a movement-specific basis, which include the movement of fractional cars, are then ratcheted up to develop average train statistics. This by definition is a "mathematical calculation." In contrast, the SunBelt operating plan is based on actual railroad trains and operations that vary considerably from day to day.

This difference is ultimately manifested in the very different peak period train lists that are developed using SunBelt's and NS's methodologies. SunBelt developed its peak week train list by: 1) forecasting growth on a shipment-specific basis; 2) aggregating that growth on a traffic type basis; 3) calculating the amount of trains that must be added to/deleted from the base period train list to accommodate projected growth; 4) adding/deleting trains on a random basis; 5) determining the actual week with the greatest number of projected trains; 6) expanding that week to include shoulders for warm-up and cool-down operations; and 7) modeling those trains through the RTC model. Therefore, SunBelt models a true peak period, reflective of operational anomalies, track maintenance activities, and seasonal peaks and commodity fluctuation.

In contrast, NS developed its peak week by simply expanding its average daily and weekly operations to an annual basis, ensuring that the exercise does not reflect the peak at all. As NS stated in its discussion of its hump yard configuration:

> Because NS's "SuperSim" [MultiRail] process was based upon an average week (rather than the peak week) during the Peak Year, the average peak daily

> inventory developed by witness LeCroy for the Birmingham Yard is conservative—it represents the number of cars that the SBRR would need to accommodate at that location during the busiest hour of a typical day during the Peak Year (rather than the maximum capacity required for the peak hour of the peak week).[121]

NS would have the Board believe that it made this calculation in this manner in order to be conservative. However, the truth is that NS made this calculation in this manner because NS's use of the MultiRail software to develop its operating plan required it. Because the MultiRail software is merely a series of algorithms that develops a very complicated mathematical calculation of the average daily activities on a system, it is impossible to use MultiRail to develop a true peak period analysis. NS's claims of being conservative are merely a smokescreen designed to hide the mathematical nature of its model, and its inability to produce a reasonable estimate of the peak period operations. Surely if SunBelt had proposed to substitute average statistics for peak statistics, NS would not have accepted the approach as "conservative."

In addition, MultiRail's Block Manager module allows for the user to enter many index values that impose penalties (or rewards) in the form of extra time and mileage (or reduced time and mileage) associated with cars utilizing specific yards, yard activities, and routes. These penalties act as "levers" to affect the assignment of cars to blocks, as MultiRail will seek to find the shortest block route inclusive of penalties. The levers can either draw cars to, or push cars away from, specific blocks and routes based on user-entered indices. At its core, MultiRail is simply a calculator with a goal-seek mission to find the best route for each fractional car based on the blocks and penalties imposed by the user. It is a mathematical sequencing model based on

[121] See NS Reply, at III-C-139 to -140 (underline in original).

known and adjustable algorithms.[122] Therefore, NS's block assignments are the product of a series of mathematical calculations that are influenced by several user-entered numbers, many of which are based on assumptions for which NS provided no documentation or supporting evidence.

NS claims that its operating plan is superior to SunBelt's because "NS's MultiRail analysis not only identified the trains that the SBRR would need to operate, **but also developed a schedule upon which they would operate.**"[123] However, this is a misleading statement because NS manually overrode most of the train schedules that MultiRail "developed." MultiRail's user manual notes that, "If a user enters specific arrival and/or departure times and days or dwell times in the Route tab (for one or more locations), this data will override MultiRail's calculations."[124] Even with the read-only version of MultiRail, SunBelt was able to observe where NS altered dwell times in the Route Tab of the Train Manager. Per the user manual, the column titled "User Dwell Time" is a "read-only indicator" that "allows you to quickly identify a user-defined dwell time."[125] One example in which NS has manually altered the dwell times is for train {{[redacted]}},[126] where four (4) of the six (6) dwell times were manually entered by NS. Of the 52 Active trains NS entered into MultiRail, NS entered user-defined dwell times for 42, or 81 percent of the trains. NS altered all of the 9 (100 percent) Intermodal Trains,

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[122] For example the MultiRail user-manual describes the Block Sequence Generator as "a powerful feature in MultiRail that algorithmically determines the sequence of blocks that will be taken by a traffic flow…" See e-workpaper "Printing _Block Sequence Generator_.pdf."

[123] See NS Reply, at III-C-128 (emphasis added).

[124] From the MultiRail 3 Help "Report Manager" - "Train Reports" - "Train Schedule Reports" - See "Time Calculations in Train Schedules." See e-workpaper "Printing_Time Calculations in Train Schedules_.pdf."

[125] From the MultiRail 3 Help "Train Manager" - "Train Manager Field Definitions" - "Route Tab." See e-workpaper "Printing _Route Tab (Train Manager)_.pdf."

[126] See e-workpaper {{[redacted]}}

both of the 2 (100 percent) Multi-Level trains, 11 of the 17 (65 percent) Merchandise Trains, and 20 of the 24 (83 percent) Local Trains.[127] Because SunBelt was only provided the read-only version of MultiRail, it cannot determine the impact that NS's manually adjusted dwell times had on the train schedules. Nevertheless, it demonstrates that the NS witness, not MultiRail, determined the vast majority of the train schedules in the NS operating plan.

Overall, NS's MultiRail exercise is a house of cards built from *average daily statistics* in the form of *fractional carloads* that would move on *generic blocks* and *generic trains* every day of the year. In contrast, SunBelt's model is built from actual carloads of traffic that moved through NS's system on actual train consists on specific dates. Therefore, it was extremely difficult to compare the routes and movements NS generated through its MultiRail based model to the routes and movements SunBelt included in its traffic data based model. The required comparison was between a daily fraction of a carload assigned to no specific car or train (NS model) and a specific carload moving on a specific railcar on a specific date (SunBelt model).

c. Substituting Modeled SARR Routing And Operations For Actual Routing And Operations Distorts The SAC Analysis

NS routed SBRR traffic in MultiRail according to the routing information included in the Waybill data. The Waybill data contains the trip plan origin and destination, intended interchange locations, and involved railroads for each shipment. However, the actual route of movement sometimes differs from the route included in the waybill data. NS's Car Event data tracks each carload from origin to destination based on its actual route of movement, rather than its trip plan.

The car event data contains the actual route information and must be used to determine SBRR traffic routing (and ATC revenue divisions for cross-over traffic). By only relying on the

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[127] See e-workpaper "mmtrnsumbas.xlsx" level "summary."

Waybill data route, NS rewrote history and moved traffic that traversed certain NS (and SBRR) routes in the real-world over different parts of the NS system in its MultiRail model. This is problematic for several reasons. Most importantly, the alternate routing NS developed via its MultiRail analysis *results in impermissible and distorting off-SARR ("external") reroutes that violate fundamental SAC principles*. This fact alone requires the NS model and operating plan to be rejected out of hand and renders the entire NS analysis moot. In addition, it ignores the special operating requirements that were considered and incorporated by NS when NS developed the real-world operating plan implicit in the train operations included in the SunBelt operating plan.

The Board has acknowledged that utilizing Car Event data to determine a shipment's route of movement is superior to trip plan routing. In the *M&G Polymer USA, LLC vs CSX Transportation, Inc.* decision served on September 26, 2012, the Board ruled that using weighted average miles for variable cost calculations was appropriate because it "is more consistent with real-world operations."[128] The Board further elaborated, "[t]his is particularly true given that (a) M&G shipments move in carload traffic rather than unit trains, and (b) CSXT uses a dynamic network. Thus, particular circumstances and network demands may make it more efficient for M&G's traffic to be moved via one route at one time and over other routes at other times."[129]

NS's modeling exercise fails to reconcile off-SARR routing with NS's actual off-SARR operations for traffic that is included in the SBRR traffic group. NS, through its MultiRail modeling exercise, has violated fundamental SAC principles through the creation of external

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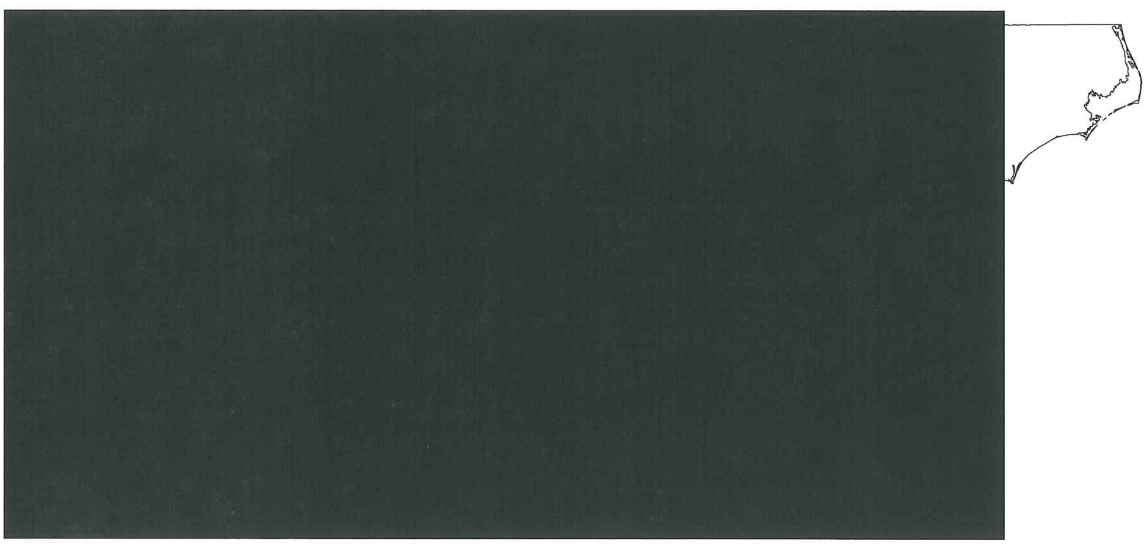
[128] See Page 23 of STB Decision - Public Version Docket No. NOR 42123 M&G Polymers USA, LLC v CSX Transportation, INC. Service Date - September 27, 2012, Updated December 7, 2012.

[129] Id.

reroutes, imposing costs and operating requirements on the residual NS, and other carriers that they do not bear in the real-world.

For example, in the real-world, NS receives carloads in interchange from KCS at both Meridian, MS and New Orleans, LA. Carload traffic traveling from Dallas, TX to Charlotte, NC was recorded in the Car Event data as having interchanged with KCS at both Meridian and New Orleans. The Waybill data indicates that all of them have an NS origin of Meridian. However, the Car Event data shows that NS received 62 carloads in interchange with KCS at New Orleans.[130]

In the real-world, these 62 carloads are originated in Dallas, TX on KCS and travel southeast to New Orleans, LA where they are interchanged with NS, and NS then moves the carloads northeast to Charlotte, NC through Meridian, MS and Birmingham, AL. The real-world route of movement is shown in Figure 3 below.



[redacted]

In the SunBelt operating plan, and in accordance with real world operations, these carloads are originated in Dallas, TX on KCS and travel southeast to New Orleans, LA where

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[130] See e-workpaper "DallasTX_MeridianMS_Reroute_Example.xlsx" at level "Rebuttal Waybill Data"

they are interchanged with the SBRR. The SBRR then moves the carloads northeast via Meridian, MS to Birmingham, AL where they are interchanged with the residual NS. The carloads then travel northeast via the NS system for final delivery to Charlotte, NC.

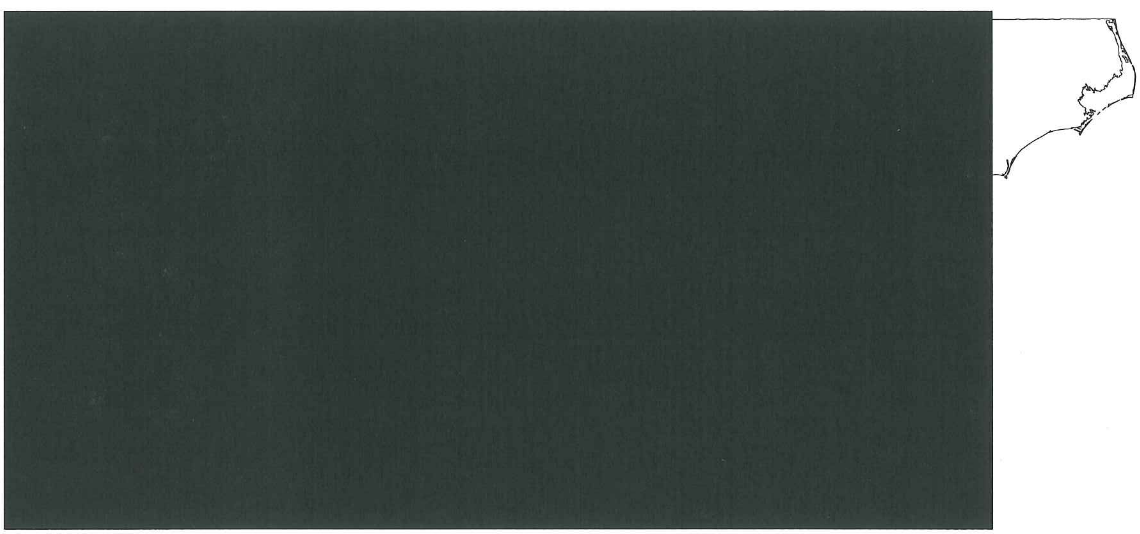
a. KCS moves the traffic over the 531 mile segment from Dallas, TX to New Orleans, LA.[131]

b. SBRR moves the traffic over, and receives a revenue division based on, the 347 mile segment from New Orleans, LA to Birmingham, AL.[132]

c. NS moves the traffic over, and receives a revenue division for, the 423 mile segment from Birmingham, AL to Charlotte, NC.[133]

d. The end-to-end route of movement in the SunBelt operating plan and the real-world movement are identical. The traffic moves exactly as it moves in the real world over KCS, the SBRR and the residual NS.

The route of movement under SunBelt's SBRR operating plan is shown in Figure 4 below.



In the NS Reply operating plan, these carloads are originated in Dallas, TX on KCS and are incorrectly assumed to travel due east to Meridian, MS where they would be interchanged with the SBRR. NS assumes the SBRR then moves the carloads northeast to Birmingham, AL

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[131] Based on PC|Miler v 18 miles on KCS from Dallas, TX to New Orleans, LA.

[132] <u>See</u> e-workpaper "DallasTX_CharlotteNC_Reroute_Example.xlsx" at level "miles"

[133] <u>Id.</u>

where they are interchanged with the residual NS, and the carloads then travel northeast via the NS system for final delivery to Charlotte, NC.

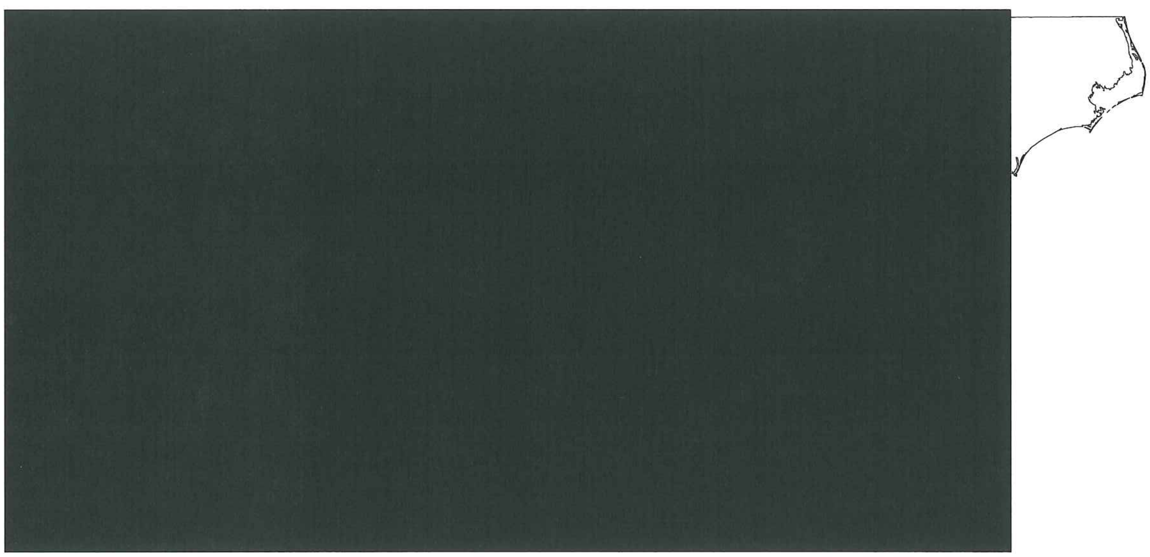
a. KCS is assumed to move the traffic over the 533 mile segment from Dallas, TX to Meridian, MS, bypassing New Orleans in contrast to real world operations.[134]

b. SBRR moves the traffic over the 153 mile segment from Meridian, MS to Birmingham, AL (although it receives a revenue division based on a different, longer routing via New Orleans, LA.)

c. NS moves the traffic over the 423 mile segment from Birmingham, AL to Charlotte, NC.[135]

d. The end-to-end route of the movement in the NS Reply operating plan and the real-world movement are vastly different. The real world route of movement via New Orleans is nearly 200 miles longer than the route NS assumed, and the SBRR and NS revenue divisions reflect the longer actual route.[136]

The NS Reply SBRR operating plan is shown in Figure 5 below.



A summary of the above follows:

- Real-world end-to-end route of movement: 1,301 miles
- Real-world NS segments: 770 miles

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[134] Based on PC|Miler v 19 miles on KCS from Dallas, TX to Meridian, MS.

[135] See e-workpaper "DallasTX_CharlotteNC_Reroute_Example.xlsx" at level "miles"

[136] Id.

- Real-world KCS segments: 531 miles

- SunBelt end-to-end route of movement: 1,301 miles
- SunBelt SBRR segments: 347 miles
- SunBelt residual NS segments: 423 miles
- SunBelt KCS segments: 531 miles

- NS Reply alternate end-to-end route of movement: 1,109 miles
- NS Reply alternate SBRR segments: 153 miles
- NS Reply alternate residual NS segments: 423 miles
- NS Reply alternate KCS segments: 533 miles

d. NS Uses A Model That Is Superior To MultiRail In Developing Its Real-World Operating Plan

MultiRail may have been used by the Class I railroads "in connection with their network planning and service design activities,"[137] but most of them, including NS, have moved away from using MultiRail to develop their operating plans.[138] In fact, NS has developed and is improving its own proprietary model, called the "Next Generation Car Routing System," for this purpose. In a 2009 presentation, NS claims its internal model is needed to:

- Improve train capacity utilization
- Reduce cost associated with extra trains, annulments and consolidations
- Improve asset utilization and reduce operational variability
- Provide consistent customer service
  - Improve customer commitment compliance
  - Increase on-time train performance[139]

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[137] See NS Reply, at III-C-122

[138] Although NS may still use MultiRail to develop ad hoc reports and conduct internal analyses, NS uses an internal system to develop its real-world operating plan.

[139] See NS's 2009 presentation, included as work paper "NS Blocking Methodology Presentation.pdf," at slide 14. The presentation is also available online at: http://www.informs.org/content/download/239255/2274025/ file/SC1.pdf.

The clear implications are that: 1) NS does not use MultiRail to block and route traffic through its system in the real-world; 2) if NS ever did use MultiRail for this purpose, NS found it necessary to replace MultiRail because MultiRail did not result in routing/blocking plans that were efficient by NS's standards; and 3) if real-world railroads have developed their own proprietary models that produce operating plans that are optimally efficient, it would be a step backwards to use MultiRail when the goal is to develop the operating plan for a "least cost, most efficient" SARR.

The operations implicit in the real-world NS traffic data, upon which SunBelt based the SBRR operating plan, reflect the result of NS's planning efforts. Replacing them with an operating plan developed from a less powerful modeling tool that was not specifically designed to accommodate NS's operating requirements is unnecessary and unlikely to result in more efficient operations. In a Verified Statement filed in EP 711, Mr. Rennicke stated that "changing an operating plan, even with the advanced software tools available today, is an extremely complex process"...which can lead to "railcars stranded or introduce expensive inefficiencies into the system."[140]

e. NS's MultiRail-Based Modeling Exercise Fails To Consider Downstream Impacts On Both SBRR Traffic And Other Non-Selected NS Traffic

Not only was NS's reshuffling exercise unnecessary, it was also done without regard for the potential downstream impacts on other NS traffic that was not included in the SBRR traffic group. The NS modeling exercise considered only the truncated SBRR traffic group, and disregarded the NS traffic not included in that group.

[140] See page 68 of Verified Statement of William J. Rennicke, submitted on behalf of the AAR in its Opening Comments in STB EP 711, Petition for Rulemaking to Adopt Revised Competitive Switching Rules.

In prior cases where train routing and scheduling programs have been used to develop SARR-specific operating plans, the parties using the programs have been criticized for having failed to accommodate the upstream and downstream off-SARR segments when developing parochial SARR operating plans. This happened because traffic was blocked and moved from SARR on-junction to SARR off-junction to maximize SARR efficiency while failing to consider whether the SARR traffic, as received at the SARR on-junction, could accommodate the proposed on-SARR blocking plan, or whether the SARR traffic, as delivered to the off SARR junction, would accommodate the blocking required for final delivery to the shipper on the residual incumbent segment. Most recently, this occurred in *Seminole*, where:

> CSXT's operating plan [did] not maintain any continuity with the trains on which the cars were received at the on-SARR point. Rather, CSXT identified all SFRR cars moving to the same on-SARR locations and then modeled a new way to move them, using the MultiRail program to create hypothetical new blocks of cars and hypothetical new trains in which to transport them.[141]

NS has made no attempt to account for the necessary blocking from real-world NS origin to real-world NS destination for all SARR traffic and has failed to develop a blocking plan for the SBRR segments that take into account the upstream and downstream residual NS segments. By using MultiRail to create its operating plan, NS has created numerous problems that did not exist in NS real world operations prior to the introduction of MultiRail.

First, as discussed above, NS has created alternate routes for many SBRR movements that use alternate interchange points between the SBRR and residual NS, which results in externally rerouted traffic. That is, NS has imposed upon the residual NS the requirement to move SBRR traffic over external cross-over segments that are not used in the real-world. NS has also imposed on a third party carrier – KCS – the requirement to move SBRR traffic over

[141] See Public Version of Rebuttal Evidence of Complainant in *SEMINOLE* at III-C-23.

portions of its system the traffic did not utilize in the real-world. An example is the movement from {{[redacted]}} discussed above.

Second, the NS modeling exercise included only carload traffic. Because NS excluded unit train traffic from its modeling exercise, NS did not account for the requirements of that traffic in developing its routing and operating plans for the carload traffic it ran through the MultiRail model. As discussed in more detail above, MultiRail allows the user to set various time and mileage penalties (or rewards) for using or avoiding particular routes. This sort of user manipulation changes the results of the MultiRail block assignment process by influencing the algorithms that select the "best" block sequence for each shipment. For example, if one wanted to reduce the blocking activity that occurs in one yard in favor of another yard (to better align with yard capacity, for instance), one could impose a time and/or mileage penalty on manifest traffic that is blocked in the prior yard, in an attempt to improve overall network fluidity. Similarly, one could impose a time and/or mileage reward on certain traffic groups to draw them to a certain corridor or yard. This could be useful for such things as balancing traffic flows with crew change points, or ensuring the utility of certain transload facilities.

When only a portion of the traffic is flowed through the MultiRail blocking process, these user-developed push-pull levers become ever more important, as MultiRail's default assumption is that there is no interference from other (non-modeled) traffic. It is critically important for the MultiRail user to fully understand the operational requirements outside of the traffic group modeled in MultiRail. NS does not appear to have used many of the available levers, or even given much thought to how unit train traffic would influence or be influenced by the MultiRail generated blocking plans. NS provided no mention or documentation of any attempt whatsoever to balance the requirements of shippers whose traffic was pushed through MultiRail with the requirements of other shippers.

Third, the NS modeling exercise ignores the requirements of the real-world NS traffic that was not included in the SBRR traffic group by improperly assuming away any interference the NS-developed SBRR operating plan may impose on non-selected NS traffic. Even if NS's claims that its model optimizes the movement of SBRR traffic over the system were true—which they are not—NS completely failed to determine the extent to which its modeling would displace non-selected traffic. In contrast, the SBRR model implicitly accounts for the requirements of non-selected traffic because it is built from the NS's real-world train operations that, by definition, accommodate all NS shippers' needs and synchronize with connecting carrier operations.

f. NS's MultiRail-Based Modeling Exercise Fails To Account For All Selected SBRR Traffic

NS utilized MultiRail to develop its operating plans for both the base (2011) and peak years (2021). The 2011 scenario includes the non-unit train base year traffic SunBelt selected in Opening. The 2021 scenario includes the non-unit train traffic for the peak year.

Because NS's downstream analyses – including its RTC modeling exercise and development of operating statistics – rely on these scenarios, all traffic contained in these scenarios must be fully processed through MultiRail. NS states that:

> the SBRR's carload traffic was "flowed" through the program, which assigned each individual car to one or more blocks as necessary to move it from origin (or on-SARR junction) to destination (or off-SARR junction)….This process generated, for each car, a "blocking sequence" that defined its movement across the SBRR system. Cars that failed to flow completely were flagged in a "Traffic Routing- Flows with No Block Option Report" generated by MultiRail. Witness Cheng reviewed that report and defined additional "blocks" as necessary to complete the movement of all cars. In an iterative process, traffic was flowed through MultiRail again **<u>until every car in the</u>**

> **SBRR's traffic group flowed successfully** through the MultiRail program and was assigned a complete "blocking sequence."[142]

Pushing NS's rhetoric aside, NS's MultiRail evidence reveals that traffic flows were left unassigned to blocks, and blocks were left unassigned to trains (stranded in yards) in the NS's MultiRail scenarios. In both of the scenarios that NS submitted, there is traffic that appears on the report "Traffic Routing - Flows with No Block Option."[143] Specifically, in the 2011 and 2021 scenarios, there are traffic flows flagged in the "Traffic Routing" report with the error message "Error: No blocks identified that can move this particular flow." In the 2011 scenario, four flows are flagged with this message. These four flows account for an unknown number of annualized[144] carloads carrying 746 annualized tons.[145] In the 2021 scenario, four flows accounting for 15 annualized carloads carrying 1,653 annualized tons are flagged with this error message.[146] These stranded carloads contradict NS's assertion that it successfully assigned all flows to a complete blocking sequence.

NS also failed to assign all of the blocks in its MultiRail program scenarios to trains, despite its claims. Specifically, NS states:

> MultiRail generated a "Block Train Validity Check Report" that identified any "stranded" blocks. Based on the block-to-train assignments, witness Smith also identified the yard locations at which individual blocks of cars would be picked up or set off by road trains and at which individual cars would be transferred between blocks. In an iterative process similar to that used in

[142] See NS Reply, at III-C-124 to -125 (emphasis added).

[143] Because SunBelt has a read-only version of MultiRail, these reports were run directly from the scenarios NS filed in Reply and were not (indeed could not be) altered by Sunbelt.

[144] Annualizing is necessary because MultiRail calculations are based on a fractional average day basis. MultiRail only reports fraction carloads to the tenths decimal place. As such MultiRail will display 0.0 if the daily average carloads for any traffic flow that contains less than 36 carloads a year in the input statistics. Each of the 4 flows for 2011 displays 0.0 carloads.

[145] See e-workpaper "mmtrfsep_all traffic flows.xlsx."

[146] See e-workpaper "mmtrfsep_all traffic flows_2021.xlsx."

> developing the SBRR's blocking plan, trains were added or adjusted as necessary to provide complete, efficient on-SARR service for **all SBRR traffic blocks.**[147]

NS clearly did not run this "iterative process" until every car flowed successfully. When SunBelt ran this report for active blocks, at least one block appeared under the heading "Unassigned Blocks" or "Stranded or Partially Routed Blocks" in both of NS's MultiRail scenarios.[148]

The 2021 scenario contains traffic under the heading "Unassigned Blocks" that "have not been assigned to a train at their origin point."[149] In the 2021 scenario, one block appears under this heading; this block carries 1,110 annualized carloads.[150] MultiRail's help manual explains that blocks under the heading "Stranded or Partially Routed Blocks," "have been set out by a train short of their destination and abandoned."[151] Both scenarios submitted by NS contain traffic under the "Stranded or Partially Routed Blocks" heading. MultiRail's help manual indicates that, "traffic contained in unassigned or stranded blocks will lack a complete trip plan. This traffic will be ignored in the SuperSim seven-day simulation and will not appear in the associated statistics and reports."[152] In the 2011 scenario, one block appears under this heading;

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[147] See NS Reply, at III-C- 126(emphasis added).

[148] As SunBelt has a read-only version of MultiRail, these reports were run directly from the scenarios NS filed in Reply and were not altered by SunBelt.

[149] From the MultiRail 3 Help "Report Manager" - "Train Reports" - "Block-Train Validity Check reports" See e- workpaper "Printing_Block-Train Validity Check reports_.pdf."

[150] See e-workpaper "mmtrnblkval_2021.xlsx."

[151] From the MultiRail 3 Help "Report Manager" - "Train Reports" - "Block-Train Validity Check reports"- See e-workpaper "Printing_Block-Train Validity Check reports_.pdf"

[152] Id.

this block carries 775 annualized carloads.[153] In the 2021 scenario, one block appears under this heading; this block carries 44,095 annualized carloads.[154]

The combination of these reports shows that, in the 2011 or 2021 scenario, over 40,000 carloads of the SBRR traffic were not successfully moved from origin to destination. Clearly NS did not account for "every car" on the SBRR as it stated in Reply[155]. This serves to further underscore the fact that MultiRail is a very iterative process, and NS simply failed to work through the required volume of iterations to account for all traffic and trains. NS simply did not "provide service in the least cost, most efficient manner."[156]

g. NS's MultiRail-Based Modeling Exercise Decreases The Average Cars Per Train And Increases Transit Time For SBRR Traffic

NS's manipulation of the carload traffic and blocking plans in MultiRail resulted in the creation of an operating plan in which the average number of cars per train in the model was less than the real-world cars per train. NS's use of MultiRail to decrease train size and increase transit time is a blatant attempt to create unnecessary inefficiencies in the SBRR operating plan and increase operating costs.

In developing its Reply evidence in MultiRail, NS manipulated the SBRR traffic by placing traffic that travels from the same origin to destination onto more traffic flows than necessary to move the traffic. NS explains this further in its workpapers. Specifically, NS states:

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[153] See e-workpaper "mmtrnblkval.xlsx."

[154] See e-workpaper "mmtrnblkval_2021.xlsx."

[155] In addition to the stranded block and carloads, NS did not include train A30 (2), which appears in the MultiRail scenarios provided by NS in its reply evidence, but does not appear in its Reply e-workpaper "Reply SBRR Train Statistics MultiRail 2011_Rebuttal.xlsx", which was used to calculated SBRR operating statistics and operating expenses. See e-workpaper "mmtrnstatsum.xlsx" at level "mmtrnstatsum."

[156] See NS Reply, at III-C-119.

> We decided to pre-split all the traffic so that no more than 2 cars are released at any one time. If the original traffic had, say, 6.4 cars released each day at 0001, we would now have 1.6 cars released at 0001, 1.6 cars released at 0601, 1.6 cars released at 1201 and 1.6 car at 1801. Total amount of traffic stays the same. From 0 to 2.00 cars per day, have 1 release record, from 2.01 to 4.00 cars per day, have two release records, from 4.01 to 6.00 cars per day, have 3 release records, etc. Then set the percentage of volume for each day and each release time. The release times are spread out over the day.
>
> The result is that for large daily traffic flows, the releases are evenly spread out over the day, and if traffic is delayed due to train capacity being reached, less than 2 cars would be delayed unnecessarily.[157]

This manipulation resulted in two critical flaws. First, although NS purports that this manipulation would prevent traffic from being "delayed unnecessarily", it actually had the exact opposite effect—it served to systematically delay the SBRR traffic. NS's manipulation of the SBRR traffic group resulted in increased transit times. As shown in supporting workpapers the average transit time for traffic moving on both the east and west portions of the SARR increased. One example for traffic moving in the east direction from McIntosh, AL to Birmingham, AL shows transit times increased by 6 hours.[158] Another example for traffic moving in the west direction from New Orleans, LA to Birmingham, AL shows transit times increased by 2 hours.[159] This increase in transit time was a direct result of NS's improper manipulation of SBRR traffic into more traffic flows than necessary in MultiRail.

Second, it resulted in the creation of shorter, less efficient trains than those NS moves in the real world (and SunBelt moves in its model). As shown in Table III-C-2 below, NS

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[157] See NS Reply e-workpaper "Modeling Operating Plan in MultiRail for the SunBelt Rate Case.docx" at 6-7.

[158] See e-workpaper "McIntosh, AL to Birmingham, LA MER Loaded V4 Trip Plan Summary.xlsx"

[159] See e-workpaper "NOLA to Birmingham MER Loaded V3 Trip Plan Summary.xlsx"

decreased the average cars per train on the SBRR when compared to SunBelt's opening evidence, which was based on real world operations.

Table III-C-2
Average Cars Per Train for SBRR Traffic
SunBelt Opening vs. NS Reply 1/

Train Type (1)	SunBelt Opening (2)	NS Reply (3)	Difference (4)
A. Eastern Trains 2/			
1. General Freight	75.3	70.3	-5.0
2. Local	28.6	15.3	-13.3
3. Intermodal	0.0	0.0	0.0
4. Subtotal – East	55.9	48.2	-7.8
B. Western Trains 3/			
1. General Freight	83.7	79.9	-3.7
2. Local	24.7	22.2	-2.5
3. Intermodal	34.6	28.6	-5.9
4. Subtotal – West	54.3	48.7	-5.6
C. All SBRR Trains			
1. General Freight	80.8	76.6	-4.2
2. Local	26.2	19.8	-6.4
3. Intermodal	34.6	28.6	-5.9
4. Total – SBRR	54.8	48.5	-6.3

1/ Source: e-workpaper "Summary of East vs. West SBRR Trains.xlsx"
2/ McIntosh, AL to Birmingham, AL
3/ Birmingham, AL to New Orleans, LA

As shown in the table above, NS decreased the average cars per train for all types of SBRR traffic. This inappropriate manipulation of SBRR traffic flies directly in the face of Board precedent that abjures litigants to base their operating plans on real-world operations. For example, in *FMC* the agency rejected a shipper's operating plan because it did not utilize actual railroad practices regarding the length of trains.[160] Clearly in Reply, NS has not based its operating plan on real-world operations and has reduced the average cars per train despite Board precedent.

[160] See *FMC* at 736-737.

h. NS's Handling Of TIH Traffic In MultiRail Is Improper And Contrary To NS Claims

In Reply, NS states:

> The Base Year traffic group selected by SunBelt includes approximately 7,300[161] carloads of TIH commodities. But SunBelt's Operating Plan makes no provision for the safe handling of TIH cars in compliance with federal and state laws and regulations, industry best practices, or even SunBelt's own corporate polices.[162]

NS posits that its MultiRail modeling exercise accounts for these TIH regulations and practices. In Reply, NS states "The 'SuperSim' element of NS's MultiRail analysis generated a 'trip plan' for each individual SBRR carload shipment… Having such a trip plan for each car enables the SBRR to track the cars' movement as it proceeds along the network, and to comply with federal regulations governing the movement of TIH shipments (which represents a considerably higher proportion of SBRR's traffic than NS's)".[163] However, NS treats all of the TIH commodity carloads in the exact same manner as it does non-TIH traffic in MultiRail.

NS did not mark any TIH traffic[164] it identified from the Waybill data as TIH traffic in the MultiRail input data. In fact, NS created a TIH-flag field in the summary level of this

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[161] NS overstates the carloads of TIH commodities here and throughout its Reply. When modeling this traffic in MultiRail and elsewhere in Reply NS utilized the adjustment factors by commodity group as filed by SunBelt in "SBRR Traffic and Revenues Indices - OPEN.xlsx". However when making references to the total TIH carloads and % of traffic that is TIH Carloads NS simply multiplied the 1Q-3Q TIH Carloads by a (4 ÷ 3) factor. This resulted in over stating the carloads of TIH commodities by 2.2% and further does not match the way NS modeled the SBRR's traffic in MultiRail and its Operating plan. The correct TIH carloads of TIH in the traffic group selected should be 7,164 of which only 7,024 were modeled in MultiRail. The additional 140 were not modeled in MultiRail as their ON and OFF SARR location was McIntosh, AL. See SunBelt Rebuttal e-workpaper "SBRR TIH Shimpents_Rebuttal.xlsx."

[162] See NS Reply III-C-78

[163] See NS Reply III-C-129 (underline in original).

[164] See NS e-workpaper "2011_SBRR_WB_MR_TRF_REC_MATCH.txt."

workpaper[165], but NS did not flag any of the carloads it modeled in MultiRail as TIH. This failure to flag TIH traffic in the MultiRail input data results in the TIH traffic being mixed in the same traffic flows as non-TIH traffic. Due to the fact that MultiRail further breaks these annual carloads into fractional average 7 day carloads, NS's failure to flag and separate TIH traffic from non-TIH traffic when entering the data into MultiRail renders it entirely impossible to determine which trip plans and outputs correspond directly to the TIH traffic.

In addition to not identifying individual TIH commodity carloads, the SuperSim "Trip Plans" provided by NS do not correspond with individual carloads. They instead represent the "Trip Plans" for each MultiRail Traffic Flow by release time. As discussed above, NS split the traffic flows in MultiRail into blocks of no more than 2 carloads with staggered release times, further removing any connection to TIH traffic in the real world.

One of NS's arguments against SunBelt's Operating plan is that, "In order to comply with applicable regulations and common sense safety practices, a railroad must develop, and adhere to, a "blocking plan" in assembling trains that transport TIH shipments."[166] SunBelt based its Operating Plan on the real world movement of the actual TIH traffic, based on the reasonable assumption that NS's real-world Operating Plan takes into account these regulations. In its Reply, NS provided a MultiRail derived "blocking plan" that failed to separate or distinguish TIH from non-TIH traffic. A "blocking plan" that treats all traffic, TIH and non-TIH the same is fatally flawed, because it is "incapable of complying with federal regulations and industry best practices for the safe handling of TIH materials."[167]

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[165] Id. "MR_TIH_IND" field.

[166] See NS Reply, at III-C-80.

[167] See NS Reply, at III-C-81.

i. NS's MultiRail-Based Modeling Exercise Is Riddled With Faulty And Unalterable Inputs And Assumptions That Render Its Outputs And All Downstream SAC Analyses Invalid

NS states that "MultiRail is a sophisticated modeling tool that integrates information regarding a railroad's traffic, network configuration, and customer service requirements to generate blocking plans and train schedules that are optimized to serve an identified traffic group."[168] As stated in the sections above, the use of MultiRail in developing NS Reply evidence was unnecessary and, more importantly, distorting. Furthermore, review of NS's Reply evidence reveals that NS's MultiRail-based model was not only unnecessarily complicated and burdensome, but also riddled with errors and inefficiencies. In fact, it is NS—not SunBelt—that created an Operating Plan so deficient it must be rejected.

MultiRail has four main inputs that are the building blocks for the model: 1) the network or rail lines; 2) the traffic (in this case SBRR carload traffic); 3) the blocks to which the carload traffic is assigned; and 4) the trains available to move the various blocks of traffic. In addition, there are numerous user-defined adjustments and assumptions within the model that determine how the data in these four main inputs is processed. Notably, all four of these inputs were also utilized by SunBelt in developing its Operating Plan in Opening, either explicitly or implicitly through SunBelt's use of actual NS traffic data to develop its Operating Plan. Therefore, the building blocks for NS's MultiRail-based model are not any different than the building blocks for SunBelt's traditional traffic data-based model.

NS claims that it utilized MultiRail to build an Operating Plan for the SBRR's traffic "from the ground up."[169] However, as discussed above, NS has already performed this task in the normal course of business. Instead of utilizing the operating plan that is implicit in NS's actual

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[168] See NS Reply, at III-C-122

[169] See NS Reply, at III-C-122.

traffic data SunBelt used in opening, NS added a layer of complexity and inefficiency through its use of the MultiRail program to generate its Operating Plan, which utterly severs the NS's operating plan from NS's real-world operations. The extent of complexity and inefficiency becomes clear only after laborious analysis of the vast amounts of data inputs, assumptions, and outputs that form the basis for developing NS's Operating Plan and operating statistics.

The first layer of needless complexity that MultiRail introduces is manifested in the procedures required to transform the carload traffic from the NS waybill data file into the format required for the Traffic Manager module in MultiRail to function properly. Although NS does not explain any of the changes it made to the SBRR traffic in MultiRail, there is evidence in the NS Reply files from which SunBelt could deduce that substitutions for specific locations were made to the MultiRail traffic data. To complete this substitution process, NS altered the 2011 NS waybill data for nearly 15,000 carloads.[170]

Nowhere in its Reply evidence does NS explain the reasoning for the alternations or substitutions it made to the traffic data, other than a summary table under the heading "Below is the substitution table used for SunBelt Traffic."[171] This table shows that for select traffic modeled in MultiRail NS chose to ignore the Waybill, train event, Car Event, and other traffic data it provided in discovery and SunBelt relied on in its Operating Plan.

In this summary table, NS identifies 12,575 Waybill records that, according to the waybill data, were received in interchange from CN or KCS by NS in New Orleans, LA.[172] The Car Event data confirms that these cars were received in interchange at the New Orleans yard,

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[170] See NS Reply e-workpapers "Modeling Operating Plan in MultiRail for SunBelt Rate Case.doc."

[171] Id.

[172] See Rebuttal e-workpaper "dbo_Rebuttal_Selected STCC7_lead waybills New Orleans INT.xlsx."

not Mays yard. The train event data show only trains moving north and east out of New Orleans yard for these carloads.[173] For these 12,575 Waybill records, NS chose to alter the interchange location of New Orleans, LA to CN's Mays Yard, LA. CN's Mays Yard is located west of NS's New Orleans, LA yard. This alteration of the interchange location is contradicted by the waybill, Train Event, and Car Event data that SunBelt relied upon to develop its Operating Plan.

In addition, the switching data for moves identified as CN-NS interline movements that interchange in New Orleans, LA in the NS waybill data indicates only two switching events occurred in Mays Yard, LA in 2011.[174] There are no records of either CN or NS acting as handling line carriers for one another in the New Orleans, LA vicinity on these movements.[175] The Waybill and Car Event data identify New Orleans, LA, and not Mays Yard, LA, as the interchange location for each of these identified waybill records that NS identified and altered. Without explanation, NS has chosen to ignore its own waybill, Train Event, Car Event, switching, and handling line data in its MultiRail modeling exercise. This results in an operating plan that transfers off-SARR operations and costs to the SARR.

After the altered traffic data is entered into MultiRail, the program assigns the carload traffic to blocks. In the Reply narrative, NS states that the initial blocking plan NS used as an input to MultiRail came from actual NS blocking data. Specifically, NS states, "NS based this initial list of blocks on the blocks that NS builds in its current daily operations in the territory replicated by the SBRR."[176] However, in its workpaper "Modeling Operating Plan in MultiRail for the SunBelt Rate Case" NS states "[t]he blocking plan has been developed from scratch by

[173] See Rebuttal work paper "Select NO Trains V01.xlsx."

[174] See e-workpaper "CN NEWOR NS Moves 2011 with Switching and Handling line charges.xlsx."

[175] Id.

[176] See NS Reply, at III-C-124.

the operating team through an iterative procedure."[177] NS provides no additional details on the members that comprised the "operating team" or the "iterative procedure" used to create this blocking plan. This new "from scratch" Operating Plan is disconnected from NS's real-world blocking plan, and further separates NS's made-for-litigation modeling exercise from NS's actual day-to-day operations.

After the modified NS carload traffic and the modified NS blocking plan have been entered into MultiRail, the MultiRail algorithms assign each carload of traffic to various blocks to provide end-to-end service over the entire NS system between the altered waybill origin and the altered waybill destination. NS describes this process as follows: "SBRR's carload traffic was 'flowed' through the program".[178] The "flowing" process, or MultiRail sequencer, actually places traffic into blocks using user-defined block rules and penalties. This process is manipulated and defined by the user and the MultiRail algorithms are influenced by those manipulations. For example, changing the penalty index for moving traffic through a particular yard or facility type results in a time or mileage penalty (or reward) associated with using that facility, which makes the route through the facility appear either more or less efficient than it actually is. Therefore, these penalty levers change the results of the MultiRail routing algorithms. As a result, the MultiRail program either forces more traffic through, or forces more traffic around, that facility than the program otherwise would.

NS states that, after MultiRail assigned all of the cars to blocks, it applied "a number of quality control measures to ensure the efficiency of the SBRR's blocking plan."[179] Specifically,

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[177] See NS Reply e-workpaper "Modeling Operating Plan in MultiRail for the SunBelt Rate Case.docx" at 7.

[178] See NS Reply, at III-C-124.

[179] See NS Reply, at III-C-125.

NS names the "Block Bypass Report" as a MultiRail-generated report that it utilized to enhance efficiency. The Block Bypass Report identifies movements that could have been blocked in a more efficient manner. SunBelt reviewed the Block Bypass Report included in NS's Reply evidence and found that either NS did not utilize this report to identify inefficiencies and alter its MultiRail processes, or, if NS did use this report to identify inefficiencies and make changes, NS did not run enough iterations of its model through this feedback and quality control loop to sufficiently "enhance the efficiency of the SBRR's blocking plan." Specifically, "the block bypass reports examine the block sequences created by the MultiRail algorithm and suggest more direct routes that reduce car handling and expedite traffic by bypassing locations in the original sequences."[180] For example, assume a car is moving on a block from New Orleans, LA to Meridian, MS carrying 20 cars, but 10 of those 20 cars continue on from Meridian, MS to Birmingham, AL. Had those 10 cars been blocked to Birmingham, AL at New Orleans, LA they would not need to be handled in Meridian, MS.[181] "One of the most important factors in reducing car handlings is concentrating traffic in high-density yards and lines where a railroad has sufficient volume to build "bypass" blocks that move long distances without requiring intermediate switching. This is equivalent to substituting a non-stop airline flight for a connection, and it has the similar effect of reducing end-to-end travel time and improving reliability."[182] Any blocks appearing on the "Block Bypass Report" generated from MultiRail

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[180] From the MultiRail 3 Help "Report Manager" - "Traffic Volume Reports" - "Block Bypass reports" See e-workpaper "Printing_Block Bypass reports_.pdf."

[181] See e-workpaper "mmBypass.rpt.pdf."

[182] See page 69 of Verified Statement of William J. Rennicke, submitted on behalf of the AAR in its Opening Comments in STB EP 711, Petition for Rulemaking to Adopt Revised Competitive Switching Rules.

would demonstrate the inefficiencies and increased car handlings still present in the MultiRail generated operating plan the NS utilizes in Reply.

For the 2011 scenario, NS's Reply MultiRail evidence shows 151 blocks carrying approximately 1,734 cars per day.[183] The Block Bypass Report (as included in NS Reply evidence, not manipulated by SunBelt[184]) suggests that 18 blocks, 12 percent of the total blocks in NS's MultiRail analysis, include traffic that could be more efficiently blocked into alternate existing blocks to bypass intermediate handling yards en route. According to the Block Bypass report, 342 cars per day, or over 20 percent of the carloads in MultiRail,[185] could be reassigned to alternate blocks to reduce the number of intermediate handling events required.

NS specifically names the Block Bypass Report as one of the reports it reviewed in an effort to evaluate preliminary MultiRail results and make adjustments to "enhance the efficiency of the SBRR's blocking plan." Upon every iterative MultiRail run, the Block Bypass Report is regenerated, at which point more (or different) inefficiencies may be identified, adjustments to blocking assignments may be made, and the next iteration can be run. NS did not specify how many iterations it ran after consulting the various quality control measures (reports) generated by MultiRail. However, the Block Bypass Report associated with the provided MultiRail evidence identifies inefficiencies that are still present in the end result of the NS exercise, after all adjustments have been made and all iterations have been completed. Clearly, if over 20 percent of the SBRR traffic could be handled in a more efficient manner than that reflected in NS's final blocking assignments and its operating plan, then NS's implementation of its "quality control"

[183] This equates to 631,249 cars per year. Annualizing is necessary because MultiRail calculations are based on a fractional average day basis.

[184] SunBelt does not have the capabilities to manipulate the reports with the read-only version of MultiRail NS provided to it.

[185] See e-workpaper "mmbypass.xlsx."

process based on analyzing MultiRail's outputs was not very effective. The Block Bypass Report included in the NS Reply evidence demonstrates that NS failed to sufficiently use the feedback tools included in MultiRail to identify and remove all efficiencies.

After MultiRail assigns cars to blocks and the manual review and adjustment of the traffic and blocking plan has been completed, the next step in MultiRail is to manually assign the blocks to trains. NS used actual real-world train schedules as a starting point to assign blocks to trains. Then, as discussed above, NS's Witness Smith manually "assigned one or more blocks of cars to each train" based upon his judgment.[186] This was a completely manual process. Stated differently, MultiRail does not have the capability to assign blocks to trains. After the manual block-to-train assignment, NS stated that it applied "a number of 'quality control' measures" to the data. However, as evident in the movement examples delineated above, the quality control measures did not eliminate a large number of the inefficiencies and errors generated from NS's MultiRail-based process.

MultiRail is simply a tool. It is not some magical program that generates a perfect operating plan. Like all tools, the person wielding the tool has more to do with the tool's efficacy than the tool itself. The user-controlled processes, from input selection, to data adjustments, to manual review of intermediate feedback and process adjustments are what ultimately leads to the end result. To the extent that the user entered the wrong inputs, or made the wrong adjustments, or failed to put enough effort into identifying and correcting inefficiencies, errors and inefficiencies will exist. In Reply, NS demonstrated that it is aware of the various "quality control" reports and measures it could have used (or used more) to ensure the most efficient handling is achieved in MultiRail. Clearly, NS did not spend enough time

[186] See NS Reply, at III-C-125.

identifying and eliminating inefficiencies. NS attempted to ensure that the inefficiencies baked into its operating plan were unassailable by providing SunBelt with only a limited-functionality version of MultiRail that does not allow SunBelt to even ascertain the level of inefficiencies that exist, much less to eliminate them and properly restate the MultiRail-based analysis NS conducted. Again, by severing the SARR's operations from actual NS operations through the use of MultiRail, NS is leading the Board down a path whereby it will become impossible for the Board to *ever* determine the feasibility of a SARR operating plan by comparing that plan to reality.

SunBelt's use of actual traffic data alleviates the need to correct these inefficiencies. NS has spent years fine-tuning its actual operations using a proprietary tool that NS purports to be superior to anything else available, including MultiRail. STB precedent also dictates that actual traffic should be utilized wherever possible as that has been accepted by the STB and the parties in every other SAC case decided to date.

Ultimately, MultiRail is not necessary. MultiRail further complicates an already inherently complicated SAC process by creating made-for-litigation data where actual data already exists. Although MultiRail nominally starts with actual traffic data, it morphs that actual data into daily average statistics to be moved in generic blocks on trains with no actual dates or operations, instead of simply using the real movement and train data that already exists. NS started with actual traffic data, and altered it to make it compatible with MultiRail. NS started with actual NS blocking plans, and manipulated them for use in MultiRail. NS started with actual NS train schedules and substituted the blocks that actually moved on them with other blocks based on NS Witness' judgment, which NS apparently believes is superior to its planning staff's collective judgment. The result of all that manipulation is an Operating Plan riddled with errors and inefficiencies.

4. NS's RTC Model Of The SBRR Is Filled With Errors

NS rejects SunBelt's opening RTC simulation in favor of its own RTC simulation based on output from the MultiRail model. However, in a stark departure from precedent, the entire body of NS's Multirail generated evidence is "based upon an average week (rather than the peak week) during the peak year."[187] This decision alone invalidates NS's RTC model. The primary function of the RTC model in a stand-alone rate case is to "test the adequacy of the configuration (to make sure the [SARR] would have sufficient capacity to handle the peak forecast demand)."[188] By failing to model the peak period, NS has failed to demonstrate the feasibility of its proposed system.

In addition to this fatal error, NS's RTC model is filled with other errors, discussed below, that make its output useless for the purpose of testing the configuration of the SBRR.

a. NS Incorrectly Modeled Foreign Railroad Trains

NS's RTC model included an astounding 580 foreign and commuter trains crossing its system. Notably, this is 36 more trains crossing its system than NS actually models on its SARR.[189] This tremendous volume of foreign traffic was loosely approximated by NS using faulty data and a flawed methodology in an effort to encumber the SBRR network in its Reply RTC Simulation. NS's incorrect coding of its foreign train priorities (as explained above) is exacerbated by the inaccurate volume of foreign traffic. NS should have used its own real world data which would have more accurately portrayed the impact of foreign traffic on the SARR.

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[187] See NS Reply, at III-C-139.

[188] See NS Reply, at III-C-90, quoting *WFA/Basin II* at 14.

[189] See SunBelt Rebuttal e-workpaper "NS Reply Sunbelt Final Case Train Inputs.xlsx."

NS states that, "as SunBelt's experts know, information regarding the number of foreign trains that cross NS's lines is publicly available from the FRA."[190] NS then refers to a publicly available database on the FRA's website, which NS has used in its Reply workpapers to support the creation of its foreign trains in its RTC model. SunBelt experts are indeed aware of this data; however, SunBelt's experts are also aware that, according to the US DOT,[191] this data "*shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action*....[192]"

Moreover, the data included in the FRA's database is extremely dated, and not reflective of actual current or future operations. As shown in the database, the vast majority of the data reflects operations from the 1970's, 1980's and 1990's, with virtually no data from the 21st Century.[193]

In addition to using dated information, the methodology NS used in its analysis is questionable at best. NS relies on train crossing information for highways, not railroads, to support its foreign traffic. NS assumes that, if a train of a foreign railroad crosses a nearby highway three (3) times per day, it will also cross NS lines three (3) times per day. An example of the fatal flaw in this approach is demonstrated in Figure 6 below.

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[190] See NS Reply, III-C-113.

[191] U.S. DOT NATIONAL HIGHWAY-RAIL CROSSING INVENTORY Policy, Procedures and Instructions For States and Railroads; Page 11.

[192] 23 USC § 409 – Discovery and admission as evidence of certain reports and surveys.

[193] The FRA database can be accessed here: http://safetydata.fra.dot.gov/OfficeofSafety.

Figure 6

[redacted]

In the figure above, the highway crossing NS used to develop its foreign trains is not only miles away from the SBRR, but there are two junctions and a yard between the locations. Any train crossing the highway at point #1 has two potential direction changes and a potential direction reverse at the yard before it "reaches" the SBRR. As explained below, this is a common phenomenon in NS's development of its foreign trains. Clearly this is not a reliable methodology for estimating the foreign trains that cross the SBRR.

Even if the source data NS used in developing its foreign trains had not been improperly used, NS incorrectly uses the wrong dates and wrong locations for many of the crossings in its analysis. SunBelt experts discovered NS's supporting documentation was incorrect for a variety of reasons including, but not limited to:

1. Records input from the wrong time period
2. Highway crossing too far from actual Railroad crossing to be reliable
3. Railroad Junctions located between highway crossing and railroad crossing
4. Railroad Yard located between highway crossing and railroad crossing
5. Incorrect Road Crossing used

In fact, 71 percent of NS's data used to generate its foreign trains suffered from <u>at least</u> one of the above mentioned errors.[194]

b. NS Improperly Modeled Random Outages

NS identified 55 delays from its train delay database that it believed should be applied to the Peak Period RTC simulation. However, NS's Reply RTC model contains 85 outages. NS added 22 outages described as "Serving the Sunbelt Facility" that block the mainline in front of McIntosh yard for a period of 4 hours each. NS added another 8 outages that are alleged to represent maintenance. Both supplemental sets of outages are clearly "made-for-litigation" outages which are completely unsupported by any real world data. Although this type of delay is typically recorded in the delay data NS provided in discovery, NS's train delay information shows no records of any of the "outages" which NS has elected to include in its Reply RTC model.

c. NS Improperly Input RTC Trains

As discussed above, the use of MultiRail to generate trains has resulted in gross inefficiencies in the routing of trains. Upon review of NS's Reply RTC model, it is evident that

[194] <u>See</u> SunBelt Rebuttal e-workpaper "Corrected At-Grade Foreign Crossing Train Data.xlsx."

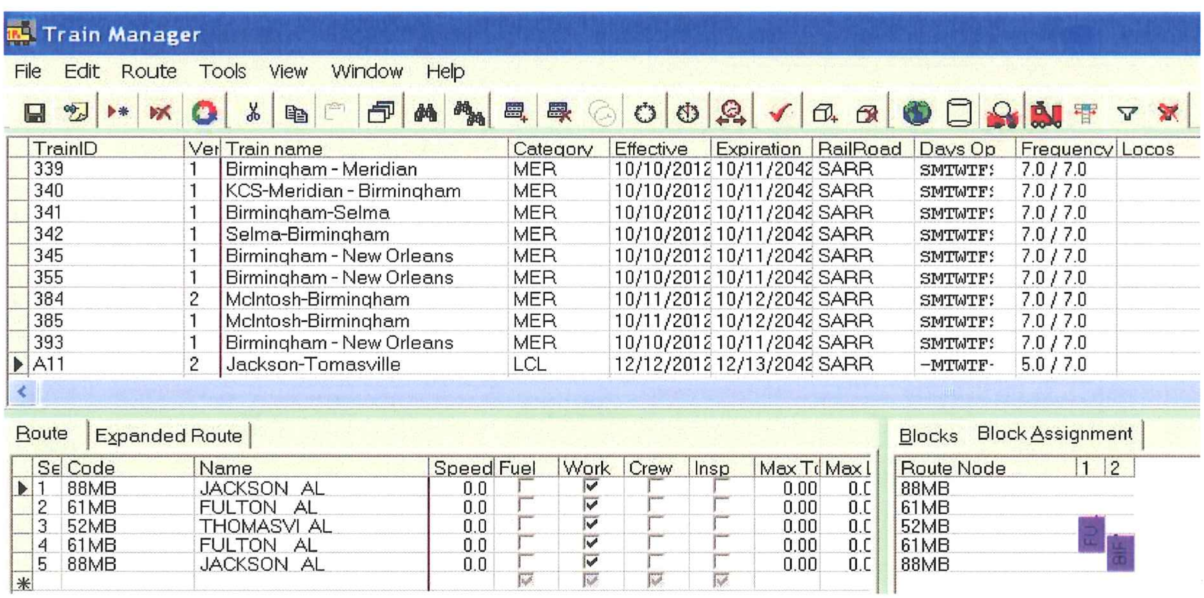
this issue has been compounded by other limitations of MultiRail. Because MultiRail does not "understand" when a train would be required to make a turn move, it cannot properly account for the inefficiencies of turning a train.

As any railroad expert knows, a turn move is inefficient, particularly when it must take place on the mainline, and will severely hamper the flow of a network. In order to turn a train, to the train must come to a complete stop and sit while the turn is completed, completely blocking the passage of any other trains for the duration of the time it needs to slow down, reposition locomotives, reposition the crew and reverse direction. In many cases, making a turn on the single track mainline would make it impossible to reposition locomotives to the front of a train unless it was preconfigured to run distributed power.

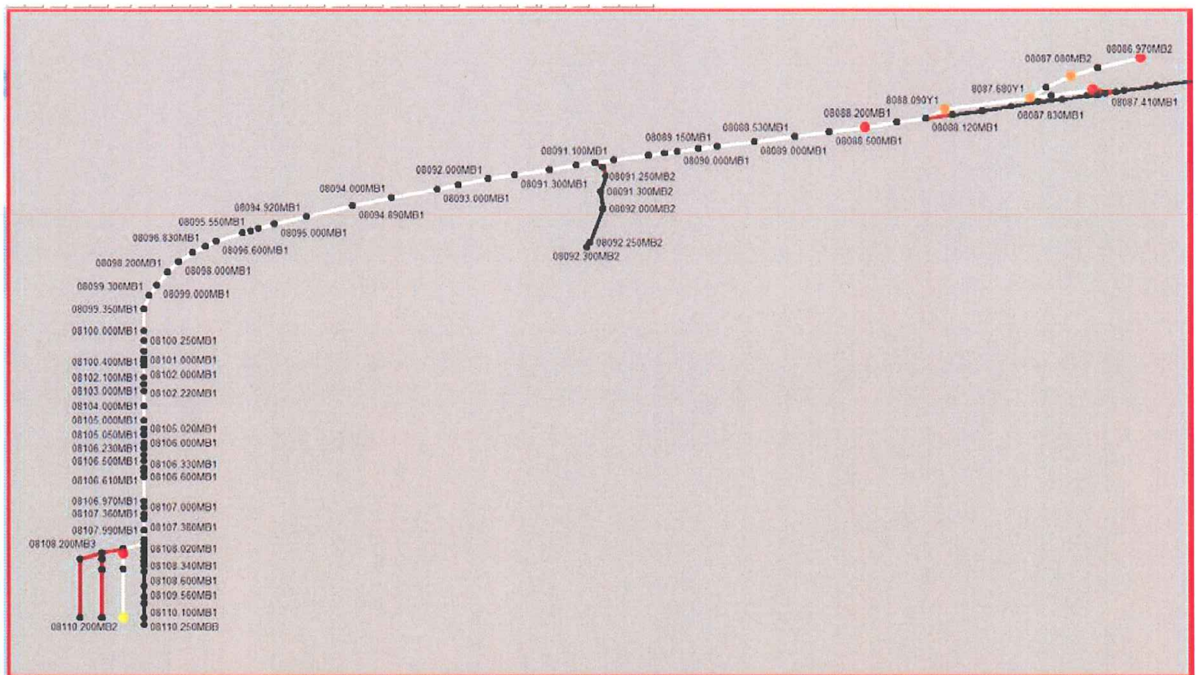
One example is shown in Figure 7 below.

Figure 7

NS Reply MultiRail Train Manger: Train A11



NS Reply RTC Model: Train A11



	Node	Node Location	Field Milepost	Requested Arrival DD HH MM	Requested Departure DD HH MM	Protect Depart Time ?	Minimum Dwell HH MM SS	Departing Loads	Departing Empties	Trailing Departing Tons	Trailing Departing Feet	Crew #	Departing Direction	Max Speed	Alt Node OK?
1	08108.180MB2	ET Mcintosh	108.180	FLOAT	10 12	No	1 00	0	38	973	2428	1	North	60	Yes
2	08086.970MB2	ET Jackson	86.970	FLOAT	FLOAT	No	30 00	0	38	973	2428	1	Turnaround	60	Yes
3	08088.470MB1	ET	88.470	FLOAT	FLOAT	No	5 00	0	38	973	2428	1	Turnaround	60	Yes
4	8087.410Y1	ET IND. BYPASS	87.410	FLOAT	FLOAT	No	45 00	0	38	973	2428	1	Turnaround	60	Yes
5	08110.200MB2	ET S.E. McIntosh	110.200	FLOAT	FLOAT	No	0	0	38	973	2428	1	South	60	Yes

A11-L29MCIMCI

General

Validate

Apply

Exit

Edit route nodes of the A11-L29MCIMCI | RTC coordinates: (11,844, 4,089) | 107 node(s) and 216 link(s) captured in rubberband box | Zoom 2

The NS Sunbelt Reply Multi-Rail Train Manager screen shot above shows Train A11 picking up/ setting out cars at Jackson, Fulton, Thomasville (turn), Fulton and Jackson. However, in NS's Reply RTC model Train A11-L29MCIMCI only stops at Jackson and Ind. Bypass and does not pick up or set out any cars. The screen shot above from NS's Reply RTC model also shows that train making 3 reverse moves in order to reach IND. Bypass. This train (and many others like it) has a single locomotive at the head end, and yet it is reversing in only 5 minutes, failing to move the power to the head end of the train. Not only does this train perform dangerous reverse moves, it fails to serve all of the customers dictated in NS's MultiRail simulation by not stopping at Fulton and Thomasville! This is neither feasible nor realistic.

While NS claims that its Reply Operating Plan and RTC simulation are the least cost, most efficient means of handling its traffic, it is abundantly clear that is not the case. NS modeled multiple turns dwelling for less than the required 45 minutes for trains with no DP. In effect, this results in several instances where NS's trains are driving "backwards" with all the locomotives on the rear of the train, achieving speeds of up to 60 MPH with no way to see what is in front of the train. This is an extremely dangerous and blatant violation of Federal laws and regulations![195]

d. NS RTC Network Does Not Reflect Its Investment

NS criticizes SunBelt for its yard and network configuration. NS claims that the SBRR would require an additional 77.6 miles of yard and interchange tracks.[196]

NS's RTC model fails to support this criticism. NS's Reply RTC Network is largely identical to SunBelt's Opening RTC Network. Where NS claims SunBelt's yards are insufficient to handle the operations of the SBRR, NS's own RTC simulation demonstrates that those yards are indeed sufficient to handle the operations of the SBRR. For example, see Figure 8 below:

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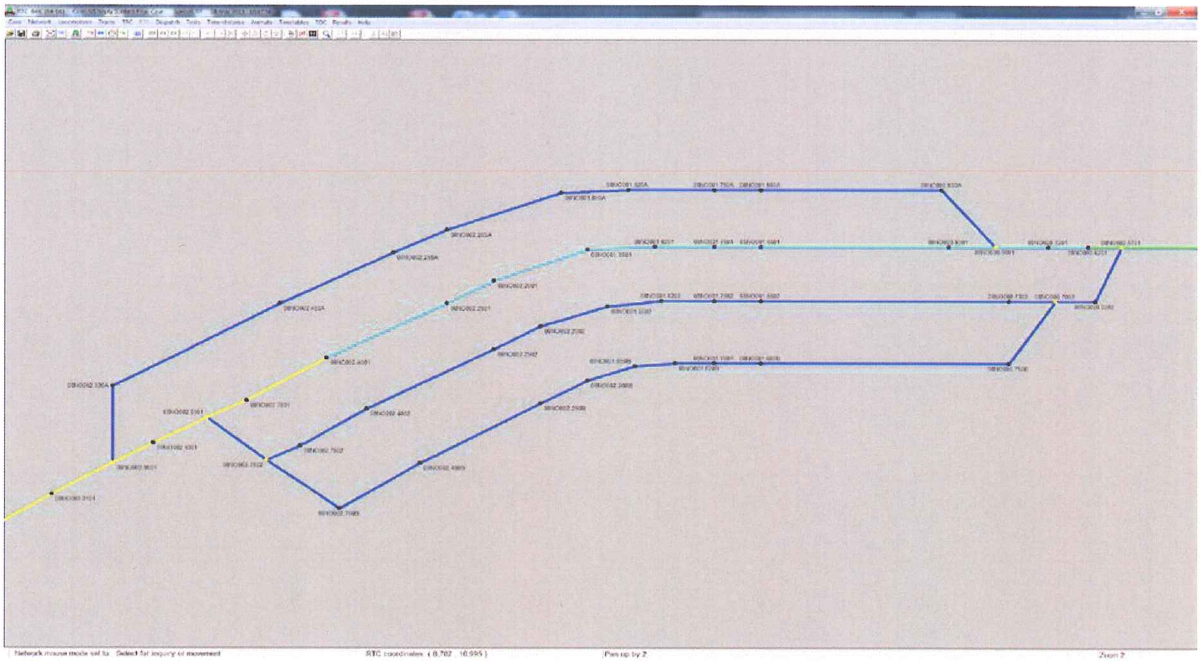
[195] See NS Reply e-workpaper "NS Reply Sunbelt Final RTC Case.zip."

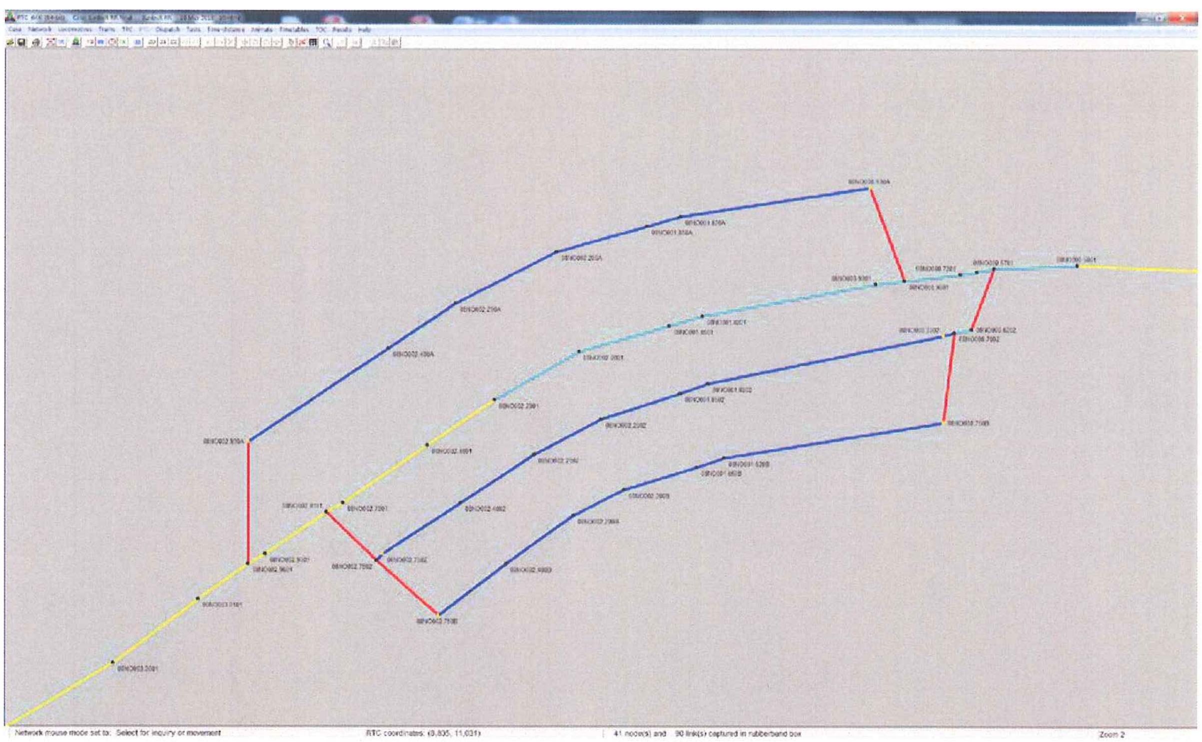
[196] See NS Reply, at III-B-5.

Figure 8

NS Reply RTC: Meridian Yard



Sunbelt Opening RTC Model: Meridian Yard



As illustrated above, NS's Meridian Yard configuration is identical to Sunbelt's Opening. This issue is pervasive throughout NS's Reply RTC model.[197] NS's claim that Sunbelt needs additional track miles is not supported by its own RTC model.

SunBelt's Rebuttal RTC track configuration and its investment figures are consistent, whereas NS's are not.

5. SunBelt Response To NS's Criticisms Of SunBelt's Operating Plan

Throughout NS's Reply, and especially in Part III-C, NS makes ongoing vituperative attacks on the veracity of SunBelt's operating plan. SunBelt responds to these attacks as they relate to yards, switching and yard activities, equipment requirements and crew requirements in this section.

a. Yard and Facilities

i. Yards

As fully discussed in Part III-B, in Opening, SunBelt included 63.62 miles of track for yards and interchange locations.[198] On Reply, NS included 141.2 miles of track for yards and interchange locations.[199] The basis for the differences are fully discussed in Part III-B and are the result of differences in the philosophies underlying the development of yard and interchange track miles. NS claims that SunBelt's "location, sizing, and configurations of the SBRR yards… were untethered to the workload that the SBRR actually would have to perform at each facility."[200] These claims underline NS's total lack of understanding of SunBelt's approach.

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[197] <u>See</u> Sunbelt Rebuttal e-workpaper "RTC Yard Comparison NS Reply vs. Sunbelt Open.xlsx."

[198] <u>See</u> SunBelt Opening, at III-B-4 and e-workpaper "SBRR Yard Matrix.xlsx."

[199] <u>See</u> NS Reply, at III-B-5.

[200] <u>See</u> NS Reply, at III-B-7.

In contrast, the yards proposed by NS, and their relative size, are derived from its new operating plan for the SBRR, which involves the creation of new trains with new blocking schemes that are unrelated to the real-world trains the SBRR interchanges with NS. As discussed in Part III-C, *supra*, NS may not propose such an entirely new operating plan on Reply, and its operating plan therefore must be disregarded by the Board.

As shown in Part III-B, the largest difference in yard track, by far, is related to classification track. On Opening, SunBelt included 19.23 miles of classification and utility track at 5 locations. On Reply, NS included 50.01 miles of classification track, over twice the amount included by SunBelt.

(a) Yard Switching And Classification Tracks

NS comments extensively that SunBelt failed to provide for yard switching and classification requirements for carload traffic moving on the SBRR. NS is correct that SunBelt did not provide fully for required yard switching activity. In Opening, SunBelt provided yard switching only for cars originating and terminating in yards and switching for local trains originating and terminating in yards. SunBelt unintentionally omitted classification switching services for other carload traffic moving through the operating yards that are being switched between trains or for block switching. This omission of classification switching services resulted in an understatement of classification tracks, yard crews and yard locomotives in SunBelt's Opening evidence.

To correct for this omission, SunBelt examined NS's determination of yard classification tracks and yard track miles in Reply to determine if they are supported, reasonable and reliable. SunBelt finds NS's determination of classification tracks in yards to be none of the above for numerous reasons.

(i) NS Yard Classification Car Counts Are Unsupported

SunBelt examined the classification car counts provided by NS in Reply and found them to be unsupported and unrealistic. The source for the classification counts by yard provided by NS allegedly is NS's MultiRail analysis.[201] However, in its Reply filing, the NS car counts in its workpaper are unsupported, as they are no more than hard coded numbers without a link to any analysis.[202] Further, when NS did finally provide access to MultiRail on a limited basis, SunBelt's analysts were able to review the classification car counts included in MultiRail and found that they did not match the car counts from either of the two previous sources provided by NS.[203] NS's multiple-choice classification car counts are clearly unsupported and unreliable.

For example, the workpaper provided by NS with its Reply evidence shows the hardcoded car count for {{[redacted]}} to equal {{[redacted]}} cars per day in 2011.[204] When SunBelt's experts executed the limited access version of the MulitRail program provided by NS on November 1, 2013, the resulting car count per day in 2011 for {{[redacted]}} equals {{[redacted]}}.[205] In summary, SunBelt cannot verify NS's ever elusive car counts in yards or even know which car counts NS relied upon for its yard analysis, much less recreate those car counts.

Moreover, if NS's classification car counts are an output of its MultiRail analysis, they are not reliable as they do not correspond to the actual NS trains and are the result of NS's "made

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[201] See NS Reply, at III-C-139.

[202] See NS Reply e-workpaper "SBRR Reply Yard Operations.xlsx."

[203] See SunBelt Rebuttal e-workpaper "SunBelt Yard Volume by Traffic 2011-mmNdc.rpt.pdf" and "SunBelt Yard Volume by Traffic 2021-mmNdc.rpt.pdf ." This document was created by running the MultiRail Report function under Report Manager, Traffic Volume, "Yard Volume Summary" and printing to a pdf file.

[204] See NS Reply e-workpaper "SBRR Reply Yard Operations.xlsx," col. (2)

[205] See SunBelt Rebuttal e-workpaper "SunBelt Yard Volume by Traffic 2011-mmNdcVol.rpt.pdf," p. 19. This document was created by running the MultiRail Report function under Report Manager, Traffic Volume, "Yard Volume Summary by Traffic Category" and printing to a pdf file.

for litigation" train blocks and train assignments. As fully discussed in Part III-C-3, NS's MultiRail operating plan and its outputs are fatally flawed and cannot be used.

(ii) NS Yard Classification Car Counts are Unrealistic

Even assuming NS's classification car counts were supported, which they are not, they are unrealistic because they are artificially inflated. In essence, NS inflates its car counts in order to "build a church for Easter Sunday." To accomplish this, NS determines its classification car counts for each hour of every day in the peak week for each yard using the MultiRail and SuperSim programs.[206] Then NS calculated the car count for each yard as equal to the average of the car counts that appear in the peak hour of all the days in the peak week. Stated differently, NS is taking the peak period requirements to a new high by considering not the average classification car counts in the peak period or the peak week, but in the peak *hour* of each day in the peak week. NS labels this approach as a "static" capacity factor, in the hope that giving its procedure a name will justify its unreasonableness. Not satisfied that its classification car counts are sufficiently high, NS then increases these car counts by an effective 167 percent fluidity factor to yield the car counts it actually uses in determining the number of classification tracks required for each SBRR yard.

An example of the impact of this procedure is in {{[redacted]}}, where NS shows the 2011 classification car count to equal {{[redacted]}} cars per day and the 2020 classification car count to equal {{[redacted]}} cars per day. The average car count for the peak *hour* in the peak week equals {{[redacted]}} cars per hour, a {{[redacted]}} percent increase over the peak year car count per day. NS then increases this classification car count by dividing the "static" car count by its {{[redacted]}} percent fluidity factor to yield a classification car count of {{[redacted]}} cars per day, which it uses to

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[206] NS provided SunBelt limited access the MultiRail program in February 2013.

determine the number of classification tracks in the {{[redacted]}} yard. The Board has rejected "Building a church for Easter Sunday" in the past as being unreasonable and should do so again in this proceeding.

In Reply, NS discusses yard sizing and categorizes yards into flat yards and hump yards, indicating that, when the cars requiring switching exceed 900 cars per day, it is more efficient to construct and operate a "hump" yard rather than a flat yard. [207] Based on its unsupported car counts discussed above, NS determined in Reply that the Birmingham, AL yard must be a hump yard. As discussed in a later section, SunBelt, based on the car counts per day developed from NS's car event data provided in discovery for the Base Year, determines that no hump yards are required on the SBRR system.

(iii) NS Hump Yard Classification Track Miles are Significantly Overstated

NS provided a "Conceptual Layout for Hump Yard" in its workpapers,[208] which SunBelt agrees represents a reasonable layout for a hump yard. This configuration shows a typical hump yard "bowl" configuration for the classification tracks, which has the effect of minimizing the length of the classification tracks. However, in calculating the number of track feet for its Birmingham hump yard, NS abandoned this design and instead calculated track feet using a formula that is suitable for a "trapezoid" flat yard layout.[209] In doing so, NS significantly overstates the classification track miles required in the hump yard.

NS's egregious error is best shown by example. In Birmingham yard, NS determined that 26 classification tracks are required to handle the {{[redacted]}} cars to be classified on a daily

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[207] See NS Reply, at III-C-137.

[208] See NS Reply e-workpaper "Yard_Template_4_Hump.pdf."

[209] See NS Reply e-workpaper "SBRR Yard List NS Reply.xlsx" tab "Birmingham."

basis in 2011.[210] NS shows that these 26 tracks have a minimum length of 2,500 feet per track and a maximum length per track of 3,000 feet per track.[211] NS's use of a trapezoid configuration results in the longest of these 26 classification tracks equal to 6,250 feet, whereas using the "bowl" design results in the longest classification track equal to 3,100 feet. Using a trapezoid design requires 113,750 track feet (excluding connecting tracks) or 21.5 miles for 26 classification tracks. By comparison, the bowl design requires only 72,200 track feet (excluding connecting tracks) or 13.7 miles for 26 classification tracks.[212] NS's approach results in an additional 8.0 classification track miles, a 57 percent increase in the required track miles.

Not only are NS's results unrealistic, they are misleading, as NS has put into the record a realistic and reasonable conceptual layout for its Birmingham hump yard, but then abandons this layout in favor of an unrealistic and unreasonable trapezoid layout to calculate track miles. No efficient railroad would ever use a trapezoid design for a hump yard.

(b) Determination of SBRR Yard Classification Tracks in Rebuttal

As shown above, NS's classification car counts are unsupported and unrealistic and therefore unusable for determining the proper number of classification tracks in each of SBRR's yards. NS, however, did explain that it developed classification car counts based on cars originating, terminating and moving through yards that need to be classified, excluding "block

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[210] See the previous two sections for an explanation as to why NS's classification car counts are unsupported and unrealistic.

[211] See NS Reply e-workpaper "SBRR Yard List NS Reply.xlsx," tab "{{[redacted]}}."

[212] See SunBelt Rebuttal workpaper "formula-yard Birmingham.xlsx", tab "design" for details of these calculations. Tab "trace" of this same spreadsheet shows NS's formula for calculating classification track feet for {{[redacted]}} yard and a trace of that formula to make it more understandable. NS's calculations of {{[redacted]}} yard track feet (including connecting tracks) is found in NS Reply e-workpaper "SBRR Yard List NS Reply.xlsx" tab "{{[redacted]}}", cell C60.

swaps" or cars that move through yards without being classified.[213] In Rebuttal, SunBelt has developed classification car counts from the car event data provided by NS in discovery in the same manner as NS described above, i.e., moving through yards requiring classification, excluding block swaps.[214] SunBelt then added cars that originate and terminate at each yard based on data shown in the ATC carload data base. The resulting car counts were then increased to reflect peak year traffic volumes using SunBelt's traffic forecast. These car counts are the basis for determining the number of classification tracks required in each of the SBRR yards in rebuttal.[215] The loaded and empty cars included in SunBelt's classification car counts correspond to NS's *actual* trains that move on the lines that comprise the SBRR rather than the "made for litigation" trains in NS's MultiRail analysis.

SunBelt also used the count of cars to be classified developed from NS's car event data to determine the proper configuration of the SBRR yards. As stated previously, NS assumes that it is most appropriate to construct and operate a hump yard when the cars per day to be classified exceed 900 cars.[216] The car counts developed by SunBelt from NS's car event data, plus the cars originating and terminating in yards show that in the Base Year only one yard

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[213] See NS Reply e-workpaper "Terminal Capacity, Requirement Tracking Process for Hump Classification Yards.docx."

[214] To accomplish this, car event records associated with locations on the SBRR were examined and all cars moving through yards that changed train symbols were included in the car counts, unless the block name remained the same. Specifically, if an entire block of cars changed train symbols, but did not change block name it was considered a "block swap." See SunBelt Rebuttal workpaper "SunBelt Plan Block Analysis V05.xlsx."

[215] See SunBelt Rebuttal e-workpaper "SBRR Yard Crews_Rebuttal.xlsx," sheet "classification"."

[216] See NS Reply, at III-C-137.

{{[redacted]}} has classification car counts that exceed 900 cars per day. In the Base Year the classification car count per day equals {{[redacted]}} cars.[217]

NS's 900 car per day threshold is not a requirement but an approximate classification car count where efficiencies begin that permit a significant reduction in yard crew assignments when the capital funds are expended to construct a hump yard. Alternatively, a railroad can elect to add yard crew assignments when classification car count exceeds this threshold rather than to expend the capital resources to construct a hump yard.

Yard crew assignments are developed using Base Year traffic volumes and classification car counts. The resulting yard crew expense is increased throughout the life of the DCF model to account for the growth in traffic volumes over the DCF period. In effect the yard crew personnel are grown throughout the life of the model to reflect increases in traffic volume. If the SBRR were to construct a hump yard when justified by increased volume in later years, the associated crew expense would not reflect the savings resulting in the greater efficiency afforded by use of hump yard operations and thus operating expenses would be overstated.

In summary, the classification car counts based on NS's car event data associated with the actual trains moving on the SBRR system do not warrant the construction of a hump yard at Birmingham in the Base Year. While these car count grow to levels that may make it more efficient to utilize a hump yard in later years, adding the associated dollars to the SBRR capital investment, without reducing the yard crew assignments at this yard to reflect operational savings, would result in a double count of expenditures. In Rebuttal, SunBelt provides adequate yard crews to handle classification of cars in all yards on the SBRR without the use of hump

[217] See SunBelt Rebuttal e-workpaper "SBRR Yard Crews_Rebuttal.xlsx," sheet "Yard Crew" col (9).

yards and effectively grows these crews to provide classification service in yards over the life of the DCF model.

ii. Intermodal Facilities

As discussed in Part III-B, NS included two (2) intermodal facilities, one in Birmingham, AL and the other in New Orleans, LA.[218] SunBelt agrees that the SBRR needs these two (2) intermodal facilities and in Rebuttal, has accepted these facilities and NS's associated track miles.

iii. Automotive Facilities

As explained in Part III-B, in Reply, NS added one (1) automotive facility in New Orleans, LA. SunBelt agrees that the SBRR needs an automotive facility in New Orleans, and in Rebuttal, has accepted this facility and NS's associated track miles.

b. Yard Activity

i. Locomotive Inspections and Fueling

NS accepts SunBelt's proposal that a locomotive shop will be located at Birmingham. In addition, to this locomotive shop, NS argues that the SBRR would require locomotive servicing trucks and personnel at four yards, including Birmingham, Meridian, New Orleans and McIntosh, in order to cover the maintenance activity necessary to keep locomotives in working order.[219] NS's addition of four (4) locomotive servicing trucks and eight (8) personnel is unnecessary and excessive. All of the ES44AC road locomotives can be cycled through the Birmingham yard for fuel and servicing as necessary and to the locomotive shop for inspection and repair. In addition, 5 of the 19 GP38 locomotives and six (6) of the 13 switch locomotives also operate in or through the Birmingham yard and can be fueled and serviced at that facility.

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[218] See NS Reply, at III-B-9.

[219] See NS Reply, at III-C-158.

The remaining GP38 and switch locomotives that do not regularly move through the Birmingham yard are fueled and serviced by direct to locomotive ("DTL"). Further, in Rebuttal, SunBelt includes two (2) mechanical repair trucks and four (4) mechanical repairmen assigned to Meridian and Selma, to provide emergency "line of road" repairs to railcars and locomotives as needed.

ii. Railcar inspections

The location and need for car inspectors is based on the number of trains to be inspected at any given location. In Opening, SunBelt provided for 19 car inspectors at five (5) yard locations, including Birmingham, Meridian, New Orleans, Selma, and McIntosh. In Reply, NS included 25 inspectors at these five (5) locations and added three (3) more inspectors at two (2) locations, Wilton, AL and Hattiesburg, MS, for a total of 28 inspectors. Based on the revised number of trains moving on the SBRR in Rebuttal, SunBelt accepts NS's inspectors and assignment locations and increases the number of inspectors from 19 to 28.

In addition to the inspectors discussed above, NS included four (4) line of road inspector teams assigned to four locations, at Birmingham, Meridian, New Orleans and McIntosh. Each team includes two inspectors and is provided a block truck for travelling to locations where minor repairs and inspections are required along the SBRR system. SunBelt's operating witness agrees that line of road inspectors may be helpful, but believes that NS's requirement of four teams is excessive. In Rebuttal, SunBelt includes two-man line of road inspection teams at Meridian and McIntosh. As fully discussed in Part III-D-3, *infra*, SunBelt includes one car foreman in each car inspection team. The car foremen perform the same supervisory duties as the two (2) car managers provided by NS in Reply. However, unlike NS's car managers who perform *only* supervisory duties, the car foremen actually work along-side the car inspectors and perform car inspection duties.

c. Train Sizes and Equipment

i. Train Size

In Opening, SunBelt based the maximum length of SBRR trains on the longest train (by train symbol) shown in the historical train data provided by NS in discovery. NS accepted this approach in Reply.[220] In Rebuttal, SunBelt continues to determine maximum train length based on the historical data provided in discovery.

ii. Locomotives

In Opening, SunBelt determined that the SBRR requires a total of 44 locomotives in the Base Year. In Reply, NS claims the SBRR requires 77 locomotives in the Base Year. The difference in the number of units required is based on numerous issues, including, the number of trains moving on the SBRR system, inputs to the RTC model that effect transit time, calculation of the peaking factor and spare margin, dwell time in yards and repositioning locomotives, and the number of yard switch assignments. As discussed previously, on Rebuttal SunBelt has accepted those criticisms NS made of SunBelt's operating plan that have merit and have added 1,031 trains in the Base Year. These changes result in an in increase in the number of locomotives required in the Base Year. The difference in the number of locomotive units is shown in Table III-C-3 below.

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[220] See NS Reply, at III-C-181.

Table III-C-3
Base Year Locomotive Unit Requirements

Unit Type	SunBelt Opening	NS Reply	SunBelt Rebuttal
(1)	(2)	(3)	(4)
ES44AC	26	38	33
GP38	16	21	19
SW1500	4	--	13
SD40-2	--	18	--
Total Units	46	77	65

Source: "SunBelt Opening e-workpaper "SBRR Operating Statistics.xls," NS Reply e-workpaper "SBRR Operating Statistics NS Reply" and SunBelt Rebuttal e-workpaper "SBRR Operating Statistics_Rebuttal.xlsx."

(a) Road Locomotives

The difference in count of road locomotives among the parties is due to: 1) the number of trains on the system; 2) cycle times produced by the RTC model; 3) NS's inclusion of yard dwell time and rebalance locomotives; and 4) calculation of the locomotive spare margin.

The differences related to the number of trains moving on the SBRR system and the parties' RTC model have been previously addressed in other sections of Part III-C and will not be repeated here, except to note that NS's road and local train locomotive counts of 59 locomotives[221] in 2011 must be rejected because NS has significantly overstated the number of trains on the SBRR system and because its MultiRail based operating plan has been shown to be unsupported and unrealistic. Each of the remaining differences in the determination of road locomotives is discussed below.

[221] 38 ES44AC locomotives plus 21 GP38 locomotives.

(i) Locomotive Dwell In Yards

NS asserts that the SBRR would require 59 locomotives to handle its Base Year general freight and intermodal traffic volume.[222] This number is the end result of an analysis of locomotive cycle time from its RTC analysis and a study of locomotive dwell time in yards and associated rebalancing time that is fundamentally flawed, fraught with mathematical errors, and completely unsupported by NS's Reply evidence.

First, NS's dwell time analysis is flawed. NS explains that it has "capped" the dwell time in the analysis at 24 hours because "a locomotive unutilized for more than 24 hours is one too many."[223] SunBelt is under no obligation to adhere to NS's opinion of inefficiency, and believes that the validity of any "made for litigation study" that produces locomotive yard dwell times in excess of 24 hours (or even far fewer hours) must be questioned.

Second, NS developed these locomotive yard dwell times using a combination of MultiRail departure times and frequency, and RTC cycle times. Given the innumerable fundamental differences between SunBelt's Opening SARR and NS's Reply SARR, this means that any number derived from NS's analysis has absolutely no correlation to SunBelt's Opening SARR, and therefore no bearing on SunBelt's Rebuttal SARR. At best, even if the analysis was done correctly and supported properly, the end result would only represent the locomotive requirements of NS's Reply SARR. As stated above, NS's Reply SARR utilizes a different operating plan, different trains, and different blocks than what SunBelt used for its Opening and Rebuttal SARRs. Regardless of that fact, because NS's MultiRail and RTC simulations are both

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[222] See NS Reply e-workpaper "SBRR Operating Statistics NS Reply.xlsx."

[223] See NS Reply e-workpaper "ES44AC Locomotive Fleet Sizing.xlsx."

fatally flawed,[224] NS's locomotive fleet calculations, which are based on the output of those models, are meaningless.

Third, NS's most glaring mathematical error can be found on the Summary page of the analysis, where NS uses a hard-coded divisor of 25 "analysis days" in the summary. This particular hard coded number is used to calculate all of NS's purported locomotive requirements. Upon review, SunBelt discovered that the "analysis days" included in NS's calculations on the "TerminalPerspective" tab begin on May 22, 2021, and end on June 19, 2021: a study period of 27 days.[225] When this single error in the dwell study is corrected, the total number of general freight and intermodal road locomotives drops from 36 locomotives to 34, a decrease of 10 percent

Fourth, NS makes the assumption that any locomotives that are being repositioned will travel at a static speed of 5.87 MPH. SunBelt's Rebuttal RTC model shows all trains system wide achieving an average speed of 23.7 MPH, including dwell time! It is unreasonable to assume that light locomotives with no operational stops would average a lower speed than an average peak period train including its stops for inspection, fueling, pickup, set out, etc.

Finally, and of great significance, NS fails to support its evidence with anything more than a brief description of its methodology. SunBelt was not able to link the hard coded numbers used within this study to any of NS's supporting evidence. SunBelt does not have the ability to reproduce the same reports that NS supplied as outputs from MultiRail.[226] While SunBelt can verify the results of NS's Reply RTC model, it cannot make the link between the RTC output

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[224] See discussion of MultiRail *supra*.

[225] Based on earliest Arrival Time of incoming train and latest Departure time of outgoing train for all records with "Flag: Analysis Period" = 1.

[226] See discussion of MultiRail *supra*.

and the data contained in the Locomotive Fleet Sizing spreadsheet. SunBelt is aware that NS modeled a 10 day period in its RTC simulation, yet there are 27 days of train cycle time data in the Locomotive Fleet Sizing spreadsheet that were allegedly generated by the RTC model.[227] This discrepancy is just one glaring example of the disconnect SunBelt has encountered in the NS Reply evidence. SunBelt experts made multiple attempts to reproduce the data presented in NS's report, but were unable to do so. NS's failure to provide complete and clear support for its evidence effectively invalidates this analysis. For this reason alone, NS's Locomotive fleet sizing model is unsupported and cannot be used in this proceeding.

In Rebuttal, SunBelt recognizes the appropriateness of including yard dwell time when calculating locomotive requirements. Based upon the extensive railroad operating experience of SunBelt expert McDonald, SunBelt adds three hours of locomotive dwell time in yards to all general freight and non-premium intermodal trains in the Base Year when calculating locomotive requirements. This results in an increase of five (5) road locomotives being acquired by the SBRR in the Base Year.

In addition, SunBelt has examined the imbalance of locomotives resulting from trains moving on the SBRR system in Rebuttal. The resulting minimal imbalance is graphically depicted in SunBelt's workpapers.[228] In Rebuttal, the locomotive imbalance on the SBRR results in the addition of one (1) road locomotive to the SBRR system.[229]

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[227] See NS Reply e-workpaper "ES44AC Locomotive Fleet Sizing.xlsx" Shows arrival dates beginning May 22 and departure dates ending June 17.

[228] See SunBelt Rebuttal e-workpaper "LUM Imbalance Diagram.pdf."

[229] See SunBelt Rebuttal e-workpaper "LUM Imbalance.xlsx."

(ii) Spare Margin

In Opening, SunBelt used a locomotive spare margin of {[redacted]} percent and {[redacted]} for ES44 and GP38 locomotives, respectively, developed from information provided by NS in discovery. In Reply NS accepts these percentages as the out of service time, but adjusts them upward slightly to reflect the ratio that must be applied to time a locomotive is available for service to reflect total time in the year. The result is spare margins of {[redacted]} percent and {[redacted]} percent for ES44 and GP38 locomotives, respectively. In Rebuttal SunBelt accepts this adjustment to the locomotive spare margin and applies it when determining the SBRR locomotive requirements.

(b) Local Trains

In Opening, SunBelt powered local trains primarily using GP38 locomotives in DP service when more than one locomotive was required. In Reply, NS accepted use of GP38 locomotive for local trains.

(c) Helper Locomotives

The NS territories replicated by the SBRR do not include any line segments on which NS utilizes helper service. Accordingly SunBelt did not include any helper service in Opening and NS accepted no helper service on the SBRR in Reply. SunBelt maintains this position in Rebuttal.

(d) Switch Locomotives

In Opening, SunBelt provided four (4) switch locomotives on the SBRR. As discussed earlier in Part III-C, SunBelt has adjusted classification switching services provided by the SBRR in Rebuttal. This adjustment results in an increase in yard crew assignments in many yards and thereby increases the number of yard locomotives. In Rebuttal, the SBRR has a total of 13 yard locomotives.[230]

d. Crew Districts and Requirements

i. Road Crews

In Opening, SunBelt provided for four (4) road crew district locations. In Reply, NS accepts SunBelt's road crew district locations. The difference in the number of road crews in the parties' evidence is due to the number of trains in the parties' evidence and NS's artificially inflated road crew requirements by unnecessarily rebalancing SBRR road crews. The number of road crews required by the SBRR is fully addressed in Part III-D-3.

ii. Yard Crews

In Opening, SunBelt provided eight (8) yard crew personnel on the SBRR. As discussed earlier in Part III-C, SunBelt has adjusted classification switching services provided on the SBRR in Rebuttal. This adjustment results in an increase in yard crew assignments in many yards and thereby an increase in the number of yard crew personnel. In Rebuttal, the SBRR has a total of 49 yard personnel. The development of yard crew personnel is fully addressed in Part III-D-3.

[230] NS also disputes SunBelt's use of SW1500 switch locomotives for SBRR yard switching service and instead uses SD40-2 road locomotives for yard switching service. This issue is fully addressed in Part III-D.

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III. STAND-ALONE COST

D. OPERATING EXPENSES

NS begins its discussion of the SBRR's annual operating expenses by attacking SunBelt's operating cost per net ton-mile, claiming that "the SBRR's operating cost per net ton-mile would be less than one-half of the expense per net ton-mile incurred today by NS and the other two Class I railroads operating in the eastern United States (CSXT and CN)."[1] The fact that the SBRR's operating expenses are significantly different than those of NS, CSXT or CN is not surprising. The SBRR is a 578 mile non-union, regional railroad comprised of only two mainline segments with comparatively moderate traffic levels, no branch lines and only one significant rail yard. As a result, the SBRR has a very different cost structure than a mega Class I carrier and there is no reason to believe that the costs of the SBRR would approximate those of a Class I carrier.

NS then repeats its attacks on the SBRR's operating plan. In Part III-C of its Rebuttal, SunBelt has responded to NS's unwarranted criticisms of its operating plan and made corrections where necessary to address a few valid criticisms. In Part III-C, SunBelt also demonstrated that NS's operating plan for the SBRR, which is based on MultiRail and made for litigation assumptions, bears no relationship to reality. NS's operating plan assumes that the cars on the SBRR's merchandise trains are completely divorced from the NS trains that actually carried the SBRR's traffic over the replicated lines during the base year, and move in hypothetical blocks in new, hypothetical trains, which are demonstrated to be less efficient and more costly than NS's actual operations.

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[1] See NS Reply, at III-D-1.

A comparison of the parties' calculations of the SBRR's annual operating expenses for its first year of operations is shown in Rebuttal Table III-D-1 below.

Rebuttal Table III-D-1
SunBelt Opening, NS Reply and
SunBelt Rebuttal SBRR 2011 Operating Expenses
($ millions)

	Item	**SunBelt Opening**[1/]	**NS Reply**[2/]	**SunBelt Rebuttal**[3/]	**Difference Cols (3) – (4)**
	(1)	(2)	(3)	(4)	(5)
1.	Locomotive Acquisition	$4.0	$7.2	$5.2	$2.0
2.	Locomotive Maintenance	8.9	11.6	11.4	0.2
3.	Locomotive Operating Expense	43.6	56.1	48.9	7.2
4.	Railcar Acquisition and Maint.	11.7	14.4	14.0	0.4
5.	Train and Engine Personnel	14.1	34.4	19.2	15.2
6.	Non-Train Operating Personnel	6.2	12.5	9.1	3.4
7.	General & Administrative	6.1	18.5	9.1	9.4
8.	Materials & Supplies Operating	0.7	1.2	0.9	0.3
9.	Start-up and Training	5.3	11.9	7.2	4.7
10.	Maintenance-of-Way	15.6	36.3	16.3	20.0
11.	Leased Facilities	0.0	0.0	0.0	0.0
12.	Loss & Damage	0.6	0.6	0.6	0.0
13.	Insurance	4.8	13.3	5.8	7.5
14.	Ad Valorem Tax	5.1	4.5	5.1	(0.6)
15.	Intermodal & Auto Facilities	1.5	2.3	1.4	0.9
16.	Residual NS Costs	---	0.7	0.7	0.0
17.	Excess Risk	---	11.7	0.0	11.7
18.	Total	$128.2	$237.0	$154.9	$82.1

Source:
1/ SunBelt Opening at III-D-2.
2/ NS Reply at III-D-6.
3/ SunBelt Rebuttal e-workpaper "SBRR Operating Expense_Rebuttal.xls."

The total remaining differences in the parties' calculations of annual operating expense (after SunBelt has incorporated NS's valid criticisms) equals $82.1 million. The bulk of these differences results from NS's more complex operating plan for the SBRR, which involves more locomotives, more crews, more yards, and more switching activity than were shown to be necessary in SunBelt's operating plan. As discussed in Part III-C-1 above, NS's operating plan must be rejected by the Board because it does not meet customer service requirements and because it does not provide an appropriate basis for determining the SBRR's annual operating expenses. Accordingly, NS's proposed new yards and yard switching operations (which drive most of NS's proposed increase in operating and other personnel) must also be rejected.

Below, SunBelt discusses each of the differences captured in Rebuttal Table III-D-1, Column (5) above.

1. Locomotives

a. Acquisition

NS accepts the SBRR's acquisition of locomotives via leases in Reply, and calculates locomotive lease expense of $7.2 million. The difference in the locomotive lease expense results from differences in the types of locomotive used by the SBRR, the annual locomotive lease expense per locomotive unit, and the quantity of units to be acquired. Each of these areas of difference is discussed separately below.

i. Locomotive Types

SunBelt proposes to use GE ES44AC locomotives for road service and helper service, GP38 locomotives for local train service, and EMD SW1500 locomotives for switching service. NS accepts the use of the ES44AC locomotives for road and helper service and GP38 locomotives for local train service. However, NS objects to SunBelt's selection of SW1500 locomotives for yard switching service, proposing instead to use SD40-2 locomotives for switching service. NS objects to the use of SW1500 switch locomotives claiming that the SW1500 locomotive is antiquated, "the functionality of the SW1500 is severely limited"[2] and

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[2] See NS Reply, at III-D-18.

that they would "need to be doubled-up with another SW1500 or engine to perform switching work."[3]

NS's claim that the SW1500 locomotive is somehow not powerful enough to perform switching service is unfounded. The SW1500 locomotive is designed specifically for switch service. The "U.S. EPA defines a switch locomotive as having between 1,006 and 2,300 horsepower."[4] Further, a switch locomotive is, by design, "a small railroad locomotive intended not for moving trains over long distances, but rather for assembling trains ready for a road locomotive to take over....and generally moving cars around – a process known as switching...they do this in classification yards....the typical switcher is optimized for the job, being relatively low powered but with high tractive effort for getting heavy cars rolling quickly....Switchers are geared to produce high torque, but are restricted to low top speeds and have small diameter driving wheels."[5] "Switchers primarily have four axles to allow for a tight-turning radius within railyards."[6]

The SW1500, a small, four-axle locomotive with 1,500 horsepower, was specifically designed and manufactured for providing switching services in classification yards. In contrast, the SD40-2 locomotive NS proposed to use for switching service is a six-axle, 3,000 horsepower locomotive manufactured by Electro Motive Diesel ("EMD") between 1972 and 1986. While the SD40-2 can be used as a switch locomotive, its primary design and use is as a road locomotive, not a switch locomotive. Until larger, higher horsepower road units were manufactured, the SD40-2 was among the most commonly used road locomotives. By its very

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[3] Id.

[4] See http://www.arb.ca.gov/railyard/ted/tedr_loco_options.pdf.

[5] See http://en.wikipedia.org/wiki/Switcher.

[6] See http://www.arb.ca.gov/railyard/ted/tedr_loco_options.pdf.

nature, SD40-2 locomotives have trouble negotiating turnouts and tight turning radii within switching yards, thus causing excessive wear and the need for additional track maintenance.

Despite NS's claim that SW1500 locomotives are "antiquated," the SW1500 and its predecessor the SW1200 switch locomotives are still actively used in the rail industry today. According to its 2009 locomotive roster, NS had {{[redacted]}} SW1500 units in active service. In addition the only switch engine the Montana Rail Link ("MRL") includes in its core fleet of locomotives is the SW1200.[7]

Finally, as fully discussed in the section below, NS has significantly overstated the lease rates for SD40-2 locomotives by so much that, when its proposed lease rates on SD40-2 locomotives are corrected, they are nearly the same as those for SW1500 locomotives, and therefore, from an operating expense perspective, SunBelt is indifferent as to which unit is used for the SBRR.

ii. Locomotive Lease Costs

SunBelt proposed lease rates for the ES44AC, GP38 and SW1500 locomotives based on publically available information in Opening. These lease rates and those proposed by NS in Reply are shown in Rebuttal Table III-D-2 below.

[7] See SunBelt Rebuttal e-workpaper "MRL switch units.pdf" which is a copy of the article titled "Regional Railroad of the Year, Montana Rail Link" published in the April 2013 issue of *Railway Age*.

Rebuttal Table III-D-2
Annual Locomotive Lease Rates per Unit

Unit Type	SunBelt Opening	NS Reply	Difference
(1)	(2)	(3)	(4)
ES44AC	$96,742	${{[redacted]}}	{{[redacted]}}
GP38	$82,216	${{[redacted]}}	{{[redacted]}}
SW1500/SD40-2	$36,540	${{[redacted]}}	{{[redacted]}}

Source: e-workpapers "SBRR Operating Expense_Rebuttal.xls" and "SBRR Operating Expense NS Reply.xlsx."

As stated in Opening, SunBelt developed its 3Q11 lease rates for ES44AC locomotives from information contained in the STB's decision in *AEPCO 2011* and the public version of defendants' Reply statement in that proceeding.[8] SunBelt further supported this lease rate for ES44AC locomotives based on the STB's decision in *IPA* and the public version of UP's evidence in that proceeding, which demonstrates that UP's 2011 annual lease rate for ES44AC locomotives equaled $95,851.[9]

NS objects to SunBelt's use of ES44AC locomotive lease rates from STB decisions in two western coal cases in Reply, claiming a lack of relevance to this proceeding and that NS should not be bound by the litigation decisions made by other parties in other cases. NS further argues that it does not have access to the UP lease to evaluate its terms, nor can the parties to this proceeding test or validate the calculations put forth in the *AEPCO 2011* or *IPA* proceedings.[10]

NS's objections to the ES44AC lease rates relied on by SunBelt are irrational. SunBelt presented evidence supporting its lease rates for ES44AC locomotives paid by another Class I carrier. The lease rates were adopted by both the UP and the STB in other STB maximum rate

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[8] See SunBelt Opening, at III-D-3.

[9] Id.

[10] See NS Reply, at III-D-16.

proceedings. Contrary to NS's contention, the fact that this cost was uncontested enhances its legitimacy. This evidence represents the then current market rates for ES44AC locomotives. Further, NS provided no information regarding current market lease rates for ES44AC locomotives in discovery, thus the evidence relied on by SunBelt in Opening is clearly relevant.

Despite this criticism of SunBelt's evidence, NS adopts the very same ES44AC lease rates submitted by SunBelt, but with an upward adjustment to reflect the higher acquisition prices paid for these locomotives by NS during the 2008 through 2011 time period. Based on information reported to the STB in NS's and UP's R-1 Annual reports, NS demonstrates that it paid 10 to 16 percent more for ES44AC locomotives in this time period than did UP and therefore marked-up the lease payments used by SunBelt to reflect this difference in acquisition price. NS's adjustment is entirely inappropriate. The SBRR is not required to pay the highest market price for acquisition of assets, just because NS paid more for locomotives than did UP. Instead, a least cost, most efficient railroad would pay the lower market price, not the higher market price as proposed by NS.

In Rebuttal, SunBelt continues to rely on the $96,742 annual lease rate for ES44AC locomotives that it developed from the record in the *AEPCO 2011* proceeding.

For GP38 locomotives, SunBelt relied on an annual lease rate of $82,216 per unit based on the average of lease rates published in the June 2008 issue of *Railway Age* of $225 per day indexed to 3Q11. NS objects to this lease rate based on not knowing the terms of the lease and instead uses an average annual lease rate for GP38 locomotives of ${{[redacted]}} developed from four (4) NS leases provided in discovery. The leases used by NS are not reliable for determining lease rates for the SBRR for two reasons. First, because the four (4) leases relied on by NS go into effect in {{[redacted]}}, they are older than the 2008 data used by SunBelt and, therefore, less reflective of the market rates for leases for GP38 locomotives in 2011.

Second, one of the leases NS relies on has a fixed lease rate of ${{[redacted]}} per day for the life of the {{[redacted]}} term lease and for a {{[redacted]}} renewal term beginning in {{[redacted]}}. However, to artificially increase the lease rates, NS indexes the lease rate from this lease to 3Q11 levels, {{[redacted]}}. In doing so, NS overstates the calculation of the average annual lease rates for GP38 locomotives. Removing the unsupported inflation of this lease rate, restoring it to the proper fixed level, and calculating a simple average lease rate results in an overall lease rate of ${{[redacted]}} per day or an annual lease rate of ${{[redacted]}}.[11] This is virtually the same lease rate as used by SunBelt in Opening of $82,216. SunBelt continues to rely on an annual lease rate of $82,216 for GP38 locomotives in Rebuttal.

As stated previously, NS significantly overstated the 2011 market rates for the SD40-2 locomotives it proposes to use in switching service. NS calculates an average annual lease rate for SD40-2 locomotives of ${{[redacted]}} based on lease rates from eleven (11) leases. These leases have effective dates from {{[redacted]}} through {{[redacted]}}. Six (6) of the leases were effective between {{[redacted]}} and have an average lease rate, in 3Q11 dollars, of ${{[redacted]}}. The remaining four leases, which have effective dates between {{[redacted]}}, have an average annual lease rate in 2011 dollars of ${{[redacted]}}.[12] The market for SD40 locomotives changed dramatically from the early to mid-2000s to the late 2000s for two reasons. First, the great recession that hit in 2008 and 2009 caused a reduction in traffic levels across the railroad industry, which resulted in a surplus of rolling stock, both locomotives and

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[11] See SunBelt Rebuttal e-workpaper "Locomotive Lease SBRR _Revised.xlsx."

[12] Id.

rail cars. Simultaneously, the Class I carriers began taking possession of the newest generation of locomotives, e.g. the ES44AC locomotives, thus creating an even greater surplus of older SD40 locomotives. These two market events created a surplus of SD40 locomotives, which is reflected in the dramatic decrease in the lease rates for these units. NS's inclusion of out-of-date leases significantly overstates the applicable lease rate for SD40-2 locomotives. When NS's lease rate for SD40-2 units is properly adjusted to reflect 3Q11 market rates, the resulting annual lease rate of ${{[redacted]}} for these units is nearly the same as the $36,540 annual lease rate relied on by SunBelt for switch locomotives.

iii. Number of Locomotives

On Opening, SunBelt determined that the SBRR requires a total of 46 locomotives in the Base Period. In Reply, NS claims the SBRR requires 77 locomotives in the Base Period. As fully addressed in Part III-C, the difference in the number of units required is based on numerous issues, including trains moving on the SBRR system, inputs to the RTC model that effect transit time, calculation of the spare margin, dwell time in yards, repositioning locomotives, and the number of yard switch assignments. As also discussed in Part III-C, SunBelt has made some minor revisions to the SBRR operating plan that has resulted in an increase in the number of locomotives required in the Base Period. The remaining differences in the number of locomotive units are shown in Rebuttal Table III-D-3 below.

Rebuttal Table III-D-3
Base Period Locomotive Unit Requirements

Unit Type	SunBelt Opening	NS Reply	SunBelt Rebuttal	Difference Cols (3) – (4)
(1)	(2)	(3)	(4)	(5)
ES44AC	26	38	33	5
GP38	16	21	19	2
SW1500	4	--	13	(13)
SD40-2	--	18	--	18
Total	46	77	65	12

Source: SunBelt Opening e-workpaper "SBRR Operating Statistics.xls," NS Reply e-workpaper "SBRR Operating Statistics NS Reply.xlsx" and SunBelt Rebuttal e-workpaper "SBRR Operating Statistics_Rebuttal.xlsx."

As fully discussed in Part III-C, NS's locomotive count of 77 locomotives must be rejected because: 1) its MultiRail based operating plan on which its RTC simulation is founded must be rejected; and 2) its methodology is inconsistent with the Board-approved methodology for ascertaining a SARR's road locomotive requirements.

b. Locomotive Maintenance Expense

SunBelt used NS's system average locomotive maintenance costs in Opening because NS failed to provide any information requested in discovery that is specific to the various types of locomotives it utilizes, including ES44AC, GP38 and SW1500 (or SD40-2) locomotives. As a result, SunBelt developed the system average cost per locomotive unit mile of $1.6182 from NS's 2011 R-1 Annual Report indexed to 3Q11 and applied this unit cost to all SBRR locomotive unit miles, thereby producing a locomotive maintenance expense of $8.9 million in 2011. NS calculated locomotive maintenance costs of $11.6 million.[13] NS accepted SunBelt's use of system average locomotive maintenance expense; however, NS revised SunBelt's calculation to include employee fringe benefits. In Rebuttal, SunBelt accepts the inclusion of

[13] See NS Reply, at III-D-6.

employee fringe benefits in locomotive maintenance cost, which increases the unit cost to $1.7718 per locomotive unit-mile. This amount applied to the locomotive unit-miles from trains moving over the SBRR in Rebuttal yields annual locomotive maintenance cost of $11.4 million.[14] The remaining difference in the parties' locomotive maintenance cost results from the difference in locomotive unit miles.

NS accepts SunBelt's inclusion of a single locomotive shop on the SBRR, located in Birmingham, AL.

c. Locomotive Servicing (Fuel, Sand and Lubrication)

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

i. Fuel Cost

SunBelt used the actual price of fuel paid by NS for 3Q11 of $3.097 per gallon as reported by NS in its Quarterly Review. NS accepted SunBelt's fuel price in Reply[15] and SunBelt continues to rely on this price per gallon in Rebuttal.

ii. Fuel Consumption

SunBelt used NS's average fuel consumption rate as developed from NS's 2011 R-1 Annual Report in Opening. This fuel consumption rate equals 2.48 and 2.40 gallons per locomotive unit mile for road and yard locomotives, respectively.

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[14] See SunBelt Rebuttal e-workpaper "SBRR Operating Expense_Rebuttal.xlsx."

[15] See NS Reply, at III-D-20.

In Reply, NS accepted these fuel consumption rates for GP38 locomotives and for switch locomotives, but increased the road locomotive fuel consumption rate for the ES44AC locomotives by ten (10) percent.[16] NS's adjustment has no relationship to fuel consumption by type of locomotive. Instead, NS simply calculates the percentage horsepower of ES44AC locomotives above that of the average horsepower for NS owned units with horsepower greater than 3,800 horsepower.

Specifically, NS calculates the average horsepower for units in its locomotive fleet with more than 3,800 horsepower to equal {{[redacted]}} horsepower per unit. NS then divides this result into 4,400 horsepower (the horsepower rating for ES44AC units) to yield an adjustment factor of {{[redacted]}} percent. This factor is then applied to NS's average fuel consumption for road locomotives of 2.48 gallons per locomotive unit mile to yield an arbitrary fuel consumption rate for ES44AC locomotives of {{[redacted]}} gallons per locomotive unit mile. NS's adjustment is completely arbitrary and totally unsupported. In fact, General Electric's Evolution Series locomotives, e.g. ES44AC locomotives, are noted for producing substantially better fuel consumption than older locomotives.

As reported in the August 2009 issue of *Progressive Railroading*:

> GE's Evolution Series Locomotive is 5 percent more fuel efficient than previous locomotives, saving about 300,000 gallons of fuel over its lifetime....The Evolution also is more than 6 percent more fuel efficient that GE's closest competitor in North America as validated by a nationally recognized, independent research institute.... GE's Evolution Series Model ES44C4, an AC alternative for traditional DC locomotive applications, uses up to 17 percent less fuel compared

[16] NS's calculation of the ten (10) percent increase factor is shown in NS Reply e-workpaper "ES44AC Locomotive Fuel Consumption SBRR.xlsx."

> with older DC locomotives. Six hundred ES44C4s can displace up to 800 older DC locomotives to save more than 70 million gallons of fuel annually.[17]

Clearly, NS's arbitrary adjustment to system average fuel consumption rates is unreasonable. It should also be noted that SunBelt requested information in discovery related to fuel consumption by type of locomotive, which would demonstrate the exact fuel consumption rates of ES44AC locomotive units on the NS system, however, NS failed to provide the requested information.

Finally, NS purports to demonstrate, through a hypothetical example, that a locomotive consist of two 4,400 horsepower locomotives burns the same amount of fuel that a locomotive consist comprised of three 3,000 horsepower locomotives. Contrary to NS's hypothetical example, using actual reported fuel consumption rates for 4,400 horsepower GE Dash 9 – 44CW locomotives, compared with 3,000 horsepower SD40 locomotives, shows that a consist of two 44CW locomotives in the throttle seven (7) position consume only 69.4 percent of the fuel consumed by a consist of three SD40 locomotives.[18] Thus, NS's unsupported hypothetical example is not correct.

iii. Sand and Lubrication

SunBelt included the cost of locomotive sand and lubrication based on a cost of $0.2466 per locomotive unit mile for road locomotives and a cost of $0.0399 for switch locomotives in Opening. These amounts were calculated from NS's 2011 R-1 Annual Report. NS accepts SunBelt's use of these unit costs for locomotive servicing,[19] however, as with locomotive

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[17] See http//www.progressiverailroading.com/mechanical/article/Locomotive-Manufacturers-offer-information-on-their-fuel-savings-models -- 21139, this article is attached as Rebuttal e-workpaper "Fuel Consumption.pdf."

[18] See SunBelt Rebuttal e-workpaper "Fuel Consumption.pdf."

[19] See NS Reply, at III-D-23.

maintenance unit costs, NS added fringe benefits to this R-1 derived cost. In Rebuttal, SunBelt accepts NS's unit costs of $0.3431 and $0.0580 for road and switch locomotives, respectively.

NS asserts, however, that SunBelt has failed to provide sufficient capital investment for locomotive servicing, and that an additional investment in locomotive servicing tracks and servicing trucks is required.[20] NS's assertion regarding investments in additional tracks is discussed in Part III-F. NS also includes four (4) locomotive servicing trucks and eight (8) personnel to perform maintenance services on locomotives at locations where fixed locomotive servicing facilities are not cost effective.[21] Four (4) such trucks and personnel are excessive for the SBRR system, as all of SBRR ES44AC road locomotives and many of its GP38 local train locomotives and switch locomotives can be serviced in the Birmingham yard. In Rebuttal, SunBelt includes two (2) mechanical trucks and four (4) personnel stationed at Meridian and Selma to provide emergency repairs to locomotives and railcars in the field.

2. Railcars

a. Leasing

NS "generally accepts SunBelt's methodological approach to estimating car costs."[22] In addition, NS's supporting workpapers show that NS also accepted SunBelt's full service lease dollar values and its proposed rail car spare margin of 4.5 percent.

There are three areas where NS objects to SunBelt's calculation of rail car costs. First, NS does not accept SunBelt's transit times as determined by SunBelt's RTC model. Second, NS contends that SunBelt failed to include any dwell time that SBRR equipment spends in yards

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[20] Id.

[21] Id.

[22] Id.

between train assignments; and third, NS alleges that SunBelt's calculations of intermodal flat car and container/trailer equipment costs are erroneous. Each of these issues is discussed below.

i. RTC Transit Times

As fully addressed in Part III-C, most of NS's objections to SunBelt's RTC model are inaccurate and those items that have merit have been corrected in Rebuttal. In Rebuttal, SunBelt continues to rely on the transit times from its RTC model, as modified, in its calculation of rail car costs.

ii. Dwell Time in Yards

NS states that SunBelt has failed to include freight car costs associated with the time railcars used to move merchandise traffic spend in yards between train assignments. NS is correct that this time is omitted from SunBelt's analysis. To remedy this omission, NS claims that it adds 38 hours for general freight carloads moving on the system in SBRR provided railcars. The 38 hours is based on assumptions that each car would dwell 10 hours in a hump yard, eight (8) hours in a flat yard and 20 hours in between arrival and departure on local trains.[23]

SunBelt agrees with the concept that yard dwell time for carloads moving in SBRR provided freight cars should be included. However, NS incorrectly remedies this omission by adding dwell time incurred by all freight cars (foreign, private and system cars) to only system cars.[24] In doing so, NS substantially overstates the cost associated with dwell time on system cars.[25] In Rebuttal, SunBelt corrects NS's error and increases the general freight system car cost

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[23] See NS Reply, at III-D-25.

[24] Consistent with Board decisions in previous proceedings, in Opening Sunbelt accounted for all foreign and private rail car costs on a mileage basis. NS accepted this method in Reply. See NS Reply, at III-D-23.

[25] See NS Reply WP "SBRR Car Cost NS Reply.xlsx."

from Opening to account for dwell in yards by only that portion of car dwell hours that are associated with system freight cars.[26]

Application of the above described yard dwell hours more properly reflects the time SBRR provided cars dwell in yards and results in a reduction in dwell time from the 2.27 million hours assigned by NS to 735,961 hours in the Base Period.

iii. Intermodal Car Costs

To determine freight car costs for intermodal traffic in Opening, SunBelt assumed all intermodal shipments would move in SBRR provided flat cars. This assumption was made for two reasons. First, ownership of the railcar used in intermodal shipments is not evident from NS's traffic data. Ownership of the container or trailer is available from plan codes included in the traffic data; however, this data does not indicate ownership of the railcar. NS's car event data does include a field for ownership information of railcars; however, in many instances this field is not populated for intermodal traffic. Therefore, SunBelt employed the method used by the parties in previous stand-alone cost proceedings and accepted by the STB, which is to assume all railcars in intermodal service are provided by the stand-alone railroad.

In Reply, NS claims SunBelt has significantly understated intermodal car cost by making the incorrect assumption that all intermodal shipments would move in SBRR-provided cars. To correct this assumption, NS assumed that 75 percent of intermodal shipments move in private equipment, based on data contained in NS's 2011 R-1 Annual Report. As mileage rates for privately owned intermodal equipment are higher than the lease rates used by SunBelt for these railcars, this adjustment causes car costs to increase. In Rebuttal, SunBelt accepts this change to the calculation of intermodal car costs.

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[26] See SunBelt Rebuttal e-workpaper "SBRR Car Cost_Rebuttal.xls.xlsx."

Finally, NS states that SunBelt's intermodal car costs are understated to the extent that an over-mile lease cost has been omitted from the railroad provided intermodal cars. SunBelt has corrected this omission in Rebuttal.

b. Railcar Maintenance

NS accepts SunBelt's use of full service car leases for the railcars provided by the SBRR, and thus the underlying concept that the lease payments include maintenance costs. However, NS claims that SunBelt failed to provide the facilities required to perform the necessary railcar maintenance functions, such as running repairs to foreign and private equipment. To remedy this alleged error, NS adds one car repair shop at Birmingham, AL and repair ("rip") tracks at four (4) locations.[27]

In Opening, SunBelt did not include the cost of a repair facility because its cars are obtained under a full service lease and car repairs are the responsibility of the lessor, presumably a contractor. However, SunBelt did include the space and tracks required for a contractor repair shop in the Birmingham yard as well as repair tracks at four (4) yard locations on the SBRR including; Meridan, New Orleans, Selma and McIntosh. This approach is consistent with previous STB decisions.[28]

In Reply, NS claims that the SBRR would have to construct the car repair facility to handle repairs to foreign cars moving on the SBRR. NS claims that the "SBRR cannot assume away any and all responsibility to perform running repairs to foreign equipment and that SBRR's car lessor would have no obligation to repair foreign cars."[29] NS misses the point. NS fails to

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[27] See NS Reply, at III-D-28-29. It should be noted that NS includes the cost of the car repair shop and the rip tracks in the SBRR investment base, not in the SBRR operating expenses.

[28] See *AEP Texas* at 98; *WFA/Basin* at 126.

[29] See NS Reply, at III-D-28.

recognize that running repairs to foreign and private equipment are reimbursed to the carrier performing the repair service under the AAR Interchange rules.[30] Moreover, the reimbursement amounts are more than sufficient to offset the cost of performing the repairs and the facilities required to make the repairs. NS not only failed to identify this offsetting compensation, it did not include the compensation in SBRR's revenues. In Rebuttal, SunBelt does not include the additional costs of the railcar repair facilities or rip tracks and also does not include the offsetting revenues from performing those repairs.

NS also includes costs for four (4) wheel change trucks so that "line of road" carmen can repair cars along SBRR's lines. As discussed under the mechanical department section of Part III-D-3, SunBelt finds this level of extra service unnecessary, and has included two (2) mechanical trucks providing both locomotive servicing and line or road car repairs, with one each assigned to Meridian and Selma.

c. Private Car Allowances

Other than for intermodal cars, which are fully discussed above, NS accepts SunBelt's approach to private car allowances.[31]

3. Operating Personnel

There are two principal problems with NS's approach to determining the SBRR's personnel requirements. First, the NS witnesses' approach is consistent with the managerial mindset of a large, unionized Class I rail carrier. Not only are Class I carriers such as NS heavily unionized, their management structure – particularly on the operating side – reflects a hierarchical, militaristic approach with tight command-and-control that leads to excessive layers of management, rather than empowering employees to take on additional responsibilities and

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[30] See SunBelt Rebuttal e-workpaper "AAR Interchange Rule 1.2.a.(6).pdf."

[31] See NS Reply, at III-D-29.

think for themselves. As a non-union startup, the SBRR is not burdened with rigid craft boundaries or by the kind of managerial mindset typical of a Class I railroad such as NS.

Second, NS bases its estimate of the crews required by the SBRR on its faulty operating plan. As more fully discussed in Part III-C of this Rebuttal, NS's operating plan creates trains that are completely divorced from its real-world trains and, therefore, is not a reliable source for personnel requirements.

a. Number of T&E Personnel

On Opening, SunBelt determined that the SBRR requires a total of 140 train and engine ("T&E") employees to operate its road trains, helper assignments, and yard switching assignments in the Base Period. NS proposes to increase the SBRR's T&E employees to a total of 261 T&E employees.[32]

NS states that the sources of the T&E employee understatement are related to: (1) SunBelt's omission of more than 1,600 trains from the SBRR system; (2) SunBelt's failure to account for directional imbalances in train flows on the SBRR; (3) SunBelt's failure to provide 3-person crews for certain local trains; (4) SunBelt's failure to incorporate an appropriate level of re-crews on the SBRR; and 5) SunBelt's failure to provide adequate yard personnel for classification and switching at individual yards.[33] Each of these issues is addressed below.

i. In Rebuttal SunBelt Includes All Required Trains on the SBRR System

In Part III-C of its Reply, NS falsely claims SunBelt omitted over 1,600 trains from the SBRR system. In Rebuttal, SunBelt thoroughly reviewed NS's claims and found that it inadvertently omitted 1,031 trains from the SBRR in its Opening evidence, rather the than the

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[32] See NS Reply, at III-D-36.

[33] See NS Reply, at III-D-29-30.

1,622 trains NS incorrectly identifies. This issue is fully addressed in Part III-C of SunBelt's Rebuttal evidence.

ii. Directional Imbalances On the SBRR

NS argues that SunBelt has erred by not considering the imbalances created by imbalances in train flows by direction in between points. NS performs an analysis of this alleged imbalance based on its 2011 MultiRail derived train list and determines that ten (10) additional T&E personnel are required to offset the imbalance.[34] NS's analysis is fatally flawed for two reasons. First, as fully discussed in Part III-C, NS use of MultiRail produces statistics that are unsupported. Second, NS's approach to determining the imbalance isolates each crew on-duty and off-duty pair without regard to either locations in close proximity or to broader crew assignments in which crews operate.

In calculating crew imbalances, NS fails to consider broader geographic areas than just two point pairs. For example, NS looks at crews moving between Birmingham and Meridian without considering crews moving between overlapping line segments such as Wilton and Meridian or Birmingham and Boligee. NS's reliance on trains produced by the flawed MultiRail program combined with its narrow point pair method results in the addition of ten (10) T&E personnel.[35] In Rebuttal, SunBelt examined crew imbalances based on trains moving in the Base Year and rebalances in a more efficient manner by assuming crews would move from nearby neighboring points to operate trains. In doing so, SunBelt adds four (4) additional T&E employees in Rebuttal to offset any crew imbalances.

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[34] See NS Reply, at III-D-30-31 and NS Reply e-workpaper "MultiRail 2011 Deadhead Crew.xls."

[35] See NS Reply WP "MultiRail 2011 Deadhead Crew.xls."

iii. 3-Person Crews for Certain Local Trains

Consistent with industry practice and Board decisions in other proceedings, in Opening SunBelt utilized two (2) crew members in all road train, local train and switch assignments. In Reply, NS identifies ten (10) local train assignments which require use of a third crew member in order to operate efficiently. In Rebuttal, SunBelt adds this third crew member to these ten (10) local train assignments.[36]

iv. SBRR Re-Crew Rate

A re-crew rate is the frequency that train crews exceed their hours of service and must be replaced by a relief crew. SunBelt determined a re-crew rate of 0.3 percent in Opening, based on the number of trains that exceed the hours of service limitations in the RTC simulation. In Reply, NS rejects SunBelt's re-crew rate based on strictly anecdotal evidence and replaces it with a 3.0 percent re-crew rate allegedly based on recent NS experience in its Alabama District. NS argues that its actual experience in the Alabama District should apply to the SBRR. However, the SBRR is not the NS and the SBRR is more efficient than the NS as demonstrated by a comparison of the SunBelt's Rebuttal RTC simulation and NS's cycle times as presented it its Reply evidence.[37]

In Rebuttal, SunBelt continues to develop its re-crew rate based on the number of crews that expire in its RTC simulation. Based on SunBelt's Rebuttal RTC simulation, the re-crew rate equals 1.1 percent.[38]

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[36] See SunBelt Rebuttal e-workpaper "Crew Rebalancing Diagram.pdf."

[37] See SunBelt Rebuttal, Part III-C-2.h.

[38] See SunBelt Rebuttal e-workpaper "SunBelt TRAIN file analysis Rebuttal.xlsx."

v. Yard Crews

In Opening, SunBelt included eight (8) yard crew personnel located at five (5) yards on the SBRR. In Reply, NS claims that SunBelt significantly understated the yard crew requirements because it "failed even to consider car classification and switching needs at individual yards and terminals."[39] NS included 86 yard crew personnel and switching services at eight (8) yards and terminals located on the SBRR. SunBelt agrees that it inadvertently omitted classification of some cars in yards in its Opening evidence, which resulted in an understatement of yard crews, and has addressed that issue fully in Part III-C *supra*.

Also fully discussed in Part III-C, the yard classification car counts provided by NS in Reply were developed through its flawed MultiRail process and are unsupported. Moreover, the workpapers containing the car counts included with NS's Reply evidence are only hardcoded numbers which cannot be verified. When NS finally provided SunBelt's experts limited access to its MultiRail programs and procedures, the read-only MultiRail documents provided unverifiable classification car counts that were different than those included in the workpapers NS provided with its Reply filing.

Rather than relying on any of NS's unsupported car counts and NS's flawed MultiRail procedures in Rebuttal, SunBelt developed classification car counts in each yard from the car event data provided by NS in discovery. This actual car event data corresponds to NS's actual train data, which SunBelt relies upon for its operating plan and not NS's made for litigation MultiRail data. In developing the classification car counts from the car event data, SunBelt included all cars moving between trains in each individual yard and excluded cars moving in blocks between trains (i.e., "block swaps"). Cars originating or terminating in the individual

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[39] See NS Reply, at III-D-34.

yards were then added to the cars being classified. This is the procedure that NS states is appropriate for identifying cars for classification purposes in yards.[40]

The number of yard crew assignments and yard crew starts per shift were determined for each yard based on a combination of the cars requiring classification plus cars originating and terminating in each yard. Based on the procedures described above, SunBelt includes 49 yard crew personnel providing switching services in eight (8) yards and terminal locations in Rebuttal.[41]

In Rebuttal, SunBelt includes a total of 194 T&E employees to provide road, helper and yard switching services on the SBRR.

b. T&E Personnel Compensation

In Opening, SunBelt based the wages for T&E personnel on those included in NS's 2010 Wage Forms A&B,[42] and fringe benefits based on information reported by the Association of American Railroads.[43] In Reply, NS argues that both SunBelt's T&E wages and fringe benefits are understated. Each of these topics is discussed below.

i. T&E Wages

In Opening, SunBelt used the average wage paid to T&E employees by NS as shown in its 2010 Wage Form A&B of ${{[redacted]}}.[44] In Reply, NS argues that SunBelt has significantly understated the wage the SBRR would have to pay T&E employees who work 270 shifts per

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[40] See NS Reply e-workpaper "Terminal Capacity Requirement Tracking Process for Hump Classification Yards.docx."

[41] See SunBelt Rebuttal e-workpaper "SBRR Yard Crew_Rebuttal.xlsx."

[42] See SunBelt Opening, at III-D-11.

[43] Id.

[44] See SunBelt Opening e-workpaper "SBRR Operating Expenses.xls."

year and instead included wages of ${{[redacted]}}[45] based on the average wage paid to NS T&E personnel who worked between 255 and 285 shifts per year. The {{[redacted]}} T&E employees included in the NS analysis have a range of salary from ${{[redacted]}} and ${{[redacted]}}.[46]

Of these {{[redacted]}} employees, there are {{[redacted]}} employees with an average salary of less than ${{[redacted]}} who have worked an average of {{[redacted]}} years on NS. These {{[redacted]}} employees work an average of {{[redacted]}} shifts and have an average salary of ${{[redacted]}}. Of the {{[redacted]}} employees whose salary is greater than ${{[redacted]}}, the average length of employment on NS is {{[redacted]}} years. These employees work an average of {{[redacted]}} shifts and have an average salary of ${{[redacted]}}.[47]

Thus, contrary to NS's argument, tenure, *not* number of shifts worked, drives the average wage. The SBRR is hiring new employees and is incurring the expense of training new employees;[48] therefore it will continue to pay an average salary of ${{[redacted]}}, which is very close to the average wage of those {{[redacted]}} employees with an average length of employment of {{[redacted]}} years.

ii. Fringe Benefits

In Opening, SunBelt used a fringe benefit ratio of 37.5 percent as published by the AAR for all Class I railroads in 2009.[49] In Reply, NS alleges that were it to use the same number from

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[45] See NS Reply WP "T&E Crew Salary.xls."

[46] See SunBelt Rebuttal e-workpaper "T&E Crew Salary_Revised.xlsx."

[47] Id.

[48] SunBelt's T&E personnel training cost is derived from data provided by NS in discovery and accepted by NS in Reply.

[49] See SunBelt Opening workpaper "III-D-4 Salaries.pdf" which includes a document from the AAR website titled "Description of Data and Sources" which is an excerpt from AAR's document titled "US Freight Railroad Industry Snapshot." This document states that 37.5 percent is AAR's "estimate of the value of average railroad fringe benefits in 2009.

the correct year "it would likely be higher."[50] NS claims that SunBelt's experts should have somehow disavowed this number and not used it because an average fringe benefit ratio of 43 percent can also be calculated from another AAR document. NS then proffers a fringe benefit ratio of 45.6 percent based on its calculation of the 2011 fringe benefit ratios for all Class I railroads combined.

NS is correct that the 2011 Fringe Benefit ratio for all Class I carriers equals 45.6 percent in 2011. However, as a least cost, most efficient carrier, the SBRR would strive to minimize expenses where ever possible.

In Rebuttal, SunBelt continues to rely on the 37.5 percent fringe benefit ratio used in Opening, which is equal to the three (3) year average fringe benefit ratio paid by BNSF and KCS for the period 2009 through 2011 based on the data shown in NS's Reply.[51] Thus the 37.5 percent fringe benefit ratio is realistic and supported by actual data supplied by NS and paid by Class I carriers.

iii. Hotel and Taxi Expense

NS accepted SunBelt's unit costs and methodology for calculating hotel and taxi expense and increased it to reflect the higher number of trains included in its analysis. In Reply, NS includes $883,007 for hotels and $222,940 for taxi expense.

NS then included a meals additive to these costs equal to {{[redacted]}} percent of the aggregate hotel costs, based on NS's experience in 2009.[52] NS's hotel expense, including the meals additive for the SBRR in Reply, equals ${{[redacted]}} million.[53]

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[50] <u>See</u> NS Reply, at III-D-39. The same number from the 2010 AAR document is 41.3 percent.

[51] <u>See</u> NS Reply, at III-D-39, Table III-D-11.

[52] <u>See</u> NS Reply e-workpaper "Meals Additive.xlsx."

[53] <u>See</u> NS Reply WP "SBRR Operating Expense NS Reply.xlsx."

SunBelt's estimates of hotel and taxi expenses are based on *retail* rates not the contract rates that NS or a Regional carrier purchasing literally thousands of hotel room nights on an annual basis would be able to negotiate with a hotel chain to receive less than retail rates. NS's use of retail rates, plus a meals additive is excessive and not a realistic representation of what the SBRR would incur for hotels, meals and taxi expense.

In Rebuttal, SunBelt continues to calculate hotel and taxi rates in the same manner as it did in Opening, increased to reflect the addition of trains to the network discussed in Part III-C, resulting in a hotel (including meals) expense of $549,719 and a taxi expense of $100,229.

c. Non-Train Operating Personnel

In Opening, SunBelt provided a total of 61 non-train operating personnel; NS proposes to increase this number to 116, an increase of 55 employees or 90 percent.[54]

NS claims that "extensive interline carload operations would require the SBRR to maintain an extensive field operations team to support its train service plan, and to coordinate operations, equipment handling, and information exchange with many railroads."[55] NS makes this absurd statement in light of very moderate traffic levels operated by the SBRR, i.e., an average of on 13 thru-trains per day on its primary mainline, and only seven (7) on its secondary mainline.

Also contrary to NS's assertion, SunBelt's staffing levels for the SBRR's non-train operating personnel are entirely adequate and similar to those of past cases of similar size to the SBRR. For example, *PSCo/Xcel,* which had a similar operation to that of the SBRR, had non-

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[54] The difference between the parties' positions on the staffing requirements for the SBRR's non-train operating personnel (other than maintenance-of-way personnel, which is discussed separately in Part III-D-5 below) are summarized in Table III-5 on page 18 of NS's Reply Exhibit III-D-1.

[55] See NS Reply Exhibit III-D-1 at 2.

train operating personnel staffing of 69.[56] As shown in Table III-D-4 below, this compares favorably with SunBelt's proposed non-train operating personnel staffing for the SBRR in Opening of 61 employees. In contrast NS's proposed staffing level for non-train operating personnel in Reply is 116 employees.[57]

Rebuttal Table III-D-4
Comparison of Non-Train
Operating Personnel Employees

Basis (1)	**No. of Employees** (2)
SunBelt Opening	61
NS Reply	116
SunBelt Rebuttal	83
PSCo/Xcel	69

Sources:
NS Reply Exhibit III-D-1 at 18.
"SBRR Operating Expense_Rebuttal.xlsx"
PSCo/Xcel at 646.

Table III-D-4 above shows that SunBelt's staffing of the SBRR is similar to the Board's decision in *PSCo/Xcel*, and would be more than sufficient to run a railroad efficiently and effectively. Moreover, NS's proposed staffing is nearly twice that of *PSCo/Xcel* and does not reflect efficient railroad operations for a railroad the size of the SBRR. The following discussion addresses specific differences between the parties with respect to each category of operating employees.

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[56] See *PSCo/Xcel* at 646.

[57] See NS Reply Exhibit III-D-1 at 18.

i. Transportation Department

a) Assistant Vice President-Transportation

On Opening, SunBelt proposed the SBRR's Mechanical, Engineering, and Administration Departments would each be staffed with one (1) Assistant Vice President, and the Transportation Department would report directly to the Vice President of Operations. NS claims "[a] single system Vice President would not have time to conduct the myriad departmental functions (management, planning, budgeting, etc.) that would be required, while also fulfilling the active supervisory role necessary... <u>and</u> performing the broader responsibilities of the Vice President position."[58] On Reply, NS has added one Assistant Vice President to the Transportation Department. SunBelt agrees and has added one (1) Assistant Vice President-Transportation who will have direct responsibility for the performance of the Chief Dispatcher and Transportation Department field officers, while coordinating functions of associated sub-departments within the Operating Department; namely Mechanical, Engineering and Administration.

b) Administrative Assistant

NS has proposed an Administrative Assistant for the Vice President-Operations, Assistant Vice President-Transportation, and Assistant Vice President-Mechanical (for a total of three). One (1) Administrative Assistant taking responsibility for the offices mentioned provides better communication and cohesiveness within the department. NS's two (2) additional Administrative Assistants are completely unnecessary for a railroad the size of SunBelt. On Rebuttal, SunBelt has added one (1) Administrative Assistant.

c) Dispatch

Based on Mr. McDonald's experience, SunBelt's operating plan calls for two (2) dispatching desks located at the SBRR's Birmingham headquarters, both of which are

[58] <u>See</u> NS Reply Exhibit III-D-1 at 3.

responsible for dispatching trains, track inspection vehicles, and work equipment. Each desk is manned by one dispatcher, three shifts per day, seven days per week. A total of nine (9) dispatchers are required to staff the two (2) dispatcher positions on a 24/7 basis and are supervised by one (1) Chief Dispatcher.[59] SunBelt also staffs the SBRR's Birmingham headquarters with five (5) crew callers (one desk staffed 24/7) who are responsible for augmenting the SBRR's automated crew-management system, which is 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).

NS accepts SunBelt's proposal for five (5) crew callers; however, NS proposes the SBRR would need a minimum of three (3) dispatching desks, along with 13 Dispatchers, five (5) Chief Dispatchers, and five (5) Assistant Chief Dispatchers.[60] The SBRR route miles, which do not have separate branch lines and associated traffic levels are capably handled by two (2) dispatching desks. NS naively assumes that SunBelt would dispatch the entire Birmingham line (354 miles) with one (1) dispatcher, and then assign the second dispatch desk to handle only the light density McIntosh line. NS's assumption is totally false.

Including both thru-train and local trains, the first dispatcher desk handles an average of nine (9) trains per eight-hour shift on his portion of the Birmingham line and only an average of three (3) train per eight-hour shift on the Selma line. The second dispatcher desk handles and average of (7) trains per eight-hour shift on his portion of the Birmingham line.

SunBelt's plan in Opening is consistent with other similarly sized railroads whose operation mirrors that of SunBelt. In Opening, SunBelt assigned the first desk to handle

[59] See SunBelt Opening Exhibit III-D-1 at 5-6.

[60] See NS Reply Exhibit-III-D-1 at 4-6.

Birmingham south for 145 miles (medium traffic level), plus Burstall to McIntosh (light traffic level); then the second dispatch desk is assigned to handle about 230 miles to New Orleans (moderate traffic level). SunBelt has provided the proper number of desks for its operation, and further, has provided the proper number of dispatchers in compliance with both training and FRA Hours of Service Regulations in its personnel requirements.

NS proposes one (1) Chief Dispatcher around the clock, along with one (1) Assistant Chief Dispatcher around the clock, seven days a week. NS's proposal results in a ridiculously low span of control. There is no need for both an around the clock Chief Dispatcher *and* an around the clock Assistant Chief Dispatcher. Assuming more than one (1) Chief Dispatcher merely adds confusion and is entirely unnecessary and superfluous. Further, it is not the role of the Chief Dispatcher to constantly watch over the dispatchers. Dispatchers are responsible themselves for dispatching trains and equipment, coordinating work with crew callers, coordinating taxi service, notifying authorities of incidents, and handling locomotive and equipment failures as they occur. All such incidents take place in front of dispatchers, and it is the responsibility of the dispatcher to handle what may be required and not pass these responsibilities on to someone else.

SunBelt agrees that an Assistant Chief Dispatcher, on duty 24/7, is needed to assist the coordination between dispatcher desks, to handle locomotive assignments, to coordinate with mechanical shops, and to handle any problems or unusual matters that may occur. This level of staffing requires five (5) additional employees from what was proposed in Opening. To a degree, this relieves the Chief Dispatcher of day-to-day responsibilities, and allows him time to concentrate more on planning efforts and working with superiors, outside parties, and other departments. He will continue to be responsible for all dispatching personnel and their performance, but again, one (1) Chief Dispatcher, working the day shift, five days a week can accomplish this.

d) Field Operations

On Opening, SunBelt proposed a Field Operations Department consisting of four (4) Managers and six (6) Assistant Managers. Birmingham, AL, Meridian, MS, New Orleans, LA, and Selma, AL would each have one (1) Manager-Field Operations who would be responsible for train operations in their respective territories and for supervising train crews. On Reply, NS claims the SBRR would need five (5) Managers-Field Operations and eight (8) Assistant Managers-Field Operations. In Rebuttal, SunBelt agrees that additional supervision is needed at Birmingham and has added two (2) Assistant Managers of Field Operations, primarily for 24/7 coverage at the most active facility on the railroad. However, the four (4) Managers of Field Operations, provided in Opening and headquartered at Birmingham, Meridian, New Orleans, and Selma, are fully capable of handling their assigned territories.

e) Locomotive Operations

NS has added an additional Manager of Locomotive Operations ("MLO") at Meridian, when SunBelt already had established this position at Meridian. He would cover most of the engineers on the Birmingham-New Orleans line, and the second Manager, located at Birmingham would cover those operating on the northern portion of that line plus those operating on the line to McIntosh. NS gives no factual reason why an additional MLO is needed, just merely stating his obvious duties and responsibilities. The two (2) MLO's assigned by SunBelt on Opening are sufficient.

ii. Mechanical Department

In Opening, SunBelt included an Assistant Vice President – Mechanical, one (1) Manager - Locomotive Maintenance, one (1) Manager - Testing and Environmental, one (1) Manager -

Equipment Maintenance, and 19 car inspectors. NS has accepted the staffing of each of these positions except for car inspectors, where it added 9 inspectors. NS also added an Administrative Assistant, two (2) Managers – Equipment Inspection, and eight (8) line of road Carmen.

a) Car Inspection

In Opening, SunBelt provided for inspection crews at Birmingham, along with individual inspectors working the four other locations throughout the SBRR system, for a total of 19 car inspectors. In Reply, NS included 28 car inspectors throughout the various locations. NS also included eight (8) line of road car inspectors to inspect and repair equipment that fails en route. Finally, NS includes two (2) managers of equipment inspection to supervise the car inspectors.

The two (2) Managers of equipment inspection proposed by NS are an unnecessary layer of management whose duties of assignment and coordination with contractors and others are capably handled by SunBelt's lead foreman on duty.[61] The lead foreman on each shift of inspectors at Birmingham takes on the role of management normally assumed in a much larger railroad, such as NS. These lead foremen and single station inspectors, located at New Orleans, Meridian, McIntosh, and Selma, report directly to the Manager-Equipment Maintenance. With the addition of two (2) Managers of Equipment Inspection, NS creates an additional layer of management, which is totally unnecessary for a railroad the size of the SBRR.

NS also claims that SunBelt's 19 Car Inspectors will not suffice and has proposed 28 Inspectors.[62] NS accepted SunBelt's assignment of 14 inspectors at the Birmingham yard, but

[61] Each of SunBelt's inspection teams has a foreman who also performs inspections as a member of the team, thus eliminating the need for managers of equipment inspection.

[62] See SunBelt Rebuttal e-workpaper "SBRR Inspectors_Rebuttal.xlsx." All inspection teams have one Inspection foreman assigned to the team. The Inspection foremen perform the same function as NS's Car Managers, without adding an unnecessary layer of supervisory staff.

has increased car inspectors at the other locations. As discussed in Part III-C, SunBelt has increased the number of trains in the Base Year. With the addition of these trains, SunBelt accepts NS's assignment of the number of car inspectors at the other locations and includes a total of 28 car inspectors in Rebuttal.

NS assumes the SBRR cannot successfully determine disposition and subsequent repair of failed on-line equipment without the eight (8) additional line of road carmen along with their own wheel change trucks, or block trucks. This is an excessive assignment of unnecessary personnel to handle on-line failed equipment. Further, NS says SunBelt has no carmen assigned to handle on-line road repairs. NS continues to ignore the fact that SunBelt is a non-union railroad, and is not restricted in its use of contract forces, as is NS. In Rebuttal, SunBelt provides for four (4) mechanical repairmen, two (2) each stationed at Meridian and Selma to provide line of road car and locomotive repair service.

iii. Operations Support Department

NS claims that "[t]here are a variety of other positions that are necessary to support the operating functions of a Class I railroad, for which SunBelt failed to make adequate provision. These functions include Budgeting; Joint Facilities; Service Measurement; Service Design; Safety and Training; Terminal Management; Damage Prevention and Claims; and Car and Train Reporting."[63] This is yet another example of duplicative and unneeded forces. Based on Mr. McDonald's experience, the functions mentioned here are all adequately accounted for in SunBelt's evidence and are discussed below.

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[63] See NS Reply Exhibit III-D-1 at 10.

a) Operations Service and Support (OSS)

NS identifies an OSS department which is responsible for car and train reporting and all activities related to the first and last mile of the car movement. NS staffs the OSS department with a Manager and two (2) analysts, plus another analyst on duty 24/7 for a total of ten (10) employees. These SBRR functions are covered by dispatchers, the customer service department, and the IT Department; there is no need for the additional staffing. According to NS, "OSS staff communicates directly with SBRR train crews, terminal personnel, and customers. The customer communication function performed by OSS is not the same as what takes place in SBRR's customer service department."[64] The claim that OSS functions are different from those in customer service is completely unreasonable. SBRR's customer service department is staffed 24/7 and is responsible for all of the functions for which NS claims OSS is needed. The additional staff posited by NS would be superfluous on the SBRR as the information is developed by the entry of data from dispatchers, customer service employees and information technology personnel in the normal course of business.

b) Customer Service

On Opening, SunBelt proposed the SBRR Customer Service Department be staffed with one Customer Service Agent/Car Distributor desk manned 24/7, thus requiring five (5) employees to fill the position. On Reply, NS claims "[t]his represents a total misunderstanding of the customer service and car distribution role. These positions interface with customer HQ positions and thus only need to be on duty during regular business hours..."[65] NS proposes SBRR customer service be comprised of three individuals: one (1) manager and two (2) analysts.

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[64] See NS Reply Exhibit III-D-1 at 11.

[65] See NS Reply Exhibit III-D-1 at 13.

NS falsely assumes the only role of Customer Service is customer contact. Customer Service does much more than just keep in contact with customers on the SBRR. In addition to providing vital information for SBRR's car movement data systems, its role includes contact with local and switch crews in the field to prescribe their daily switch work, and coordinating their deliveries and pick-ups. In Rebuttal, SunBelt retains its customer service department with 24 hour staffing and does not include the duplicative OSS department as proposed by NS.

c) Planning, Budgets, and Joint Facilities

On Opening, SunBelt proposed that the SBRR's operations, planning, and joint facilities functions be staffed with one (1) manager. NS determined that the manager, along with three (3) analyst positions would be required to cover the necessary functions.[66] NS claims "[o]ne analyst would be responsible for budgets and joint facilities… [a] second analyst would handle Service Design and Measurement… [and] [t]he third position would be responsible for medium- and long-term equipment issues; long-term capital planning related to new equipment; acquisition for new business opportunities; acquisition for replacement; and any technology advancements requiring SBRR to change equipment to current needs."[67]

NS claims the Service Design and Measurement analyst would be responsible for "train plan design, long-term planning, seasonal planning, contingency planning, and disaster recovery planning."[68] There is no need for this analyst proposed by NS. The functions for which NS claims the Service Design and Measurement employee would be responsible are all covered by the Operations Planning staff proposed by SunBelt. The Service Design and Measurement staff

[66] See NS Reply Exhibit III-D-1 at 13-14.

[67] See NS Reply Exhibit III-D-1 at 14.

[68] Id.

proposed by NS merely leads to overlapping responsibilities and is not how an efficient railroad operates.

In Rebuttal, SunBelt continues to rely on the staffing proposed in Opening of one (1) manager. To the extent additional analytical staff is needed, it would be provided by SBRR's G&A staff analysts. The primary responsibility of Operations Planning is to maintain, and adjust as necessary, classification tables and train schedules for the SBRR system on an on-going basis. Based on Mr. McDonalds's experience, C&NW combined the operations planning and joint facilities functions and was able to complete the work with only three (3) people. The one (1) manager suggested by SunBelt in Opening is sufficient for the SBRR.

d) Damage Prevention and Freight Claims

NS claims that the SBRR will need a staff of one (1) Manager, one (1) Assistant Manager, one (1) claims representative, and one (1) damage prevention analyst for "(1) investigation of and negotiation of freight claims filed by customers; (2) response to derailments and other incidents to protect the interests of SBRR and its customers (including transload and salvage), (3) working with customers to promote proper loading practices, and (4) responding to customer questions."[69] This staffing is completely unnecessary. SunBelt has outsourced claims investigations, thus there is no need for extra staff who will be responsible for investigating claims filed by customers. There is also no need for staff who will be responsible for customer questions. The SBRR's Customer Service Department will be more than capable of handling any customer inquiries.

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[69] Id.

e) Safety, Rules, and Training

On Opening, SunBelt proposed a Manager-Safety, Rules, & Training, along with an Assistant Manager-Safety, Rules, & Training, to monitor safety and conduct rules and training classes for the SBRR's transportation, maintenance, and mechanical operating personnel. On Reply, NS claims SunBelt's staffing is inadequate and an additional Assistant Manager would be needed. NS's additional Assistant Manager is unnecessary. In Rebuttal, SunBelt includes one Manager and one Assistant Manager of Safety, Rules & Training.

iv. Non-Train Operating Personnel Compensation

Most of the difference between SunBelt and NS in the compensation of non-train operating personnel is accounted for by the difference in the number of employees proposed by the parties for various classes of operating personnel.

As NS notes, SunBelt relied largely on data from NS's Wage Forms A&B in developing employee compensation levels.[70] NS states that it accepts SunBelt's proposed compensation levels (per employee) for non-train operating personnel, except for executives, where NS rejects use of executive compensation based on salaries and bonuses paid to Providence & Worcester Railroad ("P&W") executives in favor of salaries, stock awards, stock options and other compensation paid to executives at Genesee & Wyoming, Inc. ("G&W") and Rail America. Executive compensation is fully addressed in Exhibit III-D-1.

v. Fringe Benefits

As discussed, *supra*, with regard to T&E personnel fringe benefits, SunBelt relied on a 37.5 percent fringe benefit ratio in Opening based on information published by the AAR. In Reply, NS argues a 45.6 percent fringe benefit ratio is appropriate based on its calculation of the

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[70] See NS Reply, at III-D-35.

2011 average of all Class I railroads. As explained previously, as a least cost most efficient railroad, SunBelt continues to rely on a 37.5 percent fringe benefit ratio for the SBRR which is supported by BNSF's and KCS's actual experience from 2009 through 2011.

4. General and Administrative

On Opening, SunBelt included a general and administrative ("G&A") department comprised of 22 individuals, as well as G&A costs of $6.1 million. NS claims that SunBelt's proposed G&A staff is "vastly smaller than any G&A staff ever approved by the Board."[71]

The staffing level proposed by NS completely ignores the fact that SBRR is a new, startup railroad that will not be faced with many of the same costs and burdens as an existing railroad that was established over time and has been through many different mergers and acquisitions.

Along with NS's excessive staffing level comes an increase of G&A expenses to $18.5 million. Much of the difference in the parties' G&A expenses is due to NS's excessive staffing, outsourcing costs, as well as start-up costs. The overall annual G&A expense estimates provided by the parties are shown in Rebuttal Table III-D-5 below.

Rebuttal Table III-D-5
SunBelt Opening, NS Reply and
SunBelt Rebuttal 2011 G&A Expense
($ in millions)

Source (1)	2011 G&A Expense (2)
1. SunBelt Opening	$6.1
2. NS Reply	$18.5
3. SunBelt Rebuttal	$9.1

Source: SunBelt e-workpaper "SBRR Operating Expense_Rebuttal ."

[71] See NS Reply, at III-D-42.

The G&A expenses for the SBRR have been developed on the basis of the experience of SunBelt's witnesses McDonald, Hunter, Kruzich, and Burris. Mr. McDonald in particular has held a number of senior management positions at Class I railroads and has 35 years of experience in railroad operations, engineering, and management. Mr. Hunter also has extensive experience, 36 years, in management and has been involved in several railroad mergers.

SunBelt's other two (2) G&A witnesses include Mr. Kruzich, who has 38 years of experience in railroad accounting, executive administration, and information technology, and Mr. Burris, who has more than 30 years of consulting experience related to railroad economics and for the past eight (8) years, Mr. Burris has been a member of the board of directors of the South Central Florida Express Railroad.

a. Staffing Requirements

SunBelt's G&A staffing is very similar to past decisions, as can be seen by comparing NS and SunBelt's G&A Departments to *WFA/Basin* and *PSCo/Xcel*. Table III-D-6 below summarizes how similar SunBelt's G&A staff is to past decisions, as well as how different and excessive NS's staffing is.

Rebuttal Table III-D-6
Comparison of *WFA/Basin* and *PSCo/Xcel* G&A
Staffing With SunBelt and NS

Department (1)	NS Reply (2)	SunBelt Rebuttal (3)	*WFA/ Basin* (4)	*PSCo/ Xcel*[1/] (5)
1. Executive	3	3	3	3
2. Marketing	9	3	2	13
3. Finance	36	9	15	16
4. Law/Admin	52	16	16	14
5. Outside Directors	4	3	3	3
6. Total	104	34	39	49

1/ *PSCo/Xcel* also includes five operating department personnel for a total of 54. These operating employees are removed for the "G&A" comparison.

Table III-D-6 above shows that NS's G&A staff is more than twice that of past decisions; there is no reason SBRR should be staffed as proposed by NS. The differences in the parties G&A evidence is fully discussed in Rebuttal Exhibit III-D-1 and is summarized below.

i. Executive Department

In Opening, SunBelt proposed an Executive Department consisting of two (2) individuals headed by the President and supported by an Administrative Assistant.

On Reply, NS creates an Executive Department comprised of three (3) individuals.[72] NS claims the SBRR would need one (1) Director of Corporate Relations to oversee Corporate Relations, Public Relations, and Government Relations. SunBelt has added one (1) Manager of Corporate/Government/Public Relations to work closely with the President and Board on these areas.

ii. Board of Directors

In Opening, SunBelt proposed a four (4) person Board of Directors consisting of the President, Vice President-Operations, and two (2) outside directors. On Rebuttal, SunBelt has increased the outside directors to three (3). SBRR's Board of Directors now consists of the President, Vice President-Operations, and three (3) Outside Directors.

iii. Marketing & Sales Department

In Opening, SunBelt proposed a Marketing & Sales sub-department comprised of one (1) individual, a Director of Marketing & Sales; as well as costs for Marketing outsourcing. NS increased the staffing for Marketing & Sales to nine (9) employees, and also rejected SunBelt's outsourcing.[73]

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[72] See NS Reply, at III-D-64-66.

[73] See NS Reply, at III-D-68-72.

SunBelt acknowledges that Marketing outsourcing costs were left out of Opening and will not be outsourcing any Marketing related functions. However, SunBelt does not agree with NS's excessive staffing and does not accept the changes proposed by NS. SunBelt has added two (2) employees to the Marketing & Sales Department and believes this is more than enough to handle the everyday functions for SBRR, and will also make up for the outsourcing costs left out of Opening.

iv. Finance & Accounting Department

In Opening, SunBelt proposed a Finance and Accounting Department consisting of six (6) employees separated into four functions: (1) Executive/Treasury; (2) Controller; (3) Budget/Purchase; and (4) Internal Auditing.[74] NS increases the Finance & Accounting Department staffing to a level that is six times that of SunBelt's Opening, i.e., 36 individuals. NS's proposal is completely unnecessary and not how an efficient railroad operates. SunBelt has added three (3) positions (Manager of Revenue Accounting, Manager of Accounts Payable, and Manager of Tax/Financial Reporting) to the SBRR Finance & Accounting Department for a total of nine (9) employees.

v. Law and Administration Department

On Opening, SunBelt proposed a Legal & Administrative Department consisting of 11 employees. On Reply, NS proposes a much larger Legal & Administrative Department made up of 52 individuals, more than four times the staffing proposed by SunBelt on Opening. This increase is due largely to NS's police staff.

SunBelt stands by the police staff submitted in Opening. The excessive security agents and communications staff proposed by NS are unreasonable and should be rejected. SBRR's on-

[74] See SunBelt Opening Exhibit III-D-2 at 3.

line operating work force will constantly be on alert for anything requiring the assistance of police and SBRR will be able to call in local police forces should a situation arise.

b. Compensation

NS accepted SunBelt's use of NS's Wage Forms A&B to calculate non-executive employee compensation except for the Director-Sales and Marketing which NS claims SunBelt misclassified. Further, NS did not accept SunBelt's compensation for the SBRR's executives. NS challenges the use of the P&W as a comparison railroad and SunBelt's approach of only including salaries and bonuses for these positions.

NS rejects the use of P&W as a comparison railroad for executive compensation stating the P&W is far smaller than the SBRR and instead relies on compensation paid to G&W and Rail America executives as appropriate surrogates. In Rebuttal, SunBelt accepts the use of G&W and RailAmerica as comparison companies for executive compensation; however, it continues to include only the salary and bonus portions of compensation and to exclude stock awards, stock options and all other executive compensation for a start-up railroad. The SBRR is a new startup railroad and should not be forced to overpay employees prior to its establishment.

c. Material, Supplies, and Equipment

NS accepts SunBelt's proposed unit costs for the materials, supplies and equipment needed by the SBRR's employees.[75] The revised employee count on Rebuttal requires a corresponding revision in the total expenditure for materials, supplies and equipment.[76]

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[75] See NS Reply, at III-D-118.

[76] See SunBelt Rebuttal e-workpaper "SBRR Operating Expense_Rebuttal.xls" for details.

d. Other

i. IT Systems

NS accepted the IT systems SunBelt has proposed for the SBRR but adjusts them for the larger workforce proposed by NS.

As discussed above, SunBelt has modified its workforce requirements where NS presented valid criticisms and adjusts its IT costs accordingly. Based on the Rebuttal SBRR operating plan and G&A staff departments, the capital requirements for IT and communications systems equal $2.5 million. The annual operating cost for IT and related communications equals $2.7 million. The expenses associated with IT systems are shown in Table III-D-7 below.

Rebuttal Table III-D-7
SunBelt Opening, NS Reply and SunBelt Rebuttal
Capital And Operating Costs For SBRR IT and Communications Systems
($ in thousands)

		SunBelt Opening		NS Reply		SunBelt Rebuttal	
	Item	Capital Cost	Operating Expense	Capital Cost	Operating Expense	Capital Cost	Operating Expense
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	IT	$1,758.6	$2,321.7	$7,104.1	$2,557.2	$2,419.7	$2,514.8
2.	Communications	32.5	130.9	49.1	177.0	37.3	160.5
3.	Total	$1,791.1	$2,452.6	$7,153.2	$2,734.3	$2,457.0	$2,675.3

The SBRR's computer and IT communications systems are more fully described in Rebuttal Exhibit III-D-1.

e. Other Out-Sourced Functions

The SBRR will be able to outsource several of the functions that large railroads, such as NS, normally conduct in-house. 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. SunBelt's response to NS's Reply is fully discussed in Rebuttal Exhibit III-D-1.

The functions SBRR will out-source include: (1) Payroll Processing; (2) Internal and External Auditing; (3) Claims; (4) Tax preparation; and (5) Outside Counsel. Estimated annual costs of $1.8 million have been developed for outsourcing all of the functions described above.[77]

f. Start-up and Training Costs

On Reply, NS accepts SunBelt's calculations of the average cost to train individual employees, but makes three adjustments: (1) NS adjusts total training costs to incorporate additional staff; (2) NS uses its incorrect fringe benefit ratio of 45.6 percent; and (3) NS modifies SunBelt's attrition rates. SunBelt's position on each adjustment is discussed in Rebuttal Exhibit III-D-1.

g. Recruitment

In Reply, NS accepts SunBelt's recruitment expense of $1,585 per employee which is based on information NS provided in discovery. NS states this expense is related to NS's out-of-pocket recruiting cost and adds $656 per employee supposedly to reflect its in-house employee cost of recruiting. NS's "in-house" cost is based on the salaries of fifteen (15) NS employees, eight (8) of whom are college recruiters. A regional railroad such as the SBRR would not incur the expense of college recruiter as in-house employees. To the extent NS's additive is for other than college recruiters, it is duplicative of the personnel cost already accounted for in providing human resources staff for the SBRR. SunBelt does not accept NS's excessive and duplicative additive in Rebuttal.

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[77] See SunBelt Rebuttal Exhibit III-D-1 and Rebuttal e-workpaper "SBRR G&A Outsourcing_Rebuttal.xlsx."

h. Bad Debt

On Reply, NS assumes SBRR will not receive 100 percent of the revenue it bills to customers and will experience a write down of doubtful accounts. SunBelt accepts the inclusion of Bad Debt in Rebuttal, but does not accept NS's uncollectible amount of 0.05 percent of revenue.

NS calculates this percent by using the bad debt of all Class I carriers from 2007 through 2011. Instead, SunBelt uses NS's uncollectible accounts for 2011. SunBelt bases this on the fact that 2007 through 2010 are prior to the start of the railroad. SBRR should also not be responsible for the bad debt of other Class I carriers; rather, the bad debt ratio should be based exclusively on NS's experience as it is NS's customers that comprise the traffic group for the SBRR, not customers of other Class I railroads.

In short, SunBelt agrees bad debt should be included as an expense and has used NS's real-world uncollectible accounts as a percentage of revenue for the time period 2011, which equals 0.01 percent of revenue, or $56,619.

5. Maintenance-of-Way

On Opening, SunBelt included a maintenance-of-way ("MOW") department comprised of 97 individuals. The MOW plan for the SBRR was developed by SunBelt's expert railroad engineering witness, Harvey Crouch. It was also reviewed and approved by Mr. McDonald, SunBelt's rail operations expert, who, as discussed above, has engineering and operating experience with NS's predecessors. NS claims SunBelt's plan is not consistent with the realities of real-world railroading and "[o]n a track-mile basis, SunBelt's MOW staffing is well less than half the level… in the last five decided SAC cases."[78] NS proposes a MOW staff of 195.[79] A comparison of the parties' MOW staffing is provided in Table III-D-8 below.

Rebuttal Table III-D-8
SunBelt Opening, NS Reply and
<u>SunBelt Rebuttal MOW Staff</u>

Source	**MOW Staff**
(1)	(2)
1. SunBelt Opening	97
2. NS Reply	195
3. SunBelt Rebuttal	<u>106</u>

Source: SunBelt Opening e-workpaper "Exhibit III-D-3 SBRR MOW.xls," NS Reply e-workpaper "III-D-3 NS SBRR MOW Plan.xlsx" and SunBelt Rebuttal e-workpaper "III-D-2 SBRR MOW Rebuttal 5-23-2013.xls."

As fully explained in Rebuttal Exhibit III-D-2, Mr. Crouch has designed the MOW plan specifically for a brand new SBRR system with no track or bridge defects. In contrast, NS has designed a MOW plan for the existing NS system that more than doubles the MOW staff proposed by SunBelt on Opening. To compare the new SBRR system with NS's existing system, most of which was laid many decades ago, is completely unreasonable. Costs for maintaining a newly constructed system will be considerably lower than costs for an older, aging track system. Mr. Crouch's plan has a substantial field staff to perform day-to-day inspection and maintenance activities.

NS's comparison of SunBelt's MOW workforce on a track-mile basis to the MOW workforces accepted by the Board in prior cases is unrealistic. There are several reasons for the difference in SunBelt's and NS's staff-to-track mile ratio when comparing to previous SARRs.

[78] <u>See</u> NS Reply, at III-D-135.

[79] <u>See</u> NS Reply, at III-D-142.

First, because of the relatively small size of the SBRR, fewer upper level managers are required. There is little overlap in responsibilities and duties among Roadmaster territories and work crews.

Second, The SBRR MOW plan calls for capital work to be completed by contractors. The Board in past cases failed to recognize that contracted work would result in less need for annual production work by Roadmasters and the MOW local work crews.

In addition, in Reply, NS artificially increased the number of MOW employees by adding more infrastructure (hump yards, yards, facilities, etc.), related material needs and a completely unnecessary layer of management.

In summary, NS failed to provide adequate reasoning or evidence for the additional, unnecessary MOW staff and departments. SunBelt stands by its Opening MOW staffing and equipment configurations and maintenance needs for the SBRR with minor changes. SunBelt's staffing will be more than capable of handling the MOW tasks required for the SBRR, and NS's excessive staffing is not how an efficient Class II railroad would operate. SunBelt's changes, along with NS's Reply, are discussed at length in Rebuttal Exhibit III-D-2. A comparison of the parties' 2011 MOW expenses is provided in Table III-D-9 below.

Rebuttal Table III-D-9
SunBelt Opening, NS Reply and
SunBelt Rebuttal 2011 MOW Expense
($ in millions)

Source (1)	2011 MOW Expense (2)
1. SunBelt Opening	$15.6
2. NS Reply	$36.3
3. SunBelt Rebuttal	$16.3

Source: SunBelt Opening e-workpaper "SBRR Operating Expense.xls," NS Reply e-workpaper "SBRR Operating Expense NS Reply.xlsx" and SunBelt Rebuttal e-workpaper "SBRR Operating Expense_Rebuttal.xls."

6. Leased Facilities

NS accepted SBRR's use of a 2.4 mile segment in New Orleans, LA owned by CN without charge.

7. Loss and Damage

NS accepted SunBelt's methodology for calculating the SBRR's annual loss and damage expense.[80]

8. Insurance

SunBelt relied upon P&W's average insurance ratio for year 2008 through 2011 of 3.89 percent of operating expenses in Opening.[81] NS claims that "SunBelt's calculation of the SBRR's insurance needs is done … with no consideration of the unique needs of a SARR that is designed to transport an extraordinarily high percentage of TIH traffic."[82] NS goes on to say that NS itself "{{[redacted]

[80] See NS Reply, at III-D-204.

[81] See SunBelt Opening, at III-D-21.

[82] See NS Reply, at III-D-204.

[redacted]}}"[83] NS then calculates the SBRR insurance expense based on two components. First, it accepts the P&W insurance rate of 3.89 percent of other operating expense for the cost of general liability insurance, and then adds a proration of its own {{[redacted]}} in insurance premiums, which NS claims is attributable to the movement of TIH commodities on its system, as catastrophic coverage. NS prorates this premium based on the car miles of TIH shipments on the SBRR to the car miles of TIH shipments on NS, which by NS's calculation equals 34 percent.

NS irrationally claims that "the SBRR will have a markedly higher risk of a catastrophic TIH release than other railroads" simply because it carries a higher percentage of TIH traffic relative to total traffic than other railroads, including NS.[84] As addressed by SunBelt in Part III.D.10.b. below, in response to NS's inclusion of an "Excess Risk" operating expense, such a comparison is meaningless. The total absolute amount of TIH traffic and the total car-miles transported are far more relevant than any ratio of those values to total system traffic. Thus, the SBRR, at only a fraction of the NS system in both factors, has a lower risk profile than NS. Furthermore, that profile is further reduced by the fact that the SBRR will install PTC on all of its lines from its first day of operation.

NS also wrongly attributes all of its insurance costs for coverage in excess of {{[redacted]}} solely to TIH traffic.[85] NS's own Reply Evidence, at page III-D-233, provides an example of liability that CSXT incurred far in excess of {{[redacted]}} for a butadiene leak in

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[83] See NS Reply, at III-D-207.

[84] See NS Reply, at III-D-206.

[85] See NS Reply, at III-D-209.

1987. Butadiene, which is a petroleum product, is not a TIH. Ironically, the railroad industry, including NS, is aggressively pursuing the growing volume of crude oil traffic in North America.

NS's combined general insurance plus catastrophic coverage for the SBRR is unrealistically high, producing an insurance percent of other operating expense equal to {{[redacted]}} percent. By comparison, Rail America, which is much closer in size to the SBRR and, which according to its annual report and tariffs, carries TIH commodities, incurred an average insurance expense of only 3.76 percent of other operating expense in 2011.[86] Thus another regional carrier, which carries TIH commodities, incurs an overall insurance cost as a percent of operating expense that is nearly identical to that used by SunBelt for the SBRR in Opening. In Rebuttal, SunBelt continues to calculate insurance expense for the SBRR based on the 3.89 percent of other operating expense, which includes the cost of insurance related to moving TIH commodities.

9. Ad Valorem Tax

To calculate ad valorem taxes, SunBelt calculated the amount of tax that NS paid per route mile in Alabama, Louisiana and Mississippi, the states in which the SBRR operates, and applied these amounts to the SBRR's route miles in each state.[87]

NS claims that SunBelt "completely ignores how most of the states through which the SBRR operates actually calculate ad valorem taxes for railroads."[88] NS explains that "[e]ach of

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[86] See SunBelt Rebuttal e-workpaper "RailAmerica Insurance Expense.pdf." As shown, one of Rail America's member carriers, the Huron and Eastern Railroad, publishes a tariff specifically related to the shipment of TIH commodities. Also, according to RailAmerica's Opening Comments in STB Finance Docket No. 35517, filed January 13, 2012, four other operating subsidiaries also transport TIH. Those are the Alabama Gulf Coast Railway LLC, Indiana & Ohio Railway, Point Comfort and Northern Railway Company, and Michigan Shore Railroad, Inc. With G&A's acquisition of Rail America, all of these RailAmerica carriers are now a part of G&W.

[87] See SunBelt Opening, at III-D-21.

the three SBRR States tax railroad property as a function of a railroad's overall profitability as an enterprise – its 'unit value' – and in each of the SBRR States a SARR that is more profitable than the incumbent railroad would therefore pay higher property taxes… NS's Reply Evidence adjusts SunBelt's ad valorem tax calculations to account for the higher ad valorem taxes that the SBRR would incur by virtue of being a least-cost, most efficient SARR with a high income value."[89]

Intuitively, NS's approach is suspect. On the one hand, NS claims that a SARR such as the SBRR is a least-cost, most efficient competitor with a high net income and therefore should be expected to pay higher ad valorem taxes than NS, and yet on the other hand, NS's evidence concludes that the SBRR's revenue is insufficient to cover the combination of its operating expenses and required return on investment. Stated differently, NS claims the proceeding should be dismissed because the SBRR is shown to not be viable, and yet when ad valorem taxes are calculated, NS would have the Board believe that the SBRR is a highly profitable entity that would necessarily pay higher ad valorem taxes than does NS. Based on this alone, NS's arguments should be dismissed as it relates to ad valorem taxes.

Assuming for the moment that NS's "unit" methodology is appropriate, NS's calculations are fatally flawed and must be rejected. NS's application of the Unit Method is as follows: First, NS allegedly determines the net revenue from railway operations of the SBRR on a per route mile basis and makes the same calculation for the NS system. Second, NS divides the SBRR's net revenue ("NROI") per mile by the NS system net revenue per mile to calculate a "Unit Value Modifier." Third, the Unit Value Modifier is multiplied by NS's existing ad valorem tax, as allocated to the SBRR using SunBelt's mileage prorate method, to yield the ad valorem taxes

[88] See NS Reply, at III-D-210.

[89] See NS Reply, at III-D-211.

that the SBRR would pay as a result of its high profitability from the traffic it has selected to move on the SBRR system.[90]

In addition to the conceptual error in NS's method discussed above, NS's calculation of the Unit Value Multiplier is incorrect for two reasons. First, the calculations of the NROI for the SBRR and for the NS system are not equivalent calculations. NS relies on the NROI for the NS system on the values shown in its 2011 R-1 Annual Report, schedule 210, line 67. This calculation equals net operating revenues less taxes on ordinary income and provision for deferred income tax. Deferred taxes arise for U.S. based companies that claim tax depreciation at an accelerated rate relative to accounting depreciation used in the preparation of accounting statements. In contrast, when calculating the NROI for the SBRR, NS subtracts its determination of straight-line depreciation from the SBRR net income, not accelerated depreciation. By not allowing the SBRR to benefit from accelerated depreciation, NS overstates the SBRR NROI vis-a-vis the NS system calculation. This "apples to oranges" calculation results in a Unit Value Multiplier that is significantly overstated and therefore is an unrealistic representation of the required increase in ad valorem taxes.

The second error in NS's calculation is the use of the STB's cost of capital as a divisor to determine the "value" of the SBRR and the NS system for ad valorem tax purposes. Use of the STB's cost of capital may be appropriate to use for STB regulatory calculations; however, in this instance, NS states it is attempting to represent the amount of ad valorem tax that would be paid by the NS and the SBRR in three different states. These states do not necessarily rely on the STB's cost of capital to determine the value of railroad assets. Therefore, NS's characterization

[90] NS's calculations are shown in e- workpaper "SBRR Ad Valorem Tax_Reply.xlsx."

of its "unit methodology" as a reflection of what the states would charge in ad valorem taxes is unsupported and unrealistic.

SunBelt continues to prorate the actual ad valorem taxes paid by NS in each state to the SBRR for calculating ad valorem taxes on Rebuttal. This methodology has been accepted time and again by the STB in previous stand-alone cost proceedings. Based on the significant flaws in NS's methodology, SunBelt's evidence is the best evidence of record in this proceeding.

10. Excess Risk

NS proposes a new and unprecedented category of operating cost, which it labels "excess risk," that violates basic SAC principles.[91] In addition, NS employs an arbitrary and flawed methodology to quantify this cost on a per car basis. In Rebuttal, Sunbelt rejects NS's excess risk operating cost factor for the movement of TIH commodities.

a. The "Excess Risk" Cost Violates The Contestable Market Requirement

Essentially, NS's newly-crafted "excess risk" operating cost is supposed to cover the SBRR's liability for a TIH release that causes damages in excess of $1 billion of insurance coverage. According to NS, the SBRR must factor this cost into the SAC analysis in order to have adequate funds to pay this liability. But such logic violates basic SAC principles because it would create an impermissible barrier to exit.

If the real-world NS incurs catastrophic liability above its insurance coverage limits, then it must pay those costs itself to the extent it is able or declare bankruptcy. NS concedes that point when it quotes the testimony of Keith Borman, General Counsel for the American Association of Short Line Railroads, who states that "[I]f the unthinkable happens, the railroad

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[91] See NS Reply, at III-D-224-242.

will simply 'turn over the keys' to the claimants."[92] Although this is what NS and other railroads may have to do in an excess liability situation, NS claims that:

> [I]n order for the SAC test to work, SBRR cannot assume that it will just 'turn over the keys to the claimants' if it has an accident. It has to be presumed to continue to operate for the DCF analysis to be meaningful.[93]

But, contestable market theory, which is essential to the SAC test, holds that this is exactly what the SBRR must be able to do. The SAC test assumes a perfectly contestable market that is free of barriers to entry and exit.[94] Denying the SBRR the ability to exit the market in the event of catastrophic liability constitutes a barrier to exit.

Furthermore, there is absolutely no evidence that NS itself actually incurs this "excess risk" cost. NS has not asserted that it includes this cost in its TIH rates or demonstrated that it performs any analysis to quantify those costs that is similar to its attempted quantification of a per car excess risk cost in its Reply Evidence. Also, even if NS could demonstrate that an "excess risk" cost is embedded in its TIH rates, NS does not set aside any portion of those rates into an excess liability fund that can be used to pay such claims if and when they might arise. This belies NS's rationale for adding an "excess risk" cost.

Finally, the "excess risk" that NS attempts to include as an operating cost already is reflected in the railroad industry's cost of capital. Because the SBRR faces the same risk as other carriers from the movement of TIH commodities, any risk of bankruptcy from a catastrophic accident is already reflected in the railroad industry cost of capital. Furthermore, NS's publicly available financial statements, and those of other railroads, list the various risks

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[92] See NS Reply, at III-D-229.

[93] See NS Reply, at III-D-229-230.

[94] See Coal Rate Guidelines at 528-529.

that they face and the limits of their liabilities.[95] Thus, the excess risk that NS faces from transporting TIH materials is public knowledge. To the extent that investors believe they face a greater risk that their investment will be lost from a catastrophic TIH release on a railroad, they require (expect) a higher return on their investment. The market takes this into consideration in its valuation of railroad capital instruments, so any excess cost is translated to a higher cost of capital. Consequently, NS's attempt to add "excess risk" to the SBRR's operating costs would be a double count of costs already included in the cost of capital.

b. NS's Quantification Of "Excess Risk" Is Deeply Flawed

In addition to the fatal flaws with NS's concept of an "excess risk" operating cost, NS's attempt to quantify this intangible cost is deeply flawed. NS admits that the probability of a large scale TIH release with catastrophic losses is extremely small (i.e., 0.00018 percent per carload); however, NS estimates the cost of such losses could exceed $10.9 billion above insurance coverage limits. Based on this information, NS estimates the SBRR's excess risk cost from handling TIH equals $11.7 million annually.[96]

NS's attempt to estimate the probability of an accident is based entirely upon historical data that does not reflect more recent substantial safety enhancements that are designed to reduce the potential for accidents to occur and, if they do occur, the probability of a catastrophic release. First, the Congressional mandate to install PTC on high density main lines that handle TIH materials is intended to reduce the potential for catastrophic accidents even to occur in the first place. The SBRR will have PTC installed across its <u>entire</u> rail system (not just those lines required by law) <u>from the very first day of its operations</u>. Therefore, the SBRR's risk from the

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[95] <u>See</u> NS 2011 Annual Report, Section 1A, p. 15A, and NS Corporation Form 10K Annual Report to Shareholders, pp. K12-K13.

[96] <u>See</u> NS Reply, p. III-D-242.

outset would be lower than any existing railroad (which also should reduce the SBRR's insurance costs relative to such railroads). Second, new tank cars are being constructed to more stringent standards that reduce the potential for a release even if the car is involved in an accident. Because a probability assessment based upon historical data does not account for these substantial safety enhancements, it necessarily overstates the probability of an accidental TIH release. Moreover, because NS uses data dating from 1965 to 2006, and there have been significant safety improvements over that 48 year period, it is reasonable to expect older data to overstate the risk.[97]

NS incorrectly asserts that "[a]s a percentage of its overall traffic, SBRR's risk would be greater than that of NS or the rail system as a whole."[98] That simply is not true. In order to make this assertion, NS misleadingly compares the ratio of TIH traffic to all rail traffic on the SBRR with the same ratio on NS. But risk is influenced by the total number of TIH cars handled and miles travelled, not the proportion of TIH to all other traffic. For example, consider two railroads of identical size and network configuration: Railroad A moves one million tons of TIH and nothing else (100% TIH), while Railroad B moves one million tons of TIH and nine (9) million tons of other commodities (10% TIH). Railroad B's TIH movements are riskier because the same system has 10 times more density, overall operations are more complicated, more train meets must be managed, yards are more crowded, and an incident is more likely to occur. There is more risk associated with the greater overall density on Railroad B. But by NS's faulty logic,

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[97] See NS Reply e-workpaper "FRA Boardman Testimony.pdf," which is Congressional testimony of FRA Administrator Joseph H. Boardman on June 13, 2006, details many other safety initiatives that pre-date the PTC and tank car requirements mentioned in the text above. Notably, the benefits of a prior collection of tank car structural enhancements that were phased in over 10 years and did not become fully effective until July 1, 2006, also would not be captured in the historical data used by NS. Id., p. 8.

[98] See NS Reply, at III-D-235.

Railroad A would be riskier because all of its traffic is TIH even though it handles the exact same amount of TIH traffic as Railroad B and far less traffic overall than Railroad B. Although the SBRR transports a greater proportion of TIH traffic than NS, it handles fewer total TIH carloads over fewer car-miles than NS merely by virtue of the fact that the SBRR replicates only a fraction of the total NS network. Thus, the SBRR clearly has <u>less</u> risk than NS.

NS similarly skews its probability analysis by comparing the SBRR's proportion of High Threat Urban Areas ("HTUAs") to total route miles with the same proportions on NS to conclude that the SBRR faces greater risk than NS.[99] This is the same faulty logic that underlies the NS comparison of TIH traffic volumes with total traffic volumes.

11. Other

a. Intermodal Lift and Ramp Cost

In Opening, SunBelt included intermodal lift, ramp, and dray expenses equal to {[redacted]}. SunBelt estimated intermodal lift, ramp and dray unit costs for the SBRR based on actual expenses incurred by NS at the locations included on the SBRR.[100] NS criticizes SunBelt's calculation of intermodal lift, ramp, and dray expenses, claiming that "SunBelt improperly excluded the costs of utilities"[101] and revises the operating expense to $461,565.[102]

In Rebuttal, SunBelt accepts NS's modification to the intermodal lift and ramp cost to include these utility costs and applies the resulting unit cost to the intermodal units used in Rebuttal. As discussed in Part III-A, SunBelt has modified the forecast of traffic to correct for a count of duplicate waybills, especially as it relates to intermodal units handled. This results in

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[99] NS Reply, at III-D-236.

[100] <u>See</u> SunBelt Opening, at III-D-22 and SunBelt Opening e-workpapers "SBRR Intermodal Cost Per Lift. xlsx" and "SUNBELT_ATC_Open.xlsx," tab "Pivot Intermodal Units."

[101] <u>See</u> NS Reply, at III-D-219.

[102] <u>See</u> NS Reply e-workpaper "SBRR Intermodal Cost Per Lift NS Reply.xlsx."

fewer intermodal units and thereby lower total intermodal lift and ramp costs. In Rebuttal, the SBRR lift and ramp cost equals $387,692 based on revised units and accepting NS's modified unit cost.

b. Automotive Handling Cost

In Opening, SunBelt calculated automotive handling costs of ${[redacted]} million. NS accepted SunBelt's loading and unloading costs with the addition of utilities costs similar to those added for intermodal lift and ramp costs. In addition, NS corrects for an alleged "inconsistency in SunBelt's calculation."[103] NS claims that

> SunBelt used two different estimates of the total number of motor vehicles loaded and unloaded. For the purposes of calculating the unit cost per load or unload event at each location, SunBelt used NS discovery data that indicated 3.3 million vehicles loaded and unloaded on the NS system in 2010. When calculating the number of motor vehicles associated with the SBRR shipments, however, SunBelt used a much lower figure of 1.8 million vehicles. By calculating the cost per unit based on a larger measure of vehicles (3.3 million), but then assigning them to the SBRR based on a smaller volume figure (1.8 million) number of units, SunBelt understates the cost that the SBRR would incur.[104]

Contrary to NS's claim, the alleged inconsistency does not exist and its description of what SunBelt did is not accurate. SunBelt calculated the unit cost based on the total expense of handling vehicles that NS incurred in New Orleans for the nine months of January through September 2011 of {{[redacted]}} divided by the number of vehicles {{[redacted]}} handled in New Orleans during the same period. This calculation has nothing to do with the 3.3 million total vehicles handled by NS on its system. SunBelt then applied the unit cost to an estimated number of vehicles by dividing the number of vehicles loaded and unloaded from multilevel flat cars as

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[103] See NS Reply, at III-D-220.

[104] Id. (footnotes omitted).

reported in NS's 2010 R-1 Annual Report[105] by the corresponding number of multilevel flats handled by NS as reported in the NS 2010 Quarterly Carload Statistics ("QCS") Report and multiplied by the number of multilevel flat cars originating and terminating on the SBRR.

Contrary to NS's assertions, it is NS who mixes apples and oranges. NS divides the total number of vehicles it handles regardless of whether it bears the expense of loading and unloading the vehicle (i.e., 3.3 million vehicles) by the number of multilevel flats in order to produce an inflated number of vehicles loaded and unloaded by the SBRR for which it supposedly bears expense. As the unit cost used by both parties is based only on vehicles where NS incurs expense, then the numerator in the calculation of the vehicles per car must also be based on the vehicles for which NS bears the expense, not total vehicles handled. The number of vehicles reported in Schedule 755 of NS's R-1 is therefore the correct numerator.

c. Costs Incurred By The Residual NS For New SBRR-NS Interchanges

NS includes costs for two additional areas it claims would be incurred by the residual NS due to the SBRR's operations: 1) additional taxi expense; and 2) SBRR's use of Distributed Power ("DP"). Each of these issues is discussed below.

i. Additional Taxi Expense

In Reply, NS adds the taxi costs to move NS crews from existing crew on-duty/off-duty locations to SBRR/NS interchange locations created in the stand-alone model, specifically to/from Wilton, AL and Marion Jct., AL. NS attempts to justify this additional expense based on the STB's decision in *Duke/NS*. SunBelt does not accept this additional expense in Rebuttal based on *WFA/Basin*, where the Board determined that it is reasonable to assume the incumbent

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[105] According to Instruction (Q) of Schedule 755 of NS's 2010 R-1 Annual Report this includes only those vehicles loaded and unloaded from multilevel flat cars when the work is performed at the carrier's expense. <u>See</u> SunBelt Rebuttal e-workpaper "Vehicles Loaded and Unloaded.pdf."

would establish a crew change at the hypothetical interchange due to the volume of traffic moving through the interchange, thus avoiding the added taxi expense.[106]

ii. Additional Costs Due To SBRR's Use of Distributed Power

NS claims that the SBRR's operations, which rely on use of DP power configuration, would require NS to retrofit locomotives in its fleet to have DP capability. NS estimates this would cost {[redacted]} per unit and apply to 94 units in its locomotive pool.[107] NS amortized the cost of retrofitting these units over a 20 year period and included this annual expense in the SBRR's operating costs."[108] In Rebuttal, SunBelt accepts the annual expense related to retrofitting NS locomotives for DP service, revised to reflect changes in the number of locomotives provided by SBRR.

d. Calculation of Annual Operating Expense

In Opening, SunBelt discussed the development of operating statistics for the Base Period traffic and the application of operating unit costs to the operating statistics to the full year of traffic statistics to produce annual operating expenses. As discussed, SunBelt followed the procedures accepted by the Board in *WFA/Basin* to accomplish these tasks and the resulting first year operating expenses were provided to SunBelt witnesses Crowley and Fapp who use these first year operating expenses in the DCF model.

In Reply, NS explains that, rather than using Base Period operating statistics (late July 2010 through late July 2011), it uses annualized 2011 data based on MultiRail. As fully discussed in Part III-C, NS's reliance on statistics developed from MultiRail are unreasonable and unsupported. As discussed in Part III-H, NS then uses car-miles to forecast changes in

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[106] See *WFA/Basin*, slip op. at 18.

[107] See NS Reply, at III-D-221-222.

[108] See NS Reply, at III-D-221.

traffic volumes throughout the DCF model rather than SunBelt's use of ton-miles for forecasting operating statistics though the life of the DCF model. SunBelt's response to NS's inappropriate use of car-miles is found in Part III-H.

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III. STAND-ALONE COST

E. NON-ROAD PROPERTY INVESTMENT

SunBelt's Opening evidence describes Non-Road Property Investment as including locomotives, railcars and other equipment, including company vehicles and maintenance-of-way equipment. As stated in Opening, locomotives and railcars are acquired through leases, the cost of which is included in the SBRR operating expenses. Further, the cost of other equipment, such as highway vehicles and maintenance-of-way equipment, are either purchased or leased. If purchased, the purchase price is annuitized and included with operating expenses. If leased, the lease costs are included with operating expenses.

In Reply, NS addressed Non-Road Property Investment only by indicating that all of these items are addressed elsewhere in its evidence. Review of NS's Reply evidence demonstrates that it accepted SunBelt's acquisition of locomotives and railcars though lease agreements, and lease or annuitization of the purchase price of other equipment and inclusion of these costs as operating expenses.

In Rebuttal, SunBelt continues to lease locomotives and railcars and lease or purchase other equipment, and to include the associated expenses in operating costs. Differences in the costs associated with locomotive, railcar and other equipment leases and acquisitions are addressed in Parts III-C and III-D.

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III. STAND-ALONE COST

F. ROAD PROPERTY INVESTMENT

On Opening, SunBelt presented feasible and well supported road property investment costs for the SBRR. SunBelt's Opening costs included real-world costs for common earthwork and several other roadbed preparation items, all of which were lower than comparable Means Handbook unit costs. Otherwise, SunBelt's Opening road property investment costs were generally consistent with those presented in other SAC cases.

Typical of the approach taken by defendant railroads in other SAC cases, NS asserts that SunBelt's road property investment costs are greatly understated. As explained below, NS's Reply investment costs are grossly overstated and, in many instances, are not adequately supported. For all of the reasons set forth in this Part, the Board should reject NS's road property investment costs and accept those presented by SunBelt on Rebuttal and shown in Rebuttal Table III-F-1.

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

	Item	SunBelt Opening	NS Reply	SunBelt Rebuttal
	(1)	(2)	(3)	(4)
1.	Land	$198.9	$218.1	$215.6
2.	Roadbed Preparation	244.5	676.7	260.9
3.	Track Construction	536.7	874.4	583.9
4.	Tunnels	0.0	0.0	0.0
5.	Bridges	316.2	486.4	283.1
6.	Signals & Communications	94.6	198.5	146.2
7.	Buildings & Facilities	17.6	175.7	59.9
8.	Public Improvements	8.1	17.6	12.3
10.	Subtotal	$ 1,416.6	$ 2,647.4	$1,561.9
11.	Mobilization	32.9	72.5	36.4
12.	Engineering	121.8	238.2	134.6
13.	Contingencies	137.2	269.2	151.7
14.	Total Road Property Investment Costs	$ 1,708.5	$ 3,227.3	$1,884.6

Source: SunBelt Rebuttal Exhibit III-F-1.

Prior to addressing the specific differences between SunBelt and NS, it is necessary to address a theme that is prevalent in NS's Reply evidence. Throughout its Reply, NS questions the competence of several of SunBelt's expert witnesses. SunBelt's expert witnesses supporting the road property investment costs of the SBRR have a vast array of experience.

The SBRR's land valuation evidence is sponsored by Richard R. Harps, John G. Pinto, Elizabeth W. Vandermause, Daniel C. Vandermause and Philip H. Burris. Each of these individuals has a minimum of 30 years experience and as much as 45 years experience. Mr. Harps has over 35 years of experience, is a past president of several real estate organizations and has valued property for acquisition by a large transit authority. Mr. Pinto has over 45 years of experience and has performed real estate appraisals related to railroad property and rights-of-way for government agencies, railroads, transit authorities and private sector entities. Ms.

Vandermause has over 30 years of experience and has conducted appraisals for a large transit agency. Mr. Vandermause has over 22 years experience in real estate matters as well as 16 years experience in the railroad industry. Mr. Burris has presented evidence pertaining to easements in stand-alone proceedings for over the last ten years.

The remainder of SunBelt's road property investment evidence is sponsored by Mr. Harvey A. Crouch, Mr. Victor F. Grappone and Mr. Charles A. Stedman. Mr. Crouch has over 30 years of railroad engineering experience and is a member of several railroad and engineering associations. Mr. Crouch worked for NS and its predecessor, Southern Railway, for ten years prior to founding Crouch Engineering in 1991, and has since worked on numerous projects for NS. Mr. Crouch has presented evidence before the STB in a recent stand-alone cost ("SAC") proceeding.

Mr. Grappone has 35 years of experience with railroad and transit signal and communications systems including 24 years with the Long Island Rail Road ("LIRR"). In 2001, he founded Grappone Technologies and has since undertaken projects for several rail entities, including the LIRR and New York City Transit. Mr. Grappone has presented evidence on signals and communications costs before the STB in several recent SAC proceedings.

Mr. Stedman has over 31 years of experience in the railroad consulting business and was instrumental in identifying the ICC Engineering Reports as a useful source of information on original railroad construction and adapting this information for use in stand-alone cost proceedings before the ICC and the STB. Mr. Stedman has presented evidence on roadbed preparation costs before the ICC and the STB in virtually every stand-alone cost proceeding since 1994.

SunBelt's road property investment expert witnesses have a vast wealth of knowledge and experience in developing the costs associated with a stand-alone railroad.

1. Land

In Opening, SunBelt's land acquisition costs for the DRR were developed by Richard R. Harps, MAI, CRE; John C. 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 Appraisal Institute ("MAI") designation from the Counselors of Real Estate. In addition, 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 right of way including valuation of rail properties throughout the United States and Canada.

In Opening, SunBelt estimated that the SBRR's right-of-way, excluding easements, would cost $199.1 million to acquire. Mr. Harps' valuation considered all segments of the railroad, particularly the major urban centers. In addition, the real estate team toured significant portions of the route, and reviewed other data such as aerial maps. Mr. Harps also consulted with various local appraisers along the SBRR route. On Reply, NS has raised the SBRR's land acquisition costs well beyond the bounds of reasonableness. In addition, as summarized below and detailed in the Report attached as Rebuttal Exhibit III-F-2, the way NS reached these new heights is simply untenable and produces unrealistic results.

SunBelt's real estate experts conclude that their original land valuation, presented in SunBelt's Opening evidence, is the best representation of the value of the land required for the SBRR. However, one adjustment is required for the land valuation in response to valid issues raised by NS in Reply, i.e., modifications and additions to the land required for yards and other supporting facilities.[1]

Taking the above modifications into account, Table III-F-2 below summarizes SunBelt's valuation of the land required for the SBRR.

Table III-F-2
Land Valuation for SunBelt Stand-Alone Railroad

Item	Total Miles	Total Acres	Estimated Value ($000)
(1)	(2)	(3)	(4)
1. Land Valuation for SBRR (Opening)	578.2	6,723.1	$198,900
2. Modifications to Yards/Supporting Facilities	xxx	174.9	$16,500
3. Total Land Valuation for SBRR	578.2	6,898.0	$215,400
4. Easements (Opening)	xxx	xxx	$163
5. Total Including Easement Fees	578.2	6,898	$215,563

Source: SunBelt Opening e-workpaper "SunBelt SAR Land Valuation – 2012.pdf" and Rebuttal Exhibit III-F-2.

SunBelt reviewed NS's Appraiser's Report to determine its compliance with generally-accepted appraisal practices and conformance with the Uniform Standards of Professional Appraisal Practice ("USPAP"). The value conclusions reached by the NS appraiser were also assessed.

The primary conclusions of this review are:

1. The NS Appraiser developed and applied a purely mathematical and highly mechanized approach that did not apply basic appraisal principles.

2. The NS Appraiser failed to consider the quantity and quality of the sales data available.

[1] Acres in yards were modified in Rebuttal in order to accommodate increased yard sizes as a result of the addition of classification tracks. In addition, yard acres were increased to reflect acres for intermodal yards and an auto distribution yard.

3. The NS Appraiser failed to consider basic valuation tenets.

4. The NS Appraiser applied analysis techniques (simple average) that resulted in land valuations that were unsupported by the sales.

5. The NS Appraiser relied heavily on route-average and state-average land values, thus transferring urban land values to rural areas.

For all of the aforementioned reasons, the conclusions reached by the NS Appraiser are necessarily unreliable and unsupported. The details of SunBelt's evaluation of the NS appraisal are included in Rebuttal Exhibit III-F-2, highlights of that report are summarized below.

The NS Appraiser describes the process undertaken in his analysis as a sophisticated mass appraisal methodology, however, use of these supposedly sophisticated data techniques did not absolve NS of the responsibility for making sure that the data was being handled in a manner that is consistent with the appraisal problem being addressed.

In the mass appraisal section of the USPAP is the following comment:

> This Standards Rule requires appraisers engaged in mass appraisal to take reasonable steps to ensure that the quantity and quality of the factual data that are collected are sufficient to produce credible appraisals……Property characteristics data must be appropriate and relevant to the mass appraisal models being used.[2]

The above USPAP requirements were not fulfilled by the NS Appraiser.

a. NS's Land Valuation Approach is Flawed

By ignoring the most basic characteristics of land sales, that every appraiser should consider, the NS Appraiser failed in his responsibility to produce value conclusions that are supported and not misleading: (1) the NS Appraiser failed to analyze and account for changes in market conditions/market trends; (2) the NS Appraiser failed to account for differences in parcel

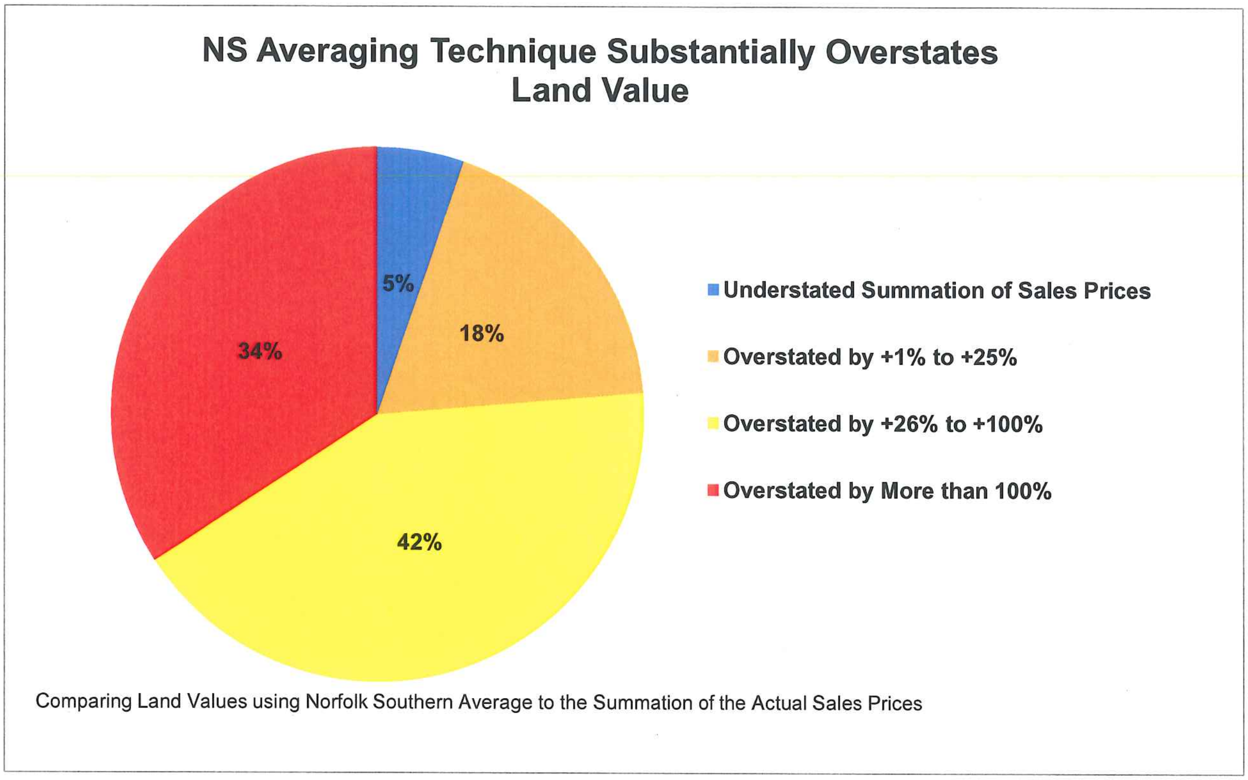
[2] See Uniform Standards of Professional Appraisal Practice 2012-2013 Edition (USPAP), The Appraisal Foundation, page U-51.

size (a key determinant of land value) in the comparable sales; (3) the NS Appraiser utilized an inappropriate averaging technique, leading to inflated value conclusions; (4) the inflated value conclusions developed by the NS Appraiser were contrary to the "no barriers to entry" requirement in SARR analysis; and (5) the NS Appraiser made extensive use of route-average and state-average land values, to value land in rural jurisdictions.

The NS Appraiser compiled sales data sets grouped by zoning/use and sorted by price per square foot only. The data sets included sales from several years, parcels of various sizes, urban and rural locations sometimes mixed together, and all sales were only sorted by price per square foot. By creating such non-homogeneous data sets, the NS Appraiser failed to analyze and account for changes in market conditions / market trends, differences in average prices attributed to land sizes, and the differences attributed to locations (urban and rural land).

By giving equal weight to each sale in developing his average price per acre, the NS Appraiser overstated land values in the vast majority of cases. SunBelt's experts applied the NS Appraiser's average land values back to the same sales used to create the average. The sum of the sales values using the NS Appraiser's average compared to the sum of the actual sales prices shows that the average prices exceed the actual prices 95 percent of the time. Figure 1 below graphically displays these results.

Figure 1



SunBelt's experts tested 38 sales data sets, representing all the land sales used by NS. For each set of sales, they compared the summation of the actual sales prices to the summation of the prices computed using the NS Appraiser's average land price. The results show the impact of grouping a non-homogeneous set of sales into one data set and giving all sales equal weight, leading to conclusions that do not produce a meaningful value.

The use of the NS Appraiser's average land value overstated the summation of the actual sales prices in 95 percent of the cases, as shown in Figure 1 above. The degree of overstatement is significant – 76 percent of the time, the sales prices were overstated by more than 25 percent, and 34 percent of the time, the overstatement more than doubled the actual sales prices.

At this point, having failed to properly account for differences in the sales data, the NS Appraiser then utilized the non-homogeneous sales data to produce his land valuations that were based solely on unit price.

- The only categorization or "stratification" of the sales data by the NS Appraiser was by unit price. Without accounting for the differences in parcel size or any other factors that could impact the unit price, the use of this single measure (unit price) as a surrogate for all other valuation factors does not and cannot produce credible value conclusions.

- When eliminating sales as "outliers," only the highest unit price sales were excluded. Having committed the error of using an improper averaging technique (that overstated the resulting land value conclusions), the NS Appraiser then committed another error by eliminating sales only from the high end of the spectrum, making it impossible to judge the reasonableness of the resulting value conclusions.

- By routinely applying route-average or state-average land values to rural jurisdictions, the NS Appraiser applied urban-area land values to rural areas.

When faced with few or no sales for a county, the NS Appraiser often relied on average land values for the entire route. Table III-F 3, Column 7 below shows the frequency the route-average land value or state-average land value is used by the NS Appraiser.

Table III-F-3
Percent of NS Valuations Based on State and Route Averages
($ in 000)

				Portion of Column (3) Value		
State	**Route**	**NS Value**	**State Average**	**Route Average**	**Both Averages**	**Frequency Of Use of Averages**
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. AL	Birmingham (Watts Jct to Irondale)	$4,019	$0	$0	$0	0.0%
2. AL	Birmingham (Irondale to Burstall)	$17,384	$0	$0	$0	0.0%
3. AL	Birmingham to New Orleans	$34,418	$2,982	$19,627	$22,609	65.7%
4. AL	Tuscaloosa	$3,277	$862	$1,220	$2,083	63.5%
5. AL	Burstall to McIntosh	$30,816	$0	$16,239	$16,239	52.7%
6. AL	Subtotal	$89,914	$3,844	$37,087	$40,931	45.5%
7. LA	Birmingham to New Orleans	$20,763	$0	$0	$0	0.0%
8. LA	New Orleans	$58,917	$0	$0	$0	0.0%
9. LA	Subtotal	$79,680	$0	$0	$0	0.0%
10. MS	Birmingham to New Orleans	$22,911	$0	$5,126	$5,126	22.4%
11. Total SARR		$192,505	$3,844	$42,213	$46,057	23.9%

Source: Rebuttal Exhibit III-F-2.

For land values in Alabama, the NS Appraiser utilized either route-average or state-average land values for 45.5 percent of the total Alabama land valuation (Table III-F-3, Line 6, Column (7)). In Mississippi, the NS Appraiser used route-average land values for 22.4 percent of the total land valuation in that state (Table III-F-3, Line 10, Column (7)). As shown in Table III-F-3, Line 11, Column (7) above, the NS Appraiser utilized route-average or state-average land values to develop 23.9 percent of the total base land valuation for the SBRR.

At first glance, using the route-average land value seems like a reasonable way to deal with the lack of sales data for a rural county. However, most routes include at least one urban area, where sales data is typically concentrated. The NS Appraiser's approach implies that the value of land can be consistent across an entire route or across an entire state. That assumption overlooks the significant differences in land value between urban and rural areas. By using the route-average and state-average land values, the NS Appraiser is transferring urban land values to rural counties.

An example of this transferal is shown in Table III-F-4 below.

Table III-F-4
Distribution of Urban Sales in NS Appraisal - Alabama

Alabama Route	Sales in Urban Counties	Sales in Rural Counties	Urban Sales as a % of Total Sales
(1)	(2)	(3)	(4)
1. Burstall, AL to McIntosh, AL	215	141	60%
2. Birmingham, AL to New Orleans, LA	237	1	100%
3. State of Alabama	237	141	63%

Source: Rebuttal Exhibit III-F-2.

Urban land sales predominate both the route-average and state-average used by the NS Appraiser for Alabama.

Having committed the error of using an improper averaging technique (that overstated the resulting land value conclusions), the NS Appraiser then committed another error by eliminating sales only from the high end of the spectrum, making it impossible to judge the reasonableness of the resulting value conclusions.

The value conclusions of the NS Appraiser were unsupported by the data, and therefore the value conclusions are unreliable as a reasonable estimate of land value for the land required by the SBRR. The NS Appraiser's conclusions must be rejected.

b. NS's Criticisms of SunBelt's Appraisal Are Baseless

The NS Appraiser (FTI Consulting) submitted an appraisal review, dated December 20, 2012, of SunBelt's valuation of the land underlying the SunBelt SARR. The main observations and conclusions from SunBelt's Rebuttal of that appraisal review are summarized below.

1. The NS Appraiser contends that the land use definition in SunBelt's appraisal was not sufficiently detailed. In fact, the land uses designated in SunBelt's appraisal properly reflect the underlying land value for that portion of the SunBelt SARR.
2. The NS Appraiser, in his review, contends that SunBelt's physical inspections of the subject property were not extensive enough, and that SunBelt relied too much on computer-based tools for our inspections.

The NS Appraiser also questions several aspects of SunBelt's land sales research and land valuation process, i.e., (1) the purported use of sales with reported improvements; (2) the purported use of property assessment data as the basis for land value; and (3) an overreliance on "anecdotal" sources of secondary information, such as assessors, brokers and appraisers.

Each of these concerns is addressed in detail in Rebuttal Exhibit III-F-2. Rebuttal Exhibit III-F-2 also describes the scope of SunBelt's analysis process, and illustrates how the process was documented in the evidence provided in this case. The procedure SunBelt used adheres to one of the most important elements of appraising - addressing the quality and quantity of the data used in the appraisal. Each individual land value was not considered in isolation – relationships among the property types were considered, as well as value conclusions reached in nearby, similar jurisdictions. SunBelt consistently reviewed the valuation estimates to produce a reliable conclusion.

- The NS Appraiser, in his review, contrasts the averaging technique used in SunBelt's appraisal (a weighted average approach) with the averaging technique used in the NS Appraiser's valuation report. SunBelt's Rebuttal Report clearly shows that the weighted average technique is a superior technique to use in valuing land for the SARR, because it produces more reliable conclusions.

The NS Appraiser, in his review, also attempts to characterize the averaging technique used in SunBelt's appraisal as one that the appraisal industry in general, and the Appraisal Institute in particular, have rejected.

This section of the NS Appraiser's review document and testimony is misleading, because it is an attempt to confer the approval of the Appraisal Institute on the averaging technique used in his appraisal, as well as the specific rejection by the Appraisal Institute of the averaging technique utilized in SunBelt's appraisal. *This is a false and willfully misleading claim by the NS Appraiser, and must be disregarded.*

SunBelt's appraisal followed recognized and established appraisal techniques that are appropriate. The process followed in developing the land valuation was not a mechanical process that was followed lockstep, such as that used by the NS Appraisers. Instead, the quantity and quality of the sales data available dictated the process used in developing the land valuation, to ensure the most accurate, reasonable and supportable values that were consistent with the actual sales in the market. In Sum, the SunBelt appraisal is the only valid valuation of the land required for the SBRR.

c. Easements

SunBelt disagrees with NS's claim that easement prices for the DRR should be increased by inflation, or that, alternatively, current land (fee simple) prices should be used in place of easement prices. NS's claims are incorrect for two reasons. First, easements themselves are typically acquired by payment of a one-time fee, and easement agreements do not provide for inflation of that fee. As the SBRR is stepping into NS's shoes with regard to these agreements, it is entitled to the cost and benefit of these agreements, including the fee actually paid for the perpetual easement.[3] To do otherwise would be a barrier to entry.[4]

Second, an examination of possible ways to reflect the change in easement prices over time demonstrates that various land value indexes were inappropriate for measurement of the change in easement values. Stated differently, there is no evidence that the value of easements escalates over time with inflation. SunBelt reviewed NS's and its predecessor companies' actual experience with the easements at issue. Because these easements were acquired by NS between 1859 and 1983, SunBelt reviewed the actual amounts NS paid for easements over this 125-year period. The average price paid for the easements varied between $0.00 and $9,874 per acre. NS paid $0.00 per acre or $1.00 per acre several dozen times, (including as recently as 1983) during the 125 years.[5]

Further, along the SBRR routes NS acquired land via easements in Alabama and Mississippi. Easements in Alabama were acquired between 1859 and 1910 at fees ranging from $0.00 per acre to $14.57 per acre, with the highest fee being paid in 1861, and the $0.00 per acre applying in both 1859 and 1910. In Mississippi, easements were acquired between 1859 and 1983, with a range of $0.00 per acre and $9,874 per acres. While the anomalous highest fee of $9,874 was paid in 1983, so was the lowest fees paid of $0.00.

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[3] See *TMPA,* p. 697.

[4] Furthermore, the Board "does not require a stand-alone railroad to acquire greater title to property than the incumbent railroad." *See TMPA,* p. 697. If the Board follows NS's suggestion and values the easement as a fee interest, it will have essentially required the SBRR to acquire a greater interest in land than NS's interest.

[5] See SunBelt Rebuttal e-workpaper "SBRR Easement Fees_Rebuttal.xlsx" which shows the price per acre paid for easements each year by state.

The prices paid clearly demonstrate that there is no specific trend in the price of the easements during this period. For these reasons, SunBelt continues to rely on its Opening evidence regarding the value of easements required for the SBRR's right-of-way.

2. Roadbed Preparation

In Opening, SunBelt relied on the Trestle Hollow Project for several of its construction unit costs, most notably the earthwork unit costs. At the beginning of Roadbed Preparation in Reply, NS devotes sixteen pages to attacking SunBelt's: (1) failure to use unit costs from R.S. Means ("Means Handbook"); (2) use of the Trestle Hollow Project; and (3) failure to rely on AFE information provided by NS in discovery.[6] SunBelt addresses each of NS's claims below and demonstrates that SunBelt's Opening is justified and feasible.

a. R.S. Means Unit Costs

NS claims "[t]he Board has long accepted R.S. Means as the appropriate, authoritative source for earthwork costs."[7] Means Handbook unit costs have been used in most prior SAC proceedings because the defendant railroads failed to provide any representative earthwork cost data from actual projects. *WFA/Basin* was the first proceeding where meaningful earthwork cost data for actual projects was provided by the defendant railroad in discovery. That trend was continued in *AEPCO 2011*. As discussed later in this section, NS broke this trend which is why SunBelt relied, in part, on the Trestle Hollow Project.

The Means Handbook is one of many ways to project costs for a planned rail project. Crouch Engineering, the firm founded by Crouch Engineering President and SunBelt's expert engineering witness, Harvey Crouch, typically uses a combination of its historical tabulated prices and those developed by various state Departments of Transportation ("DOT"). For

[6] See NS Reply at III-F-33-48.

[7] Id. at III-F-34.

example, when Crouch Engineering developed its excavation unit cost estimate for the Trestle Hollow Project, it assumed that the cost per cubic yard ("CY") would be $1.75 based in part on the Tennessee DOT average of $1.50 per CY in 2005. Crouch Engineering added $0.25 per CY over the Tennessee DOT figure to account for the increased difficulty of the project. In the end, two contractors, including the successful bidder, both provided bids where the cost per CY for excavation was $1.65.

Means Handbook unit costs do not recognize the economies of scale of large railroad projects such as the SBRR which makes costs derived from direct experience (when available) more useful. In particular, the Means Handbook states that "[t]he size, scope of work, and type of construction project will have a significant impact on cost. Economies of scale can reduce costs for large projects."[8] Clearly, the SBRR's construction would be classified as a large project resulting in reduced unit costs (*i.e.*, lower than those shown in the Means Handbook). SunBelt's reliance on unit costs derived from other projects (such as the Trestle Hollow Project), vendor quotes or discovery documents is equally as valid as (if not preferable to) reliance on Means Handbook unit costs. Mr. Crouch's direct experience with railroad projects supports SunBelt's contention that actual project unit costs are lower than those found in the Means Handbook. In Rebuttal, SunBelt continues to use unit costs derived from the actual Trestle Hollow Project and Means Handbook unit costs where direct project costs are not available.

b. Trestle Hollow Project

NS claims that *WFA/Basin* and *AEPCO 2011* do not support SunBelt's use of the Trestle Hollow Project because, unlike those cases, the Trestle Hollow Project was not conducted by

[8] See SunBelt Rebuttal e-workpaper "Means Handbook project size.pdf."

NS, is not on the NS system and was tiny in size and scope.[9] But *WFA/Basin* and *AEPCO 2011* support the concept that actual earthwork costs bid by contractors for actual railroad projects are lower than average costs from the Means Handbook. Therefore, current real-world costs, when available, are preferred over the Means Handbook.

While NS may not have constructed the Trestle Hollow Project, it was overseen by a former NS employee, Mr. Crouch, who was a Track Supervisor and Project Engineer for NS and has also designed over 30 capital projects for NS.[10] While the Trestle Hollow Project may not be on the NS system, it is located in the Southern U. S., within 250 miles of the territory traversed by the SBRR. Furthermore, NS certainly employs contractors to do earthwork on many projects and NS simply oversees the work, just as Crouch Engineering did for the South Central Tennessee Railroad. NS's position that the Trestle Hollow Project was not on the NS system is irrelevant to whether those costs are an accurate representation of the costs to construct the SBRR.

NS's claim that the Trestle Hollow Project is "tiny in size and scope in comparison to the SBRR"[11] also carries no weight. Any recent railroad construction project, including all of the other projects identified by NS in its Reply, would be "tiny in size and scope" when compared to the 578-mile SBRR.[12] Furthermore, this argument also undermines NS's use of the Means Handbook, which as noted above, does not reflect the economies of scope or scale of a project the size of the SBRR.

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[9] See NS Reply at III-F-35-36.

[10] See SunBelt Opening at IV-15.

[11] See NS Reply at III-F-35.

[12] This would also hold true for all of the projects used by R. S. Means to develop the unit costs in the Means Handbook.

NS does not accept SunBelt's use of costs from the Trestle Hollow Project because of the obvious reason – the costs are too low to suit NS's object of artificially inflating the construction costs of the SBRR.

To support its much higher Means Handbook unit costs, NS attempts to discredit the Trestle Hollow Project by suggesting that the project was a "small, isolated, and atypical short-line construction project."[13] NS's position is that, because the Trestle Hollow Project is a short-line project, it is therefore substandard or not relevant to what the SBRR is building or is atypical of the unit costs SunBelt could expect if it bid out this project. Building a railroad, with complications such as those on the Trestle Hollow Project, is still building a railroad. The Trestle Hollow Project simply proves, as the Walker to Shawnee (Wyoming) project used in *WFA/Basin* proved, that the SARR can expect to beat Means Handbook unit costs by using real-world project costs.

NS includes a one-page discussion of a site visit to the Trestle Hollow Project location made by NS witness Bagley in which he characterizes the Trestle Hollow Project as a "simple construction project."[14] Mr. Bagley visited the site after the completion of the project. SunBelt engineering witness Crouch was involved with the Trestle Hollow Project from beginning to end and his opinions, expressed below, certainly are more insightful than Mr. Bagley's cursory review of a finished project.

The Trestle Hollow Project involved constructing a complicated, new alignment for the South Central Tennessee Railroad. The Trestle Hollow Project was constructed in difficult conditions, including steep terrain, with slopes in excess of 2:1, requiring deep cuts and high fills. The purpose of the project was to bypass several large timber bridges that had been built at

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[13] See NS Reply at III-F-36.

[14] See NS Reply e-workpaper "South Central Tennessee Railroad-Trestle Hollow Project.docx."

the turn of the 20th century. The alignment was designed to improve the vertical grade and reduce curvature. The curvature was reduced from nine (9) degrees and six (6) degrees to curves with a maximum of four (4) degrees. The original alignment skirted hilly terrain running west from Centerville, TN to Hohenwald, TN. The new alignment was designed and built on an average 2.4 percent grade over the length of the project, which was an improvement over the original maximum slope. The new design was difficult due to the very hilly terrain and the number of ridges and valleys encountered along the proposed alignment. In addition, much of the land had not been accessed in decades. The resulting design included several tall embankments and a number of deep cuts, all on an average 2.4 percent grade. The elevation change from one end of the project to the other was well over 100 vertical feet. The contractor used scrapers, assisted by bulldozers when necessary, and large excavators with trucks to perform the earthwork.[15] Clearing was difficult due to the hilly nature of the land and the size of the trees.

NS claims that the "Mass Excavation" line item that encompassed all grading for the Trestle Hollow Project cannot mean common earthwork as used by SunBelt.[16] NS is again incorrect. The "Mass Excavation" designation was not part of the bid documents that were issued for the Trestle Hollow Project. The project bid documents used "Unclassified Earth" or "Unclassified Excavation," which meant that any type of material encountered would all be paid on the same basis.[17] In other words, the designation encompassed common earthwork, plus any other materials that might be encountered. "Mass Excavation" was the term the contractor used

[15] See the photos included in SunBelt's Opening workpapers in the "Trestle Hollow Pictures" subdirectory.

[16] See NS Reply at III-F-37.

[17] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf," pages 142 and 150 (pages 151 and 159 in the pdf file).

in responding to the bid. Simply put, SunBelt's engineers were conservative in applying the Trestle Hollow Project unit cost only to common earthwork – they could have easily applied it to the loose rock category as well. Indeed, the geotechnical reports for the Trestle Hollow Project show that various chert rock classifications were found in the borings,[18] and ultimately were excavated without any increase in the excavation unit cost.

NS next complains that the high concentration of cubic yards of excavation per mile involved in the Trestle Hollow Project would provide economies that are unavailable on the SBRR, where the average cubic yards per mile are lower. NS's argument misses the point.

While it is true that the concentration of cubic yards was higher in the Trestle Hollow Project than the average on the SBRR, the Trestle Hollow Project was complicated. Moving high volumes such as those encountered on the Trestle Hollow Project requires careful coordination, particularly the proper staging of culvert and grading work, the ability to move large volumes of material in a short amount of time, and the ability to spoil, or waste, excavated material offsite. The Trestle Hollow Project was more difficult than what the SBRR would encounter on many of the lines that it is replicating; yet SunBelt only applied the Trestle Hollow cost to non-adverse common excavation. Therefore, the application of the unit cost to easier territory is justified despite the lower volume per mile, especially when considering that the total cubic yards of common earthwork for the SBRR project exceeds 300 million CY (*i.e.*, SunBelt can and will realize economies of scale).

NS next tries to call into question the unit costs used by SunBelt from the Trestle Hollow Project by identifying a $10 difference in the total costs between the lump sum bid of $2,698,324

[18] Id. at 3 of the Geotechnical Report (page 231 in the pdf file).

provided by K. W. Lankford in one workpaper provided by SunBelt,[19] and the workpaper used by SunBelt for the unit costs (referred to by NS as the "Cost Tracker"), which shows a total of $2,698,334.[20] NS then tries to smear the Cost Tracker document by suggesting that it was prepared after the fact for litigation purposes.[21]

There is nothing to support NS's outrageous and unsupported accusation that SunBelt developed something after the fact for litigation. Crouch Engineering is the firm that oversaw the Trestle Hollow Project from the beginning of the process through the completion of construction. The bidding was conducted on a lump sum basis, but the bidders were told that the winning bidder would have to provide an itemized list showing quantities and unit prices so that monthly invoices could be submitted and paid. The Cost Tracker was provided by K. W. Lankford after winning the bid and prior to submitting the first invoice. A review of the first K. W. Lankford invoice submitted for May 2007 (included in SunBelt's Opening workpapers but obviously overlooked by NS) shows the unit cost and quantity breakdown.[22] This invoice also shows a project total of $2,698,324 (the same as the lump sum bid) demonstrating that the $10 difference on the Cost Tracker is simply a typo and has no impact on the unit costs used by SunBelt.[23]

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[19] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf," p. 5 (page 10 in the pdf file).

[20] See SunBelt Opening e-workpaper "Trestle Hollow Project Cost Sheet.pdf."

[21] See NS Reply at III-F-38.

[22] See SunBelt Opening e-workpaper "5070 SCTRA Trestle Hollow Phase I Contractor Invoices.pdf," p. 4 of 60.

[23] The $10 difference is in the total cost figures shown for Class B Rip Rap. Compare SunBelt Opening e-workpapers "Trestle Hollow Project Cost Sheet.pdf" and " 5070 SCTRA Trestle Hollow Phase I Contractor Invoices.pdf," p. 4 of 60.

NS also refers to a couple of inconsistencies between the Trestle Hollow Project contract bid documents[24] and the Cost Tracker in a feeble attempt to undermine the unit costs on which SunBelt relied.[25] NS's claims are misguided and have no merit.

The Cost Tracker identifies 787,223 units of mass excavation. NS's issue with mass excavation has already been addressed. NS notes that the units are labeled "EA" and not "CY" and tries to read something untoward into this distinction. In reality, the "EA" is just a typographical error and should be "CY."[26]

Next, NS comments that the Cost Tracker shows 787,223 units of excavation, but the notes to the bidders meeting state "Yardage 630,000,"[27] and tries to make something out of this difference. NS is once again misguided in its effort to discredit the Trestle Hollow Project. The 630,000 CY was a preliminary estimate of the quantities of earthwork. According to Mr. Crouch, this estimated amount was subsequently increased to 696,000 CY. Furthermore, the construction plans for the Trestle Hollow Project were provided to the contractors and they were free to develop their own quantity estimate. The 787,223 CY is the estimate used by K. W. Lankford.

NS next claims that the grading contractor on the Trestle Hollow Project had some sort of advantage with a wider right-of-way than the SBRR. NS refers to a right-of-way width of 187 feet based on 30 acres cleared and some contractor notes that referred to 600 feet of clearance before encroaching on adjacent property lines.[28] Again, NS's claim has no merit.

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[24] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf."

[25] See NS Reply at III-F-38.

[26] See SunBelt Opening e-workpaper "5070 SCTRA Trestle Hollow Phase I Contractor Invoices.pdf," p. 4 of 60.

[27] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf," page 279 of 287.

[28] See NS Reply at III-F-39.

Thirty acres were cleared in order to allow for the tall fills and deep cuts in a steep-sloped area, not to increase the right-of-way width. Even so, the right-of-way width does not necessarily translate into clear space for equipment to maneuver due to the surrounding topography. Mr. Crouch recalls that there were areas where turning equipment around was difficult but the project was not hindered by this limitation. Furthermore, the note referring to 600 feet of clearance before encroaching on private property is just a note; it is not a definition of right-of-way width for purposes of maneuvering equipment. None of the equipment used in the Trestle Hollow Project would have difficulty operating within the right-of-way widths of the SBRR.

NS next refers to a cryptic note from the contractor's meeting and concludes that the contractor placed excavated spoils materials (waste) along the right-of-way.[29] NS's conclusion is incorrect. Mr. Crouch recalls that the contractor had to contract with adjacent landowners for a spoils (waste) area and no excess excavation was placed on the railroad right-of-way.

NS then criticizes SunBelt's use of the Trestle Hollow Project by referring to a soil analysis that NS conducted in Reply.[30] As discussed later in the "Subgrade Preparation" section of this Rebuttal, SunBelt demonstrates that NS's so-called soil analysis is unreliable and, as a result, NS's criticisms have no merit.

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[29] See NS Reply at III-F-39, and note 39, where NS refers to SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf," p. 279. NS is referring to the following comment "100,000-rest spoil-spoil on slopes limited (extend) spoil areas up to contractor (were to spoil 200,000 @ Duck River not available)."

[30] See NS Reply at III-F-39-40.

c. NS AFEs

Having exhausted its attack on the Trestle Hollow Project, NS attacks SunBelt for not relying on Authorizations for Expenditure ("AFEs") provided by NS in discovery.[31] NS begins by stating that it made a list of 897 separate AFEs available for SunBelt to review. Ninety-seven (97) of the AFEs contained costs for "grading" activities and SunBelt only requested thirteen (13) AFEs.[32] NS's criticism again has no merit.

NS has told only part of the AFE story. AFEs were offered to SunBelt in response to several discovery requests, not just grading costs. In response to Request for Production ("RFP") Nos. 71, 113, 117, 118, 120, 122 and 123, NS stated that AFEs would be made available to SunBelt to obtain the requested information. Contrary to NS's inference, the AFEs were not produced solely for the purpose of obtaining grading cost information.

Furthermore, SunBelt was limited in the total number of AFEs it could request. In response to RFP No. 117, NS stated:

> NS responds that it will produce a list of AFEs...from which SunBelt can select a reasonable number for production or inspection at NS offices.

NS makes it sound as if SunBelt could have requested all ninety-seven (97) grading AFEs. This is not true. SunBelt had to select AFEs for several different cost areas, not just roadbed preparation, and still keep the request to a "reasonable number." SunBelt selected 133 of the 897 AFEs,[33] of which thirteen (13) were related to grading. SunBelt did not request additional AFEs

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[31] Id. at III-F-40-43.

[32] Id. at III-F-40-41.

[33] One hundred (100) of these AFEs were originally requested in *DuPont* from a list of 775 (to which SunBelt was granted access by NS) and 33 additional AFEs were requested from a supplemental list of 122 AFEs. See NS Reply e-workpaper "SunBelt Letter Requesting Requesting Detailed AFEs.pdf."

later as discovery had closed. Having imposed a limit on the number of AFEs that SunBelt could request, NS cannot now fault SunBelt for not using AFEs that were not selected.

In Reply, NS claims that SunBelt dismissed the costs from the AFEs it requested because the projects were too small.[34] NS mischaracterized SunBelt's Opening evidence. A review of SunBelt's Opening at pages III-F-12-13 reveals that SunBelt never referred to these projects as small. Rather, SunBelt explained that these projects were {{[redacted]}} with CY quantities ranging from {{[redacted]}} and not remotely akin to new rail line construction like the SBRR. Furthermore, these quantity and cost estimates were prepared by the {{[redacted]}} and none showed actual bid costs from contractors. In addition, all these projects were for extensions or modifications to existing track, meaning that they were performed "under traffic" which increases the cost.[35] SunBelt did not rely on the NS-provided AFEs for the development of earthwork costs because they were not representative of the new rail construction required to build the SBRR.

NS next includes a table listing eleven (11) of the thirteen (13) AFEs as projects that included costs directly related to excavation and borrow.[36] These are the same AFEs that SunBelt reviewed and described in its Opening evidence as discussed above.

NS then claims that SunBelt dismissed NS's AFE unit costs because they were higher than the Trestle Hollow Project costs and the Means Handbook costs.[37] This is also untrue. SunBelt rejected NS's AFE unit costs for all the reasons explained on Opening and did not use the Means Handbook unit costs because, as explained earlier, actual project costs are superior.

[34] See NS Reply at III-F-41, referring to SunBelt Opening at III-F-12.

[35] The SBRR will be constructed without interference from existing traffic moving over lines adjacent to its construction.

[36] See NS Reply at III-F-42.

[37] Id. at III-F-43.

NS next launches into a discussion of the Keystone Build-Out Project ("Keystone Project") in Shelocta, PA. NS provided details on this project to SunBelt in discovery and infers that this is another actual project from which SunBelt could have used unit costs for earthwork.[38]

The earthwork cost of $11.47 per CY at 2011 levels shown for the Keystone Project is unreliable and not applicable to the SBRR as a common excavation unit cost for several reasons. First, this unit cost is based on a preliminary estimate by {{[redacted]}}[39] and not actual bids from contractors. Second, the Keystone Project was in the Northeastern U. S., not the Southern U. S., and is nearly 1,000 miles from the territory traversed by the SBRR. Third, NS describes the Keystone Project as being {{[redacted]}}[40] but there is no distribution of the estimated {{[redacted]}} CY of earthwork into the three earthwork excavation types (common, loose rock and solid rock). Finally, this project is located within 15 miles of an existing NS rail line between Pittsburgh, PA and Harrisburg, PA which was classified by NS as adverse territory in another proceeding.[41] The portion of this rail line closest to the Keystone Project is covered by valuation section PRR-17.1&17.2-PA (covering Pittsburgh, PA to Altoona, PA) which has a distribution of earthwork, by type, of over 46 percent solid rock.[42] Clearly this indicates that the $11.47 unit cost is for more than just common earthwork.

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[38] Id.

[39] See NS Reply e-workpapers "Keystone (NS-DP-HC-25663 to 25701.pdf," pp. 22-24 and "NS Actual Earthwork Costs.xlsx," tab "Actual Cost data," Lines 25 and 26.

[40] See NS Reply e-workpaper "Keystone (NS-DP-HC-25663 to 25701.pdf," p. 19.

[41] See NS's November 30, 2012 Reply (Public Version) in Docket No. NOR 42125 E. I. DuPont de Nemours & Company v. Norfolk Southern Railway Company, Volume 3 of 5 at III-F-62.

[42] See SunBelt Rebuttal e-workpaper "Val Section PRR-17-PA Material Distribution.pdf."

For the above reasons, the unit cost from the Keystone Project is not useable for common excavation on the SBRR.

NS next puts forth Table III-F-10 comparing the unit cost for the Trestle Hollow Project used by SunBelt for just common excavation to the unit costs for NS's AFEs and the Keystone Project, for all categories of earthwork.[43] NS even admits that this comparison is inappropriate by stating:

> Neither the NS AFEs nor the Keystone documents provide separate unit costs for common, loose rock or solid rock excavation so the cost per cubic yard reflected in Table III-F-10 are the average cost for all categories of earthwork in each of the representative projects.[44]

In Table III-F-11, NS compares the average cost per CY over all types of earthwork used in SunBelt's Opening (a combination of the Trestle Hollow Project cost and Means Handbook unit costs) to the average cost per CY using the Means Handbook for all costs, the NS AFE unit costs, and the Keystone Project cost.[45] From this comparison, NS draws the conclusion that SunBelt's average earthwork costs are unrealistically low because of the Trestle Hollow Project.[46] On the contrary, this table demonstrates that the SBRR is a least-cost most-efficient railroad by showing that the actual costs for a large railroad project are lower than both Means Handbook costs and the costs for a few small NS projects that were estimated by NS and not based on actual bids from contractors. Just because the SBRR's costs are lower does not make them incorrect. SunBelt demonstrated the feasibility of its unit costs on Opening and reinforces that demonstration on Rebuttal.

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[43] See NS Reply at III-F-45.

[44] Id.

[45] Id. at III-F-46.

[46] Id.

NS's final Table III-F-12 compares SunBelt's average unit cost for all types of earthwork to the Means Handbook cost for common earthwork shown in SunBelt's Opening workpapers.[47] NS claims SunBelt "jettisoned" the Means Handbook costs after seeing the result "in an attempt to depress the SBRR's excavation costs."[48] This is simply not true. As explained on Opening, and reinforced on Rebuttal, the costs of an actual project that are applicable to the SARR are superior to Means Handbook costs.

In summary, SunBelt used the Trestle Hollow Project unit cost because it is a supportable, feasible and superior real-world substitute for the Means Handbook costs for common earthwork. SunBelt's use of the Trestle Hollow Project unit cost reflects the use of actual earthwork costs from a contractor's bid in the same way that actual costs were substituted for Means Handbook costs in *WFA/Basin* and *AEPCO 2011*. As shown in *WFA/Basin*, *AEPCO 2011* and this proceeding, actual bids from contractors are lower than Means Handbook costs. This should be expected, as the Means Handbook costs do not include any projects comparable in size to a stand-alone railroad such as the SBRR.

Rebuttal Table III-F-5 below summarizes the differences in the parties' roadbed preparation costs.

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[47] Id. at III-F-47-48.

[48] Id. at III-F-47.

Table III-F-5
Comparison of Roadbed Preparation Costs
($ in thousands)

Item	SunBelt Opening[1/]	NS Reply[2/]	SunBelt Rebuttal[3/]
(1)	(2)	(3)	(4)
1. Earthwork			
a. Common	$43,358	$140,099	$43,829
b. Loose Rock	15,053	18,598	15,426
c. Solid Rock	17,501	27,647	17,827
d. Borrow	93,250	136,036	94,259
e. Subtotal	$169,162	$322,380	$171,341
2. Clearing & Grubbing	$13,866	$16,868	$14,358
3. Drainage			
a. Lateral Drainage	$2,792	$3,674	$2,881
b. Yard Drainage 4/	0	10,296	0
4. Culverts	13,677	26,314	23,987
5. Retaining Walls	39,015	74,523	39,015
6. Rip Rap	437	139,628	437
7. Road Surfacing for Detours	0	0	0
8. Relocation of Utilities	0	0	0
9. Topsoil Placement / Seeding	7	4	7
10. Land for waste quantities	5,551	22,344	8,925
11. Environmental Compliance	0	0	0
12. Subgrade Preparation	0	5,104	0
13. Access Road Mats	0	33,262	0
14. Lighting	0	17,959	0
15. Dust Control	0	2,707	0
16. Total	$244,507	$675,063	$260,951

1/ SunBelt Opening at III-F-7, Table III-F-4.
2/ NS Reply at III-F-33, Table III-F-8 and e-workpaper "SBRR Culvert Construction Costs NS Reply.xlsx."
3/ SunBelt Rebuttal e-workpapers "SBRR Rebuttal Grading.xlsx" and "Culvert Construction Costs Rebuttal.xlsx."
4/ Costs included by SunBelt in building site development costs.

d. Clearing and Grubbing

i. Quantities of Clearing And Grubbing

NS accepted SunBelt's methodology for developing clearing and grubbing quantities based on the ICC Engineering Reports.[49] Thus, the difference in quantities is attributable to a difference in track miles. On Rebuttal, SunBelt has increased its Opening track miles, and therefore, SunBelt's Rebuttal clearing and grubbing quantities have increased.[50]

ii. Clearing and Grubbing Unit Costs

On Opening, SunBelt utilized a unit cost of $2,000 per acre, indexed to $2,257 (July 30, 2011 cost levels), to both clear and grub the SBRR based on the Trestle Hollow Project cost. SunBelt conservatively applied $2,257 per acre for clearing and grubbing to all of the SBRR acres of clearing despite the fact that over 80 percent of the SBRR's acres would only require clearing, and not grubbing, which can be done with a brush rake at less than $250 per acre – a point that NS admits.[51] Nevertheless, NS argues against SunBelt's use of the Trestle Hollow Project unit cost by suggesting that SunBelt has not shown a link between the Trestle Hollow Project clearing and grubbing costs and what has to be cleared and grubbed on the SBRR.[52] As noted above, the Trestle Hollow Project is a feasible and valid project to use in determining costs for the SBRR. The Trestle Hollow Project included some tricky clearing and grubbing due to the terrain involved, and application of the Trestle Hollow Project clearing and grubbing unit cost to the entire SBRR overstates the cost versus the overall clearing requirements for the SBRR's

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[49] See NS Reply at III-F-48.

[50] See SunBelt Rebuttal e-workpaper "SBRR Rebuttal Grading.xls," tab "Other Items."

[51] See NS Reply at III-F-51.

[52] NS also argues that SunBelt has not shown whether the 30 acres cleared reflects the total project acreage or just the part that had to be cleared. See NS Reply at III-F-50. If NS is attempting to suggest that there were other unknown or higher unit costs, SunBelt's engineers note that no other clearing was needed.

right-of-way.[53] In particular, the trees on the Trestle Hollow Project were located in part on the right-of-way, but trees on the hillsides were also removed. As the aerial photos included on Opening show, the trees were located in undisturbed stands.[54] Many of these trees had never been clear cut (or not cut in many years) due to their location. In other words, NS's complaint is a red herring: The Trestle Hollow Project clearing and grubbing cost per acre is more than adequate for the SBRR.

Instead of using the Trestle Hollow Project unit cost, NS relied on Means Handbook unit costs. While SunBelt included a calculation of clearing and grubbing costs based on the Means Handbook in its Opening workpaper,[55] SunBelt did not rely on these calculations because actual project costs, where available and appropriate, are superior to Means Handbook costs.

On Reply, NS uses the Means Handbook calculations but makes two adjustments. NS cuts the production rate of the clearing crew in half, thereby doubling the cost per acre, and adds another crew to load and haul away the cleared material.[56] Neither adjustment has any merit.

NS claims that the rate of production for the clearing crew is 8 acres per day. However, NS claims that half of the time, this crew would be stockpiling material and would only be able to clear 4 acres per day. NS has provided no evidence supporting its contention that the 8 acres per day rate is for clearing material only and not moving the material. Clearing means clearing, not cutting down and leaving in place.

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[53] See SunBelt Opening e-workpaper "SBRR Open Grading.xlsx," tab "Other Items," columns (Y) through (AE). Using the Trestle Hollow Project unit cost resulted in clearing and grubbing costs of $13.9 million. Applying the separate Means Handbook unit costs for clearing and grubbing and clearing only to the appropriate quantities resulted in total clearing and grubbing costs of only $10.3 million for the SBRR.

[54] See SunBelt Opening e-workpaper "Aerial Photos #1.pdf."

[55] See SunBelt Opening e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[56] See NS Reply at III-F-51-53.

In addition, NS has not explained why the cleared organic materials must be hauled away. The SBRR is built on a 100-foot right-of-way. There is ample room to simply place the materials on the edge of the right-of-way where they can decompose naturally. Furthermore, even assuming for the sake of argument that a second crew is needed, which SunBelt does not agree with, there is no way for NS to know the volume of material it claims would need to be moved. In addition, NS presents no evidence as to how much material the added crew could move in a day. NS simply adds the costs for a crew for a day and assumes that it would only be able to handle the material cleared from 4 acres. Without knowing how much material there is to be moved and how much material a crew can move in a day, it is impossible to determine the cost.

In any event, NS's adjustments to the Means Handbook unit costs are unnecessary and unsupported. Furthermore, these same adjustments have been previously rejected by the STB.[57]

The Trestle Hollow Project unit cost used by SunBelt in Opening is feasible and more appropriate for the SBRR. SunBelt continues to use it on Rebuttal.

e. Earthwork

i. Earthwork Quantities

(a) SBRR Line Segments

NS accepts SunBelt's methodology for the development of earthwork quantities for the SBRR line segments. However, NS claims there were two errors in SunBelt's input of the

[57] See *AEPCO 2011* at 83-84.

quantities taken from the ICC Engineering Reports.[58] SunBelt has reviewed both of NS's claimed input errors. SunBelt has rejected one and accepted, with corrections, the other one.

The first alleged error pertains to 332,600 CY of slag shown on the ICC Engineering Report for valuation section AGS-2-AL.[59] NS claims that this quantity should be included as borrow (embankment) instead of excavation.[60] NS is incorrect. This material is listed on the ICC Engineering Report under "Excavation" and there are no quantities of "Embankment" shown for this particular valuation section. The unit cost for the slag shown on the ICC Engineering Report is the same as the unit cost shown for "common." While this material may be suitable for fill, there is no evidence that it was brought in from another location and used as such. It is possible that this material was simply encountered during the excavation and it was merely classified as a different material. As NS's claim that this material was brought in from elsewhere and used as fill is totally unsupported, SunBelt continues to include this material as common excavation.

The second alleged error pertains to the lateral drainage quantities shown on the ICC Engineering Report for valuation section NONE-1-MS.[61] NS claims that SunBelt excluded 35,500 LF of French drain. SunBelt agrees that an input error in lateral drainage quantities was made but disagrees with NS as to the amount of the error and the method used to make the correction.

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[58] See NS Reply at III-F-53 and e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "SBRR – ICC Quantity Errors." The alleged input errors identified by NS include one for earthwork quantities and one for lateral drainage quantities.

[59] See SunBelt Opening e-workpaper "SunBelt ICC Engineering Reports.pdf," p. 7 of 37.

[60] See NS Reply at III-F-58.

[61] See SunBelt Opening e-workpaper "SunBelt ICC Engineering Reports.pdf," p. 19 of 37.

NS overstated the magnitude of the error by a factor of ten (10). The ICC Engineering Report quantity is unclear as it appears to have been typed over.[62] At first glance, it may appear to be 35,500 LF, but upon closer inspection, the correct quantity is 3,550 LF. This is confirmed by dividing the total cost of $2,840 by the unit cost of $0.80.[63]

Furthermore, NS did not properly incorporate the correction. NS did not make the change at the input level, but rather assigned the entire 35,500 to the SBRR.[64] This is erroneous. The proper correction method is to make the change at the input level so the quantity per mile can be adjusted and then applied to the SBRR miles assigned to that valuation section. If the SBRR does not traverse the entire valuation section, all of the difference is not applicable to the SBRR.

NS has introduced a new claim in SunBelt, that has not been presented in any prior proceeding, which significantly increases NS's borrow quantities for the SBRR. Both parties agree that "Train Overhaul" quantities, shown on the ICC Engineering Reports and reflecting material moved more than 5,000 feet, are converted to borrow quantities because the earthwork unit costs used to calculate the SBRR's earthwork costs do not include the costs for transporting material significant distances. For the first time ever, NS converts the "Team Overhaul" quantities into borrow quantities.[65] "Team Overhaul" quantities shown on the ICC Engineering Reports are material quantities moved between 500 feet and 5,000 feet. For this category, the

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[62] Id.

[63] Id.

[64] NS states in its Reply text that the error is 3,550 LF. See NS Reply at III-F-95. However, NS added 35,500 LF to the quantities used to develop the SBRR's lateral drainage costs. See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Other Items," cell W40.

[65] See NS Reply at III-F-53-54.

average length of haul is 2,250 feet.[66] The unit cost used by NS for common earthwork includes a longer 3,000-foot haul.[67] Clearly, there is no need to convert "Team Overhaul" quantities to borrow, as the SBRR includes the cost to move the material even greater distances.

As shown above, NS's attempt to significantly increase the borrow quantities for the line segments of the SBRR is unnecessary, erroneous and must be rejected.

As discussed in Part III-B, the parties disagree on the track miles for the SBRR which impacts the grading quantities for several segments.

(b) SBRR Yards

NS claims to have accepted SunBelt's methodology for the development of yard earthwork quantities.[68] However, a review of NS's workpapers reveals that this is not the case. There are two problems with NS's earthwork cubic yard calculations for yards. First, as shown in Parts III-B and III-C, NS overstated the SBRR's yard track miles. Second, NS developed the earthwork quantities for its automobile and intermodal yards in a different manner. For these yards, NS calculated the excavation quantities for the *entire square footage of the facility*, instead of just the track feet, leading to a gross overstatement in yard excavation quantities.[69] Yard excavation quantities are for yard track only. Any excavation for non-track areas is included in

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[66] As the first 500 feet is free of charge, the pay quantities are hauled from 500 to 5,000 feet or a maximum distance of 4,500 feet. Half of that distance is 2,250 feet. NS miscalculates the average haul as 2,750 feet by erroneously adding 500 feet to 5,000 feet instead of properly subtracting it.

[67] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Unit Costs," cell D12 – "Loading into scraper 3000' haul, common earth."

[68] See NS Reply at III-F-55.

[69] See, for example, NS Reply e-workpaper "Small Auto Center.pdf" (filed with NS's Part III-B workpapers). NS calculates 42,941 CY of excavation based on 1,159,415 square feet for the entire facility. If NS's 6,778 track feet are used, the grading quantity equals only 6,276 CY (6,778 track feet x 1-foot fill x 25-foot spacing / 27 CF per CY), less than 16% of the quantity included by NS. NS performed this same erroneous calculation for its intermodal yards as well. See NS Reply e-workpaper "Small Intermodal Facility.pdf."

the building and facility costs. Including non-track area quantities in yard track excavation quantities results in a double-count of excavation quantities. NS's calculations should be rejected.

On Rebuttal, as discussed in Parts III-B and III-C, SunBelt has modified its yard track quantities. SunBelt's rebuttal yard earthwork quantities are detailed in Rebuttal e-workpaper "SBRR Rebuttal Grading.xls," tab "Yards."

(c) Total Earthwork Quantities

As discussed above, and in Parts III-B and III-C, SunBelt has included additional route miles, second main and passing siding miles and yard miles on Rebuttal. This results in a small increase over Opening in the earthwork quantities for the SBRR. Rebuttal Table III-F-6 below compares the parties' earthwork quantities.

Table III-F-6
SBRR Earthwork Quantities by
Type of Material Moved
(Cubic yards in thousands)

Type of Earth Moved (1)	SunBelt Opening[1/] (2)	NS Reply[2/] (3)	SunBelt Rebuttal[3/] (4)	NS Reply Over / (Under) SunBelt Rebuttal[4/] (5)
1. Common (incl. yards and wetlands)	23,311	25,390	23,564	1,826
2. Loose Rock	1,389	1,401	1,390	11
3. Solid Rock	1,210	1,454	1,211	243
4. Borrow	3,487	5,059	3,525	1,534
5. Total	29,397	33,304	29,690	3,614

1/ SunBelt Opening e-workpaper "SBRR Open Grading.xlsx," tab "EW Cost."
2/ NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "EW Cost."
3/ SunBelt Rebuttal e-workpaper "SBRR Rebuttal Grading.xls," tab "EW Cost."

ii. Earthwork Unit Costs

(a) Common Excavation

As noted previously, SunBelt used the Trestle Hollow Project earthwork unit cost to develop its Opening common earthwork costs, which SunBelt has shown to be a valid and feasible unit cost to apply to the SBRR's construction. NS used the Means Handbook costs for common excavation contained in SunBelt's Opening workpapers.

As discussed above in the response to NS's attack on the Trestle Hollow Project costs, the Means Handbook costs overstate the common earthwork costs that the SBRR would be able to obtain for several reasons. SunBelt continues to use its Opening unit cost based on the Trestle Hollow Project.

(b) Loose Rock Excavation

NS made several adjustments to the Means Handbook unit costs it used for loose rock earthwork.[70]

The first adjustment NS made was to increase the distance travelled by the earthwork haulers from ½ mile to 1 mile.[71] NS's stated rationale is that the haul distance for the high-capacity haulers used for excavation of loose rock and solid rock must equal the haul distance implicit in the unit cost for the elevated scrapers used for common excavation. NS has not provided any evidence that the distances implicit in the unit costs used by SunBelt are unreasonable. NS has provided no analysis of the original topography. There are no distances shown in the ICC Engineering Reports other than Train Overhaul categories, which both parties converted to borrow quantities to eliminate the long-haul transportation of earthwork. SunBelt

[70] See NS Reply at III-F-59-62 and e-workpaper "SBRR Open Grading NS Reply.xlsx," tabs "Unit Costs" and "Unit Cost Modified."

[71] See NS Reply at III-F-56-57.

developed its unit costs for hauling based on the Means Handbook in the same manner and using the same cost items as used by complainants and defendants, and accepted by the STB, in past proceedings. NS has raised this distance issue simply as a way to artificially increase the SBRR's earthwork costs. SunBelt does not accept NS's hauling distance adjustment.

The next adjustment made by NS was to increase the costs for hauling and spreading material to reflect its alleged swell factors. As discussed below in the Swell section, NS's adjustment should be rejected.

The third adjustment made by NS was to add finish grading costs. As discussed below in the Fine Grading section, NS's additional cost should not be included.

The final adjustment was to the size of the hauler used to move the material. On Opening, SunBelt used a 42-CY hauler exclusively. NS disputes this and substitutes a 22-CY hauler for hauling material fifty-five (55) percent of the time. After reviewing NS's Reply, SunBelt agrees that, in some situations, the 42-CY hauler is not practical. On Rebuttal, SunBelt has accepted NS's split between the two hauler sizes.

On Rebuttal, SunBelt has modified its Opening unit costs for loose rock excavation only for the split between the two hauler sizes.

(c) Solid Rock Excavation

NS made the same adjustments to SunBelt's solid rock excavation costs for hauling distance, swell, finish grading and hauler split. SunBelt's response is the same as previously stated, i.e., SunBelt rejects NS's adjustments save for the split between the two hauler sizes. For solid rock, NS applies the 45/55 hauler split to only 90 percent of the solid rock hauling. For the remaining 10 percent, NS assumes hauling of boulders is required. As discussed below, NS's boulder costs are erroneous and unnecessary. On Rebuttal, SunBelt uses the 45/55 hauler split.

NS complains about SunBelt's two types of rock blasting costs. NS accepts SunBelt's use of the unit cost for open face blasting of rock over 1,500 CY. However, NS substitutes the costs for blasting with blasting mats over 1,500 CY for SunBelt's unit cost for bulk drilling and blasting. NS has provided no evidence justifying its unit cost change other than some unsupported general language in its text. On Opening, SunBelt developed solid rock excavation costs in the same manner as has been done in many prior cases and with which the Board has agreed. SunBelt continues to rely on its Opening solid rock unit costs on Rebuttal.

NS made two other adjustments to reflect what NS characterizes as the handling of boulders.[72]

NS estimates that 20 percent of the solid rock excavation quantities shown on the ICC Engineering Reports for the valuation sections covering the SBRR would be boulders.[73] For this 20 percent, NS used the cost to excavate and load boulders and the cost to haul boulders. SunBelt disagrees with NS's position.

NS provides no details of its estimate that 20 percent of the materials left after blasting are boulders that would require special handling beyond the normal production rates achievable with the three (3) CY shovel. All that NS has shown is that some large boulders remained after blasting on one highway project in the Western U.S. unrelated to the SBRR.[74] NS has provided no details on the blasting procedures used or the desired results. In any event, blasting is not a random exercise. Blasting is planned with a number of end results in mind, including the size of

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[72] See NS Reply at III-F-63-64 and e-workpaper "SBRR Open Grading NS Reply.xlsx," tabs "Unit Costs" and "Unit Cost Modified."

[73] See NS Reply at III-F-64. Although NS states 20 percent, it used 10 percent in its workpapers. See e-workpaper "SBRR Open Grading NS Reply.xlsx," tabs "Unit Costs" and "Unit Cost Modified."

[74] SunBelt notes that NS's Reply relies on the same photos and scant data that its engineers collected in 2003 for a prior STB proceeding.

rocks that are desired and the landing zone for the materials, and can be quite precise. Indeed, variations in the desired end result are achieved by placing the charges in different locations, varying the spacing of the charges, and varying the depth of the charges.[75] In addition, as explained in *AEP Texas*, the Means Handbook costs for handling blasted materials assumes that blasting would produce materials small enough to be handled by the three (3) CY shovel that AEP Texas used to "excavate and load blasted rock," which is the same unit cost that SunBelt is using.[76] Similar adjustments have been rejected by the STB in past proceedings.[77] On Rebuttal, SunBelt does not include NS's costs for moving boulders.

SunBelt also notes that NS's unit cost for moving boulders repeats the same flaw that afflicted the railroads' evidence in *AEP Texas* and the prior *AEPCO 2011* proceeding – using the unit cost to "Excavate and Load Boulders." The obvious problem with NS's approach is that it represents a cost to move boulders that have not been blasted. Not surprisingly, it is more expensive to excavate boulders that are in place rather than move rocks that have been blasted. Thus, NS's costs must be rejected.

The parties agree that the unit cost for solid rock excavation should be comprised of a mixture of 50 percent solid rock costs and 50 percent loose rock costs.[78]

On Rebuttal, SunBelt has modified its Opening unit costs for solid rock excavation only for the split between the two hauler sizes.

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[75] See SunBelt Rebuttal e-workpaper "blasting.pdf" (desired fragmentation is obtained by checking the drill pattern, spacing and burden to be blasted).

[76] See *AEP Texas* Rebuttal Narrative (Public Version) filed July 27, 2004 at III-F-56.

[77] See *AEP Texas* at 82 and *AEPCO 2011* at 90.

[78] See NS Reply at III-F-63.

(d) Embankment/Borrow

NS states that it accepted SunBelt's unit cost for borrow.[79] However, a review of NS's workpapers reveals that NS added finish grading costs to SunBelt's borrow unit cost. As discussed below in the Fine Grading section, NS's additional cost should be rejected. As such, SunBelt continues to use its Opening borrow unit cost.

(e) Other Earthwork Quantities and Unit Costs

(i) Stripping

NS adds an additional cost for stripping on the basis that such activity is required for roadbeds built on embankments, and that the Trestle Hollow Project, which included stripping (where necessary) in the earthwork costs, is not applicable. SunBelt has already addressed the applicability of the Trestle Hollow Project.

NS claims that all roots and vegetation must be removed from embankment areas, or else soft spots will cause the embankment to shift and the ground must be filled and compacted. NS further claims that grubbing does not cover this.

NS's additional cost is unnecessary. NS acts as though the original builders of the lines comprising the SBRR had no concept of what was necessary to construct rail lines. Any required vegetation removal, elimination of soft spots, and areas requiring filling and compaction would no doubt have been addressed. NS has not identified any areas on the SBRR where the roadbed has been replaced because these items were not accounted for in the initial construction of the lines comprising the SBRR. The ICC Engineering Report clearing and grubbing quantities include all clearing and grubbing necessary to construct the roadbed. This would presumably include all clearing and grubbing necessary prior to building embankments. NS has not

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[79] Id. at III-F-64.

demonstrated otherwise. Likewise, the ICC Engineering Report earthwork quantities include all material moved to construct the roadbed. This would include the removal of unsuitable material to build an embankment. NS has not demonstrated otherwise. As both parties assumed that 30 percent of excavation quantities are wasted, and included the land necessary for the placement of waste quantities, any unusable material removed from embankment areas would be included.[80]

NS has ignored Board precedent with regard to stripping. In past proceedings, the Board rejected additional stripping costs because "the top 6 inches of soil would be removed during excavation and because topsoil removal is included in waste costs, there would appear to be no need for a separate charge for stripping. To the contrary, including such an additional cost would result in a double count."[81] For the above reasons, NS's additional costs are unwarranted.

SunBelt also notes that NS's calculations are unreliable. The length of borrow (and the resulting calculation of quantities of excavation for stripping) is based on the miles of the valuation section and not the miles of the valuation section built by the SBRR.[82] Stated differently, NS's stripping quantities are based on 857 miles and not the 578 miles of the SBRR. This results in a gross overstatement of quantities.

(ii) Undercutting

On Opening, SunBelt's engineers did not include a separate cost for undercutting. SunBelt notes that the Board has repeatedly rejected additional costs for this item.[83] In addition,

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[80] Excavation quantities on the ICC Engineering Reports are not labeled as being confined only to cut areas, they are simply the CY of earthwork excavated.

[81] See *PSCo/Xcel* at 671. See also *AEP Texas* at 79 and *AEPCO 2011* at 84-85.

[82] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Stripping," Columns (D) through (L).

[83] See *WFA/Basin* at 83; *AEP Texas* at 79; *Duke/NS* at 176; *CP&L* at 313; *Duke/CSXT* at 480.

the excavation unit costs utilized by SunBelt include excavation of unsuitable materials when necessary at no additional cost.[84]

On Reply, NS claims that the ICC Engineering Reports do not "specify the amount of undercutting" and, therefore, NS had to estimate the amount of undercutting required under embankments on the SBRR. NS "superimposed" wetland maps over the SBRR route and determined that 90.79 miles of the SBRR (of which 10.34 miles are double-tracked) traverse wetlands. NS assumed undercutting of an average of two feet of material in these areas, which NS showed as common excavation quantities but to which NS applied an increased excavation unit cost. NS then added rip rap to replace the undercut material. Finally, NS included over $33 million for access road "swamp" mats.[85]

NS's justification for including inflated excavation quantities, overstated excavation costs, unnecessary quantities of rip rap and the introduction of "swamp" mats for the first time ever in a stand-alone proceeding, is that "[t]he SBRR route, *unlike any other SARR presented to the Board*, traverses a substantial amount of wetlands…" [emphasis added].[86] NS is absolutely wrong. The entirety of the SBRR route was included in the SARR that was the subject of NS's Reply filing in *DuPont* a mere six (6) weeks prior to NS's Reply filing in this proceeding.[87] In

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[84] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf" at 156 ("No additional payment will be made for undercutting. Work related to undercut and replacement is considered a standard grading practice to achieve a suitable subgrade and shall be considered as incidental to excavation and fill placement. Direct payment for work related to undercut and replacement will not be made.")

[85] See NS Reply at III-F-70-80.

[86] Id. at III-F-70.

[87] See Defendant's November 30, 2012 Reply Evidence (Public Version) in Docket No. NOR 42125, E. I. DuPont de Nemours & Company v. Norfolk Southern Railway Company, Volume 4, Exhibit III-B-2, Map 1. As shown on this Exhibit, the DRR includes the rail lines from Birmingham, AL to New Orleans, LA (included in the SBRR) and from Burstall, AL to Mobile, AL (included in the SBRR but only to McIntosh, AL).

DuPont, NS stated that 155.9 miles of the DRR traversed wetlands (over 70 percent more than the miles NS identified for the SBRR in this proceeding). NS used the same two-foot depth for undercutting but added the quantities to the common excavation quantities instead of applying an increased excavation unit cost. NS used borrow material instead of rip rap as fill (borrow is less than half the cost of rip rap). Finally, NS did not mention anything about "swamp" mats."[88] Clearly, NS's objective in this proceeding is to increase the construction costs of the SBRR as much as possible.

NS's additional undercutting costs should be rejected for several reasons. First, NS provides no evidence that ICC Engineering Report earthwork quantities do not include undercutting quantities. In fact, NS has no way of demonstrating that the ICC Engineering Reports do not include undercutting quantities. It is reasonable to assume that any unsuitable material encountered during the original construction of the lines being replicated by the SBRR was removed and replaced with suitable material. All excavation quantities shown on the ICC Engineering Reports are already included by both parties in the calculation of the cubic yards of excavation per mile by valuation section for the SBRR. Including additional undercutting quantities would result in a double-count of quantities.

Second, NS presents no evidence of instances where the original roadbed construction for any of the lines replicated by the SBRR had to be replaced, or the subgrade adjusted, because undercutting was not performed during the original construction. NS's assumption that the original roadbed construction is inadequate is totally unsupported.

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[88] See Defendant's November 30, 2012 Reply Evidence (Public Version) in Docket No. NOR 42125, E. I. DuPont de Nemours & Company v. Norfolk Southern Railway Company, Volume 3 at III-F-79-80.

Third, NS notes that the ICC Engineering Reports are based in part on "observations of physical characteristics of topography or structures that were readily observable parts of the roadbed construction effort."[89] This indicates that, if the area surrounding an embankment showed signs of unsuitable material and/or warranted grubbing, then the quantities would have been included in the ICC Engineering Reports. SunBelt also notes that the ICC Engineering Reports do not specify the quantity of cubic yards of excavation used as embankment, and, therefore, the number of undercutting cubic yards cannot be distinguished from this material – but since those cubic yards are rolled into the quantities, adding undercutting costs would result in a double count. In addition, both parties assumed that 30 percent of the excavation quantities would be wasted (*i.e.,* unsuitable materials). Thus, the undercutting quantities estimated by NS are already accounted for in the waste quantities.

Fourth, NS has provided no evidence that any of the NS rail lines being replicated by the SBRR currently have two-feet of rip rap underlying the roadbed. NS refers to the construction of an intermodal facility using rip rap as replacement for unsuitable material but offers no examples of any rail lines using rip rap as replacement.

Finally, the ICC Engineering Reports do not support NS's undercutting position. There is no indication on the ICC Engineering Reports of "wet" excavation. There are no quantities of rip rap or any other material identified as being used for the replacement of unsuitable material indicating that any unsuitable material was simply removed and replaced with excavated material from adjacent sections. Furthermore, there is no increase in the cost shown for common

[89] See NS Reply at III-F-71.

excavation for the valuation sections covering the SBRR with the cost per cubic yard ranging between $0.21 and $0.25.[90]

NS's undercutting quantities are also unsupported. NS has provided only speculation and generalizations regarding its 2-foot undercutting depth. NS refers to the construction of an intermodal facility but provides no specific examples of any line segments where two (2) feet of undercutting was performed.

NS states that the scrapers it used for its common excavation unit cost are not capable of excavating the material encountered in the so-called wetlands areas it identifies, so NS applies an excavation cost using a three (3) CY shovel and trucks.[91] SunBelt points out that its unit cost used for common excavation from the Trestle Hollow Project includes excavators and trucks as well as scrapers, so no adjustment to the common excavation costs is needed in the event that wetlands excavation is encountered.[92]

NS also assumes that every instance of wetlands excavation will occur at a fill location with an average height of eight (8) feet. NS has provided no support that the topography at every wetlands excavation location would require fill, much less eight (8) feet of fill. Eight (8) feet is the average fill height on the entire 578-mile SBRR and not just the so-called wetlands excavation locations. NS's use of eight (8) feet most likely results in a gross overstatement of its unnecessary undercutting quantities.

Finally, for the first time ever in a stand-alone proceeding, NS included over $33 million for temporary access road "swamp" mats to be placed alongside the miles of the SBRR that NS

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[90] See SunBelt Opening e-workpaper "SunBelt ICC Engineering Reports.pdf" and Rebuttal e-workpaper "ICC Engineering Report Common Excavation Costs.xlsx."

[91] See NS Reply at III-F-78 and e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Unit Costs."

[92] See SunBelt Opening e-workpapers, subdirectory "Trestle Hollow Pictures."

has identified as wetlands. SunBelt maintains that these mats are not necessary, especially given the fact that the ICC Engineering Reports do not identify any particular issues with the sections NS has categorized as wetlands.

In light of the above, SunBelt has not included any additional costs for undercutting or "swamp" mats.

(iii) Over-Excavation

On Reply, NS added costs for "over-excavation," which it claims is necessary in solid rock cuts. In particular, NS argues that 12 inches of over-excavation must occur and then be replaced with compacted fill.[93] NS apparently assumes that such excavation, if necessary, was not done when the lines were originally constructed. NS's additive is unnecessary.

NS has provided no evidence that the solid rock quantities on the ICC Engineering Reports do not include "over-excavation" where it may have been necessary. Furthermore, NS has provided no evidence of instances where the original roadbed construction for any of the SBRR's rail lines had to be replaced because over-excavation was not performed during the original construction.

Finally, SunBelt notes that NS's quantities are grossly overstated. Like the error identified in NS's stripping quantity calculations, the length used to calculate the quantities of over-excavation is based on the miles of the valuation section and not the miles of the valuation section built by the SBRR.[94] This results in a significant overstatement of quantities.

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[93] See NS Reply at III-F-80.

[94] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Over Ex," Columns (D) and (E).

(iv) Fine Grading

On Opening, SunBelt's Trestle Hollow Project earthwork unit cost already accounted for fine grading at no additional cost. NS argues that the Means Handbook unit costs that NS relies on do not include fine grading activities, and NS has added these costs. NS's additional costs are without merit.

The Trestle Hollow Project unit cost already accounts for this activity, and since that unit cost is valid and feasible, NS's additive is unnecessary. NS claims that it is not clear that final grading is included in the Trestle Hollow Project's lump sum bid price for grading.[95] Had NS read the project specifications included in SunBelt's Opening workpapers, it would have been clear that final grading was included in the lump sum bid price.[96] In addition, Mr. Crouch notes that, in his experience, a motor grader is often not needed to achieve a finished grade.

The Board has rejected this additive in the past in at least four cases.[97] NS attempts to justify its inclusion based on STB decisions in two cases, *Otter Tail* and *PSCo/Xcel,* where the Board included additional costs for fine grading in part because the Means Handbook lists a separate cost for fine grading.[98] The mere fact that the Means Handbook lists a separate cost for an item is not a demonstration that it is applicable to the SBRR. Furthermore, as shown above, fine grading is included in the earthwork costs used by SunBelt.

Finally, SunBelt notes that NS's calculation of the $0.16 per CY additive that NS includes with all of its earthwork unit costs is based on erroneous calculations. NS's finish grading quantities are grossly overstated. NS's calculations suffer the same error identified in

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[95] See NS Reply at III-F-83.

[96] See SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf," page 164, Sections 3.5.15 and 3.5.16.

[97] See *AEP Texas* at 82-83; *Duke/NS* at 176; *Duke/CSXT* at 480; *CP&L* at 313-314.

[98] See NS Reply at III-F-81.

NS's stripping quantity calculations, i.e., the length used to calculate the quantities of finish grading is based on the miles of the valuation section and not the miles of the valuation section built by the SBRR.[99]

Based on the above, SunBelt has not added any additional costs for fine grading.

(v) Swell

NS made another adjustment to the earthwork unit costs from the Means Handbook that has only recently been presented in a SAC proceeding, despite the use of Means Handbook earthwork unit costs in some capacity in virtually every SAC proceeding. NS modified the Means Handbook earthwork unit costs to account for the different volumes of material that must be handled depending on whether the material is still in place (bank-measure volume), loose or compacted. NS refers to this in its narrative as its swell adjustment. NS suggests the mark-up would be 35 percent for loose rock and 50 percent for solid rock.[100] SunBelt disagrees that this adjustment is necessary, notes that it has been rejected by the STB in the one proceeding involving this cost that has gone to a decision[101] and also shows that, even if such an adjustment was warranted, NS overstated the adjustment.

NS's position is predicated on the unsupported assumption that the ICC Engineering Reports show bank cubic yards ("BCY") while the Means Handbook uses loose cubic yards ("LCY") for hauling. In fact, the cubic yard quantities shown on the ICC Engineering Reports are not labeled in any way other than as cubic yards. Without a definitive showing of what the cubic yards on the ICC Engineering Reports represent, any adjustment is speculative at best.

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[99] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Finish Grading," Columns (C) and (D).

[100] See NS Reply at III-F-83-85. NS did not include a swell adjustment for common excavation.

[101] See *AEPCO 2011* at 92.

NS's adjustment is simply another way to arbitrarily and unnecessarily inflate the earthwork costs of the SBRR.

Contractors are paid on bank quantities as this is the state of the earth prior to construction and the basis for estimating quantities prior to construction. The contractor bases his bid on these bank quantities and any additional hauling based on swell is factored into the bid. SunBelt has already shown that actual project costs for a large scale project such as the SBRR would be lower than the Means Handbook costs. Indeed, the Trestle Hollow Project cost supports substantially lower earthwork costs for common excavation, as well as loose rock excavation, than costs based on Means Handbook unit costs. To take already higher Means Handbook costs, and increase them to account for the estimated difference in bank and loose quantities, simply adds more costs where none would be warranted if the SBRR project were actually bid out. Indeed, the Trestle Hollow Project unit cost already reflects any difference in quantities, to the extent a difference exists. As such, SunBelt urges the Board to reject this additive as it did in *AEPCO 2011*.

While SunBelt disagrees with NS's adjustment, it also determined that NS's adjustment is overstated. The source that NS relies upon for its adjustment factors does not have a loose rock category. Nevertheless, NS adds 35 percent for this category versus 25 percent for common earthwork shown in its workpapers.[102] In today's construction world, there is no loose rock category of costs; it is either common (which encompasses loose rock) or solid rock. Should the Board accept NS's adjustment despite all its shortcomings, the adjustment should be no higher than 25 percent for loose rock.

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[102] See NS Reply e-workpaper "Swell and Shrinkage – Ringwald, Means heavy Construction Handbook.pdf," p. 2.

(f) Subgrade Preparation

On Reply, NS adds costs for subgrade preparation. NS criticizes SunBelt for not including separate costs for water for compaction on Opening. In certain areas of the SBRR, NS adds costs for water for compaction and in other areas of the SBRR, NS adds costs for drying the soil prior to compaction.[103] NS's additional costs are unsupported and unnecessary.

NS claims SunBelt omitted costs for water for compaction because these costs were excluded from the prior cases involving eastern railroads.[104] NS is only partially correct. On Opening,[105] SunBelt noted that water for compaction costs were excluded from the prior eastern cases because in those proceedings the STB agreed with complainants that the soil contained sufficient moisture.[106] SunBelt further stated that, even if water for compaction was needed in a particular area, the common earthwork cost utilized by SunBelt included incidental items such as water.[107]

NS spends the remainder of this section describing the analysis it undertook and references several workpapers. SunBelt has determined that, after a thorough review of NS's analysis and supporting workpapers, NS's analysis is unreliable.

NS claims to have studied the soil conditions along the SBRR.[108] In support of this statement, NS provides general statements regarding the characteristics of the two (2) provinces covering the SBRR route. "SBRR_Physiographic_Geo_map.pdf" is a one-page map showing

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[103] See NS Reply at III-F-86-95.

[104] Duke/NS, Duke/CSXT and CP&L.

[105] See SunBelt Opening at III-F-20.

[106] See *Duke/NS* at 179-180; *CP&L* at 317; and *Duke/CSXT* at 483.

[107] See SunBelt Opening at III-F-20. See also SunBelt Opening e-workpaper "Trestle Hollow Specifications.pdf" pages 160 (specifications for water for compaction or the drying of soil) and 164 (all grading work is included in the lump sum bid price).

[108] See NS Reply at III-F-89.

the entire 578-mile SBRR route laid over a color-coded map allegedly intended to show the geology of the territory of the SBRR.

Next, NS posits:

> Attempting to characterize the soil moisture conditions on a large-scale, regional basis is difficult. The compaction characteristics of a particular soil typically are evaluated on a very local basis as soil conditions can vary dramatically over short distances and with depth.[109]

Then NS describes that it relied on detailed soil information using two Natural Resource Conservation Service ("NRCS") sources – the Soil Climate Analysis Network ("SCAN") and the Web Soil Survey ("WSS").[110] NS then explains:

> The SCAN system collects soil moisture, precipitation, and other climatic information at specific stations across the U.S. and makes it available in real-time over a website. Within most states traversed by the SBRR, NS has identified at least one SCAN station near the alignment.[111]

Despite NS's earlier statement that "soil conditions can vary dramatically over short distances," NS is proud that it was able to identify at least <u>one</u> SCAN station in <u>most</u> states traversed by the SBRR. A review of NS's workpaper "SBRR Soil Moisture Content.xlsx" reveals that NS actually identified only two (2) SCAN stations in only one (1) of the three (3) states traversed by the SBRR. Neither of these two (2) locations is located on SBRR lines.[112]

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[109] <u>Id.</u> at III-F-90.

[110] <u>Id.</u>

[111] <u>Id.</u> at III-F-91. (footnote omitted)

[112] Using the latitude and longitude figures shown in NS Reply e-workpaper "SBRR Soil Moisture Content.xlsx," and Google Earth, SunBelt determined that the Selma, AL SCAN location is four (4) miles from the SBRR alignment and the Livingston, AL SCAN location is 1.2 miles from the SBRR alignment.

NS then added eight (8) WSS locations that do not correspond to SCAN locations for a total of ten (10) locations. NS then determined that five (5) of these ten (10) locations are "wet," three (3) are "dry" and two (2) are "at opt."[113]

NS then shifts gears in its text and refers to these ten (10) locations as ten (10) major soil types.[114] It is unclear how this transition from location to soil type is made, especially since "loam" appears under "Predominant Soil Type" for five (5) of the ten (10) locations.[115]

NS's analysis of moisture content calculations and "wet," "dry" or "at opt" designations are based on unsupported and estimated values. First, NS provides no explanation of how the WSS locations were selected. Second, NS provides no support in its workpapers for the WSS moisture content figures it used to determine the "Estimated Natural Moisture Content" at each location and SunBelt was unable to replicate the figures using the WSS web site referenced by NS. Third, there is no support for the "Estimated Optimum Moisture Content" at each location. NS cites a source in its spreadsheet but does not provide the source in its workpapers; in addition, NS states that the figures are "assumed."[116]

NS's application of its unsupported soil analysis to the SBRR line segments is also flawed. NS classifies the line segment from McIntosh, AL to Kimbrough, AL as "wet" based on two (2) soil analysis locations. Kimbrough to Marion Jct., AL is classified as "wet" based on zero (0) locations. Marion Jct. to Burstall, AL is classified as "dry" based on zero (0) locations. Burstall north to Birmingham, AL is classified as "wet" based on (0) zero locations. Burstall south to Gulf States, AL is classified as "wet" based on one (1) location. Gulf States to the

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[113] See NS Reply e-workpaper "SBRR Soil Moisture Content.xlsx."

[114] See NS Reply at III-F-93.

[115] See NS Reply e-workpaper "SBRR Soil Moisture Content.xlsx."

[116] Id. at note 6.

AL/MS state line is classified as "opt" based on two (2) locations. AL/MS state line to Meridian, MS is classified as "dry" based on zero (0) locations. This demonstrates that NS changes the soil classification in several instances based on no data and without explanation. Not only is NS's soil analysis unsupported but so is its application of the analysis. NS's soil analysis and subgrade preparation analysis must be rejected.

NS's calculations of the cubic yards to be dried or watered are equally puzzling and erroneous. For segments classified as "wet," NS assumes that every cubic yard of common excavation must be dried. Notwithstanding the fact that the classification of "wet" is totally unsupported, this calculation is a gross overstatement. Even assuming that every cubic yard needed to be dried, which SunBelt vehemently disputes, only 70 percent of common excavation is assumed to be reused as embankment and 30 percent is wasted. There is no reason to remove water from the waste quantities.

For segments classified as "dry," NS applies water for compaction costs to 20 percent of the total common excavation and borrow quantities. NS sources its 20 percent factor to William Hay's Railroad Engineering[117] but there is nothing in the sourced material specifying 20 percent. Furthermore, only 70 percent of the common excavation quantities are assumed to be reused as embankment and there is no need to add water for compaction to waste quantities.

Finally, NS applies a cost of {{[redacted]}} per cubic yard for water for compaction and a cost of {{[redacted]}} per cubic yard for the drying of soil.[118] Apparently, NS believes that the cost to supply water, drive a truck over the roadbed and spray water is *over 9 times more* than the

[117] See NS Reply at III-F-94 and note 170.

[118] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Subgrade Preparation."

costs for a bulldozer with a Disc Harrow Attachment to spread and scarify material to be dried prior to compacting. NS's unit cost for water makes no sense.

As shown above, NS's attempt to classify portions of the SBRR needing water for compaction and requiring drying of material prior to compacting is erroneous, unsupported and totally unreliable. The initial identification of which areas are "wet," "dry" or "opt" is unsupported. NS's quantity calculations are erroneous and unsupported. NS's unit cost for water for compaction is ridiculously overstated. NS's analyses and costs must be rejected.

SunBelt continues to exclude additional costs for water for compaction or drying of material for two reasons. First, NS has provided no supported evidence that such costs are required. Second, as noted earlier, SunBelt's Trestle Hollow Project unit cost includes the costs for these two items should they be necessary. Furthermore, even though NS claims that the Trestle Hollow Project soil analysis showed optimum water content,[119] SunBelt's engineering witness Mr. Crouch, who oversaw the Trestle Hollow Project, recollects that water for compaction was used on the project and, following rain events, the contractor was required to blade up the soil so it would dry. There was no additional compensation for these items per the Trestle Hollow Project specifications identified previously.

(g) Land for Waste Excavation

Consistent with the procedures used in other SAC cases, on Opening, SunBelt assumed a 30 percent waste ratio for excavation quantities and included the costs to acquire rural land at a cost of $14,402 per acre to place the wasted material.[120]

NS accepted SunBelt's approach but made several modifications to SunBelt's methodology and calculations. NS increased the distance for waste excavation haulers,

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[119] See NS Reply at III-F-39-40.

[120] See SunBelt Opening at III-F-15.

expanded the footprint of the waste dump sites to allow for the side slope of the waste material and space for equipment to work, placed a waste dump site every mile along the SBRR and increased the average cost of the land to {{[redacted]}} per acre by including the cost of urban land.[121]

SunBelt rejects NS's increased haul distance. NS has not shown that SunBelt's distance was not feasible. NS's assumption of even quantities of waste excavation along the SBRR requiring a waste pit evenly spaced every mile is unsupported and erroneous. The 30 percent waste excavation figure is an average for the entire SBRR. Some sections will have no waste excavation as all of the material will be suitable for reuse as embankment. Some sections will have more than 30 percent waste due to lesser embankment needs or the removal of unsuitable material.[122] Waste dump sites are only needed where there is waste and cannot be spaced evenly along the SBRR. The sites will be placed alongside the SBRR in close proximity to where the waste material is generated.[123]

SunBelt accepts NS's increase to the footprint of the waste dump sites to account for the side slope of the waste material and space for equipment to work. SunBelt has increased its land requirements by the same ratio used by NS.[124]

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[121] See NS Reply at III-F-65-68 and e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Other Costs."

[122] The 30 percent waste excavation estimate dates back to the early SAC proceedings where the ICC Engineering Report data was first used and 30 percent has been used ever since.

[123] SunBelt notes that the increased hauling costs are actually incorporated into NS's Reply earthwork unit costs. As discussed above in the earthwork unit cost section, SunBelt did not accept NS's unsupported increased hauling distance.

[124] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Other Costs." {{[redacted]}} acres acquired to {{[redacted]}} acres needed for the waste material equals a mark-up ratio of {{[redacted]}}.

SunBelt rejects NS's increase in land costs. As noted above, the SBRR's waste material dump sites are not evenly spaced or evenly sized. The majority of excavation will take place outside of urban areas as urban areas, with a few exceptions, tend to be more flat. Furthermore, a least-cost, most-efficient railroad such as the SBRR will make a concerted effort to balance cut and fill quantities in urban areas resulting in less waste. Finally, SunBelt is not aware of any previous SAC proceedings where urban land was used for waste dump sites. In fact, in several other proceedings before the STB, both parties have used the rural cost per acre with costs as low as $300 per acre.[125] On Rebuttal, SunBelt continues to use $14,402 per acre for land for waste excavation.

f. Drainage

i. Lateral Drainage

As noted previously, SunBelt has corrected the input error of the lateral drainage quantity from the ICC Engineering Report for valuation section NONE-1-MS identified by NS using the correct figure of 3,550 LF. As a result, the SBRR lateral drainage costs increased by $89,000 to $2.88 million on Rebuttal.[126]

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[125] See Complainant's January 25, 2010 Opening Evidence (Public Version) in *AEPCO 2011* at III-F-38 and Defendants' May 7, 2010 Reply Evidence (Public Version) at III.F-28; Complainant's August 31, 2009 Opening Evidence (Public Version) in *Seminole* at III-F-38-39 and Defendant's January 19, 2010 Reply Evidence (Public Version) at III-F-45; Complainants' April 19, 2005 Opening Evidence (Public Version) in *WFA/Basin* at III-F-44 and Defendant's July 25, 2005 Reply Evidence (Public Version) at III.F-82; Complainant's March 1, 2004 Opening Evidence (Public Version) in *AEP Texas* at III-F-42-43 and Defendant's May 24, 2004 Reply Evidence (Public Version) at III.F-80; and Complainant's June 13, 2003 Opening Evidence (Public Version) in *Otter Tail* at III-F-31 and Defendant's October 8, 2003 Reply Evidence (Public Version) at p. III.F-123. These pages are included in SunBelt Rebuttal e-workpaper "Rural land cost.pdf."

[126] Substituting the correct figure of 3,550 LF into NS's lateral drainage cost calculation yields the same total cost of $2.88 million.

ii. Yard Drainage

On Opening, SunBelt included $1.5 million for yard drainage for the SBRR's one (1) major yard in the yard building site development costs.[127] For the remaining SBRR yards, SunBelt's engineers accounted for drainage by properly sloping the yard track roadbed so that water runs off through the ballast into ditches. NS claims that drainage structures must be included for every single foot of its 117.8 miles of yard track at a total cost of $10.3 million.[128] NS's overstated drainage is unsupported and not needed.

When constructing the SBRR yard tracks, the roadbed is sloped to direct the surface drainage to ditch lines and the ballast aids in directing the storm water toward the roadbed shoulders making drainage structures unnecessary. In addition, NS has not demonstrated that drainage structures are needed for every foot of SBRR yard track nor has NS provided any evidence that the drainage it proposes for the SBRR is included in all of its own yards. NS simply took a cost per foot that it developed from a single yard and applied it to all SBRR yard track. During his work with both NS and Crouch Engineering, SunBelt witness Crouch has seen numerous NS and other railroad yards with no track drainage inlet and culvert structures. Furthermore, NS actually prefers that catch basins and similar drainage facilities not be included because they tend to interfere with ballast regulation and they are easily clogged with ballast and fines. Indeed, when Crouch Engineering worked on a yard project for NS in Sheffield, AL, no additional drainage for the new yard tracks was included.

For the above reasons, SunBelt has not included drainage costs for any additional yards on Rebuttal. SunBelt has increased its Opening yard drainage costs from $1.5 million to $1.6 million to reflect the increased size of the SBRR's one major yard.

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[127] See SunBelt Opening at III-F-16.

[128] See NS Reply at III-F-96.

g. Culverts

On Opening, SunBelt explained its development of culvert costs at pages III-F-16 through 18. SunBelt included $13.7 million for culvert costs. NS's response to SunBelt's culvert costs is contained at pages III-F-96 through 108 of its Reply. NS included $26.3 million for culvert costs. Each of NS's criticisms is addressed below.

i. Culvert Unit Costs

On Opening, SunBelt utilized unit costs for corrugated metal pipe ("cmp") derived from a bid from Contech, a vendor that supplies cmp to many railroads. Transportation costs for culverts were included at $0.035 per ton-mile. The crushed stone bedding unit cost, including placement, was derived from the Trestle Hollow Project. The excavation and backfill pricing was derived from Means Handbook unit costs.[129]

NS rejected SunBelt's unit cost for culverts as they were indexed from 2010 to 2009 instead of 3Q11. NS also rejected SunBelt's Means Handbook unit costs for excavation and backfill because SunBelt used the 2009 Means Handbook instead of the 2011 Means Handbook. NS accepted SunBelt's transportation costs of $0.035 per ton-mile but claims that SunBelt understated transportation costs by understating the weight of the culverts.[130] SunBelt agrees that culvert weights were understated in opening and has accepted NS's change in weights used to calculate culvert transportation costs. SunBelt has also accepted the indexing of culvert costs to 3Q11 and the use of the 2011 Means Handbook for unit costs for excavation and backfill.

NS rejected SunBelt's unit cost for crushed rock bedding material derived from the Trestle Hollow Project cost for sub-ballast for culverts and developed bedding costs from the Means Handbook. The Trestle Hollow Project sub-ballast costs are discussed in more detail

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[129] See SunBelt Opening e-workpaper "Culvert Construction Costs.xls."

[130] See NS Reply at III-F-99.

in Part III-F-3. Regardless, as SunBelt has already explained in this section, the Trestle Hollow Project costs are valid and feasible. Consequently, SunBelt continues to use its Opening unit cost for the culvert bedding.

ii. Culvert Installation Plans

NS states that the culvert installation plan in SunBelt's Opening text and SunBelt's workpapers for trench dimensions are conflicting.[131] On Rebuttal, SunBelt has corrected its calculations to match the specified trench width equal to the culvert width plus one foot on either side[132] of the culvert and the trench height of two feet higher than the culvert height. SunBelt also accepts NS's other modifications to culvert widths and spacing between pipes on multiple barrels.

SunBelt has also corrected its calculation of bedding material to correspond to the corrections in trench width and accepted NS's modification to the height of the bedding material. Finally, SunBelt has corrected trench backfill quantity to correspond to the applicable trench dimensions.

iii. Culvert Quantities

On Opening, SunBelt used the culvert inventories provided by NS in discovery to form an initial culvert list. As explained on Opening at page III-F-18, it was necessary for SunBelt to make some assumptions regarding the data provided by NS. On Opening, SunBelt also converted bridges less than 20 feet in length to culverts.

NS identified several issues with SunBelt's opening culvert quantities.[133] Based on a review of NS's Reply, SunBelt has made several modifications to its culvert quantities. SunBelt

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[131] Id. at III-F-99-102.

[132] See SunBelt Opening at III-F-17.

[133] See NS Reply at III-F-102-107.

has accepted NS's modifications to the number and size of cmp culverts required to replace bridges under 20 feet in length and large box culverts based on the flow requirements. SunBelt has also accepted NS's inclusion of costs for replacement in kind when the costs of cmp exceeded the costs for replacement in kind. SunBelt has accepted NS's inclusion of culverts shorter than 20 feet when those culverts are extensions of existing pipes. Finally, SunBelt has accepted NS's reduction in culvert quantities caused by a misinterpretation of the culvert data provided by NS in discovery.

NS also claims that SunBelt erred by failing to provide culvert inlet protection (silt fences) during construction. On rebuttal, SunBelt has included the costs for inlet protection.

With the modifications described above, SunBelt's revised Rebuttal culvert costs equal $24 million.[134]

h. Other

i. Sideslopes

The parties agree on an average 1.5:1 sideslope.

ii. Ditches

The parties agree on the specifications for ditches.

iii. Retaining Walls

On Opening, SunBelt developed retaining wall quantities from the ICC Engineering Reports and used gabions for all retaining walls.[135] To be conservative, SunBelt allocated all of the retaining wall quantities (shown on the ICC Engineering Reports as cubic yards) for a given valuation section to the mainline miles of the valuation section, creating an average quantity of cubic yards of retaining walls per mainline mile for each valuation section. This methodology

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[134] See SunBelt Rebuttal e-workpaper "Culvert Construction Costs Rebuttal.xlsx."

[135] See SunBelt Opening at III-F-18-19.

most likely results in an overstatement of the quantities per mile because it is probable that some retaining walls were necessary to accommodate side tracks, yard tracks or other facilities that the SBRR is not constructing. SunBelt then applied this average quantity per mainline mile to the route miles of the SBRR traversing each valuation section.

NS accepts SunBelt's use of gabions and the allocation process to calculate the average cubic yards per mile but rejects SunBelt's development of quantities for the SBRR line segments. NS claims that SunBelt failed to account for increased quantities due to the increased roadbed width of the SBRR, understated quantities by assuming a 1:1 replacement of masonry with gabions, failed to include costs for the preparation of the foundation area of the walls and failed to use treated timber piles for timber piling walls.[136] NS's claims are addressed below.

(a) Increased Roadbed Width

NS brings out a tired, and rejected, argument that the retaining wall quantities should be increased due to differences in roadbed width between those used when the ICC Engineering Reports were compiled and those used today.[137] This argument was raised recently in *AEPCO 2011* and *AEP Texas* and rejected by the Board.[138] Before turning to the merits, SunBelt notes that the same engineers that NS is using raised the exact same arguments in *AEPCO 2011* and *AEP Texas*. Indeed, SunBelt believes that the workpapers may even be the same, as the date on some of the materials is circa 2003. Regardless, NS has not offered any new rationale that is different than that raised and rejected in *AEPCO 2011* and *AEP Texas*. On this basis alone, NS's additional retaining wall quantities are unwarranted.

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[136] See NS Reply at III-F-109.

[137] Id. at III-F-113-115.

[138] See *AEPCO 2011* at 84 and *AEP Texas* at 84.

NS's methodology is also flawed. First, NS has provided no evidence detailing the construction of any new retaining walls or increasing the height of existing retaining walls to accommodate modifications to the original roadbed width, nor has it shown that the original roadbed width has been significantly increased in size.[139]

Second, NS has assumed that, at every retaining wall location, the topography is such that the surrounding earth side wall is always going upward (in a cut) or downward (in a fill) as one moves out from the center of the roadbed. This is simply not the case. NS's drawings of these circumstances in its Reply workpapers have no basis in reality. In particular, the side retaining walls do not always increase; they may actually decrease or they may stay the same. The only way to know for certain what impact a wider roadbed would have on a retaining wall is to look at each and every retaining wall location and ascertain the surrounding topography. Thus, if the topography is sloping upward away from the roadbed, a wider roadbed would result in a taller retaining wall in a cut and a shorter retaining wall for a fill. However, if the topography is sloping downward away from the roadbed, the opposite would occur (*i.e.*, a wider roadbed would result in a shorter retaining wall in a cut and a higher retaining wall in a fill). Finally, if the topography is flat, widening the roadbed would have no impact on the height of the retaining wall. NS provides no evidence that it reviewed all existing retaining wall locations and determined that in every instance the retaining wall would need to be enlarged. Such a result is illogical.

In addition, NS assumes that the wider roadbed extends equally on each side of the track centerline. NS has provided no support for this assumption. If there is a location where a

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139 The adjustments made to the ICC Engineering Report earthwork quantities by both parties to account for a modern 24-foot roadbed are based on an assumption of the original roadbed width but there is no evidence that the roadbed width of the lines replicated by the SBRR, in fact, have been modified from the original construction.

retaining wall is necessary, it is quite possible that the entire amount of the widened roadbed could be accommodated on the side where the retaining wall is not required, meaning that no adjustment in size is necessary. In short, there are several scenarios where the retaining wall quantities could be decreased as well as increased, and NS has relied only on unsupported assumptions.

NS's increase in retaining wall heights is also flawed because it assumes that all retaining walls from the ICC Engineering Reports were ten feet tall and that the new walls must be fourteen feet tall. NS has provided no evidence that all the retaining walls from the ICC Engineering Reports are ten feet tall, as the ICC Engineering Reports do not show the height of any retaining wall. NS claims that it included photos demonstrating that the average ten-foot height for all the retaining walls on the SBRR is reasonable.[140] A review of the photos submitted by NS clearly demonstrates otherwise.[141] In addition, NS provided no basis for its assumption that all retaining walls on the SBRR would need to be fourteen feet in height. Furthermore, NS's four-foot increase in height is based on its flawed assumption of the impact of an expanded roadbed width which SunBelt debunked above. NS's increase in retaining wall height is completely unsupported.

(b) Masonry Walls

On Opening, SunBelt provided gabion baskets in place of the many varieties of masonry walls shown on the ICC Engineering Reports. SunBelt's use of gabion baskets and a one-for-one

[140] See NS Reply at III-F-115.

[141] See NS Reply e-workpaper "Retaining wall photos.pdf." This workpaper consists of six photographs at three locations, none of which are on the SBRR. NS also includes three other photographs in its workpapers – "DSC00360.jpg," DSC00560.jpg" and "DSC00561.jpg." These three photographs were taken at undisclosed locations which may not even be on the SBRR. Clearly, NS's photographs do not support NS's average ten-foot height assumption.

CY quantity replacement is the same methodology employed in other cases.[142] In this case, NS abandons the accepted methodology and instead proceeds from a flawed assumption that all masonry retaining walls on the SBRR are solid and weigh 54 percent more than the stone included in the baskets of the gabion retaining walls.[143]

NS's weight adjustment is unsupported. NS has provided no evidence that all masonry walls are solid. The ICC Engineering Reports show that several different materials were used,[144] including some materials in mortar or cement and some materials identified as "dry."[145]

As explained above, SunBelt's retaining wall quantities are most likely overstated to begin with because SunBelt assigned all retaining walls in each valuation section to the route miles of the valuation section and applied the amount per route mile to the main line miles of the SBRR. Stated differently, as the ICC Engineering Reports do not show the location of retaining walls, SunBelt assumed all retaining walls were put in place for the main line track. The valuation sections where the masonry retaining walls are located on the SBRR include miles of second main and yard track that the SBRR is not constructing. Yet, SunBelt conservatively included the total amount of retaining walls for the valuation section in determining the average amount per route mile. By assigning all the masonry retaining walls on the ICC Engineering Reports to the main line, SunBelt has clearly overstated the SBRR's retaining wall quantities.

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[142] See *WFA/Basin* at 89, where the parties agreed on the existing retaining wall quantities, and *AEP/Texas* at 84, where the only dispute on quantities was BNSF's failed attempt to double the quantities for the wider roadbed.

[143] See NS Reply at III-F-111-112. NS compares "solid unit weights" to "broken-stone unit weight."

[144] See SunBelt Opening e-workpaper "SunBelt ICC Engineering Reports.pdf."

[145] Material types identified as "dry" indicate pieces of stone placed with no mortar or, stated differently, broken stone such as the type used in gabions.

NS's modification of the masonry quantities from the ICC Engineering Reports – an argument that has never been accepted before – finds no support in the evidence.

(c) Timber and Tie Walls

NS accepted the quantities that SunBelt's engineers obtained from the ICC Engineering Reports but disputes the gabion quantities required for replacement.[146] SunBelt's accepted methodology[147] develops quantities by calculating the square yard ("SY") facing area of the timber and tie walls and replacing that same SY facing area with CY of gabions. The difference in gabion quantities between the parties is caused primarily by NS's development of linear feet of timber and tie retaining walls based on its unsupported ten-foot height assumption. As explained above, NS assumed that all of the retaining walls from the ICC Engineering Reports are ten feet high and that all of the SBRR's retaining walls should be fourteen feet high due to the wider roadbed. SunBelt has already explained why NS's increased wall heights are unsupported. Moreover, NS provided no evidence that any, let alone all, of the timber and tie walls from the ICC Engineering Reports are ten feet tall. Moreover, for the reasons described above, SunBelt has likely overstated the retaining wall quantities. Therefore, SunBelt continues to use its Opening quantities for timber and tie walls.

(d) Piles

NS claims that SunBelt erred by not including treated timber piles for timber piling retaining walls. NS uses the International Code Council specifications as its support.[148] NS's reliance on the International Code Council is misplaced as it is not applicable to railroad

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[146] See NS Reply at III-F-112.

[147] See *WFA/Basin* at 89, indicating that there was no dispute over the quantities of existing retaining walls.

[148] See NS Reply at III-F-116.

retaining wall construction. According to its website, "[t]he International Code Council, a membership association dedicated to building safety, fire prevention and energy efficiency, develops the codes used to construct residential and commercial buildings, including homes and schools."[149] Nowhere does it say on the website that the International Code Council's codes are applicable to railroad construction. SunBelt has not made any changes to its pile unit cost on Rebuttal.

(e) Foundation Excavation

NS claims that SunBelt failed to include costs for the preparation of the foundation areas of the SBRR's retaining walls.[150] Using its 10-foot average retaining wall height, NS calculates a retaining wall foundation excavation volume of over 53,000 cubic yards that it adds to the SBRR's common excavation totals.[151]

NS's calculation is erroneous as it relies on the totally unsupported assumption that all retaining walls on the SBRR average ten feet in height. Furthermore, NS's inclusion of cubic yards of foundation excavation is a double-count of excavation quantities. Foundation excavation quantities for retaining walls are identified on the ICC Engineering Reports and both parties included them in the excavation quantities used to calculate the earthwork quantities per mile for the SBRR line segments.[152] NS's additional foundation excavation quantities are clearly a double-count and should be rejected.

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[149] http://www.iccsafe.org:8888/AboutICC/Pages/default.aspx.

[150] See NS Reply at III-F-109.

[151] Id. at III-F-115.

[152] See SunBelt Rebuttal e-workpaper "Rebuttal foundation excavation.xlsx" for an identification of the valuation sections for which the ICC Engineering Reports include quantities of foundation excavation. A review of the grading spreadsheets used by both parties reveals that the foundation excavation quantities for these certain valuation sections are included in the earthwork quantities taken off the ICC Engineering Reports. See also SunBelt Opening e-

(f) Unit Costs

NS accepted SunBelt's unit cost for gabions. As discussed above, SunBelt has rejected NS's treated pile timber unit cost.

iv. Rip Rap

NS accepted SunBelt's unit cost for rip rap. NS also accepted SunBelt's methodology for developing rip rap quantities from the ICC Engineering Reports[153] resulting in a total of 7,406 CY of rip rap for the SBRR. However, NS significantly increased the SBRR's rip rap quantities based on two other items. First, NS included 594,430 CY of rip rap for a berm covering 11.3 miles along the shoreline of Lake Pontchartrain. Next, NS included 1,765,149 CY of rip rap as undercutting backfill for the areas NS designated as "wetlands." NS increased the rip rap quantities for the SBRR from 7,406 CY to 2,366,984 CY.[154]

SunBelt does not accept NS's inclusion of rip rap for a berm along Lake Pontchartrain for several reasons. First, NS should have disclosed this berm in discovery. Request For Production No. 113 in Complainant's First Set of Discovery Requests requested the "number of cubic yards of rip rap placed for the protection of the roadway" on "any portion of NS's...system located in the SARR States." Rather than provide the requested information, NS responded that it would "produce a list of AFEs from which SunBelt can select a reasonable number."[155] NS cannot restrict the scope of its discovery responses and then use information for the first time on Reply

workpaper "SBRR Open Grading.xlsx," tab "Eng Rep Input" and NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Eng Rep Input."

[153] See NS Reply at III-F-116-117.

[154] See NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Other Items."

[155] See SunBelt Rebuttal e-workpaper "NS Response to Rip Rap Discovery Request.pdf."

after failing to produce it in discovery.[156] For this reason alone, NS's berm costs should not be included.

Second, there is no evidence that this berm was included in the original construction of the rail line along Lake Pontchartrain that the SBRR is replicating. The segment between the MS/LA state line and New Orleans, LA is covered by the valuation section NONE-1-LA. The ICC Engineering Report for this valuation section includes 4,864 cubic yards of rip rap for the protection of roadway[157] which both SunBelt and NS included in their respective roadbed preparation costs.[158]

Third, NS has provided no evidence of washouts along this line or any other material demonstrating that this berm is necessary for the SBRR.

Finally, NS's workpapers supporting this berm are deficient. NS has provided no evidence that the berm is solid rip rap and not just a layer of rip rap over earth. In fact, several of the pictures NS included in its workpapers show vegetation growing on the berm.[159] Furthermore, NS has provided no support for the 7-foot assumed height of the berm or for the 11.3 mile length.

For all of the above reasons, SunBelt has not accepted the rip rap quantity included by NS for this berm.

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[156] See *PSCo/Xcel II* at 18 (STB excluded cost for side slope protection and a raised track bed for tunnel daylighting project because the railroad failed to make complainant aware of those project components during discovery) and *WFA/Basin* at 36 (railroad may not base its evidence on information that was requested in discovery but not produced).

[157] See SunBelt Opening e-workpaper "SunBelt ICC Engineering Reports.pdf," p. 15 of 37.

[158] See SunBelt Opening e-workpaper "SBRR Open Grading.xlsx," tab "Other Items," cell K32 and NS Reply e-workpaper "SBRR Open Grading NS Reply.xlsx," tab "Other Items," cell K32.

[159] These pictures also show significant amounts of smaller rocks which would be less expensive than the large rocks used for rip rap.

As discussed previously in the Undercutting section, SunBelt has not accepted NS's placement of rip rap two (2) feet deep in all alleged wetlands areas.

On Rebuttal, SunBelt has continued to include only the rip rap amounts identified from the ICC Engineering Reports.

v. Relocating and Protecting Utilities

As noted by SunBelt on Opening, all of the lines being replicated by the SBRR were constructed by NS's predecessors in the 19th and early 20th centuries. As such, NS's predecessors would not have incurred any costs for relocating and protecting utilities. Therefore, SunBelt did not include any costs for this activity.[160] NS accepted SunBelt's Opening position that no costs were incurred for this activity.[161]

vi. Seeding/Topsoil Placement

NS accepted SunBelt's Opening quantities for this item but rejects SunBelt's Opening unit cost, which was based on the Trestle Hollow Project, in favor a lower unit cost based on the Means Handbook.[162] As SunBelt has demonstrated that the Trestle Hollow Project unit costs are reasonable and feasible for the SBRR, SunBelt continues to use its Opening unit cost for seeding/topsoil placement.

vii. Water for Compaction

Water for compaction was addressed previously in the section on Subgrade Preparation.

viii. Surfacing for Detour Roads

As noted above, all of the lines being replicated by the SBRR were constructed by NS's predecessors in the 19th and early 20th centuries. As such, NS's predecessors would not have

[160] See SunBelt Opening at III-F-19.

[161] See NS Reply at III-F-117.

[162] Id.

incurred any costs for road detours. Therefore, SunBelt did not include any costs for road detours.[163] NS accepted SunBelt's Opening position that no costs were incurred for road detours on the SBRR.[164]

ix. Environmental Compliance

As noted above, all of the lines being replicated by the SBRR were constructed by NS's predecessors in the 19th and early 20th centuries. As such, NS's predecessors would not have incurred any costs for environmental compliance. Therefore, SunBelt did not include any costs for environmental compliance.[165] NS accepted SunBelt's Opening position that no environmental compliance costs were incurred on the SBRR.[166]

x. Lighting for Night Work

On Reply, NS included $18 million for lighting costs for nighttime work on the SBRR in order to meet the SBRR's aggressive construction schedule. NS calculates the costs based on a seven-month time period, 25 days per month with lighting crews every 10 miles over the entire SBRR network.[167] NS's cost is ridiculous. NS has provided no support for its time assumptions or its crew spacing. NS's cost is unnecessary, a barrier to entry and has been previously rejected by the STB.

NS's cost is unnecessary because there is sufficient daylight available to construct the SBRR. The U.S. Naval Observatory data base containing sunrise and sunset times shows that on the shortest days during the construction period of the SBRR, occurring in the last two weeks of December 2009 and 2010, the time between sunrise and sunset was 10 hours and 01 minutes at

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[163] See SunBelt Opening at III-F-20.

[164] See NS Reply at III-F-118

[165] See SunBelt Opening at III-F-21.

[166] See NS Reply at III-F-118.

[167] Id. at III-F-118-119.

Meridian, MS (a location in the middle of the SBRR's territory). In addition, on these same days, the time between the beginning and end of civil twilight (where the sun illuminates brightly enough for outdoor activities without the aid of light) is 10 hours and 55 minutes.[168] Obviously, this time is longer the rest of the year. So even on the shortest day, there is sufficient daylight for construction crews to do their work.

NS's lighting costs can also be classified as a barrier to entry. Under the theory of unconstrained resources, the SBRR would be able to deploy more personnel, equipment and materials during the shorter days in order to maintain its "aggressive construction schedule," as characterized by NS.

Finally, SunBelt notes that this type of cost has only been presented in three other SAC proceedings and was rejected by the STB in both of the proceedings that have gone to a decision.[169]

xi. Dust Control Work

On Reply, NS included $2.7 million for dust control work. In support of including this cost, NS refers to Environmental Protection Agency regulations.[170] This is another example of NS's new cost items. It is also an unnecessary cost.

As noted previously, NS accepted SunBelt's position that the SBRR would not incur costs for environmental compliance. The rail lines replicated by the SBRR were built long before the advent of environmental regulations. As NS (and its predecessors) did not incur these

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[168] See SunBelt Rebuttal e-workpaper "Daylight.xlsx."

[169] See *Otter Tail at* D-18. In *AEP Texas*, construction lighting was presented by BNSF but was not specifically discussed in the STB's decision even though the STB did not include these costs in its road property investment figures. The third proceeding, *DuPont*, has not yet gone to a decision.

[170] See NS Reply at III-F-119-120.

environmental costs, the SBRR is not required to incur them as they constitute a barrier to entry. Therefore, these costs should not be included.

3. Track Construction

On Opening, SunBelt developed the unit costs and quantities for SBRR track construction based on quotes from vendors and design standards that met or exceeded those used by other Class I and regional railroads.[171] NS accepts many of SunBelt's unit costs but adds other costs and increases track-mile quantities, causing an increase of over $300 million in track construction costs. As discussed below by component, SunBelt has accepted some of NS's changes while rejecting others. Before turning to the individual items of difference, SunBelt notes that a significant amount of the difference in track construction costs is attributable to NS's overstated track miles associated with NS's new and enlarged yards, which are addressed in Parts III-B and III-C.

While preparing for Rebuttal, SunBelt realized that it had slightly overstated track construction costs for many components due to incorrect references in its track construction spreadsheet. Specifically, SunBelt double-counted three categories of track miles and failed to include three other categories of track miles.[172] This resulted in a two (2) percent overstatement on Opening in track feet causing corresponding overstatements in the costs for ballast, sub-ballast, ties, field welds, other track material and track labor and equipment. SunBelt also

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[171] See SunBelt Opening at III-F-21-29.

[172] See SunBelt Opening e-workpaper "Track Construction Costs.xls," tab "Summary." Tab "Summary" Cell E40 incorrectly referenced tab "User Input" cell D61 instead of D54; tab "Summary" Cell E41 incorrectly referenced tab "User Input" cell D62 instead of D55; and tab "Summary" Cell E42 incorrectly referenced tab "User Input" cell D63 instead of D56. As a result, tab "User Input" cells D61, D62 and D63 were included twice and cells D54, D55 and D56 were omitted.

realized that it had inadvertently allocated track miles into the wrong rail weight categories on Opening.[173] Both of these issues have been corrected on Rebuttal.

Table III-F-7 below compares the track construction costs developed by SunBelt in Opening, NS in Reply and SunBelt in Rebuttal.

Table III-F-7
SBRR Track Construction Costs
($ in thousands)

	Item	SunBelt Opening[1/]	NS Reply[2/]	SunBelt Rebuttal[3/]
	(1)	(2)	(3)	(4)
1.	Geotextile Fabric	$182	$374	$255
2.	Ballast and Sub-ballast	74,322	268,183	79,915
3.	Ties	108,259	131,284	114,443
4.	Track (rail)			
	a. Rail (all track incl. diamonds)	165,626	232,231	182,428
	b. Field Welds	2,217	2,784	2,270
	c. Switches (turnouts)	34,754	50,896	39,663
5.	Rail Lubricators	184	654	617
6.	Plates, Spikes and Anchors	54,133	63,809	55,497
7.	Derail and Wheel Stops	191	3,580	2,850
8.	Track Labor and Equip	96,804	116,783	105,922
9.	Total	$536,672	$870,578	$583,860

1/ SunBelt Opening at III-F-22, Table III-F-7.
2/ NS Reply at III-F-121, Table III-F-15.
3/ SunBelt Rebuttal e-workpaper "Track Construction Costs Rebuttal.xls."

a. Geotextiles

NS argues that SunBelt understated the amount of geotextile fabric that is required under the SBRR's turnouts, and that SunBelt did not provide detailed calculations for its fabric quantities.[174] NS then claims it recalculated the quantities for all of the turnouts. NS misunderstood SunBelt's unit cost and its calculation methodology.

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[173] Track miles with 115 lb. rail were classified as 136 lb. rail and vice versa.

[174] See NS Reply at III-F-121-122.

In reviewing NS's criticisms, SunBelt discovered one error and one mislabeling in its geotextile quantity and cost calculations. SunBelt's unit cost for geotextile fabric, \$1.20 per square yard (which NS accepted), was intended to be a cost per track foot (\$1.60). The unit cost was then applied to the track feet quantities which were inadvertently mislabeled as square yards. Stated differently, SunBelt calculated the correct geotextile quantities (based on track feet) but applied the wrong unit cost (based on square yards instead of track feet). Thus, when SunBelt showed 236 as the quantity for a No. 10 turnout (117 feet long), SunBelt intended to include the costs for 306.8 square yards of fabric (1.3 square yards of geotextile per track foot). This amount is enough fabric to cover both the mainline portion of the track as well as the diverging track. SunBelt's quantity allowed for overlap between the two legs of the turnout as well as extra length to extend slightly beyond the end of the turnout.

NS has included too much geotextile fabric per turnout. This overstatement is due the application of geotextile fabric over the entire roadbed, and not simply extending 6 feet from the centerline of track on each side of the mainline side and the diverging track side, as is current railroad industry practice.[175] NS applied geotextile fabric to the entire roadbed which is not necessary as the loads will be transferred at a 1 to 1 slope from the edge of the tie. SunBelt has provided enough geotextile fabric to cover the entire turnout and where loads are being transferred at a 1 to 1 slope from the edge of the tie. NS has also overstated the required number of turnouts, primarily due to its overstated yard track requirements.

On Rebuttal, SunBelt has corrected the quantity calculations to reflect square yards (instead of track feet) applied to the unit cost of \$1.20 per square yard which NS accepted.

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[175] <u>See</u> NS Reply e-workpaper "NS Turnout Geotech Sketch.pdf."

b. Ballast and Sub-ballast

Ballast and sub-ballast represents over half of the difference in track construction costs between the parties. NS identifies several design and unit cost criticisms, most of which (as explained below) are without merit.

i. Ballast and Sub-ballast Quantities

For mainline track, SunBelt specified a 12-inch layer of ballast and 6-inch layer of sub-ballast. For yard and set-out tracks, SunBelt specified a 6-inch layer of ballast and a 4-inch layer of sub-ballast.[176] NS accepted SunBelt's specifications[177] but alleged four errors in SunBelt's quantity calculations. As discussed below, all but one of NS's allegations have no merit.

NS first claims that SunBelt understated the tons per cubic yard for both ballast and sub-ballast. NS cites to SunBelt's Opening text where SunBelt shows a weight-to-volume conversion factor of 1.5 tons per cubic yard and to SunBelt's workpapers where SunBelt's calculations use a lower conversion factor of 1.35 tons per cubic yard.[178] NS assumed that SunBelt's text was correct and its calculations in error so NS relied on the 1.5 conversion factor in its Reply.

In fact, SunBelt's text was wrong and its workpapers were correct. Furthermore, NS should have known this as NS uses a conversion factor of 1.32 tons per cubic yard in its normal course of business. In the 2011 ballast price information provided to SunBelt by NS in discovery, NS calculated an average price per net ton for ballast. Right below that calculation, NS converted the price per net ton to the price per cubic yard. NS's calculation multiplied the

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[176] See SunBelt Opening at III-F-22-23.

[177] See NS Reply at III-F-123.

[178] Id. at III-F-123-124 and III-F-134.

price per net ton by a factor of 1.32 to derive the price per cubic yard.[179] In other words, NS converted tons to cubic yards using a factor of 1.32. As NS's own document supports the 1.35 conversion factor which SunBelt used in its calculations, NS's 1.5 conversion factor must be rejected. SunBelt continues to use its Opening 1.35 conversion factor in Rebuttal.

NS next argues that SunBelt's ballast cross section area calculations are incorrect and unsupported and, therefore, NS calculated its own ballast cross section areas. Because NS could not replicate SunBelt's calculations, NS relied on its own cross section area calculations in its Reply.[180] However, NS was able to replicate SunBelt's cross section area calculations for sub-ballast and accepted them.[181] SunBelt has no idea why NS could replicate SunBelt's cross sectional area calculations for sub-ballast but not for ballast as SunBelt could not find any support for NS's ballast cross sectional area calculations in its workpapers. NS did not even provide cross-sectional drawings in the same manner that SunBelt did.[182] Because NS could replicate SunBelt's sub-ballast figures, and NS did not provide any calculations or drawings supporting its ballast figures, SunBelt assumes that there must be some error in NS's calculations for ballast. For that reason, SunBelt continues to rely on its cross sectional area calculations for ballast included in Opening.

NS next claims that SunBelt erred in its ballast and sub-ballast calculations by not relying on the cross sectional area calculations for multiple tracks.[183] In fact, SunBelt built all sidings

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[179] See SunBelt Opening e-workpaper "Ballast 2011.xlsx," tab "Ballast Receipts," cell D16. "Ballast 2011.xlsx" was provided by NS in discovery.

[180] See NS Reply at III-F-124-125.

[181] Id. at III-F-133-134.

[182] NS claims to have included cross-sectional drawings and calculations in Reply e-workpaper "STV Typical Sections.pdf" but a review of that file shows that it contains the same drawings and calculations included by SunBelt in its Opening e-workpaper "Ballast Sections.pdf."

[183] Id. at III-F-125-126.

and other side-by-side tracks, such as yard tracks, as individual tracks using the single track ballast and sub-ballast sections. In other words, SunBelt overstated the amount of ballast and sub-ballast that the SBRR would need because side-by-sections would have elements that overlap.

Finally, NS claims that SunBelt overstated its sub-ballast calculations by computing the cross sectional area using a depth of 6 inches for yard and set-out tracks instead of the 4 inches referenced in SunBelt's Opening.[184] NS is correct and SunBelt has corrected this calculation on Rebuttal.

Accordingly, SunBelt continues to use its Opening ballast and sub-ballast quantities per track foot (with the one correction to yard and set-out tracks) applied to the Rebuttal track quantities.

ii. Ballast and Sub-ballast Unit Costs

On Opening, SunBelt's ballast costs were derived from an average of ballast costs from ten sources provided by NS in discovery.[185] NS disagrees with SunBelt's approach, arguing that SunBelt should have used only three of the ten sources identified because the other sources are not close to the SBRR. To these three sources provided in discovery, NS added one additional source (Martin Marietta) that appears in SunBelt's Opening workpapers but was not used by Sunbelt.[186] NS's addition of this one source is simply to increase the ballast costs of the SBRR.

SunBelt is permitted to rely upon data furnished in discovery in developing its Opening evidence, which it did. Instead of simply accepting SunBelt's unit cost, NS attempted to show it

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[184] Id. at III-F-134.

[185] See SunBelt Opening e-workpaper "Ballast 2011.xlsx" (provided by NS in discovery), tab "Ballast Receipts."

[186] See NS Reply at III-F-126-127.

was being more specific by limiting the number of ballast sources but, unhappy with the result, NS added a very expensive source into the mix with the simple intention of increasing the unit cost. SunBelt agrees with NS's selection of only three suppliers from the NS discovery data but rejects NS's addition of the high-cost Martin Marietta source which SunBelt did not rely on. On Rebuttal, SunBelt has used the average of the three NS sources ($9.45 per ton) for ballast.[187]

In responding to NS's Reply and reviewing ballast costs and calculations, SunBelt discovered one error in its Opening cost calculations. SunBelt realized that on Opening it inadvertently used the mainline price per track-foot for ballast instead of the yard and set-out track price. As the mainline price is based on higher quantities, SunBelt overstated the ballast costs for yard and set-out tracks. SunBelt has corrected this on Rebuttal.

NS also disagrees with SunBelt's Opening ballast transportation cost. NS first disagrees with the average haul of 100 miles that SunBelt used for movement of the ballast from the quarry to the SBRR railhead (referred to as "off-line" transportation) and calculates its own average haul of 349.9 miles. NS's average haul includes the improper addition of the Martin Marietta source discussed above and that alone renders NS's average haul figure unusable. Under the theory of unconstrained resources, SunBelt assumed that there would be sufficient ballast sources on the SBRR lines located within an average of 100 miles of the SBRR railheads. This is no different than NS's assumptions that "suitable subballast suppliers will be available along the SBRR route"[188] with "an assumed 40 mile average delivery distance."[189] For the above reasons, SunBelt has continued to rely on its Opening average haul of 100 miles for off-line transportation.

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[187] See SunBelt Rebuttal e-workpaper "Ballast 2011 Rebuttal.xlsx."

[188] See NS Reply at III-F-136.

[189] Id. at III-F-135.

Next, NS claims that SunBelt failed to include the costs to transport the ballast from the SBRR railhead to the placement location (referred to as "on-line" transportation) because on-line transportation was not included in SunBelt's quote for ballast distribution. SunBelt agrees with NS and has added NS's 41.3 miles for on-line transportation to the 100 miles for off-line transportation.

NS then rejects SunBelt's ballast transportation cost of $0.035 per ton-mile taken from the recent *AEPCO 2011* decision.[190] NS proffers several criticisms of SunBelt's material transportation cost and develops its own ballast transportation cost of $0.070 per ton-mile comprised of a quote from a single supplier of $0.074 for off-line transportation and SunBelt's $0.035 per ton-mile for on-line transportation.[191] NS's criticisms related to *AEPCO 2011* are misplaced and erroneous.

NS contends that SunBelt's evidence is faulty because "it is clear that the Board did not accept use of the $0.035 cost for off-line transportation."[192] In support of its contention, NS relies on two key assumptions; however, a careful reading of *AEPCO 2011* shows that NS is wrong on both points.

First, NS cites to the Board's statement that AEPCO used a "hardcoded unit price for the off-line transportation costs" and, consequently, NS makes the assumption that the unit price used by AEPCO for off-line transportation was "highly confidential."[193] Evaluation of the Opening Evidence in that case shows that AEPCO used $0.035 per ton mile for off-line ballast

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[190] See SunBelt Opening at III-F-24.

[191] See NS Reply at III-F-131-133.

[192] Id. at III-F-131.

[193] Id.

transportation.[194] The defendants used this same charge for off-line transportation in their reply.[195] In light of the fact that BNSF/UP accepted the rate of $0.035 for off-line transportation, AEPCO did not mention the off-line transportation cost in its Rebuttal Evidence. While it is true that the Board only states that AEPCO used "a hardcoded unit price for the off-line transportation costs," the Board never explains what, exactly, that hardcoded unit price was. Given that the record clearly shows that both AEPCO and BNSF/UP used $0.035 for off-line transportation, the only plausible interpretation of *AEPCO 2011* is that the ballast transportation costs used by the Board were also based on $0.035 per ton mile.

Second, NS misinterprets the Board's discussion of ballast transportation. NS contends that the Board found $0.035 to be a conservative cost because it would be the cost a railroad would charge itself.[196] However, close inspection of *AEPCO 2011* reveals that the Board was not expressing its own view, but, instead, merely summarizing BNSF/UP's argument.[197] NS's Reply is based on a misinterpretation of *AEPCO 2011* and should be rejected.

Furthermore, SunBelt notes that NS accepted $0.035 per ton-mile for the transportation of culverts without any objection and used $0.035 per ton-mile for a portion of the ballast transportation cost.

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[194] See *AEPCO 2011* Opening (Public Version) at III-F-53 (filed Jan. 25, 2010) (using $0.035 per ton mile for transportation "from the [ballast] sources to the railheads").

[195] See BNSF/UP Reply (Public Version) at III.F-54 (filed May 7, 2010). See also *AEPCO 2011* at 100 (Board notes that defendants used the $0.035 figure in their calculations of transportation from the quarry to the railheads).

[196] See NS Reply at III-F-132.

[197] See *AEPCO 2011* at 100 (Board states that "[d]efendants argue that although $0.035 per ton mile is a conservative cost (the cost a railroad would charge itself…), they use this cost in their calculations").

Finally, one of NS's criticisms of the $0.035 per ton-mile cost is that it dates back to 1994. However, SunBelt notes that, if this cost were indexed using a cost index such as the Rail Cost Adjustment Factor, Adjusted for Productivity ("RCAFA"), the $0.035 remains $0.035.[198]

Based on the above, a cost of $0.035 per ton mile is appropriate for the material transportation costs of the SBRR.

For sub-ballast, SunBelt used a unit cost from the Trestle Hollow Project. NS complains that the Trestle Hollow Project cost is not representative of the cost the SBRR would incur. However, laying sub-ballast is laying sub-ballast whatever the size and location of the project. NS has not shown, nor can it show, that laying sub-ballast for the Trestle Hollow Project was somehow different from what would occur on the SBRR. SunBelt's delivered cost was for an actual project – not just a random series of quotes. This plainly demonstrates that such unit costs are feasible. In addition, SunBelt thoroughly addressed NS's criticisms of the Trestle Hollow Project previously in Section III-F-2.

Furthermore, the sub-ballast unit costs utilized by NS are overstated. NS could have used costs from an actual NS project, as NS has done for other construction costs for the SBRR, but instead obtained material price quotes from suppliers that it selected plus the Means Handbook costs for placement. As demonstrated throughout this Part III-F, actual project costs are superior to Means Handbook costs. Surely NS has had the occasion to recently purchase and place sub-ballast at some location within the SBRR's territory.

Finally, SunBelt notes that NS did not provide any sub-ballast cost data in its discovery documents. In past SAC cases, the unit cost for sub-ballast has generally been lower than ballast since sub-ballast material requirements are less stringent than those used for ballast. Thus,

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[198] See SunBelt Rebuttal e-workpaper "Index of material transportation cost.xlsx."

SunBelt submits that its $13.00 per ton from the Trestle Hollow Project is conservative in light of NS's actual ballast costs, which are lower than the sub-ballast cost that SunBelt is using.

c. Ties

NS accepted SunBelt's type and spacing of ties. NS did not accept SunBelt's unit cost or transportation cost for ties.[199] NS's criticisms of tie unit costs and transportation are discussed below.

NS rejected SunBelt's tie cost and used a cost from a different supplier also included in SunBelt's Opening workpapers. SunBelt accepts NS's tie cost on Rebuttal.

NS claims that SunBelt's tie weight is incorrect and unsupported.[200] SunBelt disagrees. SunBelt used 60 lbs. per cubic foot based on publicly available AREMA specifications shown in Chapter 15, Table 15-1-5. NS should be familiar with AREMA specifications, especially since NS referenced the AREMA Guidelines earlier in the same discussion of ties.[201] SunBelt continues to use its Opening tie weights on Rebuttal.

NS claims that SunBelt's Opening calculation of 430.9 miles for tie transportation is incorrect because it assumes multiple sources while the tie price comes from only one source. NS calculates transportation mileages from one source to all of the SBRR railheads.[202] NS's restriction of tie sourcing to one location is contrary to the theory of unconstrained resources. There is no reason to believe that other tie manufactures would not match the price the SBRR obtained for ties. NS did not use one source for ballast or sub-ballast and there is no reason to do so for ties. On Rebuttal, SunBelt continues to rely on its Opening miles for tie transportation.

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[199] See NS Reply at III-F-137-140.

[200] Id. at III-F-137-138.

[201] Id. at III-F-137.

[202] Id. at III-F-139.

Finally, NS rejects SunBelt's use of $0.035 per ton-mile for transportation costs and used a quote of $0.0902 per ton-mile. As discussed previously, SunBelt's transportation cost is appropriate and SunBelt continues to use it on Rebuttal.

d. Track (Rail)

i. Specifications

NS accepted SunBelt's rail specifications for the SBRR.[203]

ii. Rail Pricing

NS accepted SunBelt's rail price per ton from Schedule 724 of NS's 2010 R-1 but added transportation costs from the manufacturer to the SBRR railheads. NS also adds rail unloading costs that it claims were not included in SunBelt's costs. Each of these claims is discussed below.

NS claims that SunBelt failed to consider that the price from the R-1 did not include transportation over NS rail lines. NS is incorrect. SunBelt was fully aware on Opening that "[t]he cost of unloading, hauling over carrier's own lines, and placing the rails in tracks and of the train service in connection with the distribution of the rail" is not included in the cost per ton shown in Schedule 724.[204] SunBelt was also fully aware that the cost includes "the cost of loading at the point of purchase ready for shipment, the freight charges paid foreign lines, and the cost of handling rails in general supply and storage yards."[205]

By adding transportation costs from the manufacturer to the SBRR railheads, NS is creating a double-count of costs by adding freight charges paid foreign lines which are already included in the price. NS attempts to justify its additional transportation cost by claiming "NS

[203] Id. at III-F-140.

[204] See SunBelt Opening e-workpaper "NS 2010 Rail Cost.pdf."

[205] Id.

obtains substantial amounts of rail from suppliers located on or near its lines."[206] However, NS provided no support for this statement as it did not identify any of its rail sources nor their locations in relation to NS's rail lines. Furthermore, the R-1 does not identify any rail sources nor show any distances over foreign rail lines. Absent any evidence supporting NS's claim, SunBelt continues to utilize the R-1 rail price (which NS accepted) and rejects NS's double-count of foreign line transportation costs.[207]

NS also adds rail unloading costs that it claims were not included in SunBelt's costs. Specifically, NS added costs for the rental of a rail train for transport from the SBRR railhead to placement location and unloading plus the cost of a work train crew to assume the operation of the train for the duration of the unloading. On Rebuttal, SunBelt has accepted NS's cost for these items of $2.16 per track-foot.

iii. Field Welds

NS accepted SunBelt's unit price for field welds. However, NS claims that SunBelt understated the number of required field welds by failing to include welds for "cutting in road crossings, insulated joints, diamond crossings, and turnouts, and the final assembly of individual panels that make up the completed panelized turnouts."[208]

SunBelt determined that, on Opening, field welds for insulated joints and diamond crossings were not included. However, NS is incorrect in stating that SunBelt failed to include field welds for turnouts. SunBelt's Opening cost for turnouts, which NS accepted, reflects the

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[206] <u>See</u> NS Reply at III-F-141.

[207] On Opening, SunBelt did include a small amount of foreign line transportation costs which, in retrospect, should not have been included. However, SunBelt has continued to include these costs on Rebuttal.

[208] <u>See</u> NS Reply at III-F-145.

complete installed price per turnout including field welds. As discussed later in this Part III-F, SunBelt has accepted NS's unit cost for road crossings.

On Rebuttal, SunBelt has added the costs for field welds for both insulated joints and diamond crossings.

iv. Insulated Joints

Insulated joints are addressed in Part III-F-6 below.

v. Switches

NS accepts SunBelt's specifications and unit costs for turnouts and switch heaters but disagrees with SunBelt's transportation costs.[209] On Rebuttal, SunBelt has accepted NS's turnout weights. However, for reasons discussed previously, SunBelt disagrees with NS's transportation unit cost and continues to use $0.035 per ton-mile for transportation costs. NS also corrected the transportation distances for turnouts and SunBelt accepts this on Rebuttal.

Differences in total costs are also caused by NS's inflated turnout count caused by overstatements in passing siding miles, yard tracks, work sidings, set-out tracks and interchange tracks as discussed in Part III-B.

e. Other

i. Rail Lubricators

NS accepts SunBelt's rail lubricator unit price but disagrees with SunBelt's spacing and count of lubricators and claims that SunBelt's unit price does not include the costs for shipping, a protective mat and installation.[210]

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[209] Id. at III-F-146.

[210] Id. at III-F-149-151.

On Rebuttal, SunBelt has accepted NS's rail lubricator locations based on the track charts for the rail lines of the SBRR. SunBelt has also accepted NS's unit costs for shipping, a protective mat and installation.

ii. Plates, Spikes and Anchors

NS accepts SunBelt's specifications and unit costs for plates, spikes and anchors. However, NS disagrees with both SunBelt's transportation distances and transportation unit cost.[211]

NS claims that SunBelt failed to include the miles from the SBRR railhead to the placement location. On Rebuttal, SunBelt has accepted the additional transportation miles included by NS.

NS claims SunBelt's transportation unit cost is incorrect and uses a quote of $0.0906 per ton-mile instead. For reasons discussed previously, SunBelt disagrees with NS's transportation unit cost and continues to use $0.035 per ton-mile for transportation costs.

iii. Derails and Wheel Stops

NS accepts SunBelt's proposed retractable derail for yard locations and the unit cost but claims that this derail is not adequate to protect main line track. NS claims that double switch point derails are needed to protect mainline track from cars rolling onto the mainline. NS developed the unit cost for the double switch point derail using a price quote in SunBelt's Opening workpapers supplemented with switch stand costs produced by NS in discovery. NS developed installation costs using a percentage of SunBelt's turnout installation costs and developed shipping costs based on its overstated transportation cost for turnouts.[212]

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[211] Id. at III-F-151-152.

[212] Id. at III-F-152-154.

On Rebuttal, SunBelt has accepted NS's use of double switch point derails to protect the mainline at set-out track locations and NS's unit cost.

For wheel stops, NS accepted SunBelt's unit cost but increased the quantity. On Rebuttal, SunBelt has accepted NS's number of wheel stops.

iv. Crossing Diamonds

NS claims that SunBelt failed to include costs for crossing diamonds. To remedy this, NS developed an inventory of crossing diamonds by various types and applicable costs.[213]

On Rebuttal, SunBelt has accepted NS's count and costs for crossing diamonds.

v. Materials Transportation

Transportation costs are assigned to each item. As such, no additional transportation costs have been added by the parties.

vi. Track Labor and Equipment

NS accepted the labor costs proposed by SunBelt on Opening. However, NS suggests that the labor costs are based on track materials being delivered to the location where they are to be placed in the track. Therefore, NS added costs to transport materials from the SBRR railheads to the installation locations to the prices of the materials, plus costs for transporting and unloading rail.[214] SunBelt has addressed NS's additional costs above.

4. Tunnels

NS agrees that there are no tunnels on the SBRR.[215]

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[213] Id. at III-F-154-157.

[214] Id. at III-F-158.

[215] Id.

5. Bridges

On Opening, SunBelt's bridge engineer, Mr. Crouch, provided for a variety of bridge types and designs to accommodate the bridges being built by the SBRR. Consistent with the approach used in other SAC cases, bridges were categorized into types and built to a general specification for that bridge type (some bridges incorporated multiple span types into a single bridge).[216]

NS takes issue with SunBelt's inventory, bridge designs, costs and approaches. The differences in SBRR bridge costs are discussed below.

a. Bridge Inventory

SunBelt's Opening bridge inventory for the SBRR included 422 railroad bridges at 358 locations[217] and one highway overpass.[218] On Reply, NS included 436 bridges at 357 locations."[219] NS accepted SunBelt's one highway overpass on the SBRR."[220] NS's bridge inventory also reflected the correction of the classification of two (2) bridges from standard bridges to movable bridges and the removal of one (1) bridge that NS does not own.

In Rebuttal, SunBelt has added a few bridges at double track locations and accepted NS's classification of two (2) additional moveable bridges and the removal of one (1) bridge not owned by NS for a total of 431 bridges. As SunBelt and NS have bridges at the same locations, the difference in the number of bridges is caused by differences in the number of tracks at some locations due to the differences in the parties' respective facility plans.

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[216] See SunBelt Opening at III-F-29-34.

[217] At locations with multiple main tracks, SunBelt constructed separate bridges for each main track.

[218] See SunBelt Opening e-workpapers "SBRR Bridge Construction Costs.xls" and "SBRR Over Head Bridge Construction Costs.xls."

[219] See NS Reply e-workpaper "SBRR Bridge Construction Costs NS Reply.xlsx."

[220] See NS Reply e-workpaper "SBRR Over Head Bridge Construction Costs NS Reply.xls."

In addition to the bridge inventory issues discussed above, NS raises other criticisms of SunBelt's Opening evidence in this section. Specifically, NS criticizes SunBelt's bridge heights and bridge lengths.[221] NS's criticisms are addressed below.

NS's primary criticism pertains to SunBelt's bridge heights. On Opening, SunBelt used estimated bridge heights and pier heights because NS provided only *maximum* bridge height for the majority of bridges[222] instead of the *actual* bridge height requested by SunBelt in discovery. On Reply, NS used the maximum height information to estimate bridge abutment and pier heights.[223] NS developed bridge pier heights by assuming the maximum bridge height equaled the maximum pier height.

SunBelt's engineers maintain their opening approach of using an average pier height for the bridges replicated on the SBRR as NS significantly overstates the height of each pier by using the maximum bridge height.[224] In fact, maximum height is an overstatement for every single pier that NS includes because maximum height is measured from the top of the rail to the lowest point on the ground surface below the bridge.[225] At a minimum, the maximum height would need to be reduced by the distance from the top of the rail to the bottom of the bridge superstructure (a distance ranging from five to ten feet depending on the bridge superstructure) to

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[221] See NS Reply at III-F-160-167.

[222] NS admits that it did not provide *any* height information (maximum or otherwise) for over 12 percent of the bridges shown on the bridge list provided to SunBelt in discovery. For these bridges, NS accepted SunBelt's bridge height estimates. See NS Reply at III-F-161, note 292.

[223] See NS Reply at III-F-164-165.

[224] See SunBelt Rebuttal e-workpaper "Maximum Height v. Pier Height.pdf" which shows how maximum bridge height does not equate to pier height.

[225] Maximum height is different than bridge clearance height. Bridge clearance height is measured from the bottom of the superstructure. Bridge clearance height is closer to pier height than maximum bridge height.

even estimate the maximum height of the pier.[226] Under NS's scenario, this further assumes that the pier is placed at the location of the maximum height. NS has provided no evidence that all piers are always placed at the location of the bridge maximum height. A least-cost most-efficient railroad such as the SBRR would certainly not design its bridges in that manner.

To further address this bridge height issue, SunBelt analyzed NS's Reply bridge list (excluding special bridges) to determine NS's average maximum height for bridge Types I, II and III. Based on NS's bridge list, the average maximum bridge height is 17.15 feet for Type I bridges, 12.50 feet for Type II bridges and 16.63 feet for Type III bridges.[227] Subtracting the distance from the top of the rail to the bottom of the bridge superstructure of 5.69 feet for Type I bridges, 5.98 feet for Type II bridges and 9.23 feet for Type III bridges[228] results in average NS pier heights of 11.46 feet for Type I bridges, 6.52 feet for Type II bridges and 7.40 feet for Type III bridges. These average pier heights are equal to or lower than the 11-foot to 16.5-foot pier height range used by SunBelt on Opening.[229]

NS also criticizes SunBelt's bridge lengths, claiming that SunBelt overstated bridge lengths by misinterpreting the NS bridge data provided in discovery.[230] SunBelt has reviewed NS's workpapers and concurs that bridge length was overstated for some of the SBRR bridges. SunBelt has corrected this on Rebuttal, resulting in a reduction in total bridge feet from Opening.

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[226] See SunBelt Rebuttal workpapers, sub-directory "Bridge Photos" for pictures showing the difference between maximum bridge height and pier height.

[227] See SunBelt Rebuttal e-workpaper "NS Average Bridge Height for Bridge Types I_II_III.xlsx."

[228] See SunBelt Rebuttal e-workpaper "Bridge Superstructure Height.pdf."

[229] See SunBelt Opening at III-F-30.

[230] See NS Reply at III-F-165-166.

b. Bridge Design and Cost Overview

As SunBelt noted on Opening, Mr. Crouch was a Project Engineer for NS where he was responsible for engineering design and plan review, the bid phase, and the construction engineering phase for track and bridge construction projects. As head of Crouch Engineering, Mr. Crouch has been responsible for the design and construction of numerous concrete and steel bridges, as well as the inspection and rehabilitation design for hundreds of steel, concrete, masonry, and timber bridges for Class I and short-line railroads. Given his experience, Mr. Crouch is well aware of the SBRR's bridge requirements and how to design bridges to meet those requirements.

NS claims that that there are several problems with SunBelt's bridge designs. NS's specific criticisms are addressed below.

i. Cost Overview

Despite all of NS's railings against SunBelt's improper bridge component costs, NS accepts SunBelt's base unit costs used for bridge components.[231]

NS generally rejects SunBelt's quantities for bridge costs primarily due to issues with bridge heights. NS also criticizes SunBelt's substructure designs and costs for special bridges, including movable bridges and bridges over major rivers and navigable waterways.

ii. Bridge Design

(a) Superstructure Design (Spans)

Not confining its comments in this section to just superstructure, NS criticizes SunBelt for how it designed and developed costs for standard superstructure span types, uniform standard substructure piers and a single uniform standard abutment which results in the same piers and abutments used for bridges of the same assumed height regardless of span length. NS claims that

[231] Id. at III-F-168.

SunBelt's approach results in mismatches between bridge superstructure and substructures that would render SBRR bridges infeasible and unsafe.[232]

SunBelt's engineers have provided bridge designs based on real-world engineering projects with differing span lengths that have been constructed and are still in use today. The difference in superstructure depth caused by different span types is accounted for with step caps.[233]

NS states that, in order to correct SunBelt's approach, NS separated the SBRR bridge inventory into categories (Type I, Type II, Type III, Bridges with Multiple Span Types and Special Bridges) allowing for the substructure parameters to be matched to the type of superstructure to be supported.[234] NS did not do anything different than what SunBelt did other than separate the bridges into different tabs of its spreadsheet.

Despite its criticisms, NS accepts the superstructure designs proposed by SunBelt for all of the Type I, Type II, Type III and Type IV spans.[235]

NS next claims that SunBelt fails to show that the standard substructure units (piers and abutments) have the load capacity necessary to support the various superstructure span types. NS provides an example of how a Type III girder, with a width of 16 feet, would not fit on the 12-foot wide pier cap for the standard 11-foot tall pier proposed by SunBelt. NS claims that AREMA guidelines would require the pier cap to be a minimum of 17 feet wide.[236] SunBelt

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[232] Id. at III-F-171.

[233] See SunBelt Opening e-workpaper "SBRR Bridge Construction Costs.xls." See also SunBelt Rebuttal e-workpaper "Bridge Construction Costs Rebuttal.xls."

[234] See NS Reply at III-F-171.

[235] Id.

[236] Id. at III-F-172-173.

acknowledges that the drawing NS refers to shows a pier cap size of 12 feet wide,[237] but the calculations used by SunBelt to design and develop the cost of the pier utilize the correct pier cap dimensions that have the ability to handle the size requirements necessary to construct the SBRR's bridges.[238]

Finally, NS claims that SunBelt's bridge designs omit spans over major waterways that would meet U.S. Coast Guard ("USCG") horizontal and vertical clearance requirements. NS points to an example where SunBelt used 90-foot spans where a 480-foot through truss is necessary.[239] On Rebuttal, SunBelt has accepted the longer spans and the costs for these spans as developed by NS.

(b) Substructure Design (Piers and Abutments)

NS claims that there are two problems with SunBelt's substructure designs – the standard pier details do not properly account for bridge height nor do they account for differing span lengths. In addition, NS claims that SunBelt failed to perform any engineering calculations.[240]

Bridge height has already been addressed. SunBelt's Opening substructures were designed for 286,000 lbs. gross car weights, which is the industry standard, in accordance with AREMA specifications, and are currently in use in real-world applications. Furthermore, SunBelt's Opening bridge workpapers included engineering calculations.[241] Therefore, SunBelt's bridge designs are realistic and feasible. NS fails to provide any evidence that the

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[237] See SunBelt Opening e-workpaper "Type III_Photos and Plans.pdf."

[238] See SunBelt Opening e-workpaper "SBRR Bridge Construction Costs.xls," tab "Pier Concrete Quantities."

[239] See NS Reply at 173.

[240] Id. at III-F-174-177.

[241] See SunBelt Opening e-workpapers "Type I_Photos and Plans.pdf," "Type II_Photos and Plans.pdf," "Type III_Photos and Plans.pdf," "Type IV_Plans and Photos.pdf."

substructures used by SunBelt are not adequate. As discussed later in this section, NS has proposed unnecessarily large and over-designed piers.

iii. Type I Bridges

NS accepts SunBelt's designation of Type I bridges being made up of Type I spans ranging from 20 to 32 feet in length. NS claims it corrected the number of piles for the Type I bridge abutment from six to four.[242] SunBelt disagrees with this correction. SunBelt included six piles in its bridge cost calculations.[243] SunBelt's designs are currently in use in existing bridges.[244] Furthermore, NS has provided no evidence that SunBelt's abutments are inferior.

For Type I piers, NS accepted SunBelt's standard pier details for the 11-foot, 14.5-foot and 16.5-foot piers. For Type I bridges with pier heights exceeding 16.5 feet, NS designed new piers for heights of 20 feet, 25 feet, 35 feet, 45 feet, 55 feet and 65 feet. NS relied on SunBelt's standard pier details, adjusting only for height unless physical requirements or other analysis dictated a change. NS also modified the concrete quantities for all piers to reflect that the top of the pier footings must be at least two feet below the ground line.[245]

As discussed above, SunBelt does not agree with NS's pier height calculations. NS's claim that the top of the pier footings must be at least two feet below the ground line is misleading. When building a bridge, the contractor will excavate out to rock or construct the

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[242] See NS Reply at III-F-177. SunBelt referenced six piles in its Opening evidence but the CSXT design used in SunBelt's workpapers includes only four piles. NS asserts that four piles provide adequate support.

[243] See SunBelt Opening e-workpaper "SBRR Bridge Construction Costs.xls," tab "Abutment Piles," cell C6.

[244] See SunBelt Opening e-workpapers "Type I_Photos and Plans.pdf" for a bridge in Huntsville, AL; "Type II_Photos and Plans.pdf" for a bridge in McKenzie, TN; "Type III_Photos and Plans.pdf" for a bridge in Brace, TN; and "Type IV_Plans and Photos.pdf" for a bridge in Wilson County, TN.

[245] See NS Reply at III-F-177-179.

footing on piles in order to build the pier footings and pier column.[246] Once the contractor has built the footings and piers, he will mound two feet of dirt on the footing so that water will drain away from the footing. This is typical in railroad bridge construction. There cannot be frost heave with a concrete footing poured on rock because there is no soil to freeze and expand. Regardless, the topsoil placed over the top of the footing protects the footing from frost effects.

iv. Type II Bridges

NS largely accepts SunBelt's Type II bridge design and designations. NS made the same modifications to its Type II bridge abutment design as the Type I bridge abutment design. As all Type II bridges are single span, no bridge piers are needed.[247]

On Rebuttal, SunBelt has rejected NS's modifications to the Type II bridge abutment design. As discussed above, SunBelt's abutments are sufficient as they include six piles and are currently in use in existing bridges.

v. Type III Bridges

NS accepts SunBelt's designation of Type III spans ranging from 60 to 92.5 feet in length.[248] However, NS takes issue with SunBelt's abutments and piers.

NS claims that the standard CSXT abutment used by SunBelt is inadequate for Type III bridges regardless of whether it has four or six piles. NS redesigned the Type III bridge abutment, adjusted the quantities of concrete, steel piling and pile tips and used the unit costs proposed by SunBelt.[249]

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[246] In SunBelt's bridge designs, all piers are constructed on piles.

[247] See NS Reply at III-F-179-180.

[248] Id. at III-F-180.

[249] Id. at III-F-180-183.

NS also claims that SunBelt's Type III piers are insufficient for previously discussed reasons – SunBelt did not account properly for bridge heights and the pier parameters were not tailored to Type III spans. NS developed the same standard piers for the same range of heights as Type I spans but they reflect different details and quantities specifically tied to the design loads of a longer Type III span.[250]

As discussed previously, SunBelt does not agree with NS's bridge height calculations for piers. SunBelt's bridge abutments and piers were designed in accordance with AREMA specifications and are in use in real-world applications.[251] NS did not submit any calculations demonstrating that the designs proposed by SunBelt for abutments and piers are inadequate, only that a different design could also be used.

In addition to the errors and overstatements introduced by NS in its calculation of pier heights and costs based on its erroneous use of maximum bridge height, NS's piers include overstated and unnecessary amounts of concrete and reinforcing steel. SunBelt has found five (5) examples of how NS over-designed its piers with regard to the required factor of safety. In one of the examples, NS's design of a 41-foot tall pier, NS's quantities result in a pier that exceeds the required factor of safety by thirty-eight (38) times.[252] SunBelt has also identified another example of how NS's calculations result in overstated pier costs. When evaluating the piles needed for its bridge piers, NS, without explanation, reduced the allowable stress limit below that contained in AREMA recommendations resulting in the need for more or larger piles

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[250] Id. at III-F-183-184.

[251] See SunBelt Opening e-workpapers "Type I_Photos and Plans.pdf," "Type II_Photos and Plans.pdf," "Type III_Photos and Plans.pdf," "Type IV_Plans and Photos.pdf."

[252] See SunBelt Rebuttal e-workpaper "Examples of NS Over-designed Piers.pdf."

which results in a larger pier footing requiring more concrete.[253] All of these changes result in unnecessary cost increases. Clearly, the pier designs proposed by NS are not the lowest cost feasible designs because NS's piers are significantly overdesigned.

NS's abutment design also unnecessarily results in increased costs. For example, NS uses A36 steel (36,000 psi) for its piles in its abutment design.[254] The American Institute of Steel Construction's ASTM Specifications call for A572 Gr. 50 (50,000 psi) as the preferred material specification,[255] which is what SunBelt used.[256] Using A36 steel causes costs to increase for two reasons. First, A36 steel is a special order from the steel mills and is more expensive than A572 Gr. 50 steel, which is what the steel mills normally produce. Second, using a lesser steel in the abutment requires more steel which increases steel costs as well as the concrete costs.

vi. Type IV Bridges

After removing the bridges classified as Types I, II and III, and excluding the multiple span and special bridges, NS claims that there is no bridge on the SBRR that SunBelt proposed to replicate solely with Type IV spans.[257]

vii. Bridges with Multiple Span Types

SunBelt proposed to replicate a limited number of bridges with more than one superstructure type. NS evaluated each of these bridges individually, modifying the costs as

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[253] See SunBelt Rebuttal workpaper "NS Pier Stress.pdf." NS sources AREMA Chapter 8, 4.4.3 for the "pile allowable stress." AREMA specifications are 12,600 psi but NS uses, without explanation, only 9,000 psi. The lower stress limit results in the need for more or larger piles.

[254] See SunBelt Rebuttal e-workpaper "NS Over-design of Abutments.pdf."

[255] Id.

[256] See SunBelt Opening e-workpapers "Type II_Photos and Plans.pdf," "Type III_Photos and Plans.pdf" and "Type IV_Plans and Photos.pdf."

[257] See NS Reply at III-F-184.

necessary by matching the required abutments and piers to the span type and the height of each bridge.[258]

NS did not do anything different than SunBelt other than use its modified abutments and piers, which SunBelt has already addressed.

viii. Special Bridges

(a) Movable Bridges

SunBelt accepts NS's changes to the list of movable bridges that SunBelt presented in Opening in order to minimize the differences between the parties.

Movable bridges consist of two components. The first is the movable span. The second component is the fixed approach spans leading to the movable span. Each of these components is discussed below.

In Opening, SunBelt used a cost from a recent SAC proceeding to develop the cost per foot for the movable span component of the SBRR movable bridges.[259] NS accepts SunBelt's cost per foot but only for bascule spans.[260] For vertical lift spans, NS relies on the cost of a CSXT Railroad lift bridge developed in a 2006 Value Engineering report.[261]

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[258] Id. at III-F-184-186.

[259] See SunBelt Opening e-workpaper "Moveable Span Cost.pdf," page III-F-107, where the cost of a 775-foot bridge with a 170-foot bascule span is shown at $8,336,800 in 1994. Assuming conservatively that 75% of the cost is for the bascule span, and indexing from 1994 to 2009, the cost per foot used by SunBelt is $62,991 per foot. In that same workpaper, at page III-F-108, costs for a vertical lift span are shown to be less than the costs for a bascule span. To be conservative, SunBelt used the higher bascule span costs for all movable spans. See also, SunBelt Opening e-workpaper "SBRR Bridge Construction Costs.xls," tab "Special Bridges."

[260] See NS Reply at III-F-189.

[261] Id.

SunBelt has reviewed NS's bridge cost calculations and supporting documentation and demonstrates in the thirteen (13) bullets below why NS's selection of a CSXT project as the basis for costs of vertical lift spans is improper.

1. CSXT Railway was replacing an existing swing span bridge with an existing horizontal clearance of 146'-7", with a proposed, new, vertical lift span with a proposed horizontal clearance of more than twice the existing clearance. Depending on the length of the bridge span over the navigable waterway, SunBelt uses a bascule type drawbridge span or a vertical lift bridge span. SunBelt explained that the movable span bridge costs are higher, thus the reason for using only one cost per foot. There are current lift span locations that must be replicated. SunBelt replaced these with lift spans using the higher (conservative) cost of Bascule Spans on a per track foot basis.

2. This was a project on the CSXT railroad, and HNTB was the firm doing the workpaper for value engineering. This bridge is not on the SBRR, but might have been representative of reasonable costs if the construction were new, but the costs presented were for retrofitting an existing bridge.

3. HNTB explained that, because of the limited time allowed to foul the track, a portion of the work was to be performed off-site. The additional costs were not quantified. This is an example of the introduction of unreasonable tasks and costs associated with constructing a replacement bridge on an active railroad line as compared to new construction. The costs for this off-site work are not explained, but would be unreasonable and unrealistic for new bridge construction. The off-site work and limited track time would add costs to the construction of the lift span.

4. There is no discussion, or separation, of items in the "Bid" that would allow NS or SunBelt to separate the additional costs of construction in a "new" movable bridge construction project, versus an "under traffic" "replacement" project, which has its own unique set of additional challenges and costs mentioned above. The costs presented by HNTB are unrealistic and are unsupported for only new construction, as is required on the SBRR.

5. This bridge cost is based on replacing an existing structure, in place, under traffic, which is many more times expensive than new construction. Because this bridge was constructed under traffic as a replacement, and not as new bridge construction, it cannot logically be the least feasible cost for new bridge construction.

6. The bridge clear span is being increased using funds from the U.S. Coast Guard based on requirements of the Truman Hobbs Act. This confirms that this is an existing bridge, and that the existing clearance has been in use. Increasing the horizontal clearance should not be a requirement for the SBRR since the existing structure, unimproved, was satisfactory for decades.

7. There was no attempt made by the NS experts, or HNTB, to illustrate the additional costs, or differences in cost, of constructing a completely new lift span compared to the cost of constructing a lift span replacement bridge, under traffic, where an existing bridge has to be demolished, and a new bridge constructed, partially off-site, and in phases, with very limited access and track time windows.

8. The proposed lift span was longer than the existing movable span of the existing bridge; therefore, there were additional piers required to be removed and new piers constructed, under traffic.

9. The proposed construction was to be performed around existing bridge piers and the track and bridge superstructure, which would not be necessary for the SBRR's lift spans.

10. Construction costs were much higher because of limited work windows since there were 20 trains per day on that active CSXT line. The contractor would have to increase its labor, equipment, and supervision, and related costs based on having limited work windows and not being able to work without interruption.

11. The existing swing span bridge had to be able to operate during and after the construction of the vertical lift towers, necessitating incremental work, phasing of work, phasing of demolition, and other tasks and their related costs that would not be included in the cost to construct a new bridge (not under traffic on an existing heavily used railroad main line). The HNTB costs presented are unrealistic for new bridge construction.

12. There was no separation of additional costs for flagging, smaller track time windows, working on a portion of the project off-site, higher mobilization costs, and multiple mobilizations, demolition costs, the cost of phasing work on the active railroad bridge, the cost of keeping the swing span in operation during the project, etc.

13. Using this project as a basis for costs on the SBRR is unrealistic, not feasible, and illogical since it is a "replacement project" under traffic and not a "new bridge construction project." All costs will be higher since there are limits with respect to fouling the track, permission for track time and work windows, demolition costs, flagging costs, and other costs related to working around an existing structure. The SBRR is being constructed new, without the addition complexities and costs of replacing a bridge under traffic.

In Rebuttal, SunBelt has continued to rely on its Opening movable span cost per foot because NS accepted it for bascule spans and, as noted above, SunBelt's opening workpapers demonstrate that the bascule span cost is higher than the vertical lift span cost.

NS objects to SunBelt's assumption that the SBRR would pay a 10 percent cost share for movable bridges on the constructed system.[262] NS feigned ignorance regarding SunBelt's rationale and support for its assumed 10 percent cost share, portraying it as undocumented and unknown.[263] However, NS includes a four page discussion on the precise rationale and support on which SunBelt's assumptions lie.[264] In its four-page discussion, NS offers several flawed, incomplete, and invalid arguments for why SunBelt's assumed construction cost sharing arrangement should be rejected. Each is discussed separately below.

NS claims that the Truman-Hobbs Act "is the only government funding mechanism currently in place for the sole purpose of aiding bridge owners with the replacement of movable structures."[265] SunBelt agrees with this statement, as it pertains to Federal funding.[266] NS attempts to downplay the viability of the mechanism as a bridge funding source, stating that, "from the inception of the Truman Hobbs Act in 1940 until July 2012, Truman Hobbs Act funding has been used for only 27 bridges."[267] However, in 2009, the same year the SBRR commences construction, Congress passed and the President signed the American Recovery and Reinvestment Act of 2009. This act authorized billions of Federal funding for transportation infrastructure projects, including $142 million earmarked specifically to fund movable bridge replacement under Section 6 of the Truman-Hobbs Act.[268] The SBRR would have been ideally

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[262] See NS Reply at III-F-190.

[263] Id. at III-F-191.

[264] Id. at III-F-191-194.

[265] Id. at III-F-191-192.

[266] NS spends a great deal of time discussing the Truman-Hobbs act, but ignores funding that comes from state and local agencies.

[267] See NS Reply at III-F-192.

[268] See ARRA2009 at page 49, available online at http://www.gpo.gov/fdsys/pkg/BILLS-111hr1enr/pdf/BILLS-111hr1enr.pdf.

suited to take advantage of this Federal funding stream, as did other Class I railroads. According to a 2009 BNSF press release, "[w]ork has begun to replace BNSF Railway's 118-year-old swing span over the Mississippi River at Burlington, IA… Construction of the lift span is being financed in part through the American Recovery and Reinvestment Act of 2009 and previous year appropriations under the Truman-Hobbs Act."[269] NS argues that the SBRR cannot benefit from the application of the Truman-Hobbs Act because, "the incumbent railroad presumptively bore the full cost of constructing its movable bridges." NS further argues that the Complainant must "produce evidence showing the [incumbent] railroad did not pay 100% of the cost for its movable bridges," for it to pay "anything less than 100 percent of the cost of those bridges,"[270] regardless of any governing laws that may have changed over the years. This argument is self-serving and the logic behind it is deeply flawed. In fact, NS's own arguments in support of this point contradict its own thesis.

NS states that, "because Truman Hobbs was enacted in June 1940, any movable bridge built or modified before that time could not possibly have received funding under that Act."[271] NS argues that this should disqualify the SBRR from taking advantage of the Truman-Hobbs Act in 2009, because the incumbent could not have benefitted from the Act at the time of the original construction. This is a clear barrier to entry. NS is entitled to Truman-Hobbs Act funding in 2009 for all existing movable bridges, so the SBRR must also be entitled to the same access in 2009. The laws of the 1930's have no bearing on present-day SAC analysis.

NS's argument fails on several counts. NS acknowledges that a SARR must replicate the portions of the incumbent's system, including bridges, that are required to serve the issue traffic,

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[269] http://www.bnsf.com/media/news-releases/2009/september/2009-09-23a.html (accessed April 8, 2013).

[270] See NS Reply at III-F-193.

[271] Id. at III-F-193-194.

but NS contradicts itself in stating that the SBRR bridges do not replace NS bridges.[272] NS inappropriately attempts to restrict the SBRR's access to an existing federally funded program because some bridges were originally constructed before the program's inception. However, the program was designed explicitly to replace bridges from another era, and there are no such restrictions placed on NS or any other railroads eligible for funding through the program. NS seeks to impose an entry barrier on the SBRR by limiting its access to a federal program to which NS has access and from which NS has drawn federal funds.

The fact that the SBRR is a replacement carrier for the NS is supported by both STB precedent and the underlying theory of Contestable Markets. In discussing the concept of barriers to entry in *West Texas*, the Board stated that the definition of barrier to entry must comport with the Board's regulatory purpose of constraining a railroad from monopoly pricing.[273] To this end, the STB decided that the SARR is a replacement carrier that steps into the shoes of the incumbent carrier for the segment of rail system the SARR would serve.[274] The fact that a SARR "steps into the shoes" of the incumbent as a replacement for, and not a competitor to, the existing railroad provides the SARR with the ability to provide a constraint to the existing railroad from monopoly pricing.

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[272] NS opines that the SARR bridges would not be eligible for funding under the Truman-Hobbs Act because the Truman-Hobbs Act covers alteration and replacement of existing structures whereas the SARR bridges would be considered new construction, not replacements. NS fails to recognize that the entire SARR is a replacement for the incumbent system, including all bridge structures. Although the SBRR does not own the existing structures in the real world, it is replacing them in the hypothetical SAC analysis. NS's own language supports this position. Specifically, NS states, "the [original] movable bridge… is what the SARR must replicate." See NS Reply at III-F-193. The SBRR cannot replicate the original bridge without replacing it.

[273] See *West Texas* at 670.

[274] Id.

The STB's reasoning for this definition of barriers to entry comes directly from Contestable Market Theory, and the work of Baumol, Panzar and Willig ("Baumol, et al") as noted in *West Texas*.[275] In their book "Contestable Markets and the Theory of Industry Structure," Baumol, et al, define an entry barrier as "anything that requires an expenditure by a new entrant into an industry, but imposes no equivalent cost upon an incumbent."[276] The definition does not imply that an entrant into the industry only has to pay what the incumbent paid for an asset when the incumbent first acquired that asset. What it does imply is that the entrant does not have to pay more than what the incumbent would pay for the asset in the current market. In other words, the SARR does not have to pay more than the incumbent does to replace its current assets. The fact that the incumbent can pay less for essentially the same asset as a new entrant due to the incumbent's replacing an existing asset versus an entrant's building the asset for the first time leads to a cost that creates a barrier to entry.

NS's ability to acquire moveable bridges at a lower cost than a SARR simply because the NS has a bridge in place, and the SARR does not, clearly creates a cost for the SARR that imposes a barrier to entry. A simple example illustrates this issue. Assume an industry where companies have only one asset. The cost for an entrant to acquire the asset is $1 million, but, because of government subsidies, an incumbent that is replacing the same asset incurs only $100,000 in costs. It is simple to see that the incumbent has a distinct cost advantage over the new entrant and may charge enough to cover its costs, while undercutting the prices of the entrant. The entrant cannot operate in such a market in the long-run since it cannot compete with the incumbent. In other words, the market is not contestable. The only way for contestable market theory to work is to ensure that the entrant into the market does not incur a cost

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[275] Id. at 669, note 68.

[276] See Baumol, et al at 282 and *West Texas* at 669.

disadvantage relative to the incumbent. The subsidy provided by the Federal Government on moveable bridges provides just such a cost advantage to the incumbent, and cannot be allowed.

In addition, NS points to one example where it believes the SBRR should not only be denied access to Federal funding, it should also be required to pay costs based on the no-longer-existent predecessor to the bridge it is actually replacing. In its example, NS concedes that, "the alteration/relocation of an existing bridge near Epes, Alabama that NS's predecessor railroad (the Alabama Great Southern Railroad Company), performed" was 100 percent federally funded.[277] However, NS goes on to state that, "because NS's predecessor constructed the bridge in the first instance and the federal government appears simply to have paid for alteration and relocation of the bridge, the SBRR would be required to pay the cost of constructing the original bridge."[278] There are two problems with NS's argument. First, NS's classification of the alteration and relocation of the bridge as "simple" is totally unsupported. Second, NS offers no proof that the bridge as originally configured (the full cost of which NS opines the SBRR should pay) bears any resemblance whatsoever to the bridge as it is presently configured.

In the SAC analysis, SunBelt must build the existing bridge, not the original bridge. NS received federal funding for the existing bridge. Therefore, the SBRR should receive the same federal funding. It does not matter that SBRR cannot tap the same source of funds, because that would be a barrier to entry. Barriers to entry are "any costs that a new entrant must incur that was not incurred by the incumbent. This would preclude the incumbent from earning monopoly rents in the form of a return on investments it never actually made, but would permit the incumbent a competitive return on the current replacement cost of all investment that it did

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[277] <u>See</u> NS Reply at III-F-194.

[278] <u>Id.</u>

incur."[279] Whether or not NS has received federal funding for its bridges, the SAC analysis requires SBRR to incur the costs to replace the existing bridges, not the predecessor structures. For bridges for which NS received federal funding to replace, it would be an entry barrier to deny SBRR the same funding.

In Rebuttal, SunBelt continues to assume it is eligible for federal funding under the Truman-Hobbs act for 90 percent of the replacement cost of movable bridges, particularly in light of the fact that the program received a $142 million infusion through the American Recovery and Reinvestment Act in the first year of the SARR construction.

The remaining component of a movable bridge is the fixed approach spans leading to the moveable span. NS accepts SunBelt's specific proposal for the superstructure types on the approach spans but rejects SunBelt's pier designs and costs.[280] As discussed previously, SunBelt does not agree with NS's modifications to pier designs as NS has not demonstrated that SunBelt's designs are inadequate.

(b) Non-Movable Bridges Over Navigable Waters

NS claims that there is one additional bridge that could not be replicated using SunBelt's prescribed standard piers and spans because it requires horizontal clearance much greater than that afforded by SunBelt's standard spans. NS constructed this bridge with one long truss span to provide the same clearance that currently exists combined with standard superstructure spans back to the ends of the bridge. NS calculated the weight of the truss span and used the lowest truss steel price from the Value Engineering report used for vertical lift bridge costs. The

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[279] See *West Texas* at 670.

[280] See NS Reply at III-F-195.

approach spans were assembled and costed in the same manner as described for movable bridges.[281]

On Rebuttal, SunBelt has accepted the NS's truss span length, pier heights and costs for these items for the portion of the bridge spanning the waterway. SunBelt has continued to use its Opening methodology and costs for the abutments, approach span pier heights, span lengths and costs.

c. Highway Overpasses

NS accepted SunBelt's ten (10) percent cost share factor. NS also accepted SunBelt's unit cost per square foot of bridge deck area for highway overpasses but corrected the unit cost from 2009 to 3Q11. NS rejected SunBelt's estimated bridge deck area for the one highway overpass on the SBRR. NS obtained the actual bridge deck areas for this highway overpass from publicly available sources.[282]

On Rebuttal, SunBelt has accepted NS's bridge deck area and applied it to the corrected unit cost and 10 percent cost share factor agreed to by the parties.

d. Summary

On Rebuttal, due to the reduction in bridge lengths identified by NS on Reply, the SBRR bridge costs have decreased to $283.1 million. Costs for the one highway overpass have increased to $0.8 million.

6. Signals and Communications

On Opening, SunBelt's signals and communications expert, Victor Grappone, included a Positive Train Control ("PTC") signal system, a microwave tower communications systems and

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[281] Id. at III-F-196-197.

[282] Id. at III-F-198.

detectors designed to accommodate the SBRR's needs.[283] NS presents several criticisms of these items.[284] NS's criticisms are addressed below.

a. Centralized Traffic Control

i. PTC Installation in 2011

NS claims that SunBelt could not install PTC at the beginning of SBRR operations in 2011 and would have to install PTC as an overlay to a centralized traffic control ("CTC") system. NS is incorrect.

As SunBelt explained in Opening, rather than install a PTC system as an overlay to a centralized traffic control ("CTC") system, the SBRR, as a least-cost most-efficient railroad, will install a PTC system that will be operational when the SARR begins operations on July 30, 2011. Installing PTC from the outset eliminates redundant expenditures and the total cost is less than installing a CTC system and then converting it to a different system within less than five years.[285]

In Reply, NS disagreed with SunBelt's approach, claiming that SunBelt would have to install PTC as an overlay to CTC as NS is currently doing. NS's position is that the SBRR has to follow the overlay approach because, in the real-world, NS has to install PTC as an overlay. This argument is nonsensical. The SBRR is not the NS and the SBRR is not bound by the capital and operating approaches that NS follows. As a stand-alone entity, the SBRR is allowed to make decisions regarding the optimum physical plant for all aspects of the SARR, including technological items, regardless of the real-world incumbent systems. From a theoretical standpoint, installing PTC at the outset is no different than SunBelt choosing to upgrade the rail

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[283] See SunBelt Opening at III-F-34-39.

[284] See NS Reply at III-F-199-235.

[285] See SunBelt Opening at III-F-35.

ties over a certain SBRR section. Assume in the real world, an NS line being replicated by the SBRR includes timber ties, and the SBRR chooses to upgrade to concrete ties. By NS's logic, the SBRR would need to first lay the timber ties, then later tear them out and replace them with concrete ties. Or assume that NS's offices are wired for cable internet access, but the SBRR chooses to install FIOS. NS would have the SBRR first install cable, then later replace it with the SBRR's preferred communications systems. The folly of NS's logic is obvious.

NS claims that the SBRR could not install PTC at the outset of operations because PTC technology and equipment did not exist in 2011.[286] NS is mistaken. Positive train control is not a new concept and has been around for many years. Some form of Automatic Train Protection ("ATP") has been operational in Europe for over one hundred years. The current ATP standard in Europe is the European Rail Traffic Management System ("ERTMS") which has evolved over many years of ATP experience in Europe. Many non-European countries are also converting to ERTMS.[287]

PTC systems also were in use in the U.S. prior to the 2011 start date of SBRR operations. Alstom's and PHW's Advanced Civil Speed Enforcement System ("ACSES") has been in daily service on Amtrak's Northeast Corridor since 2002.[288] Westinghouse Air Brake Technologies ("WABTEC") Chief Executive Officer, Al Neupaver, stated "[t]he technology is there" for PTC and cited to the fact that BNSF has been operating the systems for five years on portions of its system.[289]

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[286] See NS Reply at III-F-201-202.

[287] See SunBelt Rebuttal e-workpaper "Wikipedia-Positive Train Control.pdf."

[288] Id.

[289] See SunBelt Rebuttal e-workpaper "WABTEC Management Discusses Q3 2012 Results.pdf," p. 9.

Even NS was working on a PTC system prior to 2011. NS began working on its Optimized Train Control ("OTC") system, NS's version of PTC, in 2005. Validation and field testing were scheduled to take place in 2009.[290]

NS's position is incongruous. NS claims that the SBRR could not implement PTC today because the technology does not exist, but then asserts that the SBRR must implement PTC by 2015. NS cites to an FRA report that questions whether PTC can be fully implemented by the 2015 deadline.[291] According to NS's Vice President of Operations Planning and Support, Gerhard Thelen, NS's position now is that NS will not be able to implement PTC until the 2018-2020 timeframe.[292] NS's attempt to deflect the existence and feasibility of new PTC construction through a series of claims that its entire railroad may not be converted to a PTC/CTC overlay system by the end of 2015 does not in any way discredit the fact that PTC was available to the SBRR in 2011 as noted above.

Furthermore, it must be remembered that NS and the other Class I railroads have openly resisted the requirement for them to install PTC, and have lobbied Congress to consider changing the law that requires the nationwide implementation of PTC. NS's inability to implement PTC by 2015 is a function of its resistance to the requirement and the added complexity of overlaying PTC on top of NS's existing CTC system, which are problems that the SBRR avoids by constructing PTC from the outset.

NS also argues that the SBRR could not implement PTC because the market could not supply the required systems to the SBRR due to the simultaneous demand from all railroads.

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[290] See BizNS, Volume 1, Issue 4, July-August, 2009 included as SunBelt Rebuttal e-workpaper "BizNS.pdf."

[291] See NS Reply at III-F-201.

[292] See SunBelt Rebuttal e-workpaper "Argus Rail Business 3-4-13.pdf."

The SBRR would have a high incentive to implement PTC in 2011 in order to avoid investment in CTC equipment that would be replaced by PTC equipment in a few years. Following the theory of stand-alone costs and the availability of unlimited resources, the SBRR would not face the equipment shortages that NS is claiming is an implementation problem caused by the demand from all railroads simultaneously.[293] In addition, as noted above, the Class I railroads are currently hedging on PTC implementation, which forces suppliers to operate under great uncertainty. If a railroad such as the SBRR were to commit to system-wide implementation of PTC, the uncertainty would disappear and suppliers would be free to invest the required capital to ramp up production.

NS next focuses on the issue of the radio frequency needed for PTC as an obstacle to the SBRR's ability to implement PTC in 2011.[294] This would not be a problem for the SBRR. Because the SBRR would be implementing PTC prior to other railroads, it would not be competing with them for the 220MHz spectrum. Nor would the SBRR have to compete with the other railroads for compatible radio equipment.[295] Furthermore, as an early entrant into the PTC arena, the SBRR would be able to set the standard for other railroads seeking to implement PTC at a later date.[296]

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[293] In fact, the SBRR would not suffer from a shortage of equipment no matter when PTC is implemented as that would be a barrier to entry.

[294] See NS Reply at III-F-202-203.

[295] The SBRR would not suffer from shortages of equipment or the inability to secure radio frequency or bandwidth as either of these would be a barrier to entry.

[296] The Wikipedia article suggests that Amtrak's ability to implement its ACSES system in the Northeast Corridor allowed it to set the standard for other railroads seeking to implement PTC at a later date. See SunBelt Rebuttal e-workpaper "Wikipedia-Positive Train Control.pdf."

NS also claims that the interoperability between all railroads with PTC and resource constraints associated with the scale of deployment are problems for the SBRR.[297] As an early adopter of PTC, the SBRR would have a significant influence over what the standard would be, similar to Amtrak's influence on the Northeast Corridor.[298] SunBelt includes the cost associated with aligning the SBRR's PTC to the standard adopted by other railroads. One method of estimating this cost would be what Amtrak is spending to make its Northeast Corridor ("NEC") system compliant with the current interoperability standards. According to Amtrak's Annual Report, Amtrak received a $10 million grant for a project that will create seamless interoperability on the NEC with NS, CSX and Conrail.[299] On Rebuttal, SunBelt has included {{[redacted]}} for PTC development costs which includes costs for interoperability integration.

NS incorrectly argues that, because the required PTC technology was not in existence in 2011, precluding its use on the SBRR is not a barrier to entry.[300] This is a red herring. As demonstrated above, PTC technology was available in 2011 and SunBelt is not claiming a barrier to entry with regard to PTC technology.

Forcing the SBRR to construct CTC and then overlay PTC would be a barrier to entry. PTC costs should be and are included in the SBRR stand-alone costs, as they were in *AEPCO 2011*. A contestable market is defined as one into which entry and exit are seamless and costless. Potential entrants are assumed to face the same set of productive techniques available to the incumbent firms. The key here is "availability." The incumbent need not use the

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[297] <u>See</u> NS Reply at III-F-202-204.

[298] The Wikipedia article indicates that commuter railroads are adopting the Amtrak methodology. <u>See</u> SunBelt Rebuttal e-workpaper "Wikipedia-Positive Train Control.pdf."

[299] <u>See</u> SunBelt Rebuttal e-workpaper "Amtrak 2011 Annual Report.pdf," p. 14.

[300] <u>See</u> NS Reply at III-F-204-205.

productive technique in order for a SARR to use it; it only has to be available for the incumbent to use. There is no argument that PTC systems are available today, were available in 2011, and are being used by real-world railroads (including North American Class I railroads). If any real-world railroad were being constructed today, it would not begin with a CTC system and then overlay PTC. Rather, the rational new railroad entrant would rely on a PTC system from the start, and rational equipment producers would step in to meet the immediate demand, which is what SunBelt's evidence reflects.

ii. Inventory of Signal Components

NS claims that SunBelt's inventory of signal components is incorrect and unreliable.[301] SunBelt has reviewed NS's inventory of signal components and accepted NS's inventory with the following modifications.

SunBelt adjusted NS's signal component inventory to reflect SunBelt's SBRR configuration. SunBelt has eliminated signal components associated with NS's customer access/work sidings as SunBelt has not included them on the SBRR (as discussed in Part III-B). The number of electric locks has been adjusted to reflect SunBelt's number of set out tracks and 61 customer turnouts. SunBelt has modified the number of electric locks for connections of yard track to the main line to conform to SunBelt's yard configurations.

SunBelt has also identified a number of overstatements in the quantities used by NS for several typical signals. For example, NS included an estimated 10,200 feet of cable for a double crossover location with four switches, or 2,550 feet per switch (nearly a half-mile of cable per switch). Based on the experience of SunBelt's signals and communications expert, Mr. Grappone, this amount is extremely excessive. On Rebuttal, this quantity has been reduced to a

[301] Id. at III-F-206-213.

more reasonable 1,200 feet, or 300 feet per switch. Several other cable amounts have been similarly adjusted.[302]

SunBelt has also identified NS overstatements regarding AREMA maintenance units. For track circuits (AREMA C&S Manual items E-1, E-2b & E-3), NS has overstated the units required for typical locations. As an example, an "AS1" single track automatic location would entail the equivalent of one track circuit. This is true because such locations include one-half of each of the two track circuits extending in both directions. Because each track circuit is assigned two units per the AREMA C&S Manual, an AS1 typical location should carry two points as opposed to four as asserted by NS. Accordingly, AREMA unit typicals have been adjusted by SunBelt on Rebuttal. In a similar manner, NS has overstated the units associated with batteries and chargers (AREMA C&S Manual items K-4). SunBelt has made the proper adjustments to these counts on Rebuttal.[303]

iii. Unit Costs for Signal Components

NS claims that SunBelt omitted several items required for the SBRR's signal components and used incorrect unit costs for other items.[304] Each of NS's claims is addressed below.

NS claims that SunBelt omitted the cost of BCP and MCP interface control equipment. SunBelt has included these costs on Rebuttal.

NS claims that SunBelt omitted the costs of signal foundations. SunBelt has included these costs on Rebuttal.

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[302] See SunBelt Rebuttal e-workpaper "SunBelt C&S Estimate Rebuttal.xlsx," tab "Reply Signal Typicals." SunBelt's adjustments are identified with purple shading.

[303] See SunBelt Rebuttal e-workpaper "SunBelt C&S Estimate Rebuttal.xlsx," tab "AREMA Typicals." SunBelt's adjustments are identified with purple shading.

[304] See NS Reply at III-F-213-217.

NS claims that SunBelt's materials package for its electronic lock locations did not include insulated joints. NS is incorrect as SunBelt did include costs for insulated joints on Opening.[305] SunBelt has included the correct number of insulated joints on Rebuttal.

NS claims that SunBelt omitted track connections (near and far) for all track circuits. SunBelt has included these items on Rebuttal.

NS claims that SunBelt omitted a number of 12-volt and 24-volt battery/charger sets. SunBelt has included the correct number on Rebuttal.

NS claims that SunBelt did not include the correct cabling for connecting AC power between the service drop and the equipment shelter. SunBelt has accepted NS's cabling on Rebuttal.

NS claims SunBelt did not include grounding kits for signal equipment shelters. SunBelt has included this item on Rebuttal.

NS claims that SunBelt did not include the material and labor costs for the pipeline connections between the main line switch and electric locks or derails. NS also claims that pipeline connects are obsolete and NS instead uses a separate switch stand and signal circuitry. SunBelt has accepted NS's modification in Rebuttal.

Finally, NS claims that SunBelt misstated the material costs for the Power Mainline Switch Machine 24VDC and the Manual Mainline Switch Machine. SunBelt has corrected these costs in Rebuttal.

b. Positive Train Control

On Opening, SunBelt relied on information provided by NS in discovery to develop the costs of the SBRR's PTC system. The costs were adjusted, where appropriate, to reflect the cost

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[305] <u>See</u> SunBelt Opening e-workpaper "SunBelt C&S Estimate.xlsx," tab "Typical," cells AC12 and AC13.

of a PTC system as an initial installation rather than a conversion from an existing CTC system.[306] NS disagrees with SunBelt's premise and costs.[307] SunBelt addresses NS's PTC cost criticisms below.

i. PTC Wayside System

Unlike SunBelt, NS developed its costs for the SBRR's PTC wayside system as an overlay to a CTC system. NS developed costs for a PTC integrated system to be installed at all wayside control points (including movable span bridges), wayside signals and tunnels.[308]

NS claims that SunBelt used only the lower cost for standard control points. On Opening, SunBelt used the concept of interlocking hut equivalents ("IHE"). This accounted for interlocking installations of varying size and complexity and the PTC costs were scaled accordingly. On Reply, NS accounted for interlockings of varying size by applying separate costs for small interlocking/automatic signals, double track and large interlockings. On Rebuttal, SunBelt has accepted this alternate method and the associated costs.

NS claims that SunBelt excluded necessary antenna tower costs. SunBelt accepts NS's addition of 60-foot towers at each interlocking and automatic signal location. The inclusion of these towers, however, renders unnecessary the 134 30-foot towers included by SunBelt on Opening for VHF communications. Accordingly, the 30-foot towers have been eliminated from the SBRR's communication costs on Rebuttal.

Finally, NS claims that SunBelt arbitrarily reduced installation labor by 75 percent. This reduction is justified because the SBRR will be installing PTC as an integral part of the overall

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[306] See SunBelt Opening at III-F-35.

[307] See NS Reply at III-F-217-227.

[308] Id. at III-F-218.

signal system from the beginning. This eliminates the labor-intensive requirement to retrofit an existing signal system as NS is currently performing.

ii. PTC IT Costs

NS provided PTC IT deployment costs in discovery which SunBelt relied on in Opening. NS rejects two adjustments to PTC IT deployment costs made by SunBelt.[309] First, NS rejects SunBelt's {{[redacted]}} reduction in total deployment costs for "UTCS adjustment per Phil."[310] This adjustment was inadvertently made in Opening and SunBelt has removed this adjustment on Rebuttal.

Second, NS rejects SunBelt's adjustment to IT back office costs to reflect the difference in NS system PTC miles and the SBRR route miles with the one exception of 802.11 buildout costs. SunBelt accepts NS's position on Rebuttal and only adjusts the 802.11 buildout costs on a mileage basis.

iii. PTC Locomotive Costs

NS accepts SunBelt's unit cost of {{[redacted]}} to outfit each SBRR road locomotive with PTC capability[311] but applies it to NS's overstated locomotive count. SunBelt has applied this cost to its Rebuttal count of road locomotives.

iv. PTC Development Costs

On Opening, SunBelt did not include any PTC development costs. On Reply, NS included {{[redacted]}} for PTC development costs.[312] SunBelt acknowledges that some development costs will be incurred by the SBRR and has accepted NS's figure on Rebuttal.

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[309] Id. at III-F-220-221.

[310] Id. at III-F-220.

[311] Id. at III-F-221.

[312] Id. at III-F-221-227 and NS Reply e-workpaper "SunBelt C&S Estimate NS Reply.xlsx," tab "Reply Components & Tabulation."

As part of this {{[redacted]}}, NS has included {{[redacted]}} which equals a portion of NS's costs for the PTC-related subsidiaries responsible for obtaining the required communications radio spectrum for PTC operations. As the SBRR would be one of the leading determinants of the PTC frequency spectrum, being one of the first railroads to have a PTC system, these monies will be used for interoperability integration.

v. PTC Expenditure Schedule

On Opening, SunBelt included PTC costs in 2011 at the beginning of SBRR operations. NS spreads PTC costs over the 2011 through 2015 time period. As PTC will be in place on the SBRR from the beginning of operations in 2011, costs must be included at that time.

c. Detectors

NS claims SunBelt understated the required number of failed equipment detectors ("FEDs").[313]

As explained in Part III-B, SunBelt disagrees with NS's FED spacing and continues to use its Opening FED spacing. SunBelt included sixteen (16) FEDs on Opening.[314] On Rebuttal, the number of FEDs has remained the same.[315]

Both SunBelt and NS included one dragging equipment detector ("DED") at each FED location. As NS has overstated the number of FEDs, it has also overstated the number of DEDs.

d. Crossing Signal Equipment

NS claims that SunBelt's crossing signals inventory is inaccurate and essential equipment was omitted.[316] NS's criticisms are addressed below.

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[313] See NS Reply at III-F-227-229.

[314] See SunBelt Opening e-workpaper "SBRR Opening Sticks.pdf."

[315] See SunBelt Rebuttal e-workpaper "SBRR Rebuttal Sticks.pdf"

[316] See NS Reply at III-F-229-234.

NS claims that SunBelt omitted many crossings from lines the SBRR is building and incorrectly included crossings on lines the SBRR is not building. NS states that it has corrected the SBRR crossing inventory. SunBelt accepts NS's crossing inventory on Rebuttal.

NS claims that SunBelt failed to include essential equipment for the SBRR's crossing signals including unidirectional equipment at locations where train signal joints are present within the approach to the crossing, additional front and back flashing lights at signal crossing locations which are required to provide warning for different approach directions, cantilever signals at required locations, conduit for running underground cables and the termination shunts for crossing predictor equipment, the track connection kits for termination shunts, termination shunt cover assemblies and cabling. On Rebuttal, SunBelt has included these additional items.

e. Communications

NS states that it accepted SunBelt's material and installation unit costs for the SBRR's communications system[317] yet NS included \$24.5 million for communications costs compared to SunBelt's \$23.4 million. A review of NS's workpapers reveals that NS indexed the costs for a few components from 2005 to 3Q11. SunBelt agrees with NS's revised costs for these items.

However, SunBelt determined that NS failed to make one adjustment to its communications costs. As discussed above, as part of its PTC wayside costs, NS placed 60-foot towers at the same locations SunBelt had placed 30-foot towers for communications.[318] SunBelt has accepted NS's 60-foot towers, making the 30-foot towers unnecessary, as the VHF equipment would be mounted on the 60-foot towers.[319] NS failed to remove the costs for the 30-

[317] Id. at III-F-235.

[318] See NS Reply e-workpaper "SunBelt C&S Estimate NS Reply.xlsx," tab "Reply PTC," Line 8 and tab "Reply Components & Tabulation," Item Number 40 (Line 76).

[319] See SunBelt Rebuttal e-workpaper "SunBelt C&S Estimate Rebuttal.xlsx," tab "Reply PTC," Line 8 and tab "Reply Components & Tabulation," Item Number 40 (Line 76).

foot towers from its communications costs. SunBelt has removed them on Rebuttal resulting in communications investment costs of $23.3 million for the SBRR.

f. Hump Yard Equipment

NS included $24.7 million for integrated switching equipment in one (1) hump yard on the SBRR.[320] As discussed in Part III-C, the SBRR does not need a hump yard and SunBelt has not included these costs.

g. Summary

Based on the above, SunBelt's signals and communications costs have increased to $146.2 million on Rebuttal.

7. Buildings and Facilities

SunBelt's buildings and facilities were detailed in its Opening Part III-F-7. Briefly summarized, SunBelt included facilities at one major yard, a headquarters building, fixed fueling facilities, facilities for direct-to-locomotive ("DTL") fueling, facilities for locomotive servicing and one locomotive shop. In addition, SunBelt included crew, yard and MOW buildings and various other facilities as required.[321]

NS's Reply buildings and facilities costs are much higher than those developed by SunBelt on Opening. NS changed the design and costs of virtually every building on the SBRR. NS also added many new buildings not included by SunBelt. In addition, NS greatly increased the costs for lighting and paving. SunBelt addresses NS's Reply below.

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[320] See NS Reply at III-F-235.

[321] See SunBelt Opening at III-F-40-43 and supporting workpapers.

a. Headquarters Building

On Opening, SunBelt specified a two-story 19,365 square foot building to house fifty-one (51) headquarters personnel (in thirty-six (36) offices) and with space for additional facilities.[322] NS argues that SunBelt's building size is insufficient because, according to NS, the SBRR headquarters building will house one hundred eighty (180) personnel. NS estimates the size of the SBRR headquarters building by dividing 19,365 square feet by fifty-one (51) personnel and then multiplying the result by one hundred eighty (180) personnel. Using this methodology, NS estimates that the SBRR headquarters building would need to be 68,400 square feet in size.[323]

As discussed in Part III-D, NS's headquarters personnel count is overstated. On Rebuttal, the SBRR headquarters personnel have increased to sixty-nine (69) people. SunBelt has continued to use its Opening methodology to develop the size of the SBRR headquarters building. Based on sixty-nine (69) personnel and fifty-one (51) offices, the SBRR headquarters building requires 21,560 square feet which would be contained in a two-story building.[324]

On Reply, NS made several other modifications to SunBelt's headquarters building costs. For example, NS increased the number of fire hydrants from one to four. NS also claims that SunBelt excluded costs for site items such as gates, electrical transformer and pad, and parking lot striping for the 110 spaces.[325]

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[322] See SunBelt Opening at III-F-40 and e-workpaper "SBRR Facilities Cost.xlsx," tab "HQ Building."

[323] See NS Reply at III-F-237.

[324] See SunBelt Rebuttal e-workpaper "SBRR Facilities Cost Rebuttal.xlsx," tab "HQ Building."

[325] See NS Reply at III-F-239.

On Rebuttal, SunBelt has accepted NS's average cost of $138 per square foot[326] and applied it to the appropriately sized headquarters building of 21,560 square feet resulting in $3.0 million for the SBRR headquarters building.[327]

b. Fueling and Locomotive Servicing Facilities

i. Fixed Fueling Facilities

On Opening, SunBelt included fixed fueling platforms at its one major yard in Birmingham, AL.[328] The location and sizing was provided by SunBelt's operating witness based on the needs of the SBRR. On Reply, NS included fixed fueling facilities at Birmingham, AL and New Orleans, LA.[329]

NS does not demonstrate that SunBelt's Opening fueling facilities are insufficient to handle the SBRR's requirements. NS attempts to justify its additional fixed fueling facility by claiming to have provided sufficient facilities to accommodate fueling activities required for SBRR to comply with reciprocal obligations imposed by NS interchange agreements.[330] However, NS does not explain why fixed fueling facilities are needed in lieu of direct-to-locomotive ("DTL") fueling by tanker truck. In fact, NS states elsewhere in its evidence that it included fixed fueling facilities only at Birmingham[331] and, therefore, its fixed fueling facility at New Orleans should be eliminated. For the above reasons, SunBelt has continued to rely on its Opening fixed fueling facility at Birmingham.

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[326] See NS Reply e-workpaper "SBRR Building Unit Costs.xlsx," tab "Headquarters."

[327] See SunBelt Rebuttal e-workpaper "SBRR Facilities Costs Rebuttal.xlsx," tab "HQ Building."

[328] See SunBelt Opening at III-F-40.

[329] See NS Reply at III-F-239.

[330] Id. at III-C-73.

[331] Id. at III-C-158.

NS accepts SunBelt's base cost for the locomotive fueling station as a starting point and then adds costs for what NS claims are missing components. NS adds costs for hose reels, overhead service platforms and platform mounted fuel cranes and fuel management systems. NS used SunBelt's Opening cost for hose reels, so clearly SunBelt did include them. On Rebuttal, SunBelt has added the costs for the overhead service platforms, platform mounted fuel cranes and fuel management systems.

ii. Fueling by Truck and Locomotive Servicing Facilities

On Opening, DTL fueling (fueling by tanker truck) was used in the four (4) SBRR mid-sized yards at Meridian, MS, New Orleans, LA, Selma, AL and McIntosh, AL. SunBelt also included locomotive servicing facilities at these same locations.[332]

NS includes DTL fueling and locomotive servicing facilities at Birmingham, Meridian, New Orleans and McIntosh. NS does not explain why DTL and locomotive servicing facilities are needed at Birmingham in addition to the fixed fueling facilities it has provided. On Rebuttal, SunBelt continues to include its Opening DTL and locomotive servicing locations.

On Opening, SunBelt inadvertently omitted the costs for the facilities needed at DTL locations. On Rebuttal, SunBelt has included the items specified by NS at locations where SunBelt has included locomotive servicing tracks but has substituted SunBelt's Opening unit costs for NS's overstated costs for paving, lighting and track pans.[333]

c. Locomotive Repair Facilities

On Opening, SunBelt included one locomotive repair shop at the SBRR yard in Birmingham, AL. SunBelt based its locomotive shop on actual maintenance facilities designed

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[332] See SunBelt Opening at III-F-40 and e-workpaper "SBRR Yard Matrix.xlsx," tab "ADDL TRACK."

[333] See SunBelt Rebuttal e-workpaper "SBRR Facilities Cost Rebuttal.xlsx," tab "DTL Fueling."

by Crouch Engineering, which are in use today. SunBelt also included costs for tools and equipment for each facility.[334] The SBRR's locomotive shop was sized to handle the SBRR's Opening locomotive count of 42 road locomotives and 4 switching locomotives for a total of 46 locomotives.

On Reply, NS accepts the location specified by SunBelt. However, NS rejects SunBelt's locomotive shop costs, claiming the facilities and equipment are inadequate to service the SBRR's locomotives.[335] SunBelt has reviewed its Opening costs along with NS's criticisms and Reply costs and determined that the Opening locomotive repair facility size and costs were understated. In addition, SunBelt's locomotive fleet has increased to 52 road locomotives and 13 switching locomotives for a total of 65 locomotives.

On Rebuttal, SunBelt has accepted NS's size and cost for the SBRR's locomotive repair facility.

d. Car Repair Facilities

On Opening, the SBRR did not include the cost of a car repair facility because its cars are obtained under a full service lease and car repairs are the responsibility of the lessor, presumably by a contractor. However, the SBRR did provide space and tracks for a contractor car shop at the SBRR's Birmingham Yard and rip tracks at the four (4) mid-size yard locations on the SBRR (Meridian, New Orleans, Selma and McIntosh). SunBelt's approach is consistent with prior STB decisions.[336]

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[334] See SunBelt Opening at III-F-41 and e-workpapers "SBRR Facilities Cost.xlsx" and "Locomotive Shop.pdf."

[335] See NS Reply at III-F-240-244.

[336] See SunBelt Opening at III-F-41 and e-workpaper "SBRR Yard Matrix.xlsx," tab "ADDL TRACK."

On Reply, NS contends that the SBRR would have to construct a car repair facility at Birmingham to handle repairs for foreign cars moving on the SBRR. NS also included rip tracks at four (4) locations (Birmingham, Meridian, New Orleans and McIntosh).[337] NS also states that the SBRR's car lessor would have no obligation to repair foreign cars.[338]

NS is wrong in contending that the SBRR has to construct a car repair facility. The car repair contractor will have one facility on the SBRR and four other rip track locations. What NS fails to grasp is that the SBRR would be reimbursed for all repairs on foreign cars.[339] As such, the car repair contractor would repair the foreign cars, using its own facilities, and the SBRR would simply pass through the monies received for car repairs from foreign railroads to the contractor.

While the SBRR will provide space and tracks for car repairs at five (5) locations, the facilities and equipment at these locations will be provided by the contractor (not the SBRR) as all car repair costs on SBRR-owned cars are covered by the full service lease. NS claims that the SBRR would need to provide several items at the rip track locations.[340] The SBRR has provided for lighting, compressed air, power service and paved roadways.[341] The costs for tools and parts storage and any necessary canopies would be the responsibility of the car repair contractor.

On Rebuttal, SunBelt maintains its Opening position on car repair facilities.

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[337] See NS Reply at III-C-179.

[338] Id. at III-C-76.

[339] NS included the costs for a car repair facility but failed to include the monies that would be paid to the SBRR for foreign car repairs.

[340] See NS Reply at III-F-245-246.

[341] See SunBelt Opening e-workpaper "SBRR Facilities Cost.xlsx," tabs "Minor" and "Construct Minor."

e. Crew Change Facilities

SunBelt's Opening crew change facilities were simple buildings designed to meet the basic functions they perform. SunBelt provided large crew facilities, 2,240 square feet, at Birmingham, Meridian and New Orleans, and smaller facilities, 1,400 square feet, at three (3) other locations for a total of six (6) buildings.[342]

Although NS agreed with SunBelt's crew districts,[343] NS placed two (2) of its crew change facilities in different locations, increased the number of crew change facilities from six (6) to eight (8) and decreased the number of locations with large crew facilities. Specifically, NS placed two (2) large facilities at Birmingham, replaced SunBelt's large facilities at Meridian and New Orleans with small facilities, removed SunBelt's facility at Boligee, AL and added facilities at Wilton, AL and Hattiesburg, MS where NS added small flat yards. NS did not explain its reasoning behind the reduction of the facilities at Meridian and New Orleans and SunBelt does not agree with the change. As discussed in Part III-C, the SBRR yards in Wilton and Hattiesburg are just interchange yards and do not need crew change facilities. NS claims that the second large facility at Birmingham is needed for "locomotive and freight car mechanical staff"[344] but the locomotive maintenance personnel report to the locomotive repair facility, and the SBRR does not have any freight car mechanical staff because a contractor handles car repairs.[345]

On Rebuttal, SunBelt has continued to include its Opening crew change facility locations and sizes.

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[342] See SunBelt Opening at III-F-42.

[343] See NS Reply at III-C-173.

[344] Id. at III-F-248.

[345] The SBRR does have car inspection personnel and has included yard buildings for their use.

On Reply, NS accepted SunBelt's proposed sizes for the crew change facilities but criticized SunBelt's facility costs.[346] SunBelt has reviewed its Opening costs, along with NS's criticisms and Reply costs, and determined that the Opening crew facility costs were understated.

On Rebuttal, SunBelt has accepted NS's costs for the small and large crew change facilities applied to SunBelt's count of each facility.

f. Yard Offices

On Opening, SunBelt included five (5) yard office buildings at locations where there are car inspectors, yard crews or transportation department field personnel.[347] These buildings were the same size (1,400 square feet) and cost as the small crew change facilities.[348]

NS accepted SunBelt's locations but rejected SunBelt's size and cost. NS states that the same criticisms identified for the crew change facilities apply to SunBelt's yard offices. NS based its yard office sizes on existing NS facilities, building a large office at Birmingham and smaller offices at the other four (4) yards.[349]

SunBelt does not accept NS's increased building sizes. NS provided no explanation as to why SunBelt's yard buildings are too small and no justification for the larger buildings NS included. NS's approach is to simply assert that SunBelt's building size is too small because it is apparently smaller than two buildings located at different places along NS's vast system that were arbitrarily selected by NS. NS provides no evidence that these selected buildings are "typical." Furthermore, the SBRR is not the NS and the SBRR is not required to replicate NS's facilities.

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[346] See NS Reply at III-F-246-247.

[347] See SunBelt Opening e-workpaper "SBRR Yard Matrix.xls," tab "SBRR YARDS."

[348] See SunBelt Opening at III-F-42.

[349] See NS Reply at III-F-248-249.

On Rebuttal, SunBelt has continued to include yard buildings that are the same size as the small crew change facility and used the Rebuttal cost of the small crew change facility.

g. Maintenance of Way Buildings (Roadway Buildings)

On Opening, SunBelt included three (3) MOW buildings. These buildings are the same size (and cost) as the small crew change buildings but configured differently with basic facilities for the work crew and signal maintainers plus a small garage to store materials and occasionally vehicles as needed.[350]

On Reply, NS accepts SunBelt's count of MOW buildings but not its cost or size. NS states that its criticisms of the crew change facility unit costs and calculations also apply to SunBelt's MOW facilities. NS claims that SunBelt's MOW facility is undersized and fails to provide adequate parking for oversized MOW vehicles or storage for materials, tools and other equipment.[351]

In an attempt to justify its claim that SunBelt's MOW facility is undersized, NS cites to an existing facility in Mount Vernon, IL stating that it is 1,530 square feet in size and used to house MOW crews only.[352] However, NS provides no support for this statement. NS goes on to state that the SBRR MOW facility would need to be 3,000 to 3,500 square feet in size, again with no support. NS then settles on a size of 2,240 square feet, the same size as a large crew change facility (instead of the small crew change facility). NS uses its large crew change facility cost for the MOW building.

NS's increased size is arbitrary and unsupported and SunBelt does not accept it. NS has not shown that its MOW facilities have extra garage and outdoor storage space. In Mr. Crouch's

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[350] See SunBelt Opening at III-F-42.

[351] See NS Reply at III-F-249-250.

[352] Id. at III-F-250.

experience working at and designing such facilities, many do not have any garage space at all nor do they have a covered space for equipment. SunBelt has not included these additional items on Rebuttal. SunBelt, however, has adjusted the MOW facility cost to reflect the Rebuttal cost of the small crew change facility.

NS also includes costs for one (1) MOW mechanic facility to service high rail MOW vehicles, located at Birmingham.[353] SunBelt included an allowance for equipment repairs in its Opening MOW costs[354] and continues to do so on Rebuttal.[355] Therefore, these repair facilities are not needed and SunBelt has not included them on Rebuttal.

h. Wastewater Treatment

NS claims that the oil/water separators included by SunBelt are insufficient as they can only handle ten gallons per hour of effluent. NS has included costs for upgraded oil/water separators.[356]

NS is wrong in its criticism of SunBelt's oil/water separator. The oil/water separator included by SunBelt on Opening is capable of handling 40-50 gallons per minute,[357] not ten gallons per hour. However, in Rebuttal, SunBelt has accepted NS's wastewater treatment system because of the increased size of the locomotive repair facility.

i. Other Facilities / Site Costs

NS claims that SunBelt understated the amount of paving required for the SBRR facilities by failing to provide paving for parking lots for yard, shop and transportation employees. NS

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[353] See NS Reply at III-F-251-252 and e-workpaper "SBRR Facilities List NS Reply.xlsx.".

[354] See SunBelt Opening e-workpaper "Exhibit III-D-3 SBRR MOW.xls," tab "Equipment," cell E25.

[355] See SunBelt Rebuttal e-workpaper "Exhibit III-D-2 SBRR MOW Rebuttal 5-23-2013.xls," tab "Equipment," cell E25.

[356] See NS Reply at III-F-252-253.

[357] See SunBelt Opening e-workpaper "Oil-Water Seperator.pdf."

used aerial photos of the template yards and facilities to estimate the SBRR's requirements.[358] NS has provided no evidence that paving even exists in all its yards, much less the quantities specified by NS. NS's additional pavement quantities are overstated and unrealistic. SunBelt included sufficient paving for yards on Opening. In the experience of SunBelt's engineering witness, Mr. Crouch, parking is usually on either hard packed dirt or gravel that has been spread around over time from the sub-ballast of the yard tracks and paving is not required. For automotive and intermodal facilities, SunBelt has accepted the paving requirements identified by NS as SunBelt has accepted NS's sizes for these facilities.

SunBelt does not, however, accept NS's paving unit costs. Although NS did not claim that SunBelt's paving unit costs were inadequate, NS included significantly higher paving unit costs. As NS has not justified its higher paving unit costs, SunBelt has continued to rely on its Opening paving unit costs at yards and facilities with one exception. SunBelt has accepted NS paving costs for the portion of the intermodal facilities where containers are stored.

NS claims that SunBelt's lighting costs are insufficient and the SBRR's lighting requirements are understated.[359] NS included proposed lighting layouts for various facilities in its Reply workpapers. NS's proposed lighting locations are shown as yellow circles with significant amounts of overlap.[360] The lighting locations specified by NS are not the existing lighting locations for NS's existing facilities. As demonstrated below, without supporting evidence or calculations, NS more than doubled the lighting necessary for each facility. Moreover, the lighting coverage shown by NS overlaps with residential areas and property outside the proposed railroad facilities. The proposed "stadium lighting" on 100-foot tall poles is

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[358] See NS Reply at III-F-254-255.

[359] Id. at III-F-255-256.

[360] See NS Reply e-workpaper "09 Yard Lighting and Roadway Quantities.pdf."

not typical for all NS facilities. NS included high mast lighting poles with twelve (12) fixtures per pole. Based on Mr. Crouch's experience, most existing NS facilities have wooden pole-mounted modest lighting fixtures, which SunBelt included on Opening, and not the gold-plated "stadium lights" specified by NS for each yard and facility. NS's proposed lighting layouts are unrealistic, overstated and would most likely not be approved by local agencies due to light pollution of adjoining properties.

As NS did not rely on the existing lighting at the yards and facilities that NS used as its templates for lighting requirements, SunBelt researched these locations using the internet and identified the existing lighting at each template facility.[361] NS used a yard at Moraine, OH as the template for its small classification yard and proposed eleven (11) high mast lights. In reality, there are no high mast lights at this yard. NS used a yard at Fort Wayne, IN as the template for its medium classification yard and proposed twelve (12) high mast lights. There are no high mast lights at this yard either. Based on the above, SunBelt has not accepted NS's grossly overstated lighting requirements for yards and continued to rely on the lighting included on Opening.

NS used a yard at Greensboro, NC as the template for its small intermodal facility and proposed eight (8) high mast lights. On Rebuttal, SunBelt has used its Opening lighting configuration applied to the small intermodal yard with no high mast lights.

NS failed to provide the location information for the small automotive yard used by NS as a template for which NS proposed ten (10) high mast lights. SunBelt reviewed NS's diagram

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[361] SunBelt was able to see the existing lighting at these facilities using Google Earth and Bing. See SunBelt Rebuttal e-workpaper "SBRR Facility Lighting Rebuttal.pdf."

and determined that three (3) high mast lights provide sufficient coverage. Therefore, on Rebuttal, SunBelt has included three (3) high mast lights for the small automotive yard.[362]

NS also claims that SunBelt failed to include the cost for the main electrical switchgear for each large yard and locomotive shop and failed to include cabling for distribution of power.[363] SunBelt inadvertently excluded these items and has included them in Rebuttal.

NS claims that SunBelt included only 25 bollards in major yards and six (6) bollards in minor yards. NS estimates that 200 bollards are needed per yard.[364] NS's addition of 175 bollards is unrealistic, unsupported and not required. Bollards are typically used only to protect the overhead doors of a shop and, occasionally, transformers on the ground. On Rebuttal, SunBelt continues to use its Opening number of bollards.

NS also added fire hydrant systems at each yard.[365] SunBelt has accepted this on Rebuttal.

j. Guard Booths

NS claims that SunBelt did not include guard booths at the entrance of any yards. NS states that it provided guard booths at each intermodal yard and automotive facility.[366]

SunBelt agrees that guard booths are needed at each facility and has included three (3) guard booths on Rebuttal. SunBelt has also accepted NS's Reply cost for a guard booth.

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[362] SunBelt notes that NS's high mast light cost includes twelve (12) fixtures. The actual high mast fixtures identified by SunBelt include only seven (7) or eight (8) fixtures. On Rebuttal, SunBelt has used NS's overstated high mast cost with twelve (12) fixtures even though this is an overstatement of the requirements.

[363] See NS Reply at III-F-256-257.

[364] Id. at III-F-257.

[365] Id. at III-F-257-258.

[366] Id. at III-F-258-259.

k. Mechanic Repair Shops

NS included one (1) mechanic repair shop to "maintain and repair yard hostlers and forklifts."[367]

SunBelt disagrees with NS as to the need for this facility. For instance, a yard hostler is not a piece of equipment. Rather, it is someone who shuttles locomotives around. All of the maintenance costs for the SBRR locomotives have been accounted for elsewhere. As for forklifts, NS has not specified where these forklifts would be located. As noted earlier, the repair costs for all MOW equipment is accounted for in the MOW costs. Any forklifts needed by the car repair contractor would be its responsibility to maintain and repair. Any forklifts required by the locomotive repair facility would be repaired at that facility. NS has not supported the need for a mechanic repair shop and SunBelt has not included it on Rebuttal.

l. Mechanical Offices

Although not discussed in NS's Reply evidence, NS included the costs for two (2) mechanical offices.[368] NS provided no explanation of the purpose of these facilities. These facilities are not needed because car repair personnel report to the contractor-provided car repair facility and locomotive repair personnel report to the locomotive repair facility. Furthermore, SunBelt has placed yard offices at all locations with mechanical (car inspection) personnel.[369]

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[367] Id. at III-F-259-260.

[368] See NS Reply e-workpaper "SBRR Facilities List NS Reply.xlsx," tab "Facilities Costs," Line 29, Columns (J) and (K).

[369] See SunBelt Opening at III-F-42 and Rebuttal e-workpaper "SBRR Yard Matrix Rebuttal Grading.xlsx," tab "SBRR Yards," Columns (K) and (U).

m. Observation/Yard Master Towers

NS included three (3) observation buildings / yard master towers. NS attempts to justify their inclusion by claiming that they are present in two NS automotive yards (neither of which are on the SBRR).[370]

SunBelt disagrees with NS. The mere presence of these facilities in two NS yards (that are not on the SBRR) does not justify their need on the SBRR. In addition to the tower at the one automotive facility, NS included two towers at its Birmingham hump yard with no justification whatsoever. SunBelt is not building any hump yards. SunBelt's operating witness McDonald does not recall any such facilities on any of the railroads he worked for during his extensive career nor does he see the need for them on the SBRR.

SunBelt has not included these towers on Rebuttal as they are not necessary.

n. Storage and Warehouse Buildings

NS included a 24,000 square foot warehouse building costing in excess of $2.1 million at its Birmingham hump yard.[371] NS claims the larger building is required for maintenance-of-way storage and other "railroad departments for storage of parts, equipment and materials."[372]

NS has not supported the need for this building. The mere existence of a building at the location identified by NS does not provide any proof that the SBRR requires this facility. As noted above in the discussion on maintenance-of-way buildings, SunBelt's engineering witness Mr. Crouch states that warehouses are not normally included at MOW facilities.

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[370] See NS Reply at III-F-260 and note 450.

[371] See NS Reply e-workpapers "SBRR Facilities List NS Reply.xlsx," and "SBRR Building Unit Costs.xls," tab "Storage Buildings."

[372] See NS Reply at III-F-261.

Furthermore, NS has not provided any description of what other items would be stored in this building. Locomotive items will be stored at the locomotive repair facility. Likewise, car items will be stored at the car repair contractor's facility. Office supplies will be stored at the various SBRR offices. NS has not supported the need for this storage facility on the SBRR and SunBelt has not included it on Rebuttal.

o. Miscellaneous Buildings

Although not discussed in NS's Reply evidence, NS included the costs for three (3) miscellaneous buildings measuring 400 square feet at its Birmingham hump yard.[373] NS provided no explanation of the purpose of these buildings. Therefore, SunBelt has not included them on Rebuttal.

p. Signal Maintainer Buildings

NS claim's that SunBelt did not provide housing for signal maintainers.[374] NS is wrong. SunBelt recognized the need to house signal maintainers and included space for them in its MOW buildings.[375]

Based on its "Operating Plan," NS included ten (10) separate signal maintainer buildings.[376]

SunBelt disagrees with NS. NS has not shown that it currently has such facilities or supported its claim of the need for such facilities. Furthermore, for the cost of the signal maintainer building, NS did not use the cost of an existing signal maintainer building, but rather

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[373] See NS Reply e-workpapers "SBRR Facilities List NS Reply.xlsx," tab "Facilities Costs," Column (U) and "SBRR Building Unit Costs.xls," tab "Misc Bldgs."

[374] See NS Reply at III-F-262.

[375] See SunBelt Opening at III-F-42.

[376] See NS Reply at III-F-262.

used the cost of a facility that it considered "an appropriate size."[377] This is a clear indication that such facilities do not exist on NS.

For the foregoing reasons, SunBelt has not included NS's ten (10) signal maintainer buildings.

q. Intermodal Terminals

On Opening, SunBelt did not include intermodal terminal facilities but, as explained in Part III-B, SunBelt agrees that intermodal yard facilities are required at the two (2) locations identified by NS and SunBelt has accepted NS's size for these intermodal terminals. However, as discussed above under "Other Facilities / Site Costs," NS's paving and lighting costs for these facilities are grossly overstated and have been adjusted by SunBelt on Rebuttal.

r. Automotive Facilities

On Reply, NS included a small automotive facility in New Orleans, LA.

On Rebuttal, as explained in Part III-B, SunBelt has accepted NS's New Orleans automotive facility. SunBelt has modified NS's Reply costs for this facility to reflect SunBelt's paving costs and the lighting modifications discussed previously.

8. Public Improvements

While public improvements are discussed in detail below, many of the costs for such items are included in other investment categories, such as track construction, bridges and signals. Differences between SunBelt and NS are addressed below.

a. Fences

On Opening, SunBelt included fencing for its yards. Fencing was not used on other portions of the SBRR.[378] NS accepts SunBelt fencing specifications in general, but it added fencing at "key Maintenance-of-Way and signal facilities."[379]

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[377] Id.

SunBelt was unable to find where NS included fencing for MOW or signal facilities in its construction costs and, therefore, is unable to respond to NS. On Rebuttal, SunBelt has continued to include fencing at the SBRR yards and also included fencing at the automotive facility.

b. Signs and Road Crossing Devices

The parties generally agree on the signs to be included. However, NS added one more category of signs, emergency notification signs at railroad crossings, which include an "800" number to call in case of emergency. SunBelt accepts these signs and includes them on Rebuttal.

NS rejected SunBelt's installation costs for crossbucks stating that SunBelt improperly relied on the Tennessee Department of Transportation's ("TDOT") costs for highway signage instead of TDOT's cost for railroad crossbuck signage. NS also claims that SunBelt's installation cost does not take into account additional measures required to install signage on the SBRR right-of-way. NS substituted a cost for crossbuck installation based on costs from actual NS projects.[380] On Rebuttal, SunBelt has accepted NS's cost for crossbuck installation.

c. Grade-Separations

Graded-separated crossings are addressed in Part III-F-5.

d. At-Grade Crossings

NS accepts SunBelt's number of at-grade crossings but rejects SunBelt's unit cost per track-foot of crossing.[381] On Rebuttal, SunBelt accepts NS's unit cost per track-foot of crossing.

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[378] See SunBelt Opening at III-F-44.

[379] See NS Reply at III-F-263.

[380] Id. at III-F-264.

[381] Id at III-F-265-266.

e. At-Grade Crossing Detours

NS claims that SunBelt failed to include costs for roadway detours and signage while roads are closed for SBRR track and crossing construction.[382] NS is incorrect.

Costs for road detours are included under Roadbed Preparation and NS acknowledged and agreed with SunBelt's approach.[383] It has been a long-established precedent that a stand-alone railroad only needs to include the costs for road detours on lines built subsequent to the ICC Engineering Reports.[384] As SunBelt explained on Opening,[385] and NS agreed,[386] all of the lines being replicated by the SBRR were constructed by NS's predecessors in the 19th and early 20th centuries. NS's inclusion of costs for road detours under public improvements must be rejected.

f. At-Grade Crossing Vegetation Removal

NS includes road property investment costs for vegetation removal at highway at-grade rail crossings.[387] These costs are a double-count and should be rejected. Both parties included costs for clearing and grubbing in their respective roadbed preparation costs[388] and both parties included annual costs for vegetation control in their respective maintenance-of-way costs.[389]

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382 Id at III-F-266.

383 See Part III-F-2-h-vii, *supra*. See also, NS Reply at III-F-118.

384 See SunBelt Opening at III-F-20 and note 51.

385 Id at III-F-19 ("Relocating and Protecting Utilities").

386 See NS Reply at III-F-117.

387 Id at III-F-266-267.

388 See Part III-F-2-d, *supra*. See also, NS Reply at III-F-48-53.

389 See SunBelt Opening, Exhibit III-D-3 at 20-21. See also NS Reply at III-D-189-190.

9. Mobilization

On Opening, SunBelt applied a 2.7 percent mobilization factor to all SBRR road property investment accounts except land. NS accepted SunBelt's factor.[390] However, NS added over $8 million in mobilization costs for land under the guise of "real estate acquisition costs."[391] NS's costs are improper and should be rejected.

The Board has consistently held that mobilization only applies to construction costs.[392] In Simplified SAC cases, the Board has expressly stated that mobilization only covers "road preparation, track, tunnels, bridges and culverts, signals and communications, buildings and facilities, and public improvements."[393]

Despite this unequivocal precedent, NS has requested that the Board include over $8 million in extra mobilization costs to cover asserted "real estate acquisition costs." SunBelt has already included sufficient costs to cover the acquisition of the real estate needed for the SBRR (see Section III-F-1), but NS would have the Board also add a variety of supplemental costs such as title work, negotiations, expert appraisals, recording fees, and numerous other additional

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[390] See NS Reply at III-F-268.

[391] Id at III-F-268-272.

[392] See *AEPCO 2011* at 132 ("Mobilization involves the marshaling and movement of people, equipment, and supplies to the various construction sites and other pre-construction coordination and activities"); *FMC* at 818 ("Mobilization costs reflect the cost of assembling equipment, personnel and facilities at designated places so that construction may commence"); *APS* at 401 ("Mobilization costs cover expenses associated with moving personnel, materials, supplies, and equipment to job sites and the establishment of offices and other facilities prior to commencement of a construction project.")

[393] See Simplified Standards at 48.

costs.[394] The Board should deny NS's request to inflate the mobilization figure for the SBRR with supplemental costs for real estate acquisition.[395]

The only justification provided by NS for this departure from established precedent is that the SBRR is purchasing "approximately 7,300 acres of land…during a seven month period" (emphasis supplied).[396] The Board should summarily reject such a justification as an impermissible barrier to entry and contrary to basic SAC principles. As stated by the ICC, "any restriction in the supply of resources necessary to construct the SARRs in the minimum time dictated by technological feasibility represents a barrier to entry."[397]

NS also contends that the supplemental costs are necessary because they represent "real world" land acquisition costs that NS itself incurs when it buys land.[398] This is a classic barrier to entry that should be rejected by the Board.[399] NS has not shown, or even attempted to show, that it actually incurred these types of costs when it (or its predecessors) originally acquired the right-of-way that is being replicated by the SBRR.[400] NS's attempt to include mobilization costs for land acquisition is reminiscent of the effort of certain defendants to include an assemblage

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[394] See NS Reply at III-F-271.

[395] See *APS* at 402-403 (rejecting railroad attempt to add "transaction costs" to real estate valuation).

[396] See NS Reply at III-F-269.

[397] See *Coal Trading* at 413. See also *West Texas* at 471 (rejecting assertion of inflated costs because "[e]xisting railroads were built on a piecemeal basis, and were not saddled with a need to marshal, in such a short period of time, the resources required to construct a 1,400-mile rail system.")

[398] See NS Reply at III-F-270.

[399] See *Coal Trading* at 413 ("Defendants' argument that they too would face these costs if they entered the market today is irrelevant to the question of whether entry barriers exist for this market. The entry process actually faced by the incumbent was quite different from that hypothesized for the new entrant.").

[400] See *McCarty Farms* at 506 ("Only when the incumbent carrier has incurred a sunk cost should that cost be included in the SAC analysis.").

factor in real estate acquisition – an effort that has been rejected by the Board unless the defendant can show that it paid such a cost.[401]

Not only has NS failed to make any attempt to show that it incurred these supplemental real estate acquisition costs for the lines replicated by the SBRR, but the predecessor railroads to NS benefited from federal land grants. Consequently, it cannot be the case that the predecessors to NS incurred "particularly significant" costs "to identify and negotiate with landowners."[402] In fact, some of the NS rail lines replicated by the SBRR were built via federally granted land. The NS line between Meridian, MS and Chattanooga, TN, a portion of which is included in the SBRR, originated in federal land grants to the Northeast and Southwest Alabama Railroad ("NE & SW RR") and the Wills Valley Railroad ("WVRR"). These land grants were originally made by the federal government in 1856 (see Public Law 34-41, 11 Stat. 17), and then assigned to the NE & SW RR and the WVRR by the State of Alabama.[403] The rail line from Chattanooga to Meridian eventually came to be owned by the Alabama Great Southern Railroad, which was absorbed by the Southern Railway and, finally, NS itself.

10. Engineering

The parties agree on the application of a 10 percent engineering additive to the total construction cost, excluding land acquisition costs.[404]

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[401] See *Duke/NS* at 169 (n. 97) (assemblage factor is an impermissible barrier to entry unless the defendant railroad can show that it incurred such costs for the rail line at issue); see also *West Texas* at 672-673 ("the cost of needed permits, licenses and environmental compliance also must be considered as a barrier when that cost was not incurred by the incumbent.")

[402] See NS Reply at III-F-268-269.

[403] See Acts of the Sixth Biennial Session, at 430-431, Joint Resolution of the Alabama General Assembly (January 30, 1858).

[404] See NS Reply at III-F-272.

11. Contingencies

The parties agree on the application of a 10 percent contingency factor to the total construction cost, excluding land acquisition costs.[405]

12. Construction Schedule

NS accepts SunBelt's 30-month construction period but adds costs "to account for the real world effect of lost production due to rainfall."[406] NS's added costs are unnecessary as well as a barrier to entry and should be rejected.

NS's added costs are applied to grading, bridge, ballast and rail labor activities.[407] The SBRR's 30-month construction schedule has sufficient flexibility to accommodate a shifting of these activities should the need arise.[408] For example, under SunBelt's construction schedule for the SBRR, grading activities are not scheduled to begin until over 50 percent of the land has been acquired. If necessary, grading activities could begin sooner. Conversely, there is a three-month window at the end of the construction schedule that can be used if necessary.[409]

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[405] Id.

[406] Id.

[407] See NS Reply e-workpaper "SBRR Weather Costs NS Reply.xlsx," tab "Cost Summary."

[408] In fact, the SBRR schedule is sufficiently long enough to accommodate changes in the schedule during any season, if necessary. Under the concept of unconstrained resources, the construction schedule only needs to be as long as the most demanding project. On the SBRR, the most demanding project is the Lake Pontchartrain Bridge which could be completed in 14 months. (See SunBelt Opening e-workpaper "Complete Construction Schedule.xls," tab "Overall Construction," Line 27.) This project would only be slightly affected by NS's alleged days lost to rain events.

[409] This three-month window is to allow for operational testing but the entire railroad does not have to be complete in order to begin testing. Testing can be started on those sections that are complete and finish up as the last sections are completed.

Under the theory of unconstrained resources, the SBRR could accelerate all of the construction processes identified by NS as affected by rainfall through the deployment of more personnel and equipment in times of no weather-related incidents.[410]

SunBelt also notes that there are several problems with NS's calculations. NS assumes average production during all months allotted to an activity. As noted above, the SBRR would increase construction activity, if necessary, in times of no weather-related incidents. In addition, as discussed throughout this Part III-F, NS's calculations are based on overstated quantities, overstated unit costs and unnecessary tasks (such as stripping, undercutting and over-excavation of rock).

NS's additional costs are unwarranted, overstated and a barrier to entry and must be rejected here. A least-cost, most efficient railroad such as the SBRR would certainly make adjustments in the schedule before incurring these types of costs.

[410] See *Otter Tail* at D-18 (rejecting similar railroad argument as to winter construction costs because complainant had sufficient flexibility in its 30-month construction schedule to reschedule activities to warmer months should the need arise).

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III. STAND-ALONE COST

G. DISCOUNTED CASH FLOW ANALYSIS

In Part III-G of its Reply, NS raises various issues with respect to SunBelt's SAC DCF analysis. Specifically, NS challenges SunBelt's treatment of bonus depreciation and its use of historic urban and land values to forecast inflation in future land values, stating that "SunBelt's discounted cash flow… model contains a number of invalid inputs and assumptions ranging from overreaching and flawed assumptions regarding the availability of bonus depreciation to overly aggressive assumptions regarding future inflation."[1] At the same time, NS itself seeks major alterations to the Board's established approach on such matters as equity flotation costs, inflation indices for land, treatment of tax liability, capital cost recovery, and positive train control.

SunBelt responds to NS's contentions below under the following topical headings:

1. Cost of Capital
2. Inflation Indices
3. Tax Liability
4. Capital Cost Recovery

1. Cost of Capital

The SBRR's cost of capital is made up of the cost of common equity, debt and preferred equity (if any). NS "accepts SunBelt's use of the Board determined railroad industry cost of capital as the starting point for the SBRR," but then adds equity flotation costs.[2]

As shown in Table III-G-1 below, there are no differences between SunBelt's Opening and NS's Reply SBRR cost of equity calculations.

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[1] See NS Reply, at III-G-1.

[2] Id.

Table III-G-1
Comparison of SunBelt Opening and
<u>NS Reply SBRR Cost of Equity</u>

Year	SunBelt Opening[1/]	NS Reply[2/]	Difference Cols (3) – (2)
(1)	(2)	(3)	(4)
2009	12.37%	12.37%	0.00%
2010	12.99%	12.99%	0.00%
2011	13.57%	13.57%	0.00%
2012	12.98%	12.98%	0.00%
2013	12.98%	12.98%	0.00%
2014	12.98%	12.98%	0.00%
2015	12.98%	12.98%	0.00%
2016	12.98%	12.98%	0.00%
2017	12.98%	12.98%	0.00%
2018	12.98%	12.98%	0.00%
2019	12.98%	12.98%	0.00%
2020	12.98%	12.98%	0.00%
2021	12.98%	12.98%	0.00%

1/ SunBelt Opening e-workpaper "Exhibit III-H-1.xls."
2/ NS Reply e-workpaper "Exhibit III-H-1 NS Reply SB.xls."

NS asserts that SunBelt improperly omitted equity flotation costs.[3] NS acknowledges that, until 2007, the Board consistently rejected railroad attempts to include equity flotation in the cost of capital calculation, but NS contends that the Board "changed its approach" in the *AEP Texas* case.[4] However, NS's characterization of *AEP Texas* is misleading at best.

As an initial matter, simple chronology reveals that the Board did not "change[ ] its approach" in *AEP Texas*. Several years <u>*after*</u> *AEP Texas*, the Board again refused to include an equity flotation fee in the DCF calculation despite the best arguments of the defendant railroads in *AEPCO*.[5] In fact, the Board specifically stated that its "longstanding precedent" required

[3] <u>See</u> NS Reply, at III-G-1.

[4] <u>See</u> NS Reply, at III-G-1 to -2.

[5] <u>See</u> *AEPCO 2011* at 138.

rejection of the equity flotation fee proposed by BNSF and UP.[6] In that case, BNSF and UP made the exact same allegation NS is now making – that the Board had "changed its approach" in 2007 with *AEP Texas*.[7] The Board rejected the argument of BNSF and UP then, and the Board should similarly reject the same argument being made now by NS.

Furthermore, *AEP Texas* can be easily distinguished from the current case. In *AEP Texas*, the shipper agreed to include an equity flotation fee as part of its plan to have the SARR refinance its construction costs soon after the construction was completed.[8] The Board rejected the refinancing proposed by AEP Texas but retained the equity flotation costs since both parties agreed to its inclusion in the SAC analysis. In contrast, SunBelt vehemently does not agree that an equity flotation fee is appropriate.

Another distinction between the *AEP Texas* case and the instant case is the size of the flotation fee, which equaled only 0.13 percent in *AEP Texas*.[9] In this case, NS has proposed a fee of 2.1 percent, or *16 times* the level used in *AEP Texas*.

More broadly, if the Board were to use a flotation fee as proposed by NS, then the Board would also have to replace the railroad industry cost-of-capital in the DCF model. As the Board stated in *Wisconsin P&L*:

> A serious argument that an equity flotation cost should be included for a stand-alone railroad would require a re-examination of the use of the general rail industry cost-of-capital rate in the DCF model. Because of the complexities associated with such an endeavor, the parties to SAC cases have found it

[6] Id.

[7] See Joint Reply Evidence of BNSF and UP at III-G-5 (filed May 7, 2010), in *AEPCO 2011*.

[8] See Opening Evidence of AEP Texas at III-G-5 (filed Mar. 1, 2004) and Rebuttal Evidence of AEP Texas at III-G-5 (filed July 27, 2004), in *AEP Texas*.

[9] See *AEP Texas*, slip op. at 108. See also Rebuttal Evidence of AEP Texas at III-G-5 (filed July 27, 2004), in *AEP Texas*.

> preferable to use the rail industry's cost-of-capital rate as a surrogate for that of the stand-alone railroad.[10]

NS has not proposed any replacement for the rail industry cost-of-capital in the DCF model and, consequently, the Board should reject the equity flotation fee advocated by NS.

NS argues that the STB's 2006 to 2011 costs of common equity do not contain the impact of equity flotation costs because no railroad included in the cost of capital determinations has issued common equity in recent years.[11] NS's assertion is flawed. As the STB pointed out in its *AEPCO 2011* decision, flotation fees are already included in the Board's cost-of-capital calculation.[12]

Even if equity flotation costs were not already reflected in the cost of common equity, they still would have to be excluded from the SAC analysis because their presence would create an entry barrier inconsistent with the theory of contestable markets. An equity flotation fee is a financial transaction cost, and like any costs incurred by the SARR and not the incumbent, must be excluded from the SAC analysis. This axiom extends from the very foundation of contestable market theory, which states that an entrant into the market must be able to enter the market quickly and efficiently to gain any available profits, *e.g.*, "hit and run entry." If the financing costs for the incumbent and the entrant are not the same, the incumbent could engage in limit

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[10] See *Wisconsin P&L* at 1040 (n. 200).

[11] See NS Reply, at III-G-3.

[12] See *AEPCO 2011*, slip op. at 138. Unlike all the debt issued by the railroads, common equity is effectively a perpetuity, meaning whatever costs were incurred in its issuance are still reflected in its current price, no matter how small.

pricing, which makes hit and run entry into the market impossible.[13] The only way contestable markets can function is if the market entrants have the same cost of capital as the incumbent.[14]

Finally, NS's attempt to buttress its position with reference to the Initial Public Offering of Facebook must necessarily fail.[15] NS has not even begun to explain why a social media website is an appropriate benchmark for the railroad industry. Underwriters receive payment for new equity issues in the form of a spread; that is, they are allowed to buy shares of stock for less than the offering price at which the shares were sold to investors. These share prices are based in part on the riskiness of the underlying firm.[16] Unless the SARR and the comparable firm face the same risk, the spread will not be the same. No sophisticated investor would claim that a SARR and internet based social media provider would face the same risk. Using Facebook as a proxy for equity flotation costs for a SARR also is improper because it is well documented that, given the Facebook IPO's high notoriety, the issuance was highly oversubscribed and not indicative of a typical IPO.[17]

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[13] See "The Theory of Contestable Markets," Stephen Martin, Department of Economics, Purdue University, July 2000.

[14] Id. at 24 "the cost of financial capital must be the same for entrants and incumbents."

[15] See NS Reply, at III-G-3 to -4.

[16] In more risky issuances of common equity, the underwriter will usually receive some extra noncash compensation, such as warrants to buy additional common stock in the future. See Brealey, R. A., Myers, S. C., and Allen, F., "Principles of Corporate Finance, Eighth Edition," McGraw-Hill Irwin, 2006 at 391 ("Brealey, Myers and Allen") for a fuller description of the risks inherent in underwriting common equity IPO.

[17] See for example the Wall Street Journal, June 17, 2012 "'Oversubscribed' Is a Weak IPO Signal," Barons, May 21, 2012 "Facebook Loses Face - And How," and Time, May 22, 2012, "Facebook IPO Fallout: Four Lessons From a Rocky Public Debut."

The Board should adhere to its "longstanding precedent"[18] and reject NS's attempt to include any equity flotation costs.

In April 2013, the Association of American Railroads ("AAR") submitted its calculation of the 2012 railroad industry cost of capital. Consistent with STB precedent, SunBelt has updated the DCF model's cost of common equity to include the additional cost of equity data. SunBelt's Rebuttal SBRR cost of equity calculations are shown in Table III-G-2 below.

[18] Other than *AEPCO 2011*, the flotation fee has been rejected in a wide range of decisions, including *Wisconsin P&L* at 1040, *TMPA* at 751, *Duke/NS* at 123, *CP&L* at 262, *Duke/CSXT* at 433, *PSCo/Xcel* at 659, *Otter Tail* slip op. at E-2, *WFA/Basin* at 135.

Table III-G-2
Summary of SunBelt Opening and Comparison Of
NS Reply and SunBelt Rebuttal SBRR Cost of Equity

Year	SunBelt Opening[1/]	NS Reply[2/]	SunBelt Rebuttal[3/]	Difference Cols (3) – (4)
(1)	(2)	(3)	(4)	(5)
2009	12.37%	12.37%	12.37%	0.00%
2010	12.99%	12.99%	12.99%	0.00%
2011	13.57%	13.57%	13.57%	0.00%
2012	12.98%	12.98%	13.33%	(.35%)
2013	12.98%	12.98%	13.07%	(.09%)
2014	12.98%	12.98%	13.07%	(.09%)
2015	12.98%	12.98%	13.07%	(.09%)
2016	12.98%	12.98%	13.07%	(.09%)
2017	12.98%	12.98%	13.07%	(.09%)
2018	12.98%	12.98%	13.07%	(.09%)
2019	12.98%	12.98%	13.07%	(.09%)
2020	12.98%	12.98%	13.07%	(.09%)
2021	12.98%	12.98%	13.07%	(.09%)

1/ SunBelt Opening e-workpaper “Exhibit III-H-1.xls.”
2/ NS Reply e-workpaper “Exhibit III-H-1 NS Reply SB.xls.”
3/ SunBelt Rebuttal e-workpaper “Exhibit III-H-1 (Rebuttal).xls.”

2. Inflation Indices

NS accepts SunBelt’s road property asset and operating expense indices derived from the AAR railroad chargeout prices and wage rate indexes for eastern railroads and Global Insight’s Rail Cost Adjustment Factor Forecast. NS updates those indices using Global Insight’s September 2012 forecast.[19]

However, NS does not accept SunBelt’s inflation index for land. Table III-G-3 compares SunBelt’s Opening and NS’s Reply land indices for each year of the study period.

[19] The most recently available forecast.

Table III-G-3
Comparison of SunBelt Opening and
NS Reply Land Indices

	Land Index		
Year	**SunBelt Opening**[1/]	**NS Reply**[2/]	**Difference Cols (2) – (3)**
(1)	(2)	(3)	(4)
2009	100.0	100.0	0.0
2010	100.1	102.4	(2.3)
2011	108.2	104.8	3.4
2012	116.6	107.3	9.3
2013	124.6	109.9	14.7
2014	133.1	112.5	20.6
2015	142.2	115.2	27.0
2016	152.0	118.0	34.0
2017	162.5	120.8	41.7
2018	173.7	123.7	50.0
2019	185.8	126.6	59.1
2020	198.6	129.7	69.0
2021	210.7	132.4	78.3

1/ SunBelt Opening at III-G-4.
2/ NS Reply e-workpaper “Exhibit III-H-1 NS Reply SB.xls.”

As shown in Table III-G-3 above, SunBelt’s land indices grow at a rate roughly twice those used by NS. These differences are due to NS’s use of different approaches for indexing rural land, indexing urban land, and discounts.

NS claims SunBelt’s rural land inflation is too high because the USDA is forecasting drops in future crop prices and future crop production and increases in input prices, which will lead to lower farm net income.[20] According to NS, farm land values are based on farm net income and a decline in farm net income will lead to lower farm values. At best, NS feels that farm values will increase at the rate of inflation of 2.39 percent.

[20] NS included its critique of SunBelt’s Opening rural and urban land inflation values in its Reply e-workpaper “NS SUNBELT Inflation Indices.docx.”

NS also claims that SunBelt's urban land inflation is too high because the NCREIF commercial property index SunBelt used in its Opening Evidence includes only premium properties that are not customarily found along railroads' right of way and is weighted towards certain large metropolitan areas through which the SBRR does not move. NS argues instead that two proprietary, fee only real estate databases, which show that the growth in real estate values from 2002 through 2012 was due to speculation and GDP growth that is not likely to take place in the near future, negate the NCREIF data. Therefore, NS assumes that urban land values will increase at the same 2.39 percent as rural land values.

NS's land inflation values must be summarily disregarded. Instead of relying upon Board precedent for estimating future land values as SunBelt did in its Opening evidence, NS relied on the unsupported position of its real estate consultant that land values would only increase at the general rate of inflation. As explained in SunBelt's Rebuttal Exhibit III-G-1, NS's claims about the link between rural land values and farm income and about the breadth and scope of the NCREIF index are incorrect and contradicted by more recent evidence. Because NS's claims are demonstrably false and SunBelt has followed the procedures accepted by the STB in prior rate cases, SunBelt continues to use its land value inflation approach, updated for the release of more current indexes.

For the reasons described above, SunBelt continues to use the land indices presented on Opening in this Rebuttal.[21]

3. Tax Liability

NS accepts SunBelt's assumed Federal tax rate of 35 percent and its calculated composite state income tax rates for the SBRR. However, NS claims that "SunBelt's DCF incorporates

[21] Consistent with STB precedent, SunBelt has updated the indexes for additional historic data not available when SunBelt filed its Opening evidence and NS filed its Reply evidence.

three errors affecting the calculation of SBRR income tax liability."[22] The three "errors" claimed by NS are: 1) that SunBelt misapplied bonus depreciation, 2) SunBelt used the wrong tax life for certain SBRR property assets, and 3) that SunBelt did not amortize the SBRR debt over a 20-year financing term. SunBelt addresses each of the issues raised by NS in Part III-H below.

4. Capital Cost Recovery

NS accepts SunBelt's capital recovery calculations except for the issues raised above and certain other issues NS addresses in Part III-H. The other issues raised by NS in Part III-H will be addressed in SunBelt's Rebuttal Part III-H.

[22] See NS Reply, at III-G-5.

Table of Contents

III. STAND-ALONE COST

H. RESULTS OF SAC ANALYSIS

In this section, SunBelt addresses the concerns raised by NS in Reply regarding SunBelt's DCF analysis and its maximum rate calculations.

1. Results of SAC DCF Analysis

On Rebuttal, SunBelt has made a limited number of changes to its DCF model in response to the limited number of valid points raised by NS and discussed in Parts III-A through III-G above. In addition, SunBelt explains numerous errors made by NS in its Reply DCF model, including, but not limited to, improper adjustments to the cost of capital used in determining the replacement value of future investments, understating the amount of accelerated depreciation available to the SBRR, and misapplication of future PTC related investment costs.

SunBelt's Rebuttal DCF analyses are shown in Rebuttal Exhibit III-H-1. The calculations shown in each table of that Exhibit are summarized below.[1]

a. Cost of Capital

As discussed in Part III-G, SunBelt continues to use the simple average of the cost of equity estimates during the SBRR's construction period and rejects NS's improper inclusion of equity flotation costs. SunBelt's updated cost of capital figures are set forth in Table A of SunBelt's Rebuttal Exhibit III-H-1.

b. Road Property Investment Values

The calculation of road property investment costs is summarized in Table C of Rebuttal Exhibit III-H-1. On Rebuttal, SunBelt incorporates its updated road property investment values addressed in Part III-F, where SunBelt addresses NS's contentions regarding road property

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

investment. In its Reply, NS accepts SunBelt's construction schedule for the SBRR, and its methodology to index annual investment values except for land investment.

As discussed in Part III-F-1 and Part III-G-2, NS's land valuation approach is biased and inconsistent with Board precedent, and its associated final land values therefore are unreliable. On Rebuttal, SunBelt continues to use its Opening valuation approach.

c. Interest During Construction

Interest During Construction ("IDC") accrues on the road property assets of the SBRR. NS utilizes the same methodology as SunBelt did on Opening to calculate IDC in its Reply DCF. SunBelt continues to use this same methodology on Rebuttal.

d. Interest Schedule of Assets Purchased With Debt Capital

In Opening, SunBelt explained that it structured its interest payments on debt capital in the same fashion as the real world Class I railroads, including NS. Specifically, instead of assuming that the SARR would issue debt structured similar to a typical home mortgage loan (i.e., the SARR would make quarterly payments that contained a principal repayment component and an interest component), SunBelt structured the interest payments in the same fashion as the Class I railroad companies that, like other large corporations, make coupon payments on the debt consisting of fixed interest payments. SunBelt explained that this approach is consistent with how the NS structures its own debt, and also is consistent with the Board's assumption that the SARR's capital structure does not change over time.

NS claims that SunBelt's assumption is incorrect. NS states that SunBelt's assumption of the issuance of 20-year notes is incorrect and that the railroad industry cost of debt is a weighted average of notes of various length, that do not necessarily equal 20 years. NS also states that the amortization of debt for the SBRR should be similar in structure to a home mortgage to better reflect the actual payment of debt.

NS's claims are wrong for numerous reasons. First, SunBelt did not state it was issuing a single 20-year debt instrument to finance the SBRR's initial construction. Instead, it stated, consistent with *Major Issues* and previous Board decisions, that the debt for road property investment is assumed to be financed over 20 years. Such financing can include multiple debt instruments of varying duration. SunBelt also stated in Opening that the Board's assumption about the SARR issuing 20-year debt obligations may not match the actual length of debt obligations issued by the railroads in the cost of capital determination group. However, this is not a concern and need not impact the assumption of fixed interest payments. As SunBelt explained, the railroads' level of debt has remained fairly constant since the last round of mergers in the mid 1990's. This is because the railroads are issuing new debt as debt instruments mature, or as they redeem older debt issuance and replace them with newer issuances. In other words, the railroads are holding their levels of debt constant by issuing new debt when the older debt expires or the debt is called. As such, the railroads interest payments would be expected to be consistent from year to year and not declining over time.

Moreover, the fact that the STB's average cost of railroad industry debt is a weighted-average of short, medium and long-term interest rates is more consistent with SunBelt's determination of quarterly interest payments than with NS's argument for home-mortgage style amortization. NS assumes that the interest payments under its home-mortgage style amortization approach reflect the payment of interest on short, medium and long-term debt, and that the fall in debt interest payments over time is simply the reflection of the SBRR paying-off shorter-term notes and the continued payment of interest on longer-term notes. However, if this were the case, the relative interest payments would be higher in the future because of the term-structure of interest rates, which states longer-term bonds will have higher interest rates than shorter-term bonds.[2] In other words, the interest paid in the outer years should be relatively higher because, with the shorter-term debt paid off, the remaining long-term debt has higher relative interest payments. However, the interest rate does not change over time in the Board's DCF model. This steady-state distribution is indicative of the railroad holding a steady-capital structure as new debt is issued as old debt is retired. This is exactly the assumption underlying SunBelt's interest calculations.

In sum, real-world companies, including the railroads, set a target capital structure, and attempt to maintain it for many reasons, including using the power of leverage to manage earnings and to maintain cash flexibility. The SBRR is employing the same methodology that real-world railroads do, and holding a stable capital structure. This is consistent with the Board's DCF model, which assumes the capital structure does not change over time. To reflect this steady-state nature, the SARR must reissue debt as older debt is retired, which ultimately leads to consistent interest payments as reflected in SunBelt's DCF model.

e. Present Value Of Replacement Cost

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.

NS states that SunBelt incorrectly used the historic average railroad industry cost of capital in developing the replacement cost of assets instead of the SBRR cost of capital. NS's position is incorrect. As indicated by the STB in *AEP Texas*, the correct cost of capital to use is the historic average railroad industry cost of capital and not the SARR cost of capital.[3] And,

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[2] This ignores those rare instances where markets see inverted yield-curves.

[3] See *AEP Texas* at 108-109.

even though NS said that it "corrected" this issue in its DCF model, a review of NS's model shows that it used the same procedure as SunBelt.

f. Tax Depreciation Schedules

In its Opening DCF model, SunBelt took advantage of additional or "bonus" depreciation provisions enacted by Congress in 2008 and 2009 as part of federal economic stimulus legislation and continued in 2010 and 2011. In addition, SunBelt's Opening DCF model utilized the same Modified Accelerated Cost Recovery System ("MACRS") depreciation schedules endorsed by the Board in all SAC cases over the prior decade. NS claims that SunBelt's tax depreciation schedules contain three errors: (1) SunBelt incorrectly applied bonus depreciation to all assets purchased in 2009 through 2011; (2) SunBelt applied bonus depreciation to replacement costs; and (3) SunBelt used the wrong tax depreciation lives for certain assets. SunBelt rejects the first and third NS claims, but acknowledges the second error and corrects it in Rebuttal.

i. Bonus Depreciation

In Opening, the SBRR took advantage of additional or "bonus" depreciation provisions enacted in 2008 and 2009, and continued in 2010. These provisions were part of the Economic Stimulus Act of 2008 ("Stimulus Act"), the American Reinvestment and Recovery Act ("ARRA") of 2009 and The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 ("2010 Tax Relief Act"). These Acts provided bonus depreciation on capital investments with MACRS recovery periods of 20 years or less. Qualifying investments are allowed a 50 percent depreciation bonus in the year that they are placed into service for assets placed into service prior to September 8, 2010, and 100 percent depreciation for assets thereafter. Tax depreciation for the remaining 50 percent of the cost, or the remaining cost basis, is calculated using the standard MACRS schedules. 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 2011, the majority of the SBRR's investment qualifies for bonus depreciation. Table G of Rebuttal Exhibit III-H-1 displays the amount of bonus depreciation available to the SBRR in 2009 through 2011.

In its Reply, NS states that SunBelt inappropriately applied bonus depreciation available under the tax laws in place during the period when the SBRR was constructed. According to NS, since the bonus depreciation is a temporary measure, it is unfair to allow a SARR to claim bonus depreciation on its entire railroad when NS could not do the same and that this effectively creates a "reverse barrier to entry." To adjust for this, NS reduced the SBRR's bonus depreciation to a level consistent with its own claims of bonus depreciation under these statutes.

NS attempts to turn contestable market theory on its head by claiming that bonus depreciation should not be allowed because it places the SBRR at an advantage relative to NS.[4] According to NS, the SBRR benefits from bonus depreciation because of a "simplifying stand-alone cost assumption" that unconstrained resources "allows for all of the SBRR construction to occur during the limited bonus depreciation tax window…." [5] Both contentions are simply wrong and would violate contestable market theory.

First, the fact that the SBRR might have an advantage relative to NS is a red-herring. The SAC concept is predicated upon developing an "optimally efficient" SARR, which means that the SARR necessarily will have many advantages over the incumbent. NS's own logic would require the SARR to use the same production techniques that NS used to build the original rail lines a century ago, rather than more efficient modern techniques. Essentially, NS argues

[4] See NS Reply at III-H-5.

[5] Id.

that the SARR cannot be more efficient, or use better technology than the incumbent, which is the antithesis of SAC principles.

Second, the assumption of unconstrained resources is not a "simplifying assumption." It was a necessary and essential assumption to hypothesizing a contestable rail transportation market. In earlier SAC cases, the incumbent railroads argued in the alternative that either the SARR construction period should be much longer or the SARR should incur premium costs for an expedited construction schedule that would create resource constraints. The Board rejected both arguments because they imposed barriers to entry.[6] Thus, the assumption of unconstrained resources was required to eliminate a barrier to entry, not to simplify the SAC analysis.

Third, according to Dr. William Baumol, one of the principal developers of Contestable Market Theory and a frequent consultant for the railroads, "[t]he crucial feature of a contestable market is its vulnerability to hit-and-run entry."[7] In order to hypothesize a contestable rail market, the Board assumes that a SARR can be constructed in the minimum amount of time dictated by technological feasibility for the most complex and time-consuming project on the SARR.[8] Therefore, "hit-and-run entry" means that the SARR must be able to enter the market within the foregoing time frame and pay "current market prices" for construction.[9] That includes bonus depreciation.

The NS argument is an attempt to have its cake and eat too. The SARR must incur "current market prices" at the time construction actually occurs. That means the SARR must pay market rates for land, material and labor, whether that be a boom or a bust market, regardless

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[6] <u>See</u> *Coal Trading* at 412-413. <u>See</u> also, *Nevada Power* at 52; *McCarty Farms* at 484 (n. 52).

[7] <u>See</u> Baumol, William, J. "Contestable Markets: An Uprising in the Theory of Industry Structure," *The American Economic Review*, Vol. 72, No. 1, March 1982 at 1-15, at 4.

[8] <u>See</u> *West Texas* at 671-672.

[9] <u>Id</u> at 672.

what the incumbent may have paid (unless the incumbent paid nothing, in which case the SARR also pays nothing). While NS has no problem with this fact, it would deny the SARR the benefit of favorable tax depreciation schedules available during the same time period. Tax depreciation is a temporal cost factor just like most other costs that the SARR must incur. It would be arbitrary to deny the SARR the benefit of "current market prices" for just this one factor.

NS itself has benefited substantially from not only the current bonus depreciation laws, but from prior tax benefit laws that are not available to the SBRR. Thus, the "disadvantage" that NS claims, to the extent it exists at all, is overstated.

While NS acknowledges that the SARR is entitled to some bonus depreciation benefit from the ARRA, the Stimulus Act and the 2010 Tax Relief Act, it attempts to limit that benefit based upon the extent to which NS itself has benefited from those laws. There is no rational basis for this limitation. First, a new entrant would have far more opportunity to take advantage of bonus depreciation than an incumbent. Second, NS's allocation of its own bonus depreciation to the SBRR based on a simple mileage prorate is arbitrary and does not reflect the assets included in the SARR. Because the mix of assets on the SBRR and the NS are completely different, there is no rational basis for a mileage prorate.[10]

In addition, NS misapplied its own erroneous modification for bonus depreciation. NS assumes the bonus depreciation stems from assets with 7-year MACRS lives; however bonus depreciation is allowed for assets with MACRS lives of 20 years or less. By applying the bonus deprecation only to the 7-years MACRS category, NS understated depreciation and overstated

[10] NS's workpapers show that 83.3 percent of NS's bonus depreciation came from investments with MACRS lives of seven (7) to twenty (20) years, but only 75.6 percent of the SBRR's investment base constitutes assets with seven (7) to twenty (20) year MACRS. See Rebuttal e-workpaper "Comparison of MACRS Lives SB.xlsx."

the SBRR capital carrying charges.[11] For this reason, as well as its inapplicable "reverse entry barrier" claim, NS's calculation of a prorated bonus depreciation must be disregarded.

Finally, NS states that SunBelt incorrectly included accelerated bonus depreciation in its calculation of asset replacement costs. SunBelt has reviewed NS's claim, and agrees the bonus depreciation on these assets was erroneously included, and has adjusted its Rebuttal DCF model to remove these expenses.

ii. Asset Tax Lives

NS also challenges SunBelt's assignment of 15-year tax lives to certain assets, arguing instead that they should be treated as 20-year property.[12] Specifically, NS states that investments in each of the following categories carry a MACRS 20-year tax life:

- Bridges and Trestles (Account 6),
- Fences & Roadway Signs (Account 13),
- Roadway Buildings (Account 17),
- Fuel Stations (Account 19),
- Shops and Engine Houses (Account 20)
- Public Improvements (Account 39)

However, the 15-year asset lives used by SunBelt for these accounts have been used by shippers and railroads, and endorsed by the Board, since the *APS* decision in 1997. SunBelt continues to utilize 15-year tax lives for these investment categories.

g. Average Inflation In Asset Prices

Table H of Rebuttal Exhibit III-H-1 computes the average annual inflation rate by which the capital recovery charge in Table I is indexed. NS accepts SunBelt's inflation assumptions for assets other than land. SunBelt accepts NS's updates to its forecast indices, but updates the

[11] See NS Reply e-workpaper "Exhibit III-H-1 NS Reply SB.xls."

[12] See NS Reply at III-H-7.

indices to reflect Global Insight's March 2013 report (the most current available) and continues to rely on its own land indices, as discussed in Part III-G-2 above.

h. Discounted Cash Flow

NS raises two issues with SunBelt's DCF analysis which will be discussed below under the following topical headings:

1. SBRR Capital Structure
2. PTC Investment

i. SBRR Capital Structure

SunBelt explained in Opening that it utilized the STB's standard capital recovery methodology, including the modification the STB made in its *AEPCO 2011* decision, to calculate the present value of unused depreciation in the terminal value calculation.[13] SunBelt also explained that it found a flaw in the current methodology. The STB's DCF model explicitly assumes that the SARR's capital structure will remain constant into perpetuity.[14] 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 mismatch between the SARR's cost of capital and its cash flows. The cost of capital assumes that the SARR is

[13] See *AEPCO 2011* at 140-141.

[14] 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 20.9 to 29.1 percent.

carrying debt, and its associated interest payments, but the cash flows reflect no benefits from the interest tax shields.

To correct for 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 in perpetuity by dividing the last full quarterly coupon payment by one plus the quarterly real cost of capital.[15] This calculation aligns the cost of capital assumption of a fixed level of debt forever, with the interest payable on this debt.[16]

NS claims that there is no mismatch between holding the SARR's capital structure constant in perpetuity, and amortizing debt over a 20-year period to where the railroad is effectively debt free. Moreover, NS asserts that, if there is a mismatch, the proper approach to correct it is not to assume that the railroad maintains a constant capital structure, but rather to adjust the cost of capital to reflect the change in capital structure as was done in *Coal Trading*.

NS's claim is in fact wrong both as a matter of Board precedent and basic economic principle. In Reply, NS recognized that such a disconnect exists, but NS refused to accept that a correction is needed because the disconnect is allegedly a "mainstay of the Board's DCF model since *Coal Trading* and *McCarty Farms.*"[17] NS did not provide any page citations to these two cases, so it is not entirely clear why NS mentioned them. In *Coal Trading*, the ICC allowed the

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

[16] As to not double count 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.

[17] See NS Reply at III-H-9.

debt-equity mix to change over time as debt was paid off;[18] conversely, *McCarty Farms* involved use of a constant capital structure.[19] Crucially, however, neither case included a statement by the agency approving, let alone simply recognizing the existence of, the disconnect that SunBelt described in Opening. More broadly, the simple fact that an error has existed for several years is not a legitimate justification for its continued existence. An error is still an error, regardless of how long it has existed.

NS also claimed that the Board "affirmed" this disconnect in the *Major Issues* proceeding,[20] but no such affirmation occurred. In *Major Issues*, the Board simply rejected requests to amortize debt over the lives of the SARR assets; instead, the Board retained the use of a 20-year period to calculate interest on debt capital.[21] The Board did not even address tax shielding interest payments or the SARR's debt-equity mix beyond Year 20. Consequently, the Board did not "affirm" the disconnect described by SunBelt.

Finally, NS has proposed a separate fix in the event the Board determines that the disconnect should be corrected. NS proposes that the Board "revert back" to the method used in *Coal Trading*, where the SARR capital structure is recalculated as the debt is amortized.[22] The method used in *Coal Trading* was justifiably discarded soon after the decision was issued, and the Board should not revive it. In *Nevada Power*, the ICC determined that "it is more realistic to assume that the SARR would issue new debt as old debt is amortized" because "[t]his is the

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[18] See *Coal Trading* at 379-380.

[19] See *McCarty Farms* at 522, n. 123.

[20] See NS Reply at III-H-9.

[21] See *Major Issues*, slip op. 65.

[22] See NS Reply at III-H-9.

procedure followed by many large corporations, including most U.S. railroads, as a way of reducing the overall cost of capital."[23]

Moreover, NS's approach of amortizing debt and equity as the ICC did in *Coal Trading* is completely inconsistent with finance practice and theory, and must be disregarded. As any competent financial analyst will tell you, a firm's cost of equity will change with changes in leverage. This is famously known as Modigliani and Miller's ("MM") Proposition 2, which states that the expected return on the common stock of a levered firm increases in proportion to the debt-equity ratio.[24] This means a higher debt-to-equity ratio leads to a higher required return on equity, because of the higher risk involved for equity-holders in a company with debt. The converse of this is also true. In other words, as the amount of debt held by a company falls, the required return on the equity falls because of the lower risk involved for equity-holders in a company without any debt.

In its alternative DCF model where it amortizes debt over time, NS totally ignores this fundamental economic principle. NS incorrectly assumes that, as the SBRR's capital structure changes with the declining amounts of debt held by the SBRR, the cost of debt and equity will not change. Instead, the SBRR's cost of capital increases as common equity takes on a larger percentage of the capital structure as debt is retired. NS's position is completely contradictory to basic financial economics, which states the cost of equity will decline with the drop in the proportion of debt.

The only proper way to show a constant capital structure in perpetuity, as the STB has assumed in its DCF model, is to assume a constant level of debt over the SARR's infinite life.

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[23] See *Nevada Power* at 319.

[24] See Brealey, Myers and Allen at page 453 for a fuller explanation of MM's Proposition 2.

SunBelt's adjustment to the DCF model aligns the disconnect inherent in the current version of the STB's model.

ii. PTC Investment

NS claims that it is incorrect to assume that PTC infrastructure will be installed during the SARR's construction period since PTC standards and equipment have yet to be finalized in the real world. Instead, NS contends that the appropriate way to account for PTC cost in the DCF model is to include the investment in the years that the investment is expected to occur. According to NS, this means PTC investment will be installed beginning in 2011 and extend through 2015, when PTC must be implemented by current law.

There are several flaws with NS's inclusion of PTC investment in the DCF model. First, as discussed in Section III-F-6 above, NS incorrectly assumes that real-world railroads will have PTC installed by 2015. The FRA, in a 2012 report to Congress, has indicated that PTC will not likely be operational by 2015, and has not indicated a date by which it would be fully implemented. The same sentiments were echoed by NS Vice President Gerhard Thelen in oral testimony before the National Transportation Safety Board ("NTSB"). According to Mr. Thelen, "[b]ased on where we [NS] stand today, if everything goes well, we are looking at a 2018-2020 timeframe [when PTC can be fully installed]."[25] By requiring the SBRR to incur PTC costs that NS itself has not yet incurred or is expected to fully incur prior to 2018, NS has created an impermissible barrier to entry for the SBRR.

This situation is distinguishable from *AEPCO 2011* in which the Board stated:

> [W]e must follow existing law, and existing law requires that these systems be in place by December 2015. We have no reason in this 10-year DCF analysis to exclude costs that are required by Federal law

[25] See "Safety Agency Scrutinizes Train Control Progress," *Argus Rail Business*, March 4, 2013 at 5.

> because of the possibility that the law might change in the future or tax breaks that do not currently exist may be enacted.[26]

SunBelt has asserted very different arguments from those made in *AEPCO 2011*. In this case, SunBelt has shown that both the FRA and NS itself have stated publicly that the Congressional deadline cannot and will not be met. This evidence was unavailable during the *AEPCO 2011* case. Therefore, the SBRR cannot be required to install PTC before NS is able to do so itself.

Second, also as discussed in Section III-F-6, PTC technology was in fact available and being used by railroads prior to 2011. NS's evidence does not truly concern the availability of PTC technology in 2011, but rather the technology and costs associated with overlaying PTC on top of CTC and the integration of PTC across all railroads by 2015.

Third, NS's determination of the cash flows required to recover PTC related costs is also flawed. In calculating the tax depreciation for the PTC investment for the years 2011 through 2013, NS failed to account for the bonus depreciation available on PTC assets in those years.[27] Not including the accelerated depreciation overstates the capital carrying costs required for PTC. Based on these facts, SunBelt has continued to use its Opening approach to account for PTC investment costs.

i. Computation of Tax Liability – Taxable Income

NS accepts SunBelt's assumed Federal tax rate of 35 percent and its calculated composite state income tax rate for the SBRR.

j. Operating Expenses

Table K displays the operating expenses incurred in each year of the DCF period. NS levels three criticisms of SunBelt's calculation of SBRR operating costs. First, NS criticized

[26] See *AEPCO 2011* at 34.

[27] See NS Reply e-workpaper "Exhibit III-H-1 NS Reply SB.xls," worksheet "PTC" which shows no accelerated depreciation for those years.

SunBelt's use of ton-miles for the annual adjustment of operating expenses. Second, NS claims SunBelt inappropriately allocated SBRR start-up and training costs. Third, NS asserts SunBelt incorrectly capitalized certain maintenance of way ("MOW") expenses instead of expensing the costs in the years that they are expected to occur. SunBelt addresses all of these issues below.

i. Annual Operating Expense Adjustment

In Opening, SunBelt explained that certain SBRR operating expenses were adjusted annually based on the annual change in SBRR ton-miles because the affected expenses rely upon the level of traffic volume.[28] This adjustment affected train and engine personnel expenses, locomotive related expenses, loss and damage expenses and intermodal lift costs.

On Reply, NS criticized SunBelt for using ton-miles "instead of the Board's accepted use of tons" to adjust the operating expenses of the SBRR.[29] Although asserting that use of tons is accepted for adjusting operating expenses, NS then inexplicably states that car-miles is the appropriate metric to use for such an adjustment.[30] NS provides no citation to any Board decision to support its claim about the "accepted" way to adjust operating expenses, but precedent indicates that operating expenses have been adjusted via tons in the past.[31]

The Board should reject NS's chaotic and internally inconsistent position. The only support NS provides for its position is that car-miles "provide a more accurate metric than ton-miles for adjusting operating expenses for changes in volume for a SARR with such a diverse

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[28] See SunBelt Opening at III-H-12.

[29] See NS Reply at III-H-11 (underline added).

[30] See NS Reply at III-H-11 "NS…indexes SBRR operating expenses based on annual changes in car miles."

[31] See, *e.g.*, *PSCo/Xcel* at 618 - "As tons increase (or decrease) in future years, the DCF model automatically increases (or decreases) specific operating expenses….in proportion to the percentage change in tonnage."

traffic base that has very different forecasted volume growth."[32] However, car-miles is an insufficient metric because it only includes one factor, mileage, while ignoring the relationship between shipment weight and operating expenses.[33] Ton-miles are the appropriate factor for adjustment of operating expenses. SunBelt continues to adjust operating expenses using the change in ton-miles year to year.

ii. Start-Up and Training Expenses

NS claims that SunBelt allocated its start-up and training expenses over only a part of the first full year of SARR operations instead of over the full first 12 months.[34] SunBelt reviewed its Opening evidence, and agrees that only a portion of the start-up costs were allocated. SunBelt agrees with NS's proposed modification to allocate the start-up costs over the first full year of SBRR operations. However, as explained below, SunBelt disagrees with NS's approach to adjusting the start-up expenses.

As a matter of background, training and start-up costs occur prior to the commencement of a SARR's operations. The STB affirmed this definition in *Otter Tail*:

> But all start-up expenses, by definition, occur before a firm begins operations. SOP 98-5 defines start-up activities as one-time activities an entity undertakes when it opens a new facility, introduces a new product or service, conducts business in a new territory or with a new class of customer or beneficiary, initiates a new process in an existing facility or commences some new operation.[35]

Based on the STB's definition, the start-up expenses in this proceeding are assumed to occur prior to the SBRR's July 30, 2011 operational start-up. This means that the start-up costs incurred reflect

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[32] See NS Reply at III-H-11.

[33] *Cf. PSCo/Xcel* at 618 - calibrating SARR operating expenses by "tonnage and distance" to account for Jeffrey Energy Center traffic.

[34] See NS Reply at III-H-11.

[35] See *Otter Tail* at C-17.

wage and price levels prior to July 30, 2011. NS's Reply approach would escalate the start-up costs by the hybrid RCAF over the first full year of operations, which implicitly infers the expenses were incurred after the July 30, 2011 start-up. NS's position is contrary to the STB's position on the timing of start-up expenses and must be disregarded. Instead, the STB should apply SunBelt's Rebuttal approach, which allocates the costs over the first full year of SBRR operations but maintains them at the start-up time period wage and price levels. This better aligns the expenses' wage and price levels with the period in which the start-up expenses were actually incurred.

iii. Capitalized MOW Expenses

In its Opening SAC analysis, SunBelt capitalized certain expenditures, including rail grinding, instead of treating these activities as standard operating cost items.[36] In Reply, NS disputes the capitalization of the maintenance activities and cites its accounting policies as the reason why these activities should be treated as operating expenses.[37] However, based on the accounting standards NS uses in its real world operations and statements made by engineering executives, SunBelt continues to believe the proper methodology for accounting for these MOW costs is to include them in SBRR's capital recovery stream.

NS's 2012 SEC Form 10-K discusses when and where the railroad decides to treat maintenance of way outlays as either a capital expense or an operating expense. As indicated by NS:

> We capitalize interest on major projects during the period of their construction. Expenditures, including those on leased assets, that extend an asset's useful life or increase its utility, are capitalized. Expenditures capitalized include those that are directly related to a capital project and may include materials, labor and equipment, in addition to an allocable portion of indirect costs that clearly relate to a particular project. Due to the capital intensive nature of the railroad industry, a significant portion

[36] See SunBelt Opening e-workpaper "Exhibit III-H-1.xlsx," tab "Investment SAC," cell J13.

[37] See NS Reply at III-H-12.

> of annual capital spending relates to the replacement of self-constructed assets. Because removal activities occur in conjunction with replacement, removal costs are estimated based on an average percentage of time employees replacing assets spend on removal functions. <u>Costs related to repairs and maintenance activities that do not extend an asset's useful life or increase its utility are expensed when such repairs are performed.</u>[38]

Based on NS's description of its own accounting practices, the key factor of whether the cost is expensed or capitalized is whether the activity extends the life of the asset.

Based on statements made by NS engineering executives, there is no question that rail grinding and repaving extend the useful lives of NS assets. NS included in an SEC Form 8-K filing a presentation made by Tim J. Drake, NS's then Vice President of Engineering, at a June 6, 2007 Investor Day hosted by NS, during which members of management provided information regarding various aspects of NS's business. Mr. Drake stated as part of his presentation that:

> Norfolk Southern will spend $12 million in rail grinding in 2007. This process is used to enhance the life of the rail and provide a smooth running surface for trains.[39]

NS's own engineering executives clearly acknowledge that rail grinding extends the life of rail.

These sentiments are expressed by other maintenance of way experts. Based on published reports, NS uses a Loram RG400 Series grinder as part of its maintenance operations.[40] According to Loram's Manager of Marketing and Business Development, Joseph

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[38] NS SEC Form 10-K for Year Ending December 31, 2012 at page K49 (emphasis added). Similar statements of NS's accounting position can be found in NS's SEC Form 10-K from earlier years.

[39] A copy of Mr. Drake's presentation can be found at http://www.sec.gov/Archives/edgar/data/702165/ 000070216507000154/drake1 htm.

[40] See "Maintenance of Way: Rail Grinding Equipment Update," Progressive Railroading, November 2011, "Norfolk Southern Railway was the first railroad to begin using the RG400 Series Production Rail Grinder," says Loram Manager of Marketing and Business Development Joseph Ashley."

Ashley, "we're starting to see better rail life extension through more exact rail grinding."[41] Similar statements have been made by other railroad spokespeople:

> At CSX Transportation, MOW officials are seeking a computerized selection of the daily grind plan based on a laser-head profile at the front of the grinder and a daily pre-grind measurement to improve grinding operations. In addition, if grinders could operate more efficiently, CSXT could reduce the amount of track time needed for grinding, said CSXT Spokesman Gary Sease in an email, adding that the Class I's "preventative grinding philosophy" calls for operating production grinders on main routes to maintain rail and extend rail life.[42]

There is no question that rail grinding extends the useful life of rail. Based on this widely acknowledged fact, and NS's own statement that it capitalizes maintenance activities that extend the life of assets, SunBelt continues to capitalize certain maintenance of way activities in Rebuttal.

k. Summary of SAC

SunBelt's calculation in Rebuttal of total SAC for the SBRR is presented in Table L of Rebuttal Exhibit III-H-1 and summarized with NS's Reply in Table III-H-1 below.

[41] Id.

[42] See "Technology update: Rail grinding equipment," Progressive Railroading, May 2010.

Table III-H-1
Summary of NS Reply and SunBelt Rebuttal SAC Results for the SBRR
($ in millions)

	NS Reply[1/]			SunBelt Rebuttal[2/]		
Year	**SAC**	**SARR Revenue**	**Overpayments (Shortfall)**	**SAC**	**SARR Revenue**	**Overpayments (Shortfall)**
(1)	(2)	(3)	(4)	(5)	(6)	(7)
7/30/11-12/11	$250.7	$150.1	($100.6)	$143.5	$159.6	$16.1
2012	606.1	384.6	(221.5)	347.7	411.4	63.7
2013	623.5	419.5	(204.1)	355.7	449.7	94.0
2014	647.6	455.0	(192.6)	369.8	489.3	119.5
2015	683.4	495.3	(188.1)	384.7	537.3	152.6
2016	712.3	549.6	(162.7)	402.8	595.6	192.8
2017	743.8	596.9	(146.9)	424.3	655.8	231.5
2018	777.1	650.9	(126.2)	446.7	718.4	271.7
2019	811.1	708.2	(102.9)	470.9	787.4	316.5
2020	843.5	762.2	(81.3)	496.4	859.6	363.2
1/21-7/29/21	504.9	473.7	(31.2)	301.2	545.4	244.2

[1/] NS Reply at III-H-13.
[2/] SunBelt Rebuttal e-workpaper "Exhibit III-H-1 Rebuttal.xls."

As shown in Table III-H-1 above, contrary to NS's calculation of shortfalls in every year, the SBRR revenues exceed the stand alone costs in each year of the study period. Where stand-alone revenues are shown to exceed costs, rates for the members of the traffic group must be adjusted to bring revenues and SAC into equilibrium.

2. Internal Cross-Subsidy

NS asserts in its Reply that, if the STB determines that SBRR revenues exceed SBRR SAC, then the Board must also test for the existence of an internal cross-subsidy on the Burstall, AL to McIntosh, AL line segment ("Burstall-McIntosh Segment").[43] According to NS, the STB must perform an analysis consistent with the STB's decision in *PPL* that tests for an improper cross-subsidization of the Burstall-McIntosh Segment by the remainder of the SBRR system. If the Burstall-McIntosh Segment passes the threshold examination, NS also asserts that any rate relief must be tempered by a secondary cross-subsidy analysis as articulated by the Board in its

[43] See NS Reply at III-H-13.

Otter Tail decision. NS indicates that it has included in its workpapers "templates" necessary for the STB to develop both the *PPL* threshold cross-subsidy analysis and the *Otter Tail* rate reduction cross-subsidy analysis.

While NS has included the templates in its Reply workpapers, the STB must summarily disregard them because they are infested with the same overstatements, misapplications and double-counts NS included in its primary SAC evidence. In other words, NS's cross-subsidy templates have understated the revenues attributable to the traffic moving on the Burstall-McIntosh Segment, and have significantly overstated the operating and investment costs associated with the segment's construction and operations.

In addition to the understated revenues and overstated SAC, NS also made several errors in the allocation of costs to the Burstall-McIntosh segment. NS states that it developed indirect operating expenses using the approach from the Board's *Otter Tail* decision.[44] NS is incorrect. As shown in the *Otter Tail* decision, the STB used its indirect operating expense approach to allocate costs for five expense categories: 1) Operating managers; 2) General & Administrative; 3) Train and Recruitment; 4) Loss & Damage; and 5) MOW.[45] In contrast, NS included in its indirect operating expense calculations two additional expenses – Ad Valorem taxes and operating materials and supplies.[46]

NS made two errors in its allocation of Ad Valorem taxes. First, one need not allocate Ad Valorem taxes using NS's indirect approach because, as discussed in section III-D above, Ad Valorem taxes in SAC cases are correctly calculated based on the SARR's right of way miles. Since the Burstall-McIntosh Segment miles are known, a simple straight mileage proration will

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[44] See NS Reply at III-H-20.

[45] See *Otter Tail* at page 29.

[46] See NS Reply e-workpaper "NS Reply Exhibit III-H-1 XSub.xls," worksheet "Indirect Opex."

provide the correct Ad Valorem tax for the Burstall-McIntosh Segment. Second, Ad Valorem taxes under the STB's URCS have zero (0) variability, and therefore are best allocated using a metric such as a mileage prorate. [47]

Second, NS incorrectly used an indirect approach to allocate operating materials and supplies, since materials and supplies are a direct function of the line segment's T&E personnel. Because NS was able to identify the T&E personnel attributable to the Burstall-McIntosh Segment, it can directly calculate the materials and supplies for the segment as well.

3. Maximum Rate Calculations

In *Major Issues*, the Board adopted MMM as its rate prescription approach for use in proceedings under the *Coal Rate Guidelines.*[48] Consistent with that decision, SunBelt has used the MMM as required under the Board's *Major Issues* decision to bring SAC and stand-alone revenues into equilibrium. NS claims that SunBelt's MMM calculations include three "errors:" 1) "unique costs imposed by TIH traffic" should be allocated only to TIH traffic; 2) the *AEPCO 2011* trainload adjustment should be applied; and 3) SunBelt used the wrong index to adjust MMM URCS costs. Each of these issues is addressed below.

a. The NS Modifications to the MMM Analysis are Unnecessary and Improper

NS proposes to modify the MMM analysis in order to "properly allocate the unique variable costs of TIH transportation solely to the TIH movements."[49] Such modifications are not just unnecessary and inappropriate; they reflect the height of hypocrisy in NS's Reply Evidence.

[47] See URCS Table D8 Part 2, Line 319, Column (4).

[48] See *Major Issues* at 14-23.

[49] See NS Reply at III-H-21.

i. NS May Not Lawfully Modify the MMM Analysis in an Adjudicatory Proceeding Because the Board Adopted MMM in a Formal Rulemaking

The NS argument for modifying the MMM analysis to account for TIH risks is tremendously hypocritical. The Board adopted the MMM analysis through notice and comment rulemaking in *Major Issues*. This is the <u>same</u> rulemaking in which the Board adopted the ATC methodology for allocating cross-over traffic revenue. After spending more than 30 pages of its Reply Evidence arguing that the Board improperly adopted Modified ATC in an adjudicatory proceeding rather than a formal rulemaking,[50] NS brazenly insists that the Board should modify the MMM analysis in this adjudicatory proceeding. If NS is correct that the Board could not modify ATC except in a formal rulemaking, then the same logic would prohibit it from modifying the MMM analysis.

ii. The NS Modifications to the MMM Analysis are Unlawful

The NS modifications to the MMM analysis are unsupported and contrary to precedent. The one case that NS cites for support is inapposite, while decisions that NS ignores prohibit its proposed modifications.

First, NS inaccurately contends that its modifications to the MMM analysis are supported by the Board's decision in *AEPCO 2011*.[51] The issue addressed by the Board in that decision, however, is very different from the issue posed by NS.

In *AEPCO 2011*, the Board expressed concern over the differences between how the SARR handled the <u>same</u> traffic as the defendant, which resulted in <u>different</u> costs for the SARR and the defendant.

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[50] <u>See</u> NS Reply at III-A-23-56.

[51] <u>See</u> NS Reply at III-H-22.

> In the proceeding before us, the Board is concerned with how the parties have developed the variable costs for the traffic movements on the SARR submitted by AEPCO. Here, most of AEPCO's traffic group moves in trainload service, but most of the variable costs calculated for that group are costed assuming it is moved in carload and multi-car service.[52]

Therefore, the Board directed the parties to submit revised variable cost calculations that reflected the actual operating characteristics of the movements on the SARR, as opposed to the defendant. When dealing with the TIH traffic in this case, however, NS has not identified any TIH-related cost or handling differences between the SARR and the defendant. Therefore, the issue identified by the Board in *AEPCO 2011* does not arise in the context of TIH handling costs.

Second, the NS modifications constitute movement-specific adjustments to URCS, which are prohibited by Board precedent and inconsistent with the purpose of MMM. Although NS describes its modification as a "two-step MMM approach," it is in fact making an improper implicit adjustment to the variable costs for TIH traffic.[53] The Board has previously rejected such efforts to make adjustments to the variable costs used to develop maximum R/VC ratios in the MMM model. In *WFA/Basin*, BNSF, the defendant railroad in the case, argued that there was a flaw in the MMM model that provided short-haul movements with greater relative rate reductions than long-haul movements.[54] Because of this alleged flaw, BNSF asserted it needed

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[52] See *AEPCO* June 24, 2011 decision at 2.

[53] NS's adjustment can also be viewed as a prediction of what NS would charge for TIH shipments if the STB allows the railroads to isolate PTC related costs and assign all of these costs to TIH shipments. For example, if the railroad were to assign all of the PTC related costs to TIH shipments, the variable costs for these shipments would increase and the R/VC ratios used to determine the shipments' jurisdictional threshold would decline. This would allow the railroad to increase the rates charged for TIH shipments without concern that the rate could be challenged as unreasonable.

[54] BNSF asserted that short-haul shippers are given an inappropriately large rate reduction under MMM, while long-haul shippers are less likely to receive rate reductions, even if their rates are high relative to other long-haul shippers. BNSF stated that, because it cannot allocate loading slots at the mines to shippers offering the highest contribution, it incurs an opportunity cost when a low-contribution movement displaces a high-contribution movement for access to the PRB.

to adjust the variable costs used in the MMM process to account for differing amounts of contributions for short and long-haul traffic. As NS does here, BNSF also attempted to hide its adjustment to variable costs by stating that it was only adjusting a movement's contribution and not its variable cost. However, a movement's contribution is simply the difference between the movement's rate and its variable costs. Because a movement's rate is fixed within any particular year in the MMM model, to adjust the contribution requires an adjustment to the variable cost portion of the equation.

In *WFA/Basin*, the STB summarily rejected BNSF's uncalled for adjustment to the variable costs used in the MMM model, reasoning that there was no flaw in the MMM model that required such an adjustment. As the Board explained, MMM is designed to calculate the maximum mark-up over variable cost that a carrier can charge any movement in the traffic group.[55] In other words, the SAC analysis calculates the total revenue that the defendant may reasonably charge for all of the traffic in the traffic group. Once it has determined how big that pie is, MMM figures out how to cut the pie into individual sized pieces: one piece for each shipper in the traffic group. This piece of the pie reflects the part of the total SAC costs that each shipper is responsible for covering. The Board determined that movements with higher R/VC ratios, no matter the reason why, deserve greater relief than those with smaller ratios. Whether such an imbalance in R/VC ratios is attributable to differences in distance, commodities carried or some other factors, the Board did not find any fundamental flaw with the general principle in

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Because the variable costs of short-haul movements are significantly less than the variable costs of long-haul movements, BNSF argued that a higher R/VC ratio is necessary on short-haul movements to generate a dollar contribution that is comparable to that generated on long haul movements. See BNSF Third Supplemental Reply in *WFA/Basin* (Public Edition) filed July 14, 2008 at III-H-9.

[55] See *WFA/Basin* February 2009, at 8.

MMM that relief should be provided to those shippers making the highest contribution over variable cost.

In this case, NS is attempting a similar adjustment to that in *WFA/Basin* whereby TIH shipments would be precluded from relief based on an alleged flaw in the MMM approach. NS alleges that the MMM process is flawed because it assigns PTC related costs to non-TIH shipments that do not receive any benefit from PTC. NS has not proven that the MMM process incorrectly allocates SAC to the various SBRR customers. Instead, it makes an unfounded allegation based on an unproven assumption. SunBelt addresses this incorrect and unfounded assumption in the next section.

Moreover, even if NS were correct that the variable costs for TIH shipments should be adjusted to allocate PTC related costs to only TIH movements, equity would require that other movements' variable costs be adjusted to better allocate costs specific for those movements. The Board has long recognized that its Phase III URCS model understates costs to some shippers, while overstating costs to others. If the STB were to go down the slippery slope of allowing movement specific adjustments in calculating variable costs for the MMM model, it must for equity sake allow movement specific adjustments for all movements. To not allow such adjustments for all movements would skew the revenue and cost relationships between different shipments on which MMM relies.[56]

[56] This is also the same reason why NS's assertion that movement specific cost adjustments for SAC purposes but not market dominance purposes is incorrect. Under NS's approach, a movement could exceed the 180% jurisdictional threshold level for market dominance purposes, but have an R/VC ratio well below the JT level for SAC purposes. Such an approach is nonsensical, and could open the process to gaming from all parties involved.

iii. NS Improperly Treats PTC Costs as Unique to TIH Traffic

NS states that "the SBRR… would be required to construct a PTC system solely by virtue of the fact it carries TIH traffic."[57] But PTC is not unique to TIH traffic and, therefore, even if any modification to the MMM analysis were appropriate, PTC does not qualify for the NS's modified MMM approach.

The NS narrative does not explain why PTC costs are unique to TIH traffic. For that reason alone, its evidence is unsupported and should be rejected, because the party seeking a deviation from precedent has the burden of proof.[58]

The only reason that SunBelt can surmise for NS's identification of PTC costs as unique to TIH traffic is based upon a common railroad industry refrain that, but for TIH traffic, PTC installation would not be required. That refrain, however, is not accurate.

The Rail Safety Improvement Act of 2008 requires the installation of PTC on main lines over which TIH material is transported.[59] The Act defines a "main line" as "a segment or route of railroad tracks over which 5,000,000 or more gross tons of railroad traffic is transported annually…."[60] Thus, with respect to TIH traffic, there are two prerequisites before the PTC mandate applies to a rail line. There must be both (a) the presence of TIH traffic and (b) at least 5,000,000 gross tons of total traffic. Neither scenario by itself would require PTC. Because the presence of a substantial volume of non-TIH traffic also is a pre-requisite to the PTC mandate, it is inaccurate to contend that PTC would not be required but for the presence of TIH traffic.

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[57] See NS Reply at III-H-25.

[58] See, *e.g.*, *PSCo/Xcel* at 644; *Otter Tail*, slip op. 4; *WFA/Basin*, slip op. 53-54, 68-69.

[59] 49 U.S.C. § 20157(a)(1).

[60] 49 U.S.C. § 20157(i)(2).

Furthermore, even if the presence of TIH traffic were the sole basis for requiring PTC, the benefits of PTC are not limited to just TIH traffic. This is especially true for the SBRR because PTC replaces CTC as the complete communications and signaling system for the SARR across all lines on the SBRR, as opposed to the overlay system that NS will install just on main lines. However, even an overlay system would provide substantial benefits to non-TIH traffic.

In 2004, ZETA-TECH, a nationally known railroad consulting firm,[61] prepared a report for the FRA that quantified the business benefits of PTC.[62] ZETA-TECH identified and quantified direct and indirect business benefits in the following six (6) distinct categories:

1. Line capacity enhancements;
2. Dispatching efficiency gains;
3. Work order issue flexibility;
4. Locomotive diagnostics;
5. Fuel savings; and
6. Shipper benefits.

ZETA-TECH estimated that annual business benefits resulting from PTC implementation would be in the range of $2.2 to $3.8 billion (in 2001 dollars).[63] The first five categories of business benefits are direct benefits to the railroads (e.g., reduced track investment, better equipment utilization, reduced fuel consumption), although they also would provide indirect benefits to shippers (*e.g.*, better equipment utilization which could lead to reduced equipment lease and maintenance costs).

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[61] Zeta-Tech lists as its clients all of the Class I railroads, including NS. See http://www.zetatech.com/map/ clients.html.

[62] Zeta-Tech Associates "*Quantification of the Business Benefits of Positive Train Control*" prepared for the Federal Railroad Administration, March 15, 2004.

[63] As noted in the report, the business benefits calculated by ZETA-TECH were exclusive of and additive to the railroad safety benefits of PTC. See 2004 ZETA-TECH Report at 108.

Line capacity enhancements result from closer train spacing and more precisely-planned train meets. Dispatching efficiency gains result from dispatcher improved (real-time) train location information. ZETA-TECH posited that this location information also would allow dispatchers to pace trains between meets to optimize fuel consumption. ZETA-TECH also believed that the ability to issue work orders to train crews in real-time and to automatically receive diagnostic data from linked-up locomotives would provide efficiencies.[64]

The sixth category of business benefits – "shipper benefits" – refers to total logistics cost reductions assuming improved service and static rates. This very specifically represents the value of improved transit times and transit time reliability to logistics networks. When shippers realize better transit times and reliability, they are able to reduce inventory carrying costs, reduce or consolidate warehouse and distribution facilities and operations, and free up capital for other investments. Importantly, this benefit is *not* a result of cost or rate changes; rather it is strictly a result of service level changes.

There can be little dispute that these direct railroad related PTC benefits, if realized, would impact all shipment types, including TIH and non-TIH shipments. Given that all rail movements could benefit from the gains brought about by the installation of PTC, there is no reason to pile all of the PTC-related costs onto TIH shipments.

iv. TIH Related Insurance Costs

As discussed in Section III-D-9, NS incorrectly included an additional insurance expense of approximately $5 million per year to nominally cover TIH related accidents. NS claims that the SBRR will have a markedly higher risk of a catastrophic TIH release than other railroads simply because it carries a higher percentage of TIH traffic relative to total traffic than other

[64] FRA later removed this class of benefits from its restatement of the ZETA-TECH study results.

railroads, including NS. However, the SBRR, at only a fraction of the NS system in both size and traffic mix, has a lower risk profile than NS. In addition, NS has not demonstrated that any excess insurance costs are due solely to the transportation of TIH traffic. Simply stated, there is no basis to add an additional "kicker" to the insurance expenses already expected to be incurred by the SBRR.

v. Excess Risk

As discussed in Section III-D above, SunBelt has not included any additional costs for so-called "excess risk" supposedly incurred by the SBRR because of its transportation of TIH materials. Moreover, any excess risk faced by the SBRR is already reflected in the SBRR's cost of capital since this excess risk is already faced by real world railroads on which the SBRR's cost of capital is based. Finally, making the SBRR incur an explicit additional cost would constitute a clear barrier to entry since the NS does not incur the same cost.

The NS, like any other corporation, offers its common equity holders the right to default. That right is extremely valuable, as when a firm gets into trouble, limited liability allows stockholders to simply walk away from the company, leaving all its troubles to its creditors. This right to default is exercised through the bankruptcy process, which effectively makes the former creditors of the corporation the new stockholders, and the old stockholders are left with nothing.

The Class I railroad stockholder's right to simply "walk away" in the event of severe corporate distress, including distress from a catastrophic TIH shipment spill, does not go unnoticed or unaccounted for by the market. The costs of the bankruptcy come out of the common shareholder's pocket.[65] Creditors foresee the costs and foresee that they will pay them

[65] See Brealey, Myers and Allen at pages 477 to 480 for a discussion of the impact on capital costs due to bankruptcy.

if default occurs. For this, they demand higher compensation in advance in the form of higher payoffs when the firm does not default. This comes in the form of higher promised interest rates on debt. These higher promised interest rates reduce the payoffs to common equity holders and reduce the market value of their shares. This ultimately leads to a higher cost of common equity. In simple terms, the railroad industry cost of capital already reflects the cost of any excess risk faced by the railroads.

The SBRR's cost of capital is directly based on the railroad industry cost of capital, and, therefore, the cost of any excess risk faced by the SBRR is already accounted for in the cost of capital calculation. Because the SBRR already is directly paying for this excess risk, forcing it to incur additional costs would create a barrier to entry since the NS does not incur these additional costs. The STB explained in *West Texas* that an entry barrier occurs when the stand-alone replacement is forced to incur an expense not incurred by the incumbent.[66] NS has not incurred any additional costs for excess risk due to the carriage of TIH traffic that is not incurred by the SBRR. Stated differently, the SBRR incurs all of the costs that the NS incurs to carry TIH traffic, including operating costs, investment costs and capital costs. Including additional TIH related costs for the SBRR not incurred by the NS would allow the NS to capture monopoly rents on costs it did not pay. Any additional excess risk cost is a clear barrier to entry and must be excluded from the SAC analysis.

b. *AEPCO 2011* Trainload Adjustment

SunBelt explained in Opening why the adjustments to URCS Phase III variable costs used in the MMM model first suggested by the STB in the *AEPCO 2011* case are unwarranted

[66] See *West Texas* at 670.

and unnecessary.[67] SunBelt also demonstrated that, even if one were to make the *AEPCO 2011* adjustment to the MMM model, it would have no appreciable impact on the model's results. This is because the SBRR carries very little traffic in so-called "hook and haul" trainload service.

In Reply, NS concedes that SunBelt made the *AEPCO 2011* trainload adjustment, but asserts SunBelt made two errors in its implementation. First, NS asserts that the URCS standard unit train empty-return ratio for trainload traffic should not be used when developing the variable costs of service. And second, NS states that SunBelt arbitrarily limited the adjustment to traffic in which NS originates and delivers the movement, instead of movements that the NS receives in interchange at New Orleans, Meridian and Birmingham.[68] Both of NS's assertions are wrong.

NS claims that Sunbelt's use of the empty return ratio for unit train traffic was improper, and it purports to have corrected this error by costing the SBRR's traffic using defendants' empty return ratios for the applicable traffic group. However, NS can make its so-called "correction" only by overriding the values in the Board's URCS Phase III costing program, which automatically utilizes an empty/return ratio of 2.0 for trainload or unit train traffic. NS's approach constitutes the sort of movement-specific manipulation that the Board prohibited in *Major Issues*. Furthermore, the exercise is nonsensical as it treats the movement as trainload or unit train for some URCS purposes (such as the absence of various switching costs), but not for others (the empty/return costs). In effect, NS is seeking to artificially lower the variable costs of the SBRR's non-coal, primarily intermodal, traffic in order to dilute the MMM relief for the issue traffic. *Major Issues* prohibits this type of results-oriented approach.

Second, NS claims that SunBelt inappropriately did not apply the *AEPCO 2011* adjustment to trains NS currently receives in interchange from other railroads at New Orleans,

[67] See SunBelt Opening at III-H-14 to III-H-19.

[68] See NS Reply at III-H-28.

Birmingham and Meridian. NS's position is incorrect. The Board's concern in *AEPCO 2011*, and as articulated again in *EP 715*, was with overhead traffic handled as trainload traffic by the SARR for which the residual incumbent was left to perform and incur the costs of origination and delivery:

> There is a disconnect between the hypothetical cost of providing service to these movements over the segments replicated by the SARR and the revenue allocated to those facilities. When the proposed SARR includes cross-over traffic of carload and multi-carload traffic, it generally would handle the traffic for only a few hundred miles after the traffic would be combined into a single train. As such, the "cost" to the SARR of handling this traffic would be very low. In recent cases, litigants have proposed SARRs that would simply hook up locomotives to the train, would haul it a few hundred miles without breaking the train apart, and then would deliver the train back to the residual defendant. All of the costs of handling that kind of traffic (meaning the costs of originating, terminating, and gathering the single cars into a single train heading in the same direction) would be borne by the residual railroad.[69]

For traffic NS receives in interchange at New Orleans, Meridian and Birmingham, it is another carrier—not NS—that incurs the "costs of originating, terminating, and gathering single cars into a single train heading in the same direction." Therefore, this traffic should not be subject to the *AEPCO 2011* MMM adjustment.

c. SunBelt Correctly Indexed Variable Costs In the MMM Model

NS argues that SunBelt "used the wrong index"[70] to adjust the MMM variable costs. Rather than using the Board's standard URCS indexing approach, NS believes that the RCAF-A should be used to adjust MMM variable costs as required by *Major Issues* and used in other STB cases, including *AEPCO 2011*.

As explained by SunBelt in Opening, the URCS index is a better index to use to adjust variable costs than the RCAF-A since it more accurately reflects changes in variable costs

[69] See *EP 715* at 16.

[70] See NS Reply at III-H-29.

incurred by the railroad. NS has not provided any proof that the RCAF-A better reflects changes in URCS variable costs than the URCS index the STB uses to index Phase III costs.

The Board determined in *OG&*E that the standard URCS indexing approach would produce the most accurate results in developing future variable costs for rate prescription purposes, and directed its use.[71] Obviously it would be inappropriate to use two (2) different indices to accomplish the same, singular purpose, i.e., to forecast variable costs.

The use of a forecasted NS-specific URCS index also is better suited to the goals of the MMM approach than the application of the more general RCAF-A index. The STB indicated in *WFA/Basin II* that it is the accurate presentation of the defendant railroad's variable costs that is key to the MMM's ability to maintain differential pricing required by the defendant carrier.

> In sum, for MMM to correctly calculate the degree of differential pricing needed by the defendant railroad to recover the total SAC costs over the DCF analysis period, we need to properly forecast the defendant carrier's variable costs.[72]

If the key is developing accurate estimates of the defendant carrier's future variable costs, using a carrier-specific URCS index provides a more accurate approach than application of the industry-wide RCAF-A. An URCS index takes into consideration the specific weighting of cost components unique to a specific railroad, while the RCAF-A bases its cost weighting on inputs from all Class I railroads. The most accurate way to calculate a defendant carrier's future variable costs is to use an index specific to that carrier.[73]

SunBelt rejects all three of NS's "corrections" in its Rebuttal MMM calculations.

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[71] See *OG&E* at 11.

[72] See *WFA/Basin II* at 30.

[73] SunBelt has updated its NS URCS index forecast in its Rebuttal restatement to incorporate actual AAR indexes through 2012, updated labor, material and supplies and fuel changes from Global Insight's December 2012 forecast, and actual 2012 PPI-All Commodity values.

4. Maximum Reasonable Rates

The SAC analysis summarized in Parts III-A through III-G and the accompanying Rebuttal Exhibits, and displayed in Rebuttal 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-2 below shows the measure of excess revenue over SAC in each year of the DCF period for this case.

Table III-H-2
Summary of SunBelt Rebuttal DCF Results for the SBRR
July 30, 2011 to July 29, 2021
($ in millions)

Year	Annual Stand-Alone Requirement	Stand-Alone Revenues	Overpayments (Shortfall)	PV Difference	Cumulative PV Difference
(1)	(2)	(3)	(4)	(5)	(6)
7/30/11-12/11	$143.5	$159.6	$16.1	$16.1	$16.1
2012	347.7	411.4	63.7	57.3	73.4
2013	355.7	449.7	94.0	76.2	149.7
2014	369.8	489.3	119.5	87.2	236.9
2015	384.7	537.3	152.6	100.3	337.2
2016	402.8	595.6	192.8	114.1	451.3
2017	424.3	655.8	231.5	123.4	574.8
2018	446.7	718.4	271.7	130.4	705.2
2019	470.9	787.4	316.5	136.8	842.0
2020	496.4	859.6	363.2	141.4	983.4
1/21-7/29/21	301.2	545.4	244.2	87.9	1,071.2

Source: SunBelt Rebuttal e-workpaper "Exhibit III-H-1 Rebuttal.xls."

Application of MMM yields the following maximum R/VC ratios for each year of the DCF model.

Table III-H-3
Rebuttal MMM Results

Year (1)	Maximum R/VC (2)
7/30/11-12/11	257.9%
2012	210.7%
2013	179.6%
2014	166.4%
2015	154.3%
2016	144.5%
2017	136.8%
2018	130.3%
2019	125.0%
2020	120.7%
1/21-7/29/21	116.1%

Source: Rebuttal Exhibit III-H-2

As indicated in Table III-H-3, the maximum R/VC ranges from 116.1 percent to 257.9 percent over the 10-year DCF period.

The maximum lawful transportation rate for the SunBelt traffic covered by Tariff NSRQ 65912 equals the greater of the jurisdictional threshold or the MMM maximum rate. Table III-H-4 compares NS's rate at 3Q11 to the jurisdictional threshold and the MMM maximum rate. The issue NS rate is greater than both the jurisdictional threshold and the MMM rate.

Table III-H-4
Maximum Rate Comparison for the Movement of STCC 2812815
From McIntosh, AL to New Orleans, LA as of July 30, 2011
($ per Carload)

	Item	Source	Rate Per Car
	(1)	(2)	(3)
1.	NS Rate	Tariff NSRQ 65912	$8,088
2.	Jurisdictional Threshold Rate	Rebuttal II-A-1	$3,008
3.	MMM Rate	1/	$4,309
4.	Maximum Rate	2/	$4,309
5.	Overcharge included in NS Rate	Line 1 – Line 4	$3,779

1/ Table III-H-3 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 $4,309 per carload.

I, Thomas D. Crowley, verify under penalty of perjury that I am the same Thomas D. Crowley whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to quantitative market dominance (Part II-A); the SARR traffic group, including volumes and revenues (Part III-A); the development of the discounted cash flow model (Part III-G); and the calculation of SAC results (Part III-H); 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 May 30, 2013

I, Philip H. Burris, verify under penalty of perjury that I am the same Philip H. Burris whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am sponsoring the portions of the Rebuttal Evidence that relate 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, equipment lease, maintenance and servicing costs, operating unit costs and compensation levels for all the SBRR transportation and operating (including engineering) employees, non-operating (General and Administrative) personnel, and training and recruiting costs (Part III-D), 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); 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 May 30, 2013

I, Charles A. Stedman, verify under penalty of perjury that I am the same Charles A. Stedman whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am sponsoring the portions of the Rebuttal Evidence that relate to the calculation of SARR route miles (Part III-B) and co-sponsoring 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); 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 May 30, 2013

I, Michael E. Lillis, verify under penalty of perjury that I am the same Michael E. Lillis whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to the SARR traffic group, including volumes and revenues (Part III-A); that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Michael E. Lillis

Michael E. Lillis

Executed on May 30, 2013

I, Daniel L. Fapp, verify under penalty of perjury that I am the same Daniel L. Fapp whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to RTC modeling component (Part III-C); the development of the discounted cash flow model (Part III-G); and the calculation of SAC results (Part III-H); 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

Daniel L. Fapp

Executed on May 30, 2013

VERIFICATION

I, Robert D. Mulholland, verify under penalty of perjury that I am the same Robert D. Mulholland whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to the SARR traffic group (Part III-A); and that relate to SunBelt's critique of MultiRail (Part III-C); 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 May 30, 2013

I, Timothy D. Crowley, verify under penalty of perjury that I am the same Timothy D. Crowley whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to quantitative market dominance (Part II-A); and that relate to SunBelt's critique of MultiRail (Part III-C); 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 May 30, 2013

I, William W. Humphrey, verify under penalty of perjury that I am the same William W. Humphrey whose Statement of Qualifications appears in Part IV of the Narrative portion of SunBelt's Opening Evidence in this proceeding; that I am co-sponsoring the portions of the Rebuttal Evidence that relate to the simulation of the SARR's operations using the Rail Traffic Controller Model (Part III-C); 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 May 30, 2013