PUBLIC VERSION

236343

BEFORE THE
SURFACE TRANSPORTATION BOARD

ENTERED
Office of Proceedings
July 21, 2014
Part of
Public Record

TOTAL PETROCHEMICALS & REFINING USA, INC.	)	
Complainant,	)	
v.	)	**Docket No. NOR 42121**
CSX TRANSPORTATION, INC.	)	
Defendant.	)	

REPLY EVIDENCE OF CSX TRANSPORTATION, INC.

NARRATIVE SECTIONS I THROUGH III-D

(Volume 1 of 3)

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SHORT FORMS FOR FREQUENTLY CITED CASES

The following short form case citations are used herein:

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Xcel	*Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Railway Co.*, 7 S.T.B. 589 (2004)

ACRONYMS

AAR	Association of American Railroads
ABC	Algorithmic Blocking and Classification
AC	Alternating Current
ACSES	Advanced Civil Speed Enforcement System
ADA	Americans with Disabilities Act
ADE	Assistant Division Engineer
AEI	Automatic Equipment Identification
AEO	Annual Energy Outlook
AFE	Authorizations for Expenditure
AGS	Automatic Gate Systems
APA	Administrative Procedure Act
APU	Auxiliary Power Unit
AREMA	American Railway Engineering and Maintenance-of-Way Association
ARIL	Arrival at Intransit Location
ARRA	American Recovery and Reinvestment Act
ATC	Average Total Cost
AVP	Assistant Vice President
B&B	Bridge & Building
BCFD	Billion Cubic Feet per Day
BCY	Bank Cubic Yard
BMP	Best Management Practices
BNSF	Burlington Northern Santa Fe Railway Company
BRC	Belt Railway of Chicago
C&S	Communications and Signals

CAGR	Compound Annual Growth Rate
CAPP	Central Appalachian
CBG	Coal Business Group
CDL	Commercial Driver's License
CE&I	Construction, Engineering, and Inspection
CFS	Commodity Flow Survey
CMA	Chemical Manufacturers Association
CMP	Aluminized Corrugated Metal Pipe
CN	Canadian National Railway Company
CNW	Chicago & North Western Railway Company
CP	Canadian Pacific Railway
CRE	Counselors of Real Estate
CSAPR	Cross-State Air Pollution Rule
CSXT	CSX Transportation, Inc.
CTC	Centralized Traffic Control
CWA	Clean Water Act
CWR	Continuous Welded Rail
CY	Cubic Yards
DCF	Discounted Cash Flow
DFLC	Departed From Location
DME	Dimethyl Ether
DMF	Dimethyl Formamide
DMI	Digital Mapping Index
DOT	Department of Transportation
DP	Distributed Power

DTL	Direct-to-Locomotive
EAP	Employee Assistance Program
ECY	Embankment Cubic Yard
EDI	Electronic Data Interchange
EEO	Equal Employment Opportunity
EIA	Energy Information Administration
EJ&E	Elgin Joliet & Eastern Railway
EMT	Elizabeth Marine Terminal
ENS	Emergency Notification Signs
EOS	End of Siding
EPA	Environmental Protection Agency
ERAS	Event Recorder Automated Download
ERP	Enterprise Resource Planning
ETMS	Electronic Train Management System
EVA	Energy Ventures Analysis, Inc.
FAS	Financial Accounting Standards
FASB	Federal Accounting Standards Board
FCC	Federal Communications Commission
FED	Failed Equipment Detector
FELA	Federal Employers Liability Act
FHWA	Federal Highway Administration
FMLA	Family and Medical Leave Act
FRA	Federal Railroad Administration
FRICS	Fellow of the Royal Institute of Chartered Surveyors
FSC	Fuel Surcharges

G&A	General & Administrative
GAO	Government Accountability Office
GDP	Gross Domestic Product
GE	General Electric
GIS	Geographic Information System
GPS	Global Positioning System
GVW	Gross Vehicle Weight
G&W	Genesee and Wyoming Railroad
HM-1	United States Hazardous Materials Instructions for Rail
HSL	Hours of Service Law (49 U.S.C. Ch. 211)
HTUA	High Threat Urban Area
HVAC	Heating, Ventilation, and Air Conditioning
HYSS	Hump Yard Simulation System
ICBS	Interoperable Communications-Based Train Control System
ICC	Interstate Commerce Commission
ICHD	Interchange Delivery
IHB	Indiana Harbor Belt Railway
ISA	Intercarrier Service Agreement
ISS	Interline Settlement System
ITCS	Integrated Train Control System
ITMS	Integrated Transportation Management System
KCS	Kansas City Southern Railway
LARS	Locomotive Assignment and Routing System
LCY	Loose Cubic Yard
LNW	Louisiana and North West Railroad

LUM	Locomotive Unit Mile
MAI	Member of the Appraiser Institute
MATS	Mercury and Air Toxics Standards
MEE	Manager Electronics Engineering
MGT	Million Gross Ton
MM&A	Montreal, Maine, and Atlantic Railroad
MMBtu	million British Thermal Units
MMM	Maximum Markup Methodology
MOW	Maintenance-of-Way
MRE	Market Research and Economics Group
MRL	Montana Rail Link
MSA	Managed Services Agreement
MSE	Mississippi Export Railroad
MSP	Modified Straight-Mileage Prorate
N&W	Norfolk and Western
NAPP	Northern Appalachian
NARS	Non-accident Releases
NERC	North American Electric Reliability Corporation
NMC	Natural Moisture Content
NPRM	Notice of Proposed Rule Making
NRCS	Natural Resource Conservation Service
NROI	Net Railway Operating Income
NS	Norfolk Southern Railway Company
NTF	No Trouble Found
NYMEX	New York Mercantile Exchange

O/D	Origin/Destination
OMC	Optimum Moisture Content
OSHA	Occupational Safety and Health Administration
PACT	Placed at Customer Facility
PFPS	Pulled from Patron Siding
PHMSA	Pipeline and Hazardous Safety Administration
PIH	Poisonous-by-Inhalation
PRB	Powder River Basin
PTC	Positive Train Control
P&W	Providence and Worcester Railroad
R/VC	Revenue to Variable Cost
RBMN	Reading Blue Mountain and Northern Railroad Company
RCAF	Rail Coal Adjustment Factor
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
REM	Roadway Equipment Mechanics
RIP	Repair In Place
ROW	Right-of-Way
RPMS	Real Property Management System
RSAM	Revenue Shortfall Allocation Method
RSC	Rail Security Coordinator
RSIA	Rail Safety Improvement Act of 2008
RTA	Railroad Tie Association
RTC	Rail Traffic Controller
RTG	Rubber-Tired Gantry

SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
SBRR	SunBelt Railroad
SCAN	Soil Climate Analyst Network
SCTG	Standard Classification of Transportation Goods
SECI	Seminole Electric Cooperative, Inc.
SFAS	Statement of Financial Accounting Standards
SFC	Specific Fuel Consumption
S&I	Inspection Shops
SIP	State Implementation Plans
SJRRC	San Joaquin Regional Rail Commission
SOX	Sarbanes-Oxley Act
SP	Southern Pacific Railroad
SPLC	Standard Point Location Code
SSA	Shared Asset Area
SSI	Sensitive Security Information
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code
SWPPP	Stormwater Pollution Prevention Plan
SYC	Static Yard Capacity
T&E	Train & Engine
TBT	Thoroughbred Bulk Terminal
TCS	Triple Crown Services
TDIS	Thoroughbred Direct Intermodal Services
TI	Traffic Index

TIH	Toxic-by-Inhalation
TKMV	Track Move/Inventory Move
TMS	Transportation Management Services
TRANSCAER	Transportation Community Awareness and Emergency Response
TRASD	Terminal Railway Alabama State Docks
TRRA	Terminal Railroad Association of St. Louis
TSA	Transportation Security Administration
TYES	Thoroughbred Yard Enterprise System
UPS	United Parcel Service
URCS	Uniform Rail Costing System
USDOT	U.S. Department of Transportation
USPAP	Uniform Standards of Professional Appraisal Practice
W&LE	Wheeling and Lake Erie Railway
WQMP	Water Quality Management Plan
WSS	Web Soil Survey
WTI	West Texas Intermediate

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I. COUNSEL'S ARGUMENT AND SUMMARY OF EVIDENCE

Total Petrochemicals & Refining USA Inc.'s ("TPI's") Opening Stand Alone Cost ("SAC") evidence is based on a fundamental contradiction. TPI contends that its proposed Stand Alone Railroad, the TPIRR, would have an operating ratio of 38%—a ratio almost half that of the real world CSXT—suggesting that TPI's SAC presentation must include massive efficiency improvements to CSXT's real-world operations. At the same time, TPI claims that its operating plan for the TPIRR is feasible because the TPIRR's operations supposedly "mirror" those of CSXT. These two opposing claims cannot both be true: the TPIRR cannot be using "CSXT's real-world operating plan" while simultaneously incurring only half of CSXT's pro rata operating expenses. The truth is that TPI's proposed operating plan for the TPIRR bears little resemblance to either CSXT's actual operations or to the "realities of real-world railroading."[1] As a result, TPI vastly underestimates the trains, crews, and facilities necessary to provide service to the traffic group it has selected. When the errors in TPI's SAC presentation are corrected, CSXT's Reply Evidence shows that the rates challenged by TPI are reasonable by a wide margin. While TPI uses a variety of gimmicks and improper assumptions to claim that the TPIRR's revenues would exceed its expenses by over $9 billion over the ten-year SAC analysis period, CSXT's Reply Evidence shows that in fact the costs of constructing, operating and maintaining the TPIRR would exceed its attributable revenues by a cumulative $10.2 billion over that period.[2]

According to TPI, in its first year of operations the TPIRR would earn nearly $6.6 billion in revenues while incurring just $2.3 billion in operating expenses—which would generate an

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[1] *SunBelt,* STB Docket No. 42130, at 12; *AEPCO 2011*, STB Docket No. 42113, at 16.

[2] *Compare* TPI Opening III-H-19, Table III-H-1 *with infra* III-H-17, Table III-H-2.

operating ratio of just 38%.[3] In plain English, this operating ratio means that the TPIRR supposedly would incur only 38 cents of expenses to earn a dollar of revenue in its first year of operations. TPI's claimed operating ratio for the TPIRR is approximately half that of CSXT and other Class I railroads.[4] To illustrate the vast gulf between the TPIRR's alleged performance and that of real-world railroads, consider that to achieve a 38% operating ratio CSXT would have to almost double its revenues without increasing expenses; or conversely cut its expenses by almost half without losing any revenue.

On the other hand, TPI provides almost no explanation of what the TPIRR would do differently than CSXT to achieve such remarkable profitability. To the contrary, TPI claims that it is adopting CSXT's actual, real-world operating plan! TPI alleges that it has based the TPIRR's operations "on CSXT's *own* operations" and that "the TPIRR operates the same trains with the same mix of traffic as CSXT, including stopping trains en route for spotting and pulling cars, and blocking cars in the same manner as CSXT does today." TPI Opening I-17–19. TPI thus asserts that "base year TPIRR trains and cars essentially mirror the movement of the corresponding CSXT traffic for that time period." *Id.* III-C-5. TPI similarly claims to have staffed the TPIRR's maintenance of way department at levels comparable to CSXT's. *See* TPI Opening Ex. III-D-3 at 4. For nearly every major operating expense item, TPI's justification for its proposal is that the TPIRR is doing things just like CSXT does them. *See, e.g.*, TPI Opening III-C-5 ("CSXT cannot realistically claim that TPI's operating plan is not feasible, because in many important ways, it is CSXT's real-world operating plan.") (emphasis added).

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[3] By Year Ten of the SAC analysis period TPI claims that the TPIRR would have further reduced its operating ratio to a mere 30%.

[4] *See* CSXT Reply WP "Operating Ratio Comparison."

It is impossible to resolve the contradiction between TPI's claim that the TPIRR is using "CSXT's real-world operating plan" and its claim that the TPIRR would only incur half of CSXT's pro rata expenses. Indeed, an examination of TPI's evidence shows that it credits the SARR with 65% of CSXT's revenues but just 26% of its train and engine employees,[5] 30% of its locomotives,[6] and (despite TPI's claims to the contrary) just 18% of its maintenance of way staff.[7] TPI's rhetoric that its operating plan must be feasible because it is "mirroring" CSXT operations is thus plainly nonsense. And, TPI's evidence nowhere explains how the TPIRR could feasibly serve its selected traffic while making such massive cuts to the locomotives and personnel that work to move that traffic in the real world.

The only way that TPI can arrive at such remarkably optimistic results for the TPIRR is by systematically violating principles that are essential to the SAC test. Three are particularly important here. First, while a complainant has considerable discretion to choose what non-issue traffic to include in its SARR traffic group, the complainant is required to propose an operating plan that provides complete service to the traffic it selected. TPI has failed to do so here, in part because its operating plan fails to account for more than 44,000 local trains that CSXT actually used to transport the traffic whose revenues TPI claims for its SARR. *See infra* III-C-173–74. Indeed, TPI fails to provide complete train service for 39% of its own issue traffic. *See id.* Second, the assumptions on which a complainant bases its SARR must be "consistent with the

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[5] *Compare* TPI Opening III-D-11 (proposing a total of 3,108 TPIRR train and engine crew members) *with* 2010 Wage Statistics of Class I Railroads in the United States, at 6 (showing an average of 11,820 CSXT train and engine employees in 2010).

[6] *Compare* TPI Opening III-D-3 (proposing a total of 1,057 TPIRR locomotives) *with* CSXT 2010 R-1 Schedule 710 (showing 3,533 CSXT freight locomotives in service in 2010).

[7] *Compare* TPI Opening Ex. III-D-3 at 8 (proposing a total of 1,146 TPIRR MOW employees) *with* 2010 Wage Statistics of Class I Railroads in the United States, at 3 (showing an average of 6,246 CSXT MOW employees in 2010).

underlying realities of real-world railroading." *SunBelt,* STB Docket No. 42130, at 12; *AEPCO 2011*, STB Docket No. 42113, at 16. Many of TPI's key assumptions are irreconcilable with such realities. Third, the Board "will adhere to precedent established in past cases" unless a party presents "new evidence or different arguments" justifying a departure from that precedent.[8] Here, many of TPI's arguments are virtually identical to those the Board has rejected in past cases, and TPI has offered no reason for the Board to reverse its prior holdings.

Section A discusses these three major SAC principles and the ways in which TPI's evidence violates them. Section B summarizes major points from each of the sections of CSXT's Reply SAC Evidence.

A. TPI'S EVIDENCE VIOLATES KEY SAC PRINCIPLES.

1. TPI's Operating Plan Does Not Provide Complete Service to Its Selected Traffic Group.

SAC complainants are required to "design[] a SARR specifically tailored to serve an identified traffic group" and to develop "a detailed operating plan" that accounts for "the traffic group to be served, the level of service to be provided, and the terrain to be traversed." *AEPCO 2011*, STB Docket No. 42113, at 4. A SAC complainant is allowed to depart from an incumbent's operations—so long as the SARR can "meet the transportation needs of the traffic in the group by providing service that is equal to (or better than) the existing service for that traffic." *TMPA I*, 6 S.T.B. at 589.[9]

TPI claims that it satisfies this requirement by (supposedly) replicating CSXT's historical train movements and asserts that its operating plan must be feasible "because in many important ways, it is CSXT's real-world operating plan." TPI Opening III-C-5. This is not true for

[8] *See SAC Procedures*, 5 S.T.B. at 446.

[9] *See also Xcel*, 7 S.T.B. at 610 ("The operating plan must be able to meet the transportation needs of the traffic the SARR proposes to serve.").

multiple reasons. In the first place, TPI fails to account for 44,694 trains that participate in the movement of TPI's selected traffic. *See infra* III-C-173–74. These missing trains are not a mere oversight—rather, TPI specifically drafted computer code for its "train selection" methodology that categorically disregarded entire categories of CSXT trains, even though the CSXT car event data that TPI relied upon showed that these trains participated in moving TPI's selected traffic. As a result, in tens of thousands of instances TPI has not provided the trains and crews required to complete transportation service for its selected traffic, including a significant amount of its own "issue traffic." *Id.*; *see also infra* III-D-47.

To be clear, the flaw in TPI's evidence is not that TPI has not precisely matched CSXT's operating plan train-for-train. Despite TPI's claims to the contrary, it would make little sense to precisely replicate CSXT's historical trains to serve the TPIRR's distinct traffic base—which grows by 20% by the Peak Year. Rather, the problem is that in tens of thousands of instances TPI has not provided enough trains and crews to complete transportation service for its selected traffic. Sometimes it omits trains picking up and delivering traffic to customers on the TPIRR's lines; sometimes it omits local trains that perform essential "last-mile" switching service at customer facilities; sometimes it omits industrial yard trains that pick up and set off cars that a road train leaves along the main line. *See infra* III-C-32–36. In each case, TPI credits the TPIRR with an ATC revenue share for providing full on-SARR service without accounting for all the trains, crews, and other operating expenses necessary to provide that service.

Missing trains are just the beginning of the deficiencies in TPI's operating plan. TPI claims that the TPIRR would "incorporate the same blocking plans that CSXT currently uses in its operations" and adopt CSXT's "car classifications." TPI Opening III-C-12. Instead, it makes major modifications to CSXT's real-world track and yard facilities that significantly diminish the

capacity of the classification tracks and receiving/departure tracks at nearly every CSXT yard it replicates. *See infra* III-C-76–125. TPI also assumes that these yards would operate with far less staff than CSXT employs in them today. Elimination of these necessary personnel and facilities makes it impossible for the TPIRR to classify, block, and switch its selected traffic in the way CSXT does. *See infra* III-C-75. As the Board recognized in *SunBelt*, a complainant that purports to "adopt" the incumbent's car classification and blocking plans while reducing facilities and staffing has the burden to prove that the SARR could still adequately serve the traffic group. *SunBelt*, STB Docket No. 42130, at 16. TPI has not met that burden. Many of its yards barely have enough track even to park the cars that would need to be present at those locations—let alone sufficient space to classify those cars, build blocks, and assemble trains. *See infra* III-C-82– 83. And TPI's failure to employ a sufficient number of yard workers would create significant inefficiencies at larger yards. *See infra* III-C-128–134.

2. TPI Makes Assumptions That Must Be Rejected Because They Are Inconsistent With Real-World Railroading.

The second principle TPI ignores is that "the assumptions used in the SAC analysis . . . must be realistic, *i.e.*, consistent with the underlying realities of real-world railroading." *WFA I*, STB Docket No. 42088, at 15. TPI repeatedly makes fantastic assumptions that lack any basis in real-world railroading. For example, TPI assumes that the TPIRR would handle massive volumes of "leapfrog traffic," *i.e.* traffic that the TPIRR proposes be interchanged back and forth with the residual CSXT multiple times, and for which the residual CSXT would serve as an overhead carrier on internal segments within the TPIRR system. This assumption undermines the integrity of the SAC process. Absent extraordinary circumstances, real-world railroads (and their customers) would never route traffic in a way that creates multiple interchanges with another carrier, because such routings would be extremely inefficient. *See infra* III-C-36– 41.

The Board should make clear that—absent evidence of extraordinary circumstances—such "leapfrog" routings will not be permitted in SAC cases.

In the same vein, TPI makes completely unreasonable assumptions about the time it would take the TPIRR to block and classify traffic. It ignored detailed data provided by CSXT about actual car dwell time in CSXT yards in favor of cherry-picking car dwell times from other rail carriers with much less traffic and far simpler operations. *See infra* III-C-188–192. TPI never explains why it believes the TPIRR would have a lower car dwell time than CSXT or what particular efficiency measures the TPIRR could implement to realize such gains. Nor does TPI explain how the TPIRR possibly could have a lower car dwell time than CSXT if the TPIRR is "incorporating" the same car blocking plan as CSXT.

Similarly, TPI assumes that 200 feet of lead track will be sufficient to reach customer facilities everywhere, even though TPI had access to extensive discovery materials showing that many CSXT customers have facilities much further than 200 feet from CSXT's main and branch lines. As a result, TPI does not build nearly enough lead track to reach many customers whose traffic it selected, and thus its operating plan effectively assumes that the TPIRR would abandon these customers' shipments miles from their facilities. *See infra* III-C-134–135.

At the same time that TPI failed to provide an operating plan and expenses necessary to serve the traffic it selected, it also claimed revenues for traffic that was not part of its selected traffic and did not travel over the lines of the TPIRR. *See infra* III-A-2–8. For each of the years 2010, 2011, and 2013, TPI misapplied its own analysis of 2012 CSXT traffic records to claim substantial revenues for traffic that merely intersected the lines replicated by the TPIRR and did not actually travel on the TPIRR network. *Id.* Simplified, the source of this substantial overstatement of TPIRR traffic volumes and resulting revenues was TPI's erroneous assumption

that, in those three years, any new movement that CSXT traffic data showed had touched any point on the TPIRR was traffic transported by the TPIRR. *See infra* III-A-3–7. This overbroad assumption failed to account for substantial volumes of traffic carried by the residual CSXT that simply crossed the TPIRR system but did not travel on that system. TPI readily could have avoided this error simply by using the same methodology it used to identify traffic moving on the TPIRR system in 2012. That method eliminated movements that touched the TPIRR but did not actually travel on its network. *See id.* III-A-2 –3. Despite demonstrating that it knew how to accurately identify TPIRR traffic using its method for 2012, TPI failed to apply this method in the three other years for which it had actual CSXT traffic data: 2010, 2011, and 2013. *Id.* at III-A-2– 4. This resulted in a substantial overstatement of TPIRR revenues in those years. In addition, because TPI's approach overstated revenues in 2013, that error carried forward into the forecast years (2014-2020), resulting in overstatements of revenues throughout the remainder of the SAC analysis period. *See id.* at III-A-6–7.

TPI makes similarly unrealistic assumptions in its general and administrative ("G&A") staffing, where it assumes that TPI could claim two-thirds of CSXT's revenues while employing barely six percent of CSXT's marketing staff; that the TPIRR could have a tiny HR staff because its employees would have a remarkable (and wholly unrealistic) average tenure of 33 years; and that the TPIRR would never once have a customer that failed to pay the entirety of its bill. *See infra* III-D-91–159.

3. Many of TPI's Arguments Already Have Been Rejected By the Board.

While the Board has many issues to resolve in this proceeding, a significant number of them have already been settled by Board precedent. Indeed, the length and complexity of the evidence in this case is in large part a function of TPI's determination to rehash arguments that the Board has rejected in multiple cases. In none of these instances has TPI satisfied the *SAC*

Procedures test for revisiting a SAC precedent: to present "new evidence or different arguments" that justify overturning those precedents. *SAC Procedures*, 5 S.T.B. at 446.[10] A few examples of TPI relitigating prior findings without providing new evidence or arguments include:

- TPI's claim that the Board should abandon its use of Means estimates for earthwork costs and instead extrapolate costs from a small "Trestle Hollow" project in Tennessee to the entire TPIRR.[11]
- TPI's patently erroneous assumption that the TPIRR would obtain government funding to pay for 90% of the cost of all of its movable bridges.[12]
- TPI's claim that the TPIRR could reduce G&A staffing because other railroads would perform most of the marketing and customer service for TPI's crossover traffic.[13]

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[10] While TPI filed its opening evidence before the Board issued its decisions in *DuPont* and *SunBelt*, the *SAC Principles* rule against relitigating prior precedents applies with equal effect to those decisions. The defendant's filings in those cases gave TPI's counsel and consultants—who also worked for the complainants in *DuPont* and *SunBelt*—ample notice of the legal and factual deficiencies of several of the complainants' claims. TPI nevertheless chose to repeat those claims without producing any "new evidence or different arguments" to support its positions. Since TPI's evidence on several points is nearly identical to the complainants' evidence in *DuPont* and *SunBelt*, it should be precluded from challenging those points again here.

[11] *Compare* TPI Opening III-F-14 through 16 (relying on Trestle Hollow project for earthwork costs) *with DuPont*, STB Docket No. 42125, at 148-49 (rejecting proposed use of Trestle Hollow and holding that Means was better alternative than extrapolating costs from a single project); *SunBelt*, STB Docket No. 42130, at 107 (same).

[12] *Compare* TPI Opening III-F-45-46 (claiming that TPIRR could obtain Truman-Hobbs funding for 90% of movable bridge costs) *with DuPont*, STB Docket No. 42125, at 223 ("The Board rejects DuPont's claim for cost reduction via the Truman-Hobbs Act . . . because the Truman-Hobbs Act applies only to the modification or relocation of bridges which are already in existence. The Truman-Hobbs Act does not provide funding assistance for the construction of brand new bridges. . . ."); *SunBelt*, STB Docket No. 42130, at 142.

[13] *Compare* TPI Opening Ex. III-D-2 at 10, 16 (claiming that other railroads would perform most of the billing, collections, and marketing for TPI's crossover traffic) *with AEPCO 2011*, STB Docket No. 42113, at 57 ("The fact that the [SARR] would carry a large amount of cross-over traffic does not mean that the complainant should be permitted to shield the SARR from expenses such as billing, rate setting, and customer service."); *DuPont*, STB Docket No. 42125, at 85; *SunBelt*, STB Docket No. 42130, at 54.

- TPI's advocacy of maintenance of way ("MOW") staffing and spending levels far below those suggested by the Board's consistent precedents in recent cases.[14]

These are just a few examples from a wide range of areas where TPI is taking positions squarely rejected by the Board in past decisions.[15] The Board's adherence to its precedents and to the *SAC Procedures* rules governing challenges to Board precedents will substantially simplify the resolution of this case.

* * *

The following evidence shows that the challenged rates are reasonable under the SAC test. When TPI's SAC evidence is adjusted to include all necessary construction and operating costs, the TPIRR's revenue requirements far exceed the revenues that would be generated by its traffic group. This result should not be surprising in light of the rulings in the previous market dominance phase of this case. As the Board's market dominance decision recognized, nearly all the challenged rates are subject to competition from "a viable truck or truck/rail alternative to CSXT's service." *TPI Market Dominance*, STB Docket No. 42121, at 16. While the parties disputed whether this competition is sufficiently "effective" to constrain CSXT's rates—and while the Board used its new "Limit Price Rule" to assert jurisdiction over many of those

[14] *Compare* TPI Opening Ex. III-D-3 at 8 (proposing a MOW staff that would have approximately 9.04 track miles per MOW employee) *with DuPont*, STB Docket No. 42125, at 101 (4.96 track miles per MOW employee); *SunBelt*, STB Docket No. 42130, at 71 (3.9 track miles per MOW employee); *WFA I*, STB Docket No. 42088, at 58 (4.0 track miles per MOW employee). *See infra* III-D-180 for further details on the differences between TPI's MOW plan and plans approved in past cases.

[15] In several instances, CSXT has followed recent Board rulings that it believes were erroneously decided, because CSXT recognizes they are precedents binding on the parties to this case. Where CSXT proposes refinements to, or a departure from, an approach taken in a previous SAC case, it does so by relying on "new evidence or different arguments," as the Board required in *SAC Procedures*, 5 S.T.B. at 446, and by forthrightly saying that it proposes a change in the Board's past approach.

rates[16]—it is not surprising that the rates subject to this real-world competition are also reasonable under the SAC test.

Recently some Board members have expressed concern about the burdens of a SAC presentation, particularly in a case involving carload traffic.[17] These concerns should not affect the result here. In the first place, it is TPI that made the decision to bring this case under the SAC approach. TPI could have attempted to bring a case under the simplified guidelines with lower litigation costs (and a lower potential recovery), but it chose a high-stakes gamble on a SAC case predicated on departing from bedrock SAC principles. And it is TPI that chose a traffic group that heavily consisted of carload traffic—a choice that allowed it to claim more revenue for its SARR but also required it to fully serve that carload traffic.[18] The principles that cause TPI's SAC presentation to fail are not novel or unique—on the contrary, TPI fails because it does not satisfy basic SAC requirements, including the requirements to provide adequate service for the traffic it selects and to base its evidence on assumptions that are realistic. TPI is a large multinational corporation advised by experienced counsel and consultants who are well aware of these rules, and its failure to prevail under established Board precedent is not a matter with which the Board should be concerned.[19]

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[16] CSXT continues to believe that the limit price rule is unlawful and unwise, for the reasons expressed in its prior filings before the Board and in its pending appeal before the Court of Appeals for the D.C. Circuit. *See CSX Transp., Inc. v. STB*, No. 13-1313 (D.C. Cir.) (oral argument scheduled for Sept. 22, 2014).

[17] *See SunBelt*, STB Docket No. 42130, at 31-32 (Vice Chairman Miller concurring); *id.* at 32-33 (Commissioner Begeman dissenting).

[18] While TPI was obligated to include its own carload traffic in its SARR, the vast majority of the TPIRR's carload traffic is non-TPI traffic that TPI could have omitted.

[19] Complainant is part of the Refining-Petrochemicals Americas Segment of Total, Société Anonyme, which is "the fourth largest publicly-traded integrated international oil and gas company in the world." *See* http://www.totalpetrochemicalsusa.com/who_we_are/total.asp. According to Market Watch, for 2013 the company had gross revenues of more than $171.1

The Stand Alone Cost test is economically sound, approved by the courts and Congress, and well-understood by counsel and consultants who specialize in representing shippers (including those engaged by TPI). The test affords substantial procedural advantages to shippers, including extensive discovery rights, broad latitude to select traffic and design a SARR, and the right to have "the last word" in rebuttal evidence. Indeed, shippers have been quite successful in previous SAC cases involving the shipment of both coal and other commodities.[20] And while SAC presentations are certainly complex, they are not appreciably more complex than other sorts of commercial litigation in which tens, and sometimes hundreds, of millions of dollars are at stake.

In short, the failure of TPI to succeed in showing that CSXT's rates are unreasonable under the SAC test does not show a flaw in that test. On the contrary, it is a virtue of a test that is rigorously designed to satisfy the competing goals of ICCTA: (1) to ensure that railroads have sufficient market freedom to differentially price traffic; and (2) to ensure that shippers that lack competitive alternatives do not bear an undue burden or cross-subsidize the traffic of other shippers. SAC meets these goals by making the test of reasonableness whether a shipper is being charged more than the railroad needs to earn a reasonable return on the replacement cost of the infrastructure used to serve that shipper. In this case, it is entirely appropriate that CSXT should have the freedom to differentially price service on traffic like TPI's high-value, high-margin plastic shipments.[21] *See* 49 U.S.C. § 10704(a)(2); 49 U.S.C. § 10101(1), (3). TPI has failed to

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Billion, gross income of more than $32.7 Billion, and net income of more than $8.4 Billion. This is not a small, unsophisticated shipper but rather a multinational energy and chemicals conglomerate.

[20] *See WFA I*, STB Docket 42088; *FMC Wyoming*, 4 S.T.B. at 706-07 (shipper prevails in case involving shipment of six different commodities).

[21] TPI's own submissions in the market dominance phase in this case showed that a single carload of one of the issue commodities has a value well over {{ }}. *See* CSXT Reply

show that this differential pricing results in TPI being charged more than what CSXT needs to earn a reasonable return on the infrastructure used to carry TPI's traffic, and as a result it is not entitled to any relief.

B. SUMMARY OF CSXT'S REPLY EVIDENCE

Below CSXT summarizes the most significant arguments and evidence that are encompassed in the following Reply Evidence, Exhibits, and Workpapers. In all areas of the SAC analysis, CSXT has endeavored to craft its evidence to be consistent with the Board's precedents and basic SAC principles. CSXT's Reply Evidence therefore respects TPI's prerogative to select the traffic group for the TPIRR and to configure the TPIRR (except where TPI's traffic selection and configuration clearly violate Board precedent or SAC principles). CSXT also accepts that the TPIRR should be a maximally efficient railroad designed to have best-in-class performance in every area of its operations. This is demonstrated by the fact that the CSXT Reply TPIRR has an operating ratio of 52.3% in 2010—better than that of CSXT or any other Class I railroad. But at the same time, CSXT's Reply Evidence accords with the fundamental SAC principles that a SARR must account for the full costs of serving its selected traffic group and that the assumptions in the SAC analysis must be "consistent with the underlying realities of real-world railroading." Correctly applying these principles to the TPIRR results in a SAC analysis that shows that all of the challenged rates to be reasonable by a wide margin.

Many of the disputes in this case have already been resolved by the Board in recent cases, and CSXT's evidence is consistent with those recent decisions. In some cases CSXT has

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Market Dominance Evidence at II-92 n.94 (filed Aug. 5, 2011) (citing TPI market dominance workpapers alleging that the value of a single car of polystyrene was {{ }}, that the value of a single car of polypropylene was {{ }}, and that the value of a single car of polyethylene was {{ }}).

reluctantly accepted a finding with which it disagrees in an effort to reduce disputes. For example, CSXT believes that TPI's proposal that the TPIRR would singlehandedly design and implement a Positive Train Control ("PTC") system over a 7,000 mile network would have been technologically impossible in 2010. But in light of the Board's decisions to accept similar proposals from complainants in *DuPont* and *SunBelt*, CSXT does not here reject the assumption that the TPIRR somehow would develop and build an initial PTC system in 2010.[22] *See infra* III-F-150–51.

Similarly, where it was possible, CSXT has endeavored to correct and supplement deficient TPI evidence rather than starting anew. For example, TPI's failure to meet the most basic requirement that a complainant propose an operating plan that provides complete service to its selected traffic group is a failure to present a prima facie case that would justify the Board dismissing TPI's evidence altogether. Given the serious and pervasive problems with TPI's operating plan, CSXT would have been well-justified to discard TPI's operating plan and develop its own, alternative plan. But instead, CSXT accepted TPI's manifestly deficient plan as the starting point to build a plan that would appropriately serve the needs of TPIRR's traffic. *See infra* III-C-7.

In some instances CSXT believes that the Board should revisit a past precedent because that precedent is inconsistent with SAC principles or otherwise misguided.[23] And in other instances CSXT presents new detailed evidence to support a cost that the Board rejected in past

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[22] As the Board required in *DuPont* and *SunBelt*, CSXT adds the costs to upgrade PTC interoperability in 2011-2015 in accordance with the standards and requirements of the Rail Safety Improvement Act. *See infra* III-F-150-151.

[23] *See, e.g., infra* III-H-1-f (presenting new arguments to support revisiting Board's acceptance of complainants' arguments on bonus depreciation and terminal value calculation).

cases on the ground that the cost was inadequately documented.[24] In each of these cases CSXT presents new, detailed evidence or arguments supporting its request for the Board to revisit its precedents, as is required by *SAC Procedures*. *See SAC Procedures*, 5 S.T.B. at 446.

In short, CSXT's Reply Evidence has been rigorously crafted to comply with the Board's standards and to expedite the Board's consideration of the issues in this case. And a faithful application of the basic SAC principles that a SARR must account for all the costs of serving its traffic and must be based on realistic assumptions leaves no question that the challenged CSXT rates are reasonable.

III. STAND ALONE COST

A. Traffic Group

In Section III-A, CSXT addresses issues relating to the TPIRR traffic group and TPI's growth projections for the volumes and revenues of that traffic group. Some of the more significant of these issues are summarized below.

Re-routed Traffic. TPIRR failed to disclose a massive amount of re-routed traffic on its SARR—more than 1.3 million carloads in the base year, including hundreds of thousands of carloads in Washington, DC, Nashville, TN, Richmond, VA, and Rochester, NY. *See infra* III-C-8. In each of these cities, TPI consolidates the traffic on two existing CSXT routes—one that runs through downtown, and one that skirts the city—and chooses to cram all the traffic onto the downtown line. In the real world CSXT uses its multiple lines to provide routing alternatives and operating flexibility and to avoid overcrowding the downtown line. But TPI does not even attempt to demonstrate that the TPIRR would provide its re-routed cross-over traffic with the

[24] *See, e.g., infra* III-D-185-88 (presenting detailed benchmarking analysis to support evidence of minimum headquarters staffing required for maintenance-of-way department); *id.* at III-G-1 through III-G-9 (presenting evidence of equity flotation costs in recent initial public offerings to support estimate of equity flotation costs for TPIRR).

same or better service than that provided by CSXT over the actual route of movement, as required by the Board's precedents. *See, e.g., TMPA I,* 6 S.T.B. 573, 594–95. Because TPI has failed to demonstrate that internal re-routes of cross-over traffic satisfy the service requirements for such re-routes, the Board should disallow that re-routed traffic and remove it from the SAC analysis. *See infra* III-C-36–54.

Leapfrog Traffic. TPI also failed to acknowledge its heavy reliance on what has become known as "Leapfrog" traffic—*i.e.*, traffic that supposedly would be interchanged back and forth between the TPIRR and the residual CSXT multiple times, "leaping" over any internal SARR segments that the complainant chooses not to build or operate. CSXT's evidence shows that the Leapfrog traffic device, which is used without justification or explanation by TPI, should be rejected because it distorts the SAC analysis, in part by allowing the SARR to avoid high-cost, low-contribution, and operationally difficult internal segments of SARR routes. *See infra* III-A-8–10; III-C-37. If allowed to continue, this new tactic could be used by complainants to game the SAC analysis and thoroughly undermine the reliability and legitimacy of its results, thereby rendering SAC results meaningless as a measure of rate reasonableness. If the Board is not yet willing to draw a bright line prohibiting all use of internal cross-over and Leapfrog traffic, CSXT has also proposed a revised revenue allocation approach to apply to such traffic that mitigates the distorting effects of allowing the TPIRR to "leap" over internal cross-over segments. *See infra* III-A-40.

The Leapfrog device is particularly inappropriate for shipments that require expedited service, because Leapfrog operations create multiple unnecessary interchanges between the SARR and the residual CSXT that make it impossible to meet the service requirements of time-sensitive moves. CSXT's Reply Evidence identifies a few high-priority, time-sensitive

movements for which the increased transit times created by the multiple interchanges required for "leapfrogging" would cause a carrier to lose the business. *See infra* III-A-8–10; III-C-53–54. TPI's leapfrog plan for such extremely time-sensitive traffic plainly does not provide "service that is equal to (or better than) the existing service for that traffic,"[25] and CSXT therefore excludes this traffic from the TPIRR's traffic group. *See infra* III-A-38.

Traffic Volume and Forecast Issues. TPI's volume projections are flawed in multiple other ways. For the three-and-one-half-year period for which actual CSXT traffic volumes are available (July 2010 through 2013), TPI made multiple errors in traffic selection that resulted in it claiming volumes (and SARR revenues) from traffic that did not actually travel on the SARR's lines. *See infra* III-A-2–8. CSXT's evidence explains those errors and how CSXT corrected them. *See id.*

For the period from 2014-2017, CSXT accepts TPI's proposal to base projected volume growth for Merchandise and Intermodal traffic on CSXT's aggregated internal forecast. *See infra* III-A-16. An aggregated forecast for these commodities groups is acceptable because TPI proposes to handle virtually all of CSXT's general freight and intermodal traffic. For Coal traffic, however, the TPIRR would only handle 61% of CSXT's coal shipments, and for these commodities a more refined approach produces more accurate results. *See infra* III-A-10–15. For example, the TPIRR handles very few export coal shipments from Central Appalachian mine origins to the Newport News, VA coal terminal, but those shipments comprise a substantial portion of the anticipated overall coal volume growth in CSXT's forecast as aggregated by TPI.

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[25] *TMPA I*, 6 S.T.B. at 589 ("[T]he SARR must meet the transportation needs of the traffic in the group by providing service that is equal to (or better than) the existing service for that traffic."); *see also AEPCO 2011,* STB Docket No. 42113, at 10 ("[W]e require that these hypothetical operations be feasible and supported and that they provide shippers included in the analysis the same or superior service as provided by the actual operations of the defendant railroads.").

See infra III-A-11. Aggregating the coal forecast thus significantly overstates the anticipated volume growth of the coal movements TPI selected for the TPIRR. To address this issue, CSXT used its internal forecast to develop destination-specific volume growth projections for the TPIRR's coal traffic. *See infra* III-A-12.

For the years in the SAC analysis period not covered by CSXT's forecast (2018-2020), TPI uses a Compound Annual Growth Rate ("CAGR") derived from the period covered by the CSXT forecast. CSXT's evidence demonstrates that TPI's CAGR creates unreasonable distortions, particularly for lower-volume commodities with short-term growth spikes that could not possibly be sustained over the longer-term. *See infra* III-A-17–19. Publicly available EIA forecasts are far more reliable than TPI's extrapolation approach for accurately estimating volumes in the later years of the SAC analysis. Accordingly, CSXT uses EIA forecasts for both coal and non-coal volumes in the later years of the analysis period. *See infra* III-A-19–21.

Revenue Projections. CSXT also makes several corrections to errors in TPI's revenue projections, including overstatements of certain fuel surcharge revenues and the mistaken inclusion of waybill records for shipments that did not travel on the TPIRR network. *See infra* III-A-21–29.

Revenue Allocation. CSXT accepts TPI's use of the so-called "Alternative ATC" revenue allocation method adopted in *Rate Regulation Reforms*, but TPI made several significant errors in its implementation of that methodology. For example, TPI erroneously credited the TPIRR with revenue for some line segments that are not on the SARR network at all. *See infra* III-A-40–41. And TPI routinely claimed the entire revenue for network links for which the TPIRR was replicating only part of the CSXT lines. *See infra* III-A-41–43. This systemic error resulted in TPIRR claiming ATC revenues for 940 miles of the residual CSXT network that are

not part of the TPIRR network! *See infra* III-A-43. CSXT's correction of these plain mileage errors significantly alters the URCS variable cost inputs for ATC revenue allocations and therefore changes the revenues attributed to the TPIRR.

B. Stand Alone Railroad System

TPI proposes a rail network for the TPIRR totaling 7,356.91 miles, with 6,865.94 miles of track that would be constructed and owned by the TPIRR and another 490.97 miles of track over which the TPIRR would operate using trackage rights. TPI Opening III-B-2. Although TPI proposes to route certain traffic differently than CSXT does today, CSXT accepts the general scope and configuration of the TPIRR posited by TPI, with certain enumerated corrections.[26] The most significant of these are summarized below.

First, TPI wrongly assumes that the TPIRR could use "trackage rights" to operate over facilities fully or partially owned by CSXT without accounting for CSXT's ownership interest. For example, TPI asserts that the TPIRR would be able to use "trackage rights" to operate over the Baltimore and Ohio Chicago Terminal Railroad—a fully owned CSXT subsidiary listed in CSXT's R-1—without replicating the construction costs of that line. *See infra* III-B-5. TPI similarly claims that the TPIRR would use "trackage rights" to operate over the Belt Railway of Chicago, in which CSXT owns a 25% interest; a 65.7 mile CSXT-UP joint facility between Dolton and Woodland Junction, IL in which CSXT owns a 50% interest; and several facilities in which CSXT acquired an ownership interest in the Conrail acquisition (including the Monongahela Railway and the Ashtabula Coal Docks)—all without spending a dollar on the fixed costs of those facilities. *See infra* III-B-5. The Board has long recognized that a complainant cannot satisfy the SAC test by proposing "trackage rights" over facilities owned by

[26] CSXT also accepts TPI's proposed track specifications for main lines, branch lines, yard tracks, setouts, and other tracks.

an incumbent without evidence that the trackage rights fees "reflect the full cost of ownership,"[27] and it recently reaffirmed that principle in *DuPont*. *See DuPont*, STB Docket No. 42125, at 48-49.

The Board held in *DuPont* that a complainant is required to account for the construction costs of partially owned facilities in the SAC analysis, but held that the defendant had the burden to demonstrate its ownership relationship with the partially owned facility. *See id.* Consistent with that decision, CSXT has included documentation of each partially owned facility in which it possesses an ownership stake in Section III-B. For facilities in which CSXT's ownership stake is clearly reflected in either CSXT's R-1 or agency decisions, the TPIRR must account for a pro rata share of the replacement cost of those facilities. *See id.* CSXT has identified a second group of joint facilities for which its ownership interest is not reflected in the R-1, but rather such interests are reflected by agreements that require CSXT to make capital or other expenditures on the facilities. *See infra* III-B-6-10. For these facilities (which include the Monongahela Railway, lines between Haselton and Ashtabula, and the Ashtabula Coal Dock), CSXT conservatively does not contend that the TPIRR must be responsible for replacement costs. But CSXT makes substantial capital expenditures on each of these joint facilities as part of its ownership rights, and if the TPIRR is to step into CSXT's shoes on these facilities, it at least must be responsible for a pro rata share of those capital investments. *See infra* III-B-4.

Second, TPIRR assumes that many new interchange points would be created between the TPIRR and branch lines of the residual CSXT, but TPI fails to provide all of the tracks that would be required to interchange traffic with CSXT at those branch line junctions. In several places TPI proposes new interchange points at locations where CSXT does not interchange

[27] *AEPCO 2005*, STB Docket No. 42058, at 11 (rejecting trackage rights where the "tenant carrier's fee does not reflect the full cost of ownership").

traffic today and does not have tracks in place to permit such interchanges. *See infra* III-B-12. CSXT addresses this omission by adding necessary interchange trackage at those new interchange locations. *Id.*

Third, CSXT's RTC simulation demonstrated that TPI's track capacity was deficient when all necessary trains are included and when TPI's unreasonably optimistic assumptions about operating practices and train delays are corrected. *See infra* III-B-13. CSXT's evidence also demonstrates that the TPI's yards are significantly undersized and inadequate to handle car classification and blocking for its selected traffic. *See infra* III-C-74–127. CSXT's Reply Evidence provides the additional main line, secondary track, interchange tracks, and yard tracks that the TPIRR would need to serve its selected traffic group. *See infra* III-B-13–15.

Fourth, TPIRR failed to include adequate lead tracks for customers and terminals located off the TPIRR's main and branch lines, which effectively means that TPI takes credit for originating and terminating traffic at these customers and terminals without building sufficient track to actually reach the facilities. *See infra* III-B-16–17. CSXT provides the necessary lead tracks.

Fifth, TPI failed to construct certain intermodal and coal terminals where the TPIRR would originate and terminate traffic and omitted certain yards and interchange tracks necessary for TPIRR operations. *See infra* III-B-23.

With the additions and modifications posited by CSXT, the TPIRR would have a total of 12,582.95 miles of track, consisting of 6,911.84 main line track, 3,371.57 miles of second main line track, 136.1 miles of set out and helper track, 2,099.70 miles of yard and interchange track, and 63.71 miles of customer lead track. *See infra* III-B-15, Table III-B-3.

C. Operating Plan

Section III-C addresses the TPIRR operating plan. TPI's Opening Evidence fails to present a "feasible" operating plan—*i.e.*, one that is capable of meeting the service requirements of the TPIRR's customers, particularly shippers of general freight traffic. TPI's plan is 44,694 trains short of the number of local trains needed to carry the TPIRR's traffic in the peak week alone. *See infra* III-C-15. TPI makes the nonsensical claim that it is "adopting CSXT's car classification plan" while slashing yard tracks, locomotives, and crews that it would need to classify and block 20% more carload traffic than CSXT does today. *See infra* III-C-4. Its operating plan is based on ridiculous assumptions about the amount of time it would take the TPIRR for various activities—including an assumption that it would take one minute for a road train departing a hump yard to be assembled from multiple blocks, inspected, and clear the tracks. *See infra* III-C-107. Indeed, TPIRR does not even provide full train service to 39% of TPI's own traffic. *See infra* III-C-30. In short, TPI does not come close to meeting its burden to provide an operating plan that is "capable of providing the service required by the SARR's customers."[28]

A SARR with a traffic group consisting largely of individual "carload" shipments is governed by the same basic SAC principles as a SARR consisting largely of unit train shipments. A complainant must develop an operating plan capable of serving the traffic it selected, and do so using assumptions that are realistic.[29] As the Board explained in *DuPont*, a feasible carload operating plan must "provide for full service from each specific origin, through the network, and

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[28] *Duke/CSXT*, 7 S.T.B. at 99; *see also AEPCO 2011*, STB Docket No. 42113, at 28; *Xcel*, 7 S.T.B. at 610.

[29] It should not be forgotten that the overwhelming majority of carload traffic on the TPIRR is non-issue traffic that TPI easily could have not selected if it wished to avoid the logistical complexities of serving that traffic. But if TPI intends to select and claim the revenues for carload traffic, then it has to provide appropriate service to that traffic.

to each specific destination."[30] This means that the operating plan must account for all of the trains necessary to handle the SARR's selected traffic at each stage from its origin (or on-SARR junction) across the SARR's lines to its destination (or off-SARR junction).[31] A feasible carload operating plan must also account for both the time and the facilities necessary to classify and block individual cars as they move along the SARR network.[32]

The multiple failures in TPI's Opening Evidence leave TPI far short of its burden to provide full service to the traffic whose revenues it claims. The Board would have good reason to reject TPI's evidence outright for failure to present a prima facie SAC case, and CSXT would have been justified in rejecting TPI's operating plan outright and presenting CSXT's own, entirely separate alternative plan. But because the Board has asked defendant railroads to attempt to correct the deficiencies in a complainant's operating plan rather than proffering an entirely separate plan (when such corrections are possible), CSXT presents this Reply Evidence in the form of a series of corrections and adjustments to TPI's operating plan. *See SunBelt*, STB Docket No. 42130, at 13; *DuPont*, STB Docket No. 42125, at 41. Some of the most significant TPI errors and CSXT corrections are discussed below.

First, TPI fails to provide the trains required to serve its selected traffic. *See infra* III-C-15–35. TPI proffered a skeletal operating plan based primarily upon a series of "automated" analyses of CSXT's historical train and car event data. TPI's "train service plan" consists of a computerized list of road and local trains operated by CSXT in the TPIRR's service territory between July 1, 2012 and June 30, 2013 (the period corresponding with the TPIRR's Base Year).

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[30] *See DuPont*, STB Docket No. 42125, at 38.

[31] *See id.* at 37-39 (rejecting complainant's operating plan for failing to account for all trains required to provide complete carload service).

[32] *See id.* at 40 (rejecting complainant's operating plan for failing to provide facilities necessary to block and interchange traffic).

The flawed methodologies and erroneous assumptions applied by TPI in compiling the TPIRR's train list resulted in its failure to include 44,694 CSXT trains in which TPI's selected traffic moved during the Base Year. *See infra* III-C-15–35. TPI's train selection methodologies, and strategic decisions it made in implementing those methodologies, resulted in the exclusion of almost six thousand local trains that served the TPIRR's customers (but also moved off-SARR) during the Base Year, nearly 29,000 industrial yard trains that pick up or set off cars at TPIRR-served customer facilities, and just under 10,000 local trains that perform switching service or deliver empty cars to TPIRR customer facilities. *See id.* This deficiency results in a massive failure of TPI's operating plan to provide complete on-SARR train service for its selected traffic. More importantly, 864 of the industrial yard trains excluded by TPI originated or terminated 1,286 carloads—or 39%—of TPI's own issue traffic! *See infra* III-C-30. This error alone warrants rejection of TPI's operating plan and RTC simulation.[33]

Second, TPI fails to present any car classification or blocking plan for the nearly three million carloads of merchandise traffic in the TPIRR's traffic group. *See infra* III-C-55–74. Instead, TPI says that its operating plan implicitly "incorporates" CSXT's historical blocking plan because (according to TPI) it allegedly "mirrored the critical aspects of CSXT's current train operations." TPI Opening III-C-12. However, TPI altered the routing, movement, and dwell times of the CSXT trains that it purported to "adopt" so substantially that TPIRR's trains bear little resemblance to CSXT's real world trains. *See infra* III-C-8. If TPI is moving trains over different routes on a different schedule with different dwell times, then how could it possibly be "incorporating" a CSXT classification plan predicated on CSXT's yard service plan

[33] *See, e.g., DuPont*, STB Docket No. 42125, at 37-39 (rejecting operating plan that failed to account for required local train service); *FMC*, 4 S.T.B. at 736 (rejecting complainant's operating plan in part for understating the number of trains required).

and CSXT's schedule for when trains arrive and depart? Indeed, TPI asserts that the TPIRR would classify and block cars through its yards in a fraction of the time that it takes CSXT to do so pursuant to its real world classification and blocking plan. *See infra* III-C-55–74. Not only are those claims unsupported and impossibly optimistic, they fatally undermine TPI's assertion that its operating plan "mimics" CSXT's real world operations. *See id.*[34]

Third, even if TPI were truly "incorporating" CSXT's car classification and blocking plan, TPI has utterly failed to demonstrate that the TPIRR could replicate that plan with fewer facilities and resources than CSXT uses in the real world. As the Board made clear in *SunBelt*, simply asserting that the SARR would employ the same car classification and blocking plan as the incumbent carrier is not sufficient to satisfy a complainant's evidentiary burden, particularly when the SARR does not also adopt the incumbent's network of yards, yard assignments and switch locomotives. Rather, "if a complainant adopts the incumbent railroad's car classification and blocking plan, and the complainant modifies or removes a facility, or reduces staffing from the incumbent's classification and blocking plan, it would need to establish that the SARR could still adequately serve the traffic group."[35] Here, TPI posits hump yards and flat switching yards with 30.8% less car classification capacity than CSXT's real world yards and proposes that the TPIRR would have fewer yard crews and locomotives than CSXT currently utilizes at virtually every yard on the TPIRR network. *See infra* III-C-128–134; III-C-138–147. TPI does not even attempt to explain how the TPIRR could "incorporate" CSXT's historical blocking plan—much

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[34] *See CP&L*, 7 S.T.B. at 255-56 (rejecting complainant's operating plan in part for failure to account for all elements of service).

[35] *SunBelt*, STB Docket No. 42130, at 16; *see also DuPont*, STB Docket No. 42125, at 40 (rejecting operating plan that purported to adopt incumbent's blocking plan but failed to provide the same facilities as incumbent).

less classify and block approximately 20% more cars per day than CSXT—with a fraction of CSXT's real world yard capacity, locomotives and personnel. *See infra* III-C-56–59.

Fourth, the time assumptions in TPI's operating plan are utterly inconsistent with real world railroading. TPI assumes that every activity at TPIRR yards happens with lightning speed (despite the fact that TPI sharply cuts yard tracks, yard crews, and yard locomotives from real-world levels). Road trains originating at TPIRR hump yards occupy departure tracks for only one minute prior to their departure. *See infra* III-C-107. TPI does not explain how multiple blocks of cars could be transferred from classification tracks to the departure track, assembled into a train, and inspected in 60 seconds. In the same vein, TPI assumes that every TPIRR train arriving at a hump yard could be disassembled and have its cars switched to the hump track (making the receiving track available to hold another train) in only 30 minutes—when CSXT's real-world data shows that that process typically takes more than five hours. *See infra* III-C-109 –117. And in a third example, TPI ignored the real-world train-specific train arrival and departure data provided in discovery, in favor of impossibly optimistic assumptions that TPIRR trains could pick up and/or set off cars at intermediate yards in only 30 minutes (even though the very same CSXT trains that the TPIRR purports to "adopt" experienced average dwell times of 2.6 hours at flat switching yards and 3.9 hours at hump yards). *See infra* III-C-100–106.

Fifth, TPI's use of the "leapfrog" traffic artifice should be disallowed. In TPI's operating plan, thousands of trains "leapfrog" between the TPIRR's lines and the lines of the incumbent CSXT—sometimes multiple times—during their journey across the TPIRR's service territory. CSXT's evidence demonstrates that "leapfrog" movements essentially never occur in the real world. *See infra* III-C-4–45. And CSXT's evidence also demonstrated the ways that the leapfrog device "games" the SAC analysis to avoid construction costs and to mask the impact of

internal cross-over traffic on transit times. *See infra* III-C-36–54. Here, TPI's use of "leapfrog" traffic is transparently designed to avoid expensive construction costs and high operating expenses along substantial portions of the TPIRR's route system, including the Northeast Corridor. *See infra* III-C-39–40.

Sixth, TPI's assumption that CSXT would adopt the same 1/1 Distributed Power locomotive configuration as the TPIRR proposes to employ impermissibly posits future agreements that do not exist today and is inconsistent with prevailing operating practices in the Eastern territory the TPIRR proposes to serve. *See infra* III-C-156–162.

Seventh, TPI's RTC simulation contains multiple modeling errors, many of which flow from the errors described above. TPI's RTC Model (i) fails to model the movement of hundreds of Peak Week trains that are missing from TPI's operating plan, (ii) fails to account for the number of "growth" trains that the TPIRR would need to operate to accommodate its Peak Year traffic volumes, (iii) fails to consider the time during which TPIRR local trains would occupy the main line while serving industries, (iv) adopts the nonsensical dwell time assumptions in TPI's operating plan, and (v) fails to account properly for delays due to random failures and track outages. *See infra* III-C-169–195. As a result of these (and other) fundamental modeling errors, the track requirements and operating statistics generated by TPI's RTC simulation are vastly understated.

For these and other reasons, TPI's operating plan is utterly infeasible. CSXT has carefully corrected the errors in TPI's plan and supplemented it with the resources necessary to provide complete service to the TPIRR's traffic group. CSXT's Reply Evidence addresses the fatal deficiencies in TPI's Opening car classification and blocking plan by adjusting the plan that CSXT actually used as of June 2012 (the beginning of the Base Year) to reflect the increased

traffic volumes that the TPIRR would be required to classify and block during the Peak Year. To accomplish this modification to the TPIRR's carload blocking and train service plan, CSXT utilized the widely accepted MultiRail modeling tool, a commercially available program that has been accepted in past cases.[36] *See infra* III-C-59.

CSXT used MultiRail in part because the "real world" operating plan that CSXT followed during the Base Year (and which TPI purports to replicate) was developed with the MultiRail program. *See infra* III-C-60. Indeed, CSXT's MultiRail evidence is based upon the car classification and blocking plan, and train profiles, that CSXT actually utilized to develop its real world operating plan as of June 2012 (the beginning of the TPIRR's Base Year). *See infra* III-C-61. MultiRail was thus an ideal tool to help CSXT's operating experts adjust CSXT's June 2012 Operating Plan to accommodate the TPIRR's increased traffic volumes and different network. CSXT's evidence and workpapers explain its methodology in detail. *See id.*

CSXT's Reply Evidence also corrects the massive deficiency in car classification capacity at the TPIRR's hump yards and flat switching yards. CSXT's evidence shows that at many yards TPI's proffered yard tracks would be insufficient to even park the average daily inventory of cars, let alone classify and block cars and assemble trains. *See infra* III-C-82. CSXT uses a conservative methodology to develop corrected yard sizes and configurations that

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[36] The Board has accepted the use of MultiRail to create blocking plans and train service plans in prior SAC cases and other STB proceedings. *See, e.g., SunBelt*, STB Docket No. 42130, at 18; *DuPont*, STB Docket No. 42125, at 41; *Seminole Electric Cooperative, Inc. v. CSX Transp., Inc.*, STB Docket No. 42110 (Reply Evidence of CSXT); *Canadian National Ry. Co., Grand Trunk Corp. & Grand Trunk Western R.R. Inc.—Control—Illinois Central Corp., Illinois Central R.R. Co., Chicago, Central and Pacific R.R. Co. & Cedar River R.R. Co.*, STB Fin. Docket No. 33556 (served May 25, 1999). Here, CSXT alerted TPI's counsel nearly one year ago to the possibility that CSXT might use MultiRail to develop its Reply Evidence. In addition, CSXT has explained to TPI's counsel how TPI may acquire a license for use of MultiRail from the model's owner, Oliver Wyman and Company, and CSXT has even offered to pay TPI's licensing fee for the "read only" version of MultiRail if TPI indicates that it wishes CSXT to do so.

account for both the inventory of cars that each yard would be required to hold during a typical week during the Peak Year and the number and size of the blocks that the TPIRR would be required to build on a daily basis at each location. *See infra* III-C-76–24.

CSXT makes a variety of other corrections to TPI's operating plan to ensure that it accords with the "realities of real-world railroading." These corrections include replacing TPIRR's ludicrously understated assumptions of dwell time with time estimates that are consistent with real-world practice; proposing realistic numbers of yard crews and yard locomotives (which were slashed from real-world levels by TPI with no supporting justification); correcting unrealistic assumptions about what agreements the TPIRR could reach with connecting carriers; and adopting required safety measures for crude oil trains and TIH commodities. *See infra* Section III-C.

Because of the multiple flaws in TPI's operating plan, the RTC simulation that TPI proffers in support of its operating plan is invalid. For an RTC simulation to produce meaningful results, the operating plan on which it is based must both include all of the necessary facilities and train services to serve the selected traffic and be consistent with the realities of real-world railroading. An RTC simulation that—like TPI's—fails to model all the necessary train service and incorporates unrealistic assumptions about dwell times, train speed, and track outages is worthless.

Unlike TPI's RTC evidence, CSXT's RTC Model is based upon an operating plan that accounts for the road and local trains that the TPIRR would have to operate; applied realistic train dwell times at TPIRR yards; corrects TPI's inaccurate modeling of the TPIRR network and train movements; and posits a track configuration that is optimally sized to accommodate the TPIRR's operations. CSXT's RTC simulation is well-documented and thoroughly explained in

Section III-C and supporting workpapers, and the operations portrayed in the simulation are consistent with real world operating practices and the service requirements of the TPIRR's customers. The Board should reject TPI's RTC Model simulation and base its decision on the well-supported simulation presented by CSXT.

D. Operating Expenses

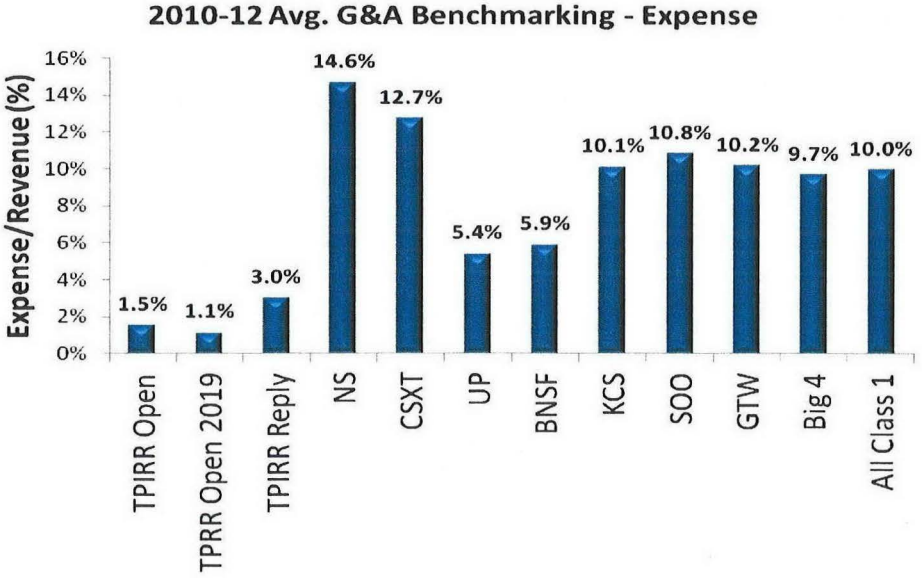
In Section III-D, CSXT explains numerous ways in which TPI understates the expenses that would actually be incurred for operating the TPIRR. The most fundamental reason is that TPI's operating plan and RTC simulation fail to account for all of the necessary trains, yard operations, local service, and facilities required to serve the TPIRR's selected traffic. *See* CSXT Reply Section III-C. As CSXT explained in Section III-C above, the operations required to support the TPIRR's general freight traffic (including car classification and switching and providing local service to more than 1,600 customer facilities at 686 stations) are far more complex and time consuming than the sort of "trainload" operations that were the case in coal-only SARRs. If TPIRR is to be permitted to claim massive revenues from selecting nearly all CSXT's general freight traffic, then TPI must also recognize the full costs of providing those general freight services on the other side of the ledger.

CSXT's Reply Evidence shows that TPI substantially understated TPIRR operating expenses at almost every turn. For example, TPIRR massively understates the number of locomotives it would need to serve the issue traffic, which is not surprising, since it claims that TPI could transport 88% of CSXT's real world traffic with 30% of CSXT's real-world locomotive fleet. *See infra* III-D-5. CSXT's evidence shows that TPI's understatement is largely attributable to errors in the TPI operating plan, including missing trains, unrealistic dwell times, and inaccurate transit times. *See infra* III-D-4-18. TPI similarly makes patently unrealistic assumptions about freight car lease costs and the number of freight cars that would be

required for TPIRR operations. *See infra* III-D-29–46. TPI also understates the costs of train and engine crews by a wide margin, both because its operating plan substantially understated the number of crew starts that would be required and because of unrealistic assumptions about re-crew rates and average shifts per year. *See infra* III-D-46–58. And TPI fails to provide sufficient non-train operating personnel in critical areas like customer service and car inspection. *See infra* III-D-63–68; III-D-70–73.

General and Administrative: TPI grossly understates the General and Administrative ("G&A") staffing and spending necessary to serve its selected traffic group. The TPIRR would have a traffic group and revenue base much like that of a real-world Class I railroad—its revenues would rank it as the fifth-largest railroad in the United States. *See infra* III-D-74. But while the average Class I railroad spends over eight percent of revenues on G&A, TPI claims that the TPIRR would spend less than 1.5% of its revenue on G&A.

Table I-1
Benchmarking to Class Is – G&A Expenses[37]



[37] *See infra* III-D-78, Table III-D-14

TPI similarly claims that the TPIRR's G&A staffing and spending would be far lower on a revenue-adjusted basis than that of any other SARR recently approved by the Board.

Table I-2
Comparison of TPI G&A Staffing to Board-Approved Staffing In Past 10 SAC Cases[38]

Case	G&A Staff	Revenue (in millions)	G&A Staff Per $10M Revenue
Duke/NS	63	$487.1	1.29
CP&L	63	$453.7	1.39
Duke/CSXT	59	$496.8	1.19
Xcel	51	$341.5	1.49
Otter Tail	55	$581.7	0.95
AEP Texas	66	$384.2	1.72
WFA	39	$218.4	1.78
AEPCO	225	$2,075.8	1.08
DuPont	820	$5,768.4	1.42
SunBelt	100	$362.4	2.76
Average	--	--	**1.51**
TPI Opening	**304**	**$6,657.8**	**.45**
CSXT Reply	**754**	**$6,475.2**	**1.16**

TPI's assertions that the TPIRR could be significantly more efficient in G&A than any real-world railroad or prior SARR are unaccompanied by any explanation of how the TPIRR would achieve such remarkable efficiencies. Instead, TPI clings to the discredited theory that the TPIRR would incur less G&A expenses because it could expect other railroads to perform G&A functions for its crossover traffic, and it repeats general platitudes that are unaccompanied by any explanation of how and why the TPIRR could be drastically more efficient than both real-world railroads and other SARRs. *See infra* III-D-84–90. Nowhere does TPI include the sort of

[38] *See infra* III-D-80, Table III-D-16 for a version of this table with supporting citations.

relevant real-world benchmarks of G&A spending that the Board has repeatedly instructed SAC litigants to provide.[39]

The single concrete "benchmark" that TPI includes in its G&A evidence is a reference to the alleged staffing levels of the Chicago North Western ("CNW") in 1994. But TPI's supposed benchmark to railroad staffing from two decades ago is hardly a relevant "benchmark" to current G&A spending, particularly in light of TPI's claim that its count of CNW's G&A staff is based on the memory of an expert who supposedly can reconstruct a 533-employee roster after 20 years. *See infra* III-D-82–94. But that expert apparently cannot recall—or hopes that the Board will not recall—that just last year in the *DuPont* proceeding he gave completely contradictory testimony about CNW's G&A staffing levels, claiming there that CNW had only 207 G&A employees. *See infra* III-D-83. Mr. McDonald's asserted recollection of the CNW's precise G&A staffing organization after 20 years manages to be both one of the most inherently incredible pieces of testimony presented to the Board in recent memory and one of the starkest examples of a witness swearing to the truth of two completely irreconcilable allegations.

CSXT's evidence includes actual CNW documentation showing that CNW's actual G&A staffing in 1994 was far higher than Mr. McDonald claims, and indeed that CNW employed at least 654 G&A employees on a railroad that earned $1.14 billion in annual revenues (approximately $1.66 billion in 2010 dollars). *See infra* III-D-83–84. Thus, on a revenue-adjusted basis CNW's staffing was over eight times what TPI proposes for the TPIRR. *See infra* III-D-84-85. TPI's "benchmark" thus only shows how utterly deficient its G&A staffing is.

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[39] *See, e.g., DuPont*, STB Docket No. 42125, at 83 ("The Board has consistently required parties to document their personnel and expense estimates with comparisons to real-world railroading"); *AEPCO 2011*, STB Docket No. 42113, at 58 (criticizing parties for not providing benchmark analyses or any other sufficient explanation for staffing levels chosen).

CSXT's G&A evidence is firmly grounded on real-world experience and industry standards, and consistent with the staffing and spending that the Board accepted for a similarly-sized SARR in *DuPont.* CSXT's evidence demonstrates that a least-cost estimate of G&A expenses for the TPIRR would be $166.6 million in the Base Year for 754 G&A employees, or less than 3% of the TPIRR's gross revenue. *See infra* III-D-91 through 174.

Maintenance of Way. TPI's opening evidence of the TPIRR's maintenance-of-way ("MOW") staffing and expenses falls far short of its burden to present evidence of likely TPIRR MOW costs that is "consistent with the underlying realities of real-world railroading." *WFA I,* STB Docket No. 42088, at 15. The Board has established that a complainant is not permitted to depress SARR operating costs by scrimping on maintenance.[40] On the contrary, adequately maintaining the SARR network is essential for the SARR to replicate the full costs of serving its selected traffic. For this reason the Board repeatedly has rejected claims that a SARR can defer maintenance during the SAC analysis period and it has refused to credit allegations that a SARR's infrastructure would require significantly less maintenance than real-world infrastructure.[41] The "realities of real-world railroading" require an adequately staffed maintenance function if a SARR is to provide safe and reliable service.

Here, TPI's proposed staffing is not nearly sufficient to properly maintain the TPIRR's network. Indeed, on a track-mile basis, TPI's MOW staffing is well below the level of MOW staffing that the Board found to be reasonable in the last six decided SAC cases.

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[40] *See DuPont*, STB Docket No. 42125, at 100-134; *SunBelt*, STB Docket No. 42130, at 71-95.

[41] *See, e.g., DuPont*, STB Docket No. 42125, at 106, 127-28, 129 (rejecting various claims that SARR's new infrastructure would require substantially less maintenance than incumbent); *SunBelt*, STB Docket No. 42130, at 73, 75 (same).

TABLE I-3
MOW Staffing in Recent SAC Cases[42]

	DuPont	*SunBelt*	*AEPCO 2011*	*WFA*	*AEP Texas*	*Otter Tail*	*Xcel*	TPI Opening	CSXT Reply
MOW Staff	2,163	185	559	97	488	437	166	1,146	1,966
Track Miles	10,723	714	3,326	391	1,664	1,485	553	10,219	10,283
Track Miles Per MOW Staff	**4.96**	**3.9**	**5.9**	**4.0**	**3.4**	**3.4**	**3.3**	**8.92**	**5.23**

For example, in *DuPont* the Board held that a staff of 2,163 MOW employees was necessary to maintain a network of 10,722.59 track miles, a ratio of 4.96 track miles per MOW employee. Here TPI proposes that the TPIRR could maintain a similar network of 10,219.53 track miles with just 1,146 employees, a ratio of 8.92 track miles per employee. That ratio suggests that TPI's MOW workers would be almost twice as efficient as the MOW workers on the *DuPont* SARR and more than twice as efficient as those in *SunBelt*. TPI does not explain what is different about its SARR that would allow such remarkable efficiency improvements. It simply repeats the same generalized claims made by complainants in *DuPont* and prior cases about the supposed lower maintenance needs of newly constructed SARR infrastructure.[43] Of course, these assertions do not explain how the TPIRR's MOW workforce could be markedly more efficient than the workforces of other SARRs that were also presumed to be maximally efficient and to be maintaining newly built infrastructure.

The only new argument that TPI raises to justify its implausibly thin staffing is a claim that TPI's analysis of CSXT's MOW workforce shows that CSXT's real-world workforce

[42] *See infra* III-D-176, Table III-D-34.

[43] Much of TPI's rhetoric on this point is lifted almost word-for-word from DuPont's evidence. *Compare* TPI Op. Ex. III-D-3 at 6, Table 1 *with* Rebuttal Ex. III-D-2 at 8, Table 1, *DuPont*, STB Docket No. 42125 (filed Apr. 15, 2013).

maintains 9.71[44] track miles per capita—a ratio more efficient than the one that TPI is proposing for the TPIRR and nearly double the ratio in *DuPont*. *See infra* III-D-179. Remarkably, this assertion would mean that every MOW workforce approved by the Board in recent years was far less efficient than the real-world CSXT. And it would mean that every complainant in those cases had failed to notice that the Board was adopting MOW staffing levels far in excess of the levels employed by real-world railroads. TPI's implausible assertion is utterly false, because TPI has both overstated the number of main track miles maintained by CSXT and understated the number of CSXT MOW employees. *See infra* III-D-179–80. As a result its proposed 9.71 ratio is significantly inflated. CSXT's actual track-mile-to-MOW-employee ratio is approximately 3.7—substantally lower than the ratios that the Board has approved for other SARRs, and lower than the ratio for the optimally efficient SARR CSXT proposes here. *See infra* III-C-180.

In contrast to TPI's utterly unrealistic plan, CSXT's Reply Evidence presents a realistic and well-supported plan for the TPIRR's MOW staffing and expenses that is supported by ample documentation and that is consistent with recent Board decisions on the appropriate assumptions to be made when developing MOW staffing. *See infra* III-D-185–235.

Leased Facilities. TPI's evidence purports to calculate trackage rights fees for 21 joint facilities. CSXT accepts TPI's approach for calculating operating costs over 20 of these 21 joint facilities. TPI made an error in its formula for calculating operating costs over the Indiana Harbor Belt Railway ("IHB") in Chicago. *See infra* III-D-237–238. In addition, TPI failed to include costs associated with four other joint facilities used by the TPIRR: the Alabama State

[44] While TPI designates this ratio as highly confidential, CSXT does not. There is nothing confidential about a fictional number that bears no relationship to CSXT's actual track miles per MOW employee.

Docks in Mobile, the Belt Railway of Chicago, and two additional IHB facilities. *See infra* III-D-237–239. CSXT corrects these errors in its evidence.

Loss and Damage. CSXT accepts TPI's basic approach, but corrects TPI's mileage inputs to address TPI's misassignment of some SARR miles. *See infra* III-D-239.

Insurance. CSXT accepts TPI's proposed insurance ratio of 1.35% of operating expenses. *See infra* III-D-239.

Ad Valorem Tax. TPI substantially understates the amount of ad valorem taxes that the TPIRR would be required to pay. TPI does so by using a methodology that ignores the fact that most of the states through which the TPIRR operates calculate ad valorem taxes for railroads based on a railroad's profitability. In these "unit method" states, an optimally efficient SARR like the TPIRR would pay relatively higher taxes than a less-efficient real-world railroad like CSXT. The Board has recognized in recent cases that the SAC analysis should reflect this reality. *See DuPont*, STB Docket No. 42125, at 136-37; *SunBelt*, STB Docket No. 42130, at 66-67. This case is no different, and the Board should use the same kind of unit value modifier that it used in *DuPont* and *SunBelt* when calculating ad valorem taxes for the TPIRR. *See infra* III-D-240–247.

Other Costs. CSXT's Reply Evidence identifies several other operating expenses that TPI's evidence ignores, including the full costs of operations at the TPIRR's intermodal, automotive, and bulk transfer facilities (including necessary managerial and supervisory personnel). *See infra* III-D-247–255.

E. Non-Road Property Investment

Non-road property investment costs for the TPIRR, including costs for locomotives, railcars, and intermodal equipment, are addressed in Section III-D along with the discussion of the operating costs for those items.

F. Road Property Investment

TPI's road property investment evidence includes several significant underestimates of the TPIRR's construction costs that add up to a total understatement of road property investment costs of over $12 billion. Section III-F and the accompanying exhibits and workpapers explain TPI's errors in detail and provide well-supported corrections to TPI's understatements of road property investment costs. Some of the more significant road property investment issues are discussed below.

Land. CSXT generally accepts TPI's valuation approach and results, with four exceptions where TPI's methodology is plainly flawed or in conflict with clear Board precedent. First, TPI's failure to conduct a detailed on-the-ground appraisal of high-value urban areas produced inaccurate results. *See infra* III-F-4–6. CSXT's evidence details the extensive errors in TPI's valuation of these areas, which include classifying high-value land abutting golf courses and commercial facilities as essentially worthless "restricted" land. *See infra* III-F-5–6. In contrast, CSXT experts conducted detailed in-person appraisals that result in more accurate classifications and more reliable valuations. Second, CSXT valued easements at the cost at which TPI would have to pay to acquire them in 2008, consistent with Board precedent. *See infra* III-F-8–9; *SunBelt*, STB Docket No. 42130, at 103; *DuPont,* STB Docket No. 42125, at 139. Third, CSXT has valued the additional land that TPIRR would require to build necessary facilities that it omitted, including the partially owned lines used by the TPIRR and the yards and other facilities required to serve its customer base. Fourth, CSXT includes acquisition costs for the TPIRR's real estate, consistent with the Board's holdings in *DuPont* and *SunBelt* that such costs would be incurred by a SARR. *See infra* IIII-F-11–14.

Roadbed Preparation. The primary dispute in earthwork costs results from TPI's reliance on the tired, discredited, and repeatedly-rejected argument that the Board should base most costs

for earthwork that the TPIRR would require for its nearly 7,000 route miles of construction on the small and unrepresentative "Trestle Hollow" project—a single, isolated 1.3 mile railroad line relocation project for a short line in rural Tennessee. TPI's arguments are identical to those that the Board rejected in *DuPont* and *SunBelt* and provide no reason to abandon the well-established Board precedent for using R.S. Means costs for common earthwork excavation, clearing and grubbing, seeding, and subballast. *See infra* III-F-16–17.

CSXT's Reply Evidence demonstrates that this "Trestle Hollow" project was small and atypical, and that its unit costs cannot reliably be extrapolated to a large project, let alone a 6,900 mile SARR. *See infra* III-F-16–23. CSXT further shows in this Reply that the evidence of actual earthwork unit costs that it produced to TPI in discovery show that the purported Trestle Hollow unit costs are far out of line with CSXT's actual experience over a wide range of projects and conditions. *See infra* III-F-29. The size, scope, and geographic and topographic diversity of the TPIRR make it much more amenable to use of R.S. Means nationwide average costs than to extrapolation from any single project.

CSXT makes multiple other corrections to TPI's roadbed preparation costs, including correcting errors made by TPI when inputting ICC Engineering Report quantities; adding earthwork quantities to build the "humps" at TPIRR hump yards; correcting TPI's underestimate of the costs of land for excavation waste; adding unit costs for fine grading consistent with the Board's decisions in *Otter Tail, DuPont*, and *SunBelt*; and accounting for soil moisture conditioning consistent with *DuPont* and *SunBelt*. *See infra* III-F-31–70.

Track Construction. TPI's opening evidence understates the DRR's track construction costs in two primary ways. First, TPI understated transportation costs for nearly all forms of track material, including ballast, subballast, rail, and ties. *See infra* III-F-72–92. CSXT's track

engineering experts have corrected these errors on Reply. In addition, TPI's proposed track configuration does not have sufficient running, siding, and yard tracks to serve the TPIRR's customers. CSXT increases track construction quantities to account for all the necessary additional track mileage. *See infra* III-F-70. CSXT's evidence addresses these and other issues, including TPI's understatement of subballast quantities and costs and TPI's underestimate of the costs of high quality mainline ties by using a cost that primarily included yard and siding ties. *See infra* III-F-82–86.

Tunnels. CSXT generally accepts TPI's estimate of tunnel construction costs, except that CSXT adds two tunnels that TPI failed to include in its tunnel inventory. *See infra* III-F-95–96.

Bridges. The largest flaw in TPI's bridge evidence is its reliance on the baseless assumption that the TPIRR would be responsible for paying only ten percent of the costs of constructing its movable bridges. The Board squarely rejected this assumption in *DuPont* and *SunBelt*, holding that there was no basis to find that the Truman-Hobbs Act or any other law would result in the federal government paying for 90% of a SARR's bridge costs. *See DuPont*, STB Docket No. 42125, at 223. This single error alone produced an understatement of TPIRR bridge costs of more than $1 billion. *See infra* III-F-138–140.

TPI's bridge evidence includes a number of other errors. For example, TPI failed to account for several key bridges along the TPIRR route, including bridges in areas where the TPIRR is assumed to construct multiple main line tracks. *See infra* III-F-98–99. And TPI's evidence of construction costs for nonstandard bridges (such as movable bridges, unusually tall bridges, special non-movable bridges, and over-sized culverts) is simplistic, infeasible, and significantly understates the cost of constructing those special structures. *See infra* III-F-115–137. CSXT corrects these and other errors below in Section III-F-5.

Signals. While CSXT believes that TPI's proposal that the TPIRR would install a fully functioning PTC system in 2010 is not consistent with real-world experience, CSXT recognizes that the Board accepted similar hypotheses in *DuPont* and *SunBelt.* Therefore, CSXT accepts the hypothetical assumption that a functioning, but not interoperable PTC system could be installed in 2010 and that the TPIRR would rely on a microwave system for communications. On Reply, CSXT has added costs that would be incurred by the TPIRR after the initial 2010 installation, consistent with those expenditures currently being made by other Class I railroads, to meet FRA-mandated interoperability standards. *See infra* III-F-150–51. CSXT's Reply Evidence corrects other omissions and flaws in TPI's signals evidence, including its omission of critical signals components and its use of incorrect or outdated unit costs. *See infra* III-F-150–180.

Buildings and Facilities. CSXT makes a variety of corrections to TPI's estimates of road property investments for buildings and facilities. TPI omitted a number of essential facilities and made errors in the development of the necessary cost components for other facilities. *See infra* III-F-181–216.

Other Investment Costs. CSXT makes several adjustments to TPI's estimates of the costs of grade crossings. TPI both fails to account for 419 grade crossings and understates the unit cost for grade crossing construction. *See infra* III-F-218–220. CSXT accepts TPI's proposed cost factors for mobilization costs, engineering costs, and contingencies. *See infra* III-F-220.

G. Discounted Cash Flow Analysis

The primary flaw in TPI's discounted cash flow analysis is its failure to account for the equity flotation costs that the TPIRR would incur when it raised the capital it needs to fund its road property investment. Equity flotation costs are the fees that any company must pay to investment bankers in order to raise external equity capital, and as such they are a basic cost of doing business in the capital markets. The Board recognized in *DuPont* and again in *SunBelt*

that it would be unreasonable to think that a SARR could raise capital through the issuance of stock without paying an equity flotation fee. *See DuPont*, STB Docket No. 42125, at 274; *SunBelt*, STB Docket No. 42130, at 184. But the Board concluded in those cases that the railroad had not provided sufficient evidence of the size of equity flotation fees for stock issuances comparable to that of the SARR. *See DuPont*, STB Docket No. 42125, at 274; *SunBelt,* STB Docket No. 42130, at 184. CSXT's evidence responds directly to the Board's concern by providing detailed, well-documented evidence of the factors that influence the size of typical equity flotation fees, including an in-depth study of large Initial Public Offerings ("IPOs") that have occurred in the United States over the last ten years. *See infra* III-G-6–8. CSXT's evidence shows that the average of all underwriting fees for large U.S. IPOs during the last ten years is 3.5%, and that the average fee does not vary significantly by industry sector. *See id.* To be conservative, CSXT incorporated equity flotation costs for the TPIRR of only two percent. *See infra* III-G-8.

With the exception of TPI's failure to include equity flotation costs, CSXT accepts TPI's other cost of capital calculations. CSXT also accepts the cost indices and RCAF forecasts chosen by TPI to develop annual inflation forecasts, but consistent with Board precedent, CSXT uses more recently released versions of those indices and forecasts. *See infra* III-G-8–10.

H. Results of SAC Analysis

Section III-H presents the results of CSXT's SAC analysis, which show that the TPIRR's stand alone costs exceed stand alone revenues by a substantial margin in each year of the ten-year SAC analysis period. The cumulative present value of the revenue shortfall over the entire ten-year DCF analysis period is $10.16 billion. *See infra* III-H-17, Table III-H-12. Therefore, CSXT's SAC presentation demonstrates that the challenged rates do not exceed a reasonable maximum and no reparations or rate prescriptions are warranted.

CSXT has five principal disagreements with TPI's discounted cash flow calculations that are discussed in Section III-H. (CSXT addresses these issues in Section III-H because TPI addressed them in its Section III-H.).

First, TPI proposes to change the Board's standard debt amortization pattern in a way that would allow the TPIRR to pay only interest and no principal on its debt during the SAC analysis period. The Board rejected an identical "coupon-payment" proposal in *DuPont* and *SunBelt*, and TPI has not provided any new arguments that would justify departing from those precedents. *See DuPont,* STB Docket No. 42125, at 281; *SunBelt,* STB Docket No. 42130, at 191. Moreover, CSXT's evidence shows that TPI's decision to use the railroad industry's average cost of debt (which reflects a mix including some instruments with shorter terms until maturity) is consistent with the long-standing assumption in the DCF model that debt will be amortized throughout the 20 year period, and completely inconsistent with an assumption that TPIRR could be financed with a note under which no principal would not be paid for 20 years. *See infra* III-H-1–2.

Second, TPI's assumption that the TPIRR could write off $8.3 billion of its road property investment as bonus depreciation in the first year of its operations is not reasonable. *See infra* III-H-6-7. TPI suggests that not allowing the TPIRR to take advantage of bonus depreciation would place the TPIRR at a disadvantage against the real-world CSXT. But the opposite is the case. TPI is using the coincidence of its SARR construction period overlapping with this temporary tax shelter as a gimmick to create massive cost savings to the TPIRR that are unavailable to real-world railroads. CSXT proposes a more reasonable alternative approach that would match the TPIRR's bonus depreciation benefits to those actually received by CSXT. *See infra* III-H-9. CSXT acknowledges that the Board accepted similarly aggressive complainant assumptions about bonus depreciation in *DuPont* and *SunBelt*, but CSXT respectfully suggests

that the Board's decisions on this point in those cases conflict with SAC theory and other SAC cases.

Third, TPI's tax depreciation schedules use the wrong tax depreciation lives for certain of the TPIRR's road property assets. *See infra* III-H-9–10. CSXT's adjustments to TPI's assumed tax depreciation lives are the same as those accepted by the Board in *DuPont* and *SunBelt*. *See DuPont*, STB Docket No. 42125, at 279; *SunBelt*, STB Docket No. 42130, at 189.

Fourth, the Board's terminal value calculations should adhere to the longstanding methodologies set forth in *Coal Trading Corp. v. Baltimore & Ohio R.R.*, 6 I.C.C.2d 379 (1990) to recalculate the SARR capital structure in each period as the debt is amortized. CSXT's evidence explains that TPI's proposals to alter the terminal value calculations and the Board's modifications to terminal value calculations in *DuPont* and *SunBelt* both raise conceptual problems and create simple mathematical errors through double-counting interest. *See infra* III-H-11–14. As CSXT explains, the best solution is to continue applying the established *Coal Trading* approach. *See infra* III-H-14.

Fifth, CSXT adjusts the DCF to ensure that TPIRR investments related to PTC interoperability would be recovered only after that investment has been incurred. *See infra* III-H-15.

Section III-H also addresses the proper application of the Maximum Markup Methodology ("MMM"). CSXT's SAC analysis shows that the Board has no reason to apply MMM because the challenged rates do not exceed a maximum reasonable level. However, if the Board were to apply MMM, it should index URCS costs for future years with RCAF-A in order to capture projected productivity gains. In *AEP Texas* and *WFA*, the Board correctly held that the RCAF-A was the appropriate index to adjust MMM URCS costs. *AEP Texas*, STB Docket

No. 41191 (Sub-No. 1), at 14. While in *DuPont* and *SunBelt* the Board agreed with complainants to use only the URCS price index, CSXT's evidence demonstrates why these decisions were mistaken, and why RCAF-A continues to be the most accurate way to generate an accurate forecast of the defendant's variable costs. *See infra* III-H-18–21.

Finally, Section III-H includes a discussion of cross-subsidy issues. While the Board should have no need to decide whether or not the TPIRR contains internal cross-subsidies, if the Board were to conclude that the TPIRR's revenues exceeded its revenue requirement, the Board would have to conduct its internal cross-subsidy test on certain low-density line segments to determine whether sufficient revenues exist on those segments to cover costs attributable to that Segment. While that internal cross-subsidy test could not be performed until the Board decided all other contested SAC issues, CSXT has identified several segments that may present significant cross-subsidy issues. *See infra* III-H-25–27. Indeed, CSXT's evidence shows that—even when using TPI's impossibly optimistic opening assumptions—a segment of the TPIRR's network fails the Board's internal cross-subsidy test. *See infra* III-H-26–27.

C. CONCLUSION

For the reasons summarized below and detailed in the following Reply Narrative, Exhibits, and Workpapers, the Board should find that TPI's SAC presentation fails to demonstrate that the challenged rates are unreasonable. As CSXT's Reply Evidence demonstrates, when the errors and unsupported and unrealistic assumptions in TPI's evidence are corrected, the TPIRR's stand-alone costs well exceed its revenues. Each of the challenged rates is therefore below maximum reasonable levels under the SAC test, and TPI is entitled to no relief whatsoever.

Respectfully submitted,



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Dated: July 21, 2014

CERTIFICATE OF SERVICE

I hereby certify that on this 21st day of July 2014, I caused a copy of the foregoing Reply Evidence of CSX Transportation, Inc., including Narrative, Exhibits, and electronic workpapers, to be served by hand delivery upon:

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III. STAND -ALONE COST

A. Traffic Group

1. Stand-Alone Railroad Traffic

a. Re-Routes

TPI claims that "[w]ith just a few exceptions, the traffic of the TPIRR moves over the same routes utilized by CSXT: there is only limited re-routing . . . TPI has re-routed ten issue movements and some trains in certain areas within a very limited geographic scope." *See* TPI Opening I-11. However, review of TPI's workpapers reveals that TPI's SARR re-routes more than 1.3 million carloads in the base year, including hundreds of thousands of carloads in four metropolitan areas alone. In each of the Washington, DC, Nashville, TN, Richmond, VA, and Rochester, NY areas, TPI consolidates two existing routes that CSXT uses in the real world, in favor of a single route. Exhibit III-A-2 presents schematics of TPI's re-routing choices in Washington, Nashville, Richmond, and Rochester and identifies CSXT's real-world densities on each route. While such re-routes are, as TPI claims, "internal to the TPIRR," in each of the four examples cited above, TPI shifts traffic from the predominant route used by CSXT, to a relatively lower-density line. And in each of the four examples, the route that TPI has selected runs right through the downtown area of each city, rather than the route that CSXT uses more frequently, which avoids downtown. TPI suggests that its re-routes are designed to eliminate inefficiencies—and TPI even identifies billions of dollars in construction costs it claims to have saved by not building more lines. *See* TPI Opening III-C-26. In fact, in many cases CSXT maintains its multiple lines to provide routing alternatives and operating flexibility, that serve to keep its network fluid and benefit its shippers.

Not only did TPI fail to adequately disclose and describe its large-scale internal re-routes of TPIRR traffic, it also failed meet its burden of proof by demonstrating that re-routed cross-

over traffic would provide the same or better service than that provided by CSXT over the actual route of movement, as required by the Board's precedents. *See, e.g., TMPA I,* 6 S.T.B., at 594-95. Because TPI has failed to demonstrate that internal re-routes of cross-over traffic satisfy the service requirements for such re-routes, the Board would be justified in disallowing that re-routed traffic and removing it from the SAC analysis.

2. Volumes (Historical and Projected)

CSXT makes a number of corrections and adjustments to the SARR traffic volumes that TPI submitted on Opening. The changes are associated with three periods—an historical period for which actual volumes are available (July 2010 through 2013); and two forecast periods, those covered by the 2013 CSXT internal forecast produced in discovery (2014-2017), and the "outer years" beyond the CSXT forecast through the end of the SAC analysis period (2018 through June 2020). While necessary corrections for the historical-period volumes are similar for all traffic, adjustments to TPI's proposed volumes for the forecast periods differ for coal and non-coal traffic.

a. Historical

i. TPI's Erroneous Over-Inclusion of Traffic

TPI performed a two-step analysis to identify CSXT traffic moving over the SARR lines for one year of historical traffic (calendar year 2012). TPI first selected traffic by using CSXT event records to identify shipments that touched a station on the TPIRR. TPI then performed a more detailed analysis on the 2012 traffic to determine which of the shipments identified in the first step actually traversed a SARR segment, and excluded traffic that merely intersected the SARR.[1]

[1] *See* TPI Op. Ex. III-A-2.

Rather than undertake the more detailed second step in this analysis necessary to determine shipments that actually moved on the SARR for each of the other three years of the historical period—2010, 2011 and 2013, TPI attempted to use a matching approach to apply the results of its more detailed analysis for 2012 to other years' traffic.[2] While, conceptually, this general approach might have been acceptable, TPI's implementation relied on an erroneous assumption that resulted in significant overstatements of the traffic volumes that actually moved over the TPIRR lines during these other years. TPI used a specific and detailed set of criteria to match movements from 2010-11 and 2013 to 2012, in order to determine whether the move traversed the SARR.[3] However, when that matching approach did not find that the exact same move (*i.e.*, a movement traversing precisely the same route and matching every waybill field from a selected 2012 movement) occurred in 2012, TPI made the default assumption that 100% of traffic that touched the TPIRR at any station actually moved over the SARR. In other words, even though TPI determined that 87% of the 2012 moves that it initially flagged as touching the SARR actually traversed the SARR in 2012, TPI nonetheless assumed that 100% of any "new" movements that touched the SARR lines in the other years (including all movements that did not completely match the 2012 traffic records on all 17 specific waybill fields) would be included as additional SARR traffic.

The implications of this erroneous assumption are evident in the TPI workpapers that summarize the percentage of carloads that it excluded in this second step. TPI determined that 13.1% of traffic it identified in its first step (*i.e.* movements touching the lines of the SARR at

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[2] *See* TPI Op. WP "TRR_TRAFFIC_EXCLUDED_ZERO_MILES_36MONTHS_020614.xlsx."

[3] Waybill fields that TPI used to match movements to 2012 traffic: UltimateOriginFsac, LoadEmptyID, MarketTypeID, OnJctRoadCity, OffJctRoadCity, OnNetOriginMp, OnNetDestMp, UltimateDestFsac, BillRoadNumberID, Stcc7, TrafficClasseID, PriceAuthority, OriginIIDs, DestinationIIDs, Shipper6, Payor6, Consignee6.

same point) did not travel on the SARR network in 2012. Using TPI's matching assumption for the other three years, the non-SARR percentage dropped to 3.7% for 2010, and similarly lower percentages in 2011 and 2013, as Table III-A-1 illustrates.

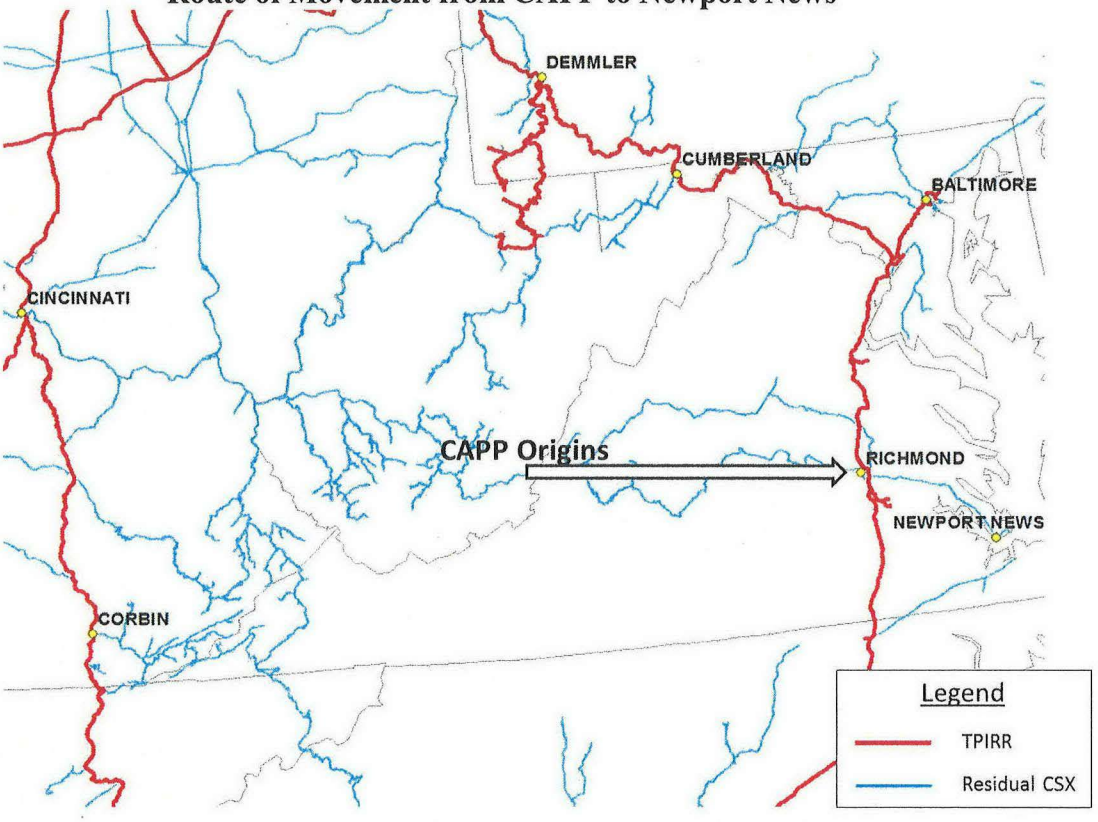
TABLE III-A-1
Carloads Excluded from TPIRR Traffic Group due to Zero Miles on TPIRR Trains

Period	Percent Excluded
2010	3.7%
2011	5.6%
2012	**13.1%**
2013	7.8%

Source: TPI Op. WP
"TRR_TRAFFIC_EXCLUDED_ZERO_MILES_36MONTHS_020614.xlsx"

The most pronounced example of the effect of TPI's traffic selection error is export coal traffic from Central Appalachian mines to Newport News, VA. As the map below shows, the predominant route for these shipments only crossed the TPIRR system at Richmond. These shipments did not traverse any segment of the SARR network.

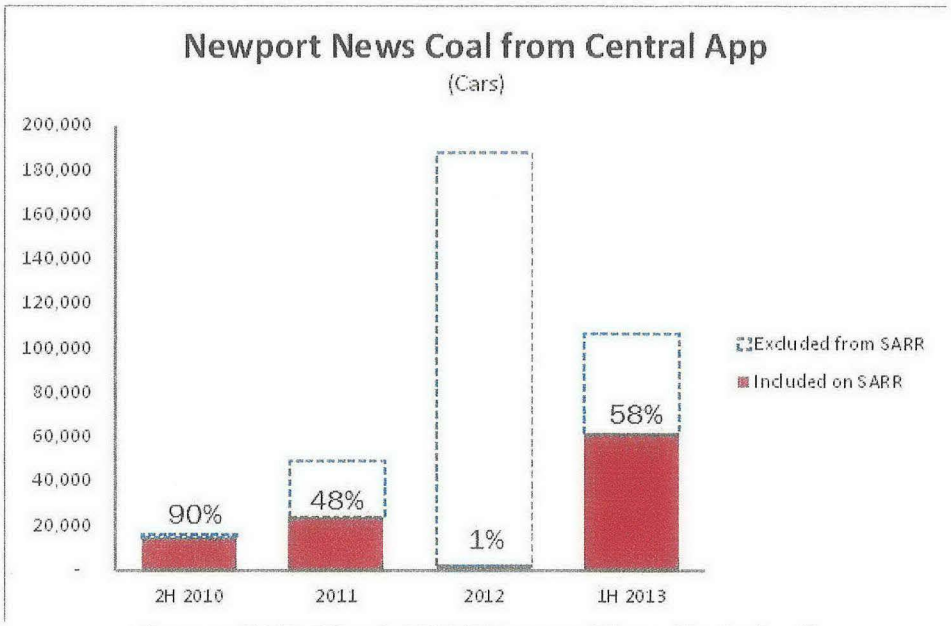
Chart III-A-1
Route of Movement from CAPP to Newport News



TPI properly excluded 99% of shipments from Central Appalachian ("CAPP") mines to Newport News, VA using the full detailed analysis it applied to 2012 traffic.[4] However, applying the erroneous assumption that all shipments that did not perfectly match in 2012 nonetheless traveled on the SARR in the other three years, TPI excluded only 10% to 52% of shipments in those three years (2010, 2011, and 2013). Chart III-A-1 shows this disparity and obvious error in TPI's methodology.

[4] One percent of CAPP shipments from western Kentucky actually travel over the northern route of the TPIRR to Newport News rather than across the CSXT line in Virginia.

Chart III-A-2



Source: CSXT Reply WP "Newport News Coal.xlsx."

On Reply CSXT has corrected TPI's error by using an iterative matching approach when movements for 2010, 2011 and 2013 could not be perfectly matched to 2012 records.[5] For example, if a match could not be made on all 17 waybill criteria, CSXT matched on 13 criteria, which still includes the primary shipment characteristics, then on eight criteria, then seven, and so on. CSXT's matching criteria are set forth in its Reply workpaper "TRR_TRAFFIC_EXCLUDED_ZERO_MILES_36MONTHS_020614 REPLY.xlsx." When TPI's over-inclusive assumption is corrected, total SARR volumes are reduced by 2-3% in each year 2010, 2011, and 2013.[6] Moreover, because the 2013 volumes serve as the baseline for the forecast SARR traffic levels for the years from 2014 forward, this correction also results in lower TPIRR volumes throughout the remainder of the analysis period.

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[5] This is similar to the approach that TPI itself used to match ATC percentages from 2012 to moves from other years.

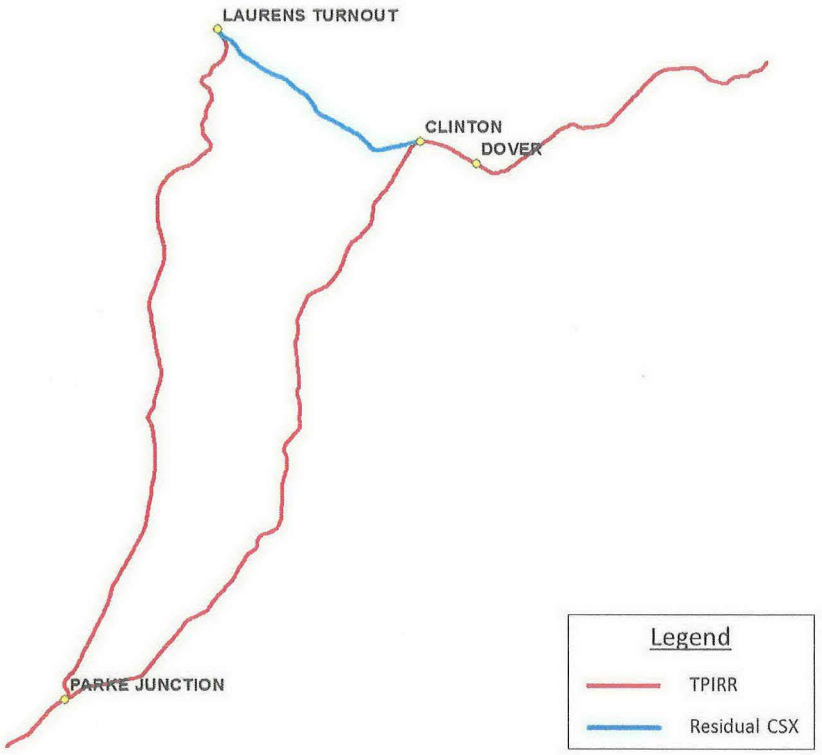
[6] *See* CSXT Reply WPs "TPIRR_TRAFFIC_HISTORICAL_CARLOAD_2010_ADJ REPLY.xlsx," "TPIRR_TRAFFIC_HISTORICAL_CARLOAD_2011_ADJ REPLY.xlsx" and "TPIRR_TRAFFIC_HISTORICAL_CARLOAD_2013_ADJ REPLY.xlsx."

ii. TPI's Inclusion of Other Traffic that Does Not Traverse Lines Constructed by SARR

TPI's workpapers provided multiple iterations of the SARR network—containing differing combinations of segments—but did not identify the On-SARR and Off-SARR points for its selected traffic. The final SARR configuration that TPI used excluded some segments that had been included in prior iterations. When the network is aligned with the specific segments that were constructed or assumed to be operated via trackage rights, and TPI's traffic processing programs are refined to review the route and identify the On-SARR and Off-SARR points for its selected traffic, it is evident that certain shipments selected by TPI did not traverse the TPIRR in TPI's final configuration. Effectively, TPI removed segments from the TPIRR network but erroneously retained movements over those segments in the SARR traffic group. As these shipments—which represent half of a percent of total carloads (predominately Toledo, OH movements)—do not share facilities with the issue traffic, CSXT has removed them from the TPIRR traffic group in each of the historical years.

In addition, TPI excluded from TPIRR traffic those trains that did not travel at least ten miles on TPIRR lines. When TPI's network is updated to match the final configuration that TPI assumed would be constructed, certain trains that traverse a segment between Laurens and Dover in South Carolina drop below TPI's ten-mile threshold. TPI did not build the 8.6 mile segment between Laurens and Clinton, but it included that segment in its TPIRR revenue analysis and ATC calculations. A large number of coal shipments from Central Appalachia to South Carolina destinations traverse the SARR for only two miles between Clinton and Dover. Because TPI erroneously included the 8.6 miles between Laurens and Clinton, it erroneously included these moves in its TPIRR revenue calculations, as they appeared to travel 10.6 miles on the SARR.

Chart III-A-3
CSXT Segment between Laurens and Dover, SC



On Reply, CSXT eliminated shipments to South Carolina that only traveled on the TPIRR on the Clinton to Dover segment. Coal represents 89% of these 31,000 shipments that CSXT drops in 2012.

iii. Elimination of High Priority Intermodal Traffic Over Leapfrog Segments

Although TPI failed to acknowledge its tactic in the Opening narrative, TPI's evidence relies heavily on a relatively new tactic that defendants have invented for cross-over traffic in which the SARR treats the residual incumbent as a bridge carrier. This new "internal [to the SARR network] crossover" tactic assumes that the residual incumbent would receive traffic in interchange from the SARR, move that traffic over a costly or low-density interior segment, and then interchange the traffic back to the SARR at the conclusion of that segment. Rather than provide continuous service over the SARR, these movements "leapfrog" between the TPIRR and

the residual CSXT, jumping over any segment that TPI decided not to build or operate. This is a contortion of the cross-over device, which is intended to be a simplifying mechanism to replicate the results of a fully modeled SARR and SAC analysis without introducing bias to the analysis. TPI's proposed approach does exactly the opposite: it complicates the SAC analysis while simultaneously introducing bias and distorting the analysis, in part by allowing the SARR to avoid high-cost, low-contribution, and operationally difficult internal segments of SARR routes.

This type of SARR operation is particularly troublesome for high priority shipments that require expedited service. TPI's leapfrog operations add unnecessary interchanges between the SARR and residual CSXT, which add time to these time-sensitive moves. CSXT identified two customers, UPS on the route to/from New York and Threads Express to/from Charlotte, for which increased transit times would cause a carrier to lose the business. Board precedent requires complainants to design SARR operations to provide service that is equal to or better than the service that the incumbent carrier provides. *See, e.g., AEPCO 2011,* STB Docket No. 42113, at 10 ("[W]e require that these hypothetical operations be feasible and supported and that they provide shippers included in the analysis the same or superior service as provided by the actual operations of the defendant railroads."); *TMPA I*, 6 S.T.B. at 589 ("[T]he SARR must meet the transportation needs of the traffic in the group by providing service that is equal to (or better than) the existing service for that traffic."). The TPIRR would fail this test for high priority traffic because of the additional time required to interchange traffic back and forth with residual incumbent CSXT. The trains for UPS and Thread Express would have two segments on the TPIRR and two segments on the residual CSXT. The leapfrog operations would add three new interchanges, requiring an additional 1.5 hours at the barest minimum. With the change-outs of locomotive units to and from DP configurations, the additional interchange time would

more likely be 4-5 hours. This additional time would mean the TPIRR would provide substantially worse service for high priority traffic and thus fail to meet governing service requirements. *See, e.g., AEPCO 2011*, STB Docket No. 42113, at 10; *TMPA I*, 6 S.T.B. at 589. On Reply, CSXT drops these shipments from the TPIRR in each year of the SARR.[7]

b. Projected Volumes

i. Period Covered by CSXT Forecast (2014-2017)

TPI used the CSXT forecast it produced in discovery to project volumes through 2017.[8] For Merchandise traffic, TPI aggregated the CSXT forecast at the 2-digit STCC level to determine volume growth rates. TPI aggregated all Intermodal traffic in the CSXT forecast and applied a single growth rate each year. For Coal traffic, TPI aggregated traffic based on Origin Region.[9] CSXT does not dispute TPI's general aggregation approach for Merchandise and Intermodal, largely due to the fact that TPI handles 93% and 99% of CSXT's total traffic for each group respectively. However, because the TPIRR only handles 61% of CSXT's coal shipments, an accurate application of the CSXT coal forecast requires a more refined approach.

(a) Coal

(i) Correct TPI's Failure to Consider Whether the Forecasted Volumes are Shipments that Traverse the SARR

For coal, TPI calculated aggregate forecasts for each "Origin Region" (Central Appalachian, Northern Appalachian, etc.) from the 2013 CSXT forecast. Using the forecast this way created at least two categories of errors. First, by assuming the same volume growth of

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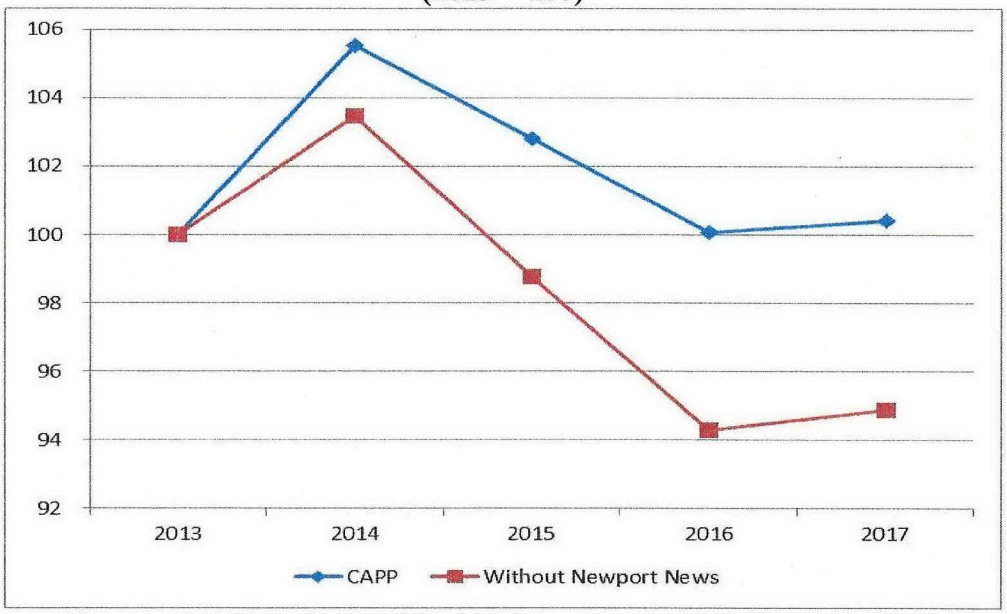
[7] *See* CSXT Reply WP "TPIRR_TRAFFIC_HISTORICAL_CONTAINER_2012_Updated.xlsx."

[8] The CSXT forecast was approved in February 2013 and covered the period 2013-2017.

[9] *See* TPI Op. WP "Coal Volume Forecast Matrix.xlsx."

shipments to all destinations from a given region, TPI inappropriately shifted traffic from shipments that do not move over the SARR (*i.e.*, traffic not selected for the SARR traffic group) to those that do, thereby substantially overstating future coal shipment volumes on the TPIRR. As an example, CSXT's export shipments from CAPP mine origins to Newport News, VA comprise 39% of the total CAPP coal traffic in the CSXT forecast, yet only 1% of those movements travel on the TPIRR. This export coal traffic also accounts for a disproportionate share of CSXT's projected coal volume growth over the 2014-2017 period. As the table below shows, TPI's erroneous inclusion of Newport News export coal traffic inflated the assumed TPIRR growth rates for all other CAPP coal traffic.

CHART III-A-4
CSXT Coal Shipment Index from Central App Origins
(2013 = 100)



Source: CSXT Reply WP "Coal Volume Forecast Matrix Reply.xlsx"

As a result, TPI assumed 6% higher TPIRR volumes by 2017 from CAPP origins than if Newport News traffic were properly excluded.

There is no good reason for TPI to aggregate the CSXT forecasts at the Origin Region level rather than focusing on the specific destinations selected on the SARR. Detailed and

specific data for the selected SARR traffic destinations were readily available in the CSXT forecast. TPI cites the *CP&L* decision to justify its approach, but the issue in *CP&L* concerned *origin* shifting among *mines* within an Origin Region:

> Under [NS's] approach, the P&SH would lose any traffic that shifts to another mine, even when that mine would also be served by the P&SH; and the P&SH would not get the benefit of traffic that shifted from a mine not served by the P&SH to a mine that would be served by the P&SH. *CP&L*, 7 S.T.B. at 249-50.

Rather than apply an aggregate Origin Region forecast that includes non-SARR shipments, CSXT has developed projected SARR volumes using its internal forecast at the Origin Region-Destination level.[10] By using the more specific individual Destinations, CSXT accounts for the individualized circumstances of the specific SARR customers and shipments that use SARR lines. And by using the Origin Region, CSXT allows for origin shifting within a coal region, consistent with the *CP&L* and *DuPont* decisions.

As part of its approach, CSXT added new movements to the SARR traffic base to account for new Origin Region/Destination combinations that appear in the forecast but not in the base-year traffic.[11] For example, CSXT has added to TPIRR volumes a large move from the Consol 95, WV, mine origin to Brooklyn Junction, WV that is forecast to begin in 2016 and significantly grow in volume in 2017. CSXT also added other new Origin Region/Destination combinations to account for Origin Region shifting for a destination in the forecast. For example, shipments to Brice, NC, shift from CAPP mines to Eastern Interior mines. As volumes shipped to Brice from CAPP mines drop to zero in 2014, CSXT added the volumes in the forecast from Eastern Interior region.[12]

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[10] *See* CSXT Reply WP "TPIRR Coal Revenue Forecast (Final) REPLY.xlsx."

[11] *See id.*

[12] *See id.*

CSXT made a few other modifications in its application of the CSXT forecast to more accurately reflect the projected volumes on the SARR:

- CSXT's internal forecast coded certain coal shipments as STCC 2991191, which is synthetic fuel derived from coal. Although the CSXT forecast categorizes this as part of its treated coal line of business, TPI aggregated these volumes with other STCC 29 shipments by the TPIRR. CSXT includes these shipments with other coal (STCC 11) volumes. The Williams plant in Middleton, SC, represents the largest example of this miscoding of STCC 29 coal in the forecast. As the table below shows, coal volumes were split between STCCs 11 and 29, but volume growth was entered into the forecast as STCC 11.

Table III-A-2
CSXT Volume Forecast for Williams Plant

				CSXT Forecasted Carloads					
DEST CITY	DEST ST	EIA REGION	STCC	2013	2014	*2013-14 Growth*	2015	2016	2017
MIDDLETON	SC	CAPP	11	1,206	5,245	*335%*	5,193	4,111	4,111
MIDDLETON	SC	CAPP	29	8,111	7,868	*-3%*	7,789	6,166	6,166
TOTAL				9,317	13,113	*41%*	12,982	10,277	10,277

Source: CSXT Reply WP "Coal Volume Forecast Matrix Reply.xlsx."

- Williams did not receive any STCC 29 coal during the period of actual traffic in this case (2H02-1H13). Applying only the STCC 11 growth rate would improperly result in a 335% volume increase in 2014 instead of the 41% growth projected by the CSXT forecast.

- CSXT has made adjustments to account for partial plant closures (*i.e.*, a subset of the units at the plant) that were publicly announced late in 2013. Because the CSXT forecast was approved in February 2013, these partial closures were not incorporated in that forecast. It is unlikely that this capacity would be made up by new coal units opening. As widely reported, environmental regulations and an abundance of natural gas are causing coal-fired plants to shut down across the country. Only four of the 881 proposed generating units that are planned nationwide (through 2020) are coal-fired, and many of them are outside of the CSXT footprint.[13]

[13] *See* CSXT Reply WP "Generator Y2012.xlsx." Recently, EPA announced new proposed regulations aimed at reducing carbon emissions by approximately 30%. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (proposed June 18, 2014). Because natural gas and other generating sources generate much less carbon dioxide than coal-fired plants, the proposed new regulations would very likely accelerate the closure of coal-fired plants and units.

- The same East Chicago destination is coded as ECHICAGO in 2013 and as EASCHICAG in other years. CSXT combined the forecasts.[14]

- Finally, there are a relatively small number of SARR traffic lanes that do not match the CSXT forecast, and thus do not permit use of a destination-specific forecast. For these lanes—which account for 6% of total coal traffic—CSXT has applied the broad Origin Region approach that TPI submitted on opening.

(ii) Overflow Tons from Capped Plants

In the recent *DuPont* decision, the Board accepted Complainant's argument that when tonnages were forecasted to exceed the 85% capacity factor at individual plants, the tons could be shifted to other lanes, effectively maintaining the overall level of volumes in the forecast. However, there is a key difference between *DuPont* and this case. The parties in *DuPont* were applying EIA forecasts at a higher, more general level than the approach CSXT proposes in this case. In *DuPont*, the complainant proposed re-allocating overflow tons from capped plants in its attempt to apply the EIA forecast at a national level, not broken out by coal Origin Region. The Board accepted NS's arguments to use an Origin Region level approach to the EIA forecasts but also accepted re-allocation of capped tons. *See DuPont*, STB Docket No. 42125, at 258-9. The Board reasoned that re-allocating tons would allow the SARR to achieve the EIA growth rate for each Origin Region. *See id.*

In this case, in contrast, CSXT applies the growth rates from the CSXT forecast for each SARR destination.[15] Unlike the EIA forecasts applied in *DuPont*, the CSXT forecasts provide projected volumes for each coal destination, allowing a more granular and precise coal volume projection for each specific destination. The 85% capacity factor that has become Board

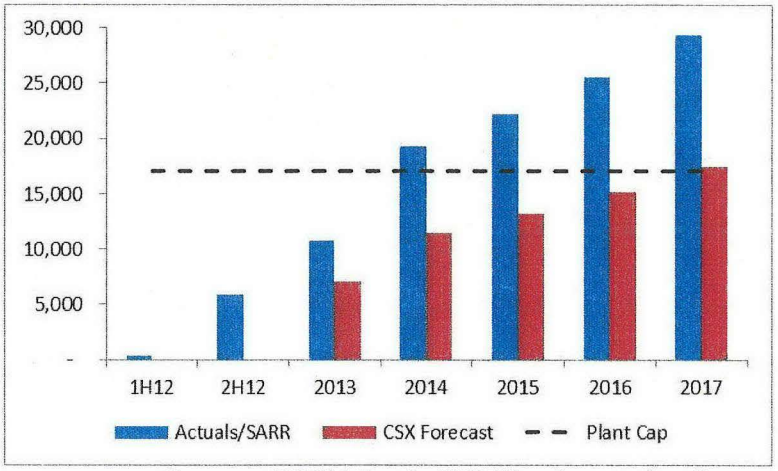
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[14] *See* CSXT Reply WP "TPIRR Coal Revenue Forecast (Final) REPLY.xlsx."

[15] In *DuPont*, the NS internal forecast did not anticipate dramatic changes in power plant substitution of natural gas for coal, which made the NS forecast produced in discovery inaccurate and unusable. The parties agreed to substitute the more recent EIA coal forecast for the erroneous NS internal forecast. In this case, however, the parties are following the Board's standard practice of applying the carrier's internal forecast where it is available.

precedent properly limits the amount of tonnage that a plant on the SARR should receive. The example of the coal-fired Somerset Plant (Lockport, NY) demonstrates how plant caps should properly work and why excess tons should not be re-allocated. The plant emerged from bankruptcy in 2012. CSXT expected the plant's generator to slowly ramp back up to full capacity, but plant generation recovered more quickly than expected in the TPIRR's base year. Applying the growth rates for Somerset in the forecast to the higher than projected base year tons would result in TPIRR coal volumes to Somerset that would exceed its 85% plant capacity factor by 2014.

Chart III-A-5
Somerset Plant Carloads



Source: CSXT Reply WP "Lockport.xlsx."

Those higher volumes were not included in the CSXT forecast. Rather, those artificial additional volumes are the result of the application of a projected growth rate to a higher than projected base year volume. Those non-existent additional coal traffic volumes should not be distributed to other locations on the SARR. CSXT's more refined methodology of applying its forecast at the destination level eliminates any perceived justification for allocating coal tonnage in excess of a plant's capacity to other locations.

(b) Non-Coal

CSXT largely accepts TPI's application of the CSXT internal forecast to project TPIRR 2014-2017 volumes, with one relatively minor exception. For non-coal traffic, TPI aggregated the CSXT internal forecast at the commodity level, *i.e.*, two-digit STCCs. As discussed above, CSXT corrected TPI's miscategorization of STCC 2991191 (Synthetic fuel derived from coal), including those volumes in the coal forecast. *See supra* III-A-13. For consistency, CSXT excluded STCC 2991191 from the non-coal forecast.[16]

ii. Outer Years Beyond CSXT Forecast (2018-2020)

To determine growth rates for the years after the end of the CSXT forecast, TPI calculated a compound annual growth rates ("CAGR") for commodity groups from the CSXT forecast and applied those rates to each of the subsequent years. *See* TPI Opening III-A-8. TPI claims that such a CAGR approach for forecasted volumes "has been accepted by railroads in recent SAC presentations," but the only "recent" case it cites in which a carrier accepted this approach is *FMC* which was decided 14 years ago and did not involve CSXT. TPI's only other citation is to *AEP Texas II*, which involved neither forecasted volumes nor a CAGR. Rather, the issue in that case involved use of a simple average of historical costs of equity to determine future *costs of equity*. *See AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 107-8. For TPI to call that "the same approach" as using a CAGR to project future SARR traffic volumes is both wrong and disingenuous.[17]

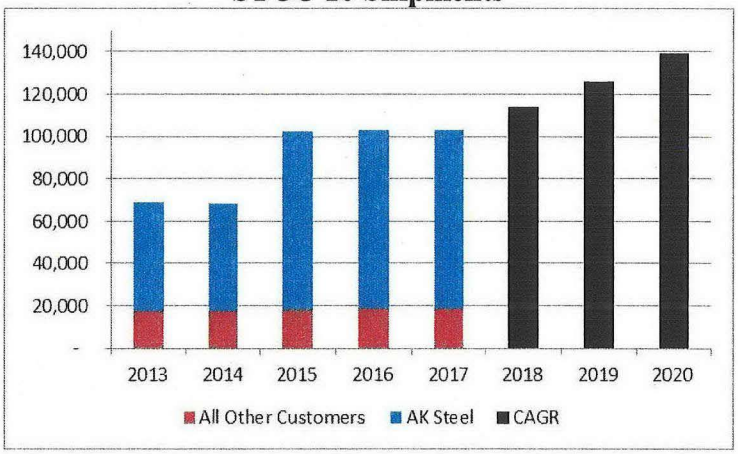
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[16] *See* CSXT Reply WP "Non-Coal Volume Forecast Matrix Reply.xlsx."

[17] Although the Board accepted a CAGR approach to forecasted volumes in *DuPont*, it chose the CAGR over a single-year approach endorsed by the Defendant carrier, which proposed using the growth rates in the final year of the forecast, which was the agreed approach of the parties in *AEPCO 2011*. As demonstrated below, the approach CSXT advocates in this case better addresses the Board's recently expressed preference for the use of a relevant multi-year average than the approach TPI proffered on Opening.

There are two primary problems with TPI's CAGR approach. The first is illustrated by its application to project future volumes of STCC 10 commodities—Metallic Ores. The 50% growth in 2015 is driven by AK Steel shipments related to a new iron ore pellet plant scheduled to open in Reynolds, IN.[18] This is a one-time event in an industry in which growth is otherwise flat. However, as a result of this one-time, one-destination anomaly, the CAGR approach assumes that the industry will grow at 11% annually for the remaining years of the SAC analysis period.[19]

Table III-A-3
STCC 10 Shipments



	CSXT Forecast				CAGR		
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STCC 10	-1%	50%	1%	0%	11%	11%	11%

Source: CSXT Reply WP "Non-Coal Volume Forecast Matrix Reply.xlsx."

A second distortion caused by TPI's CAGR approach arises when volumes in the initial year are relatively small. TPI calculated its CAGRs from only the 5-year period covered by the CSXT (2013-17) forecast, even though the SAC analysis period reaches back to mid-2010 and TPI had waybill data from 2010 from which to calculate growth rates. The Board's primary

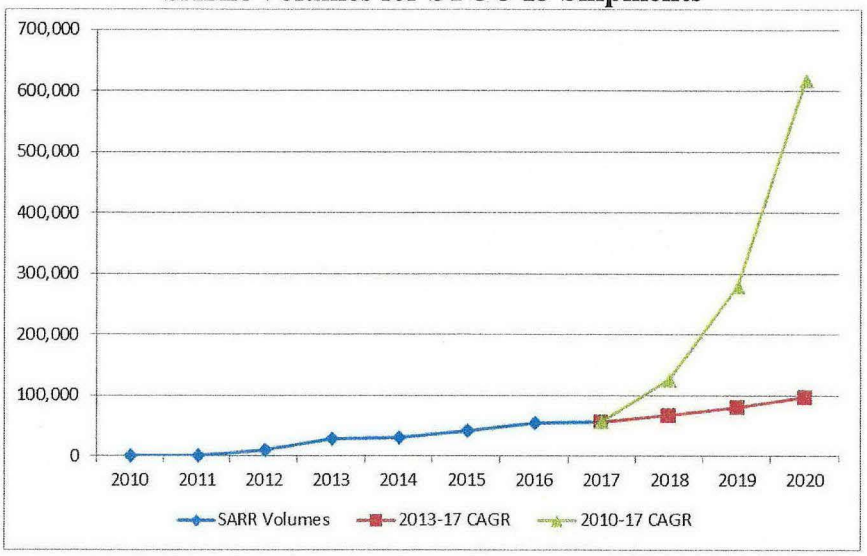
[18] Magnetation, Pellet Plant, *available at* http://www.magnetation.com/reynolds-in-iron-ore, (last visited July 10, 2014).

[19] *See* TPI Op. WP "Non-Coal Volume Forecast Matrix.xlsx."

rationale for using a CAGR in *DuPont* was that such multi-year approach "mitigate[s] the likelihood that a single, extraordinary year may skew the result," by smoothing out the effects of annual variations. *See DuPont*, STB Docket No. 42125, at 261. This rationale applies with even greater force if the time period covers a greater number of years, such as the full SAC analysis period. Accordingly, CSXT believes that, if a CAGR approach is used, the full SAC analysis period generally should be used. Here, that means 2010 should be the first year of the CAGR calculation. For one aberrational commodity, however, such an approach would produce irrational results. STCC 13 traffic volume, which is primarily crude oil originating in North Dakota, had extremely low volume in the first year. Volumes were tiny in 2010 and have grown substantially since then, which would generate in a 2010-2017 CAGR of 221%. This demonstrates that while CAGR calculations may be useful metrics under the right circumstances, they cannot always be used to forecast future growth accurately. Applying the 221% growth rate to 2017 SARR volumes would result in a nearly 10-fold increase in STCC 13 volumes between 2017 and 2020. As Table III-A-4 illustrates, such results would be illogical. No one is predicting anything approaching such growth in the domestic crude-oil-by-rail market.[20]

[20] The EIA forecasts crude oil production from the region that includes North Dakota to increase by a CAGR of a mere 0.8% from 2017 to 2020. *See* CSXT Reply WP "CAGR Analysis.xlsx."

Table III-A-4
SARR Volumes for STCC 13 Shipments



STCC2	2010	2017	2010 - 2017 CAGR
13	593	150,401	221%

Source: CSXT Reply WP "CAGR Analysis.xlsx."

In sum, CAGRs are an imperfect method for forecasting future growth, and would produce gross distortions in certain conditions and circumstances. Instead of CAGRs, CSXT has applied EIA forecasts for the later years of the SAC analysis period, for both coal and non-coal commodities.[21]

(a) Coal

TPI calculated the average rate of change projected in the CSXT internal forecast, and applied that rate to each of the subsequent years.[22] Such a compound annual growth rate ("CAGR") approach was allowed by the Board due to exceptional circumstances in a recent case. *See DuPont*, STB Docket No. 42125, at 261. On Reply, CSXT instead uses

[21] *See* CSXT Reply WPs "TPIRR Coal Revenue Forecast (Final) REPLY.xlsx" and "Non-Coal Volume Forecast Matrix Reply.xlsx."

[22] *See* TPI Op. WP "Coal Volume Forecast Matrix.xlsx."

contemporaneous forecasts of coal production from the EIA's Annual Energy Outlook 2014. The Board has routinely adopted EIA forecasts for coal, noting their independent, policy-neutral nature and praising the agency as "the Board's preferred authoritative source for coal volume forecasts." *See, e.g., id.* at 255. The EIA's Annual Energy Outlook 2014 projection for the actual years 2018-2020 is preferable to a CAGR approach, which is an arithmetic extrapolation alternative when reliable actual forecasts are not available. But independent, objective EIA forecasts are available here. As the EIA forecasts are not released at the specific destination level, CSXT has applied the EIA 2018-2020 forecast at the Origin Region-Destination Region level, the agreed approach of parties in *IPA.*

(b) Non-Coal

TPI used its CAGR approach to apply to 2018 to 2020 the rate of change in the CSXT forecast from 2013 to 2017. However, the EIA's Annual Energy Outlook 2014 also produces contemporaneous forecasts covering the SARR period through 2020 for non-coal industries. The individual industries in the EIA data fairly closely track STCC codes.[23] The Board in *DuPont* endorsed the use of data from independent, third-party sources like the EIA. *See DuPont*, STB Docket No. 42125, at 255, 266. This approach of using EIA data for non-coal volumes was first proposed by complainants in the *IPA* case. CSXT adopts this approach to forecast non-coal volumes through the end of the SARR period in 2020.

Table III-A-5summarizes the corrections and adjustments CSXT made to TPI's opening traffic volume evidence and compares the results.

[23] *See* CSXT Reply WP "EIA AEO Non-Coal Growth Rates.xlsx."

Table III-A-5
Volumes (Historical and Projected) – Shipments (000s)

	Opening	Reply	Diff	% Diff
July-Dec 2010	2,856	2,731	(126)	-4%
2011	5,684	5,473	(211)	-4%
2012	5,561	5,494	(67)	-1%
2013	5,705	5,544	(161)	-3%
2014	5,891	5,753	(137)	-2%
2015	6,191	5,998	(193)	-3%
2016	6,534	6,326	(208)	-3%
2017	6,717	6,509	(207)	-3%
2018	7,015	6,658	(356)	-5%
2019	7,333	6,768	(565)	-8%
Jan-Jun 2020	3,837	3,447	(390)	-10%

Source: CSXT Reply WP "Revenue Summary (Final) REPLY.xlsx"

3. Stand-Alone Railroad Traffic

a. Rate Escalations

i. Adjustments to Intermodal Rate Escalations

CSXT generally accepts TPI's rate escalations for intermodal traffic, with two relatively minor corrections to intermodal rates. First, TPI used contractual rates listed by lane in the { } which impacts the overall average in each year. CSXT corrects this on Reply.[24]

Second, TPI calculated annual rate increases by lane to create an average annual rate of growth for { } traffic in 2013. TPI matched up the rate for each lane in the 2013 price list with those in the 2012 price list. When a 2012 rate did not exist (*i.e.*, a new rate created in 2013 for traffic that CSXT did not move in 2012), TPI did not include that lane in the overall average. However, for one lane { } that CSXT did not serve in 2012, TPI inserted a 2012 rate for an entirely different lane {

[24] *See* CSXT Reply WP { }

}. On Reply, CSXT removes this erroneous entry and corrects the average growth rate.[25]

ii. Updated RCAF Indices

Many CSXT contracts use the AII-LF or RCAF-U indices to determine rate escalations. TPI relied upon Global Insight's December 2013 RCAF forecasts to project future rate escalations for contracts using those indices. On Reply, CSXT updates those forecast indices with Global Insight's more recent forecasts from April 2014.[26]

b. Fuel Surcharge

i. Fuel Surcharge Revenues for Coal Contracts.

TPI primarily relied upon the coal contracts produced in discovery to determine the fuel surcharge provisions for TPIRR coal customers. CSXT accepts most of TPI's contract assumptions, with two exceptions. First, TPI misidentified the fuel surcharge mechanism for { }. TPI assumed a HDF-based surcharge with a strike price of { } but the contract clearly states that the fuel surcharge is { }[27] CSXT waybill data for 2012 and 2013 (produced to TPI in discovery) provide further evidence that { } during

[25] TPI's input error results in a { } increase for 2013 for that lane, compared to the second-highest growth rate for the { } *See* CSXT Reply WP "Summary PvtCont CSXT 99988 (6)D - CustSheet - XLS REPLY.xls."

[26] *See* CSXT Reply WP "Contract Summary Reply.xlsx."

[27] *See* CSXT Reply WP { }

this period.[28] Second, CSXT corrects TPI's spreadsheet error that failed to properly calculate the fuel surcharge amounts for contracts with strike prices of { } per gallon.[29]

ii. Intermodal – Fuel Surcharge Revenues

TPI identified rate escalation and fuel surcharge provisions for 22 intermodal contracts.[30] TPI's workpaper correctly indicated that most of those intermodal customers receive discounts from the standard CSXT fuel surcharge. However, TPI neglected to incorporate these discounts in its TPIRR fuel surcharge revenue calculations for all but one customer. TPI's error is reflected in the effective fuel surcharge percentages presented in TPI's Opening evidence. As Table III-A-6 illustrates, the fuel surcharge that TPI posited for the second half of 2013 ("2H13"), the first period of its forecast, is equal to 34% of base revenues for that traffic, compared to 25% in the immediately preceding two periods (2H12 and 1H13), which come from the amounts on CSXT waybills, even though HDF prices were lower in 2H13 than in those two prior periods.

Table III-A-6
Effective Intermodal Fuel Surcharges ($ millions)

	2H12	1H13	2H13
Source	Waybill	Waybill	TPI Opening
Base Revenues	$409.0	$412.5	$443.2
FSC	101.5	104.2	150.8
FSC %	25%	25%	34%
HDF Price per Gallon	$3.98	$3.96	$3.89

Source: CSXT Reply WP "Intermodal FSC.xlsx."

[28] *See* CSXT Reply WPs "TPIRR Coal Revenue Forecast (Final) REPLY.xlsx" and "HDF & WTI Forecast Reply.xlsx."

[29] *See* CSXT Reply WP "Contract Summary REPLY.xlsx."

[30] *See* TPI Op. WP "Contract Summary.xlsx."

On Reply, CSXT corrects TPI's calculations to reflect the discounted fuel surcharges that TPI identified and that intermodal customers actually receive.[31] One such customer for which TPI failed to incorporate the identified fuel surcharge provisions is {

}

TPI also projected substantial fuel surcharge revenues for movements that paid little to no fuel surcharge in the actual historical period. Specifically, TPI selected 189,000 shipments that CSXT interchanged with BNSF at Birmingham, AL, traveling to and from Atlanta. As the chart below shows, the waybill records report almost no fuel surcharge revenues for these moves. Once the TPIRR forecast period begins, however, TPI assigned the full default CSXT fuel surcharge to these moves. This unfounded approach would artificially create approximately $25 million in extra revenue for the TPIRR that is unsupported by the actual data.

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[31] *See* CSXT Reply WP "Contract Summary REPLY.xlsx."

[32] *See* TPI Op. WP "Contract Summary.xlsx."

[33] { }

Table III-A-7
Intermodal Fuel Surcharge

	2010	2011	2012	1H2013	2H2013	2014
{						
						}

Source: { }

On Reply, CSXT assigns the same fuel surcharge percentage for each shipment as is found in the historical waybill data. For those moves with fuel surcharges above zero, CSXT adjusted the fuel surcharge amount to account for changes in fuel prices.

iii. Fuel Surcharges After Contract Expiration

With the exception of the intermodal errors described above, TPI generally applied the terms of applicable contracts, to calculate TPIRR fuel surcharges for traffic moving under contract. After the expiration of a contract expires however, TPI aggressively assumed that the customer would be CSXT's default (undiscounted) fuel surcharge, regardless of the specific fuel surcharge terms that were actually in effect when the contract expired. This assumption is contrary to CSXT's practice. Fuel surcharge discounts under a prior contract generally continue at the same level when a contract renews. CSXT produced in discovery several renewed contracts that illustrate this general practice.

Table III-A-8
Fuel Surcharges

Contract Number	Customer	Original Contract Date	Original FSC Mechanism 1/	Contract Renewal Date	Renewal FSC Mechanism 1/
CSXT 84443/ CSXT 85609	South Carolina Electric & Gas Company	1/1/2009	$3.999 strike price	1/1/2013	$3.999 strike price
AGRT 5501	Evergreen	5/21/2007	8%	4/1/2010	Year 1: 10.5% Year 2 to Exp. Date: 8%
AGRT 5004	Zim American	7/1/2007	2.5%	8/1/2009	Aug 09 to Oct 11: 7.25% Nov 11 to Exp. Date: 2.5%
AGRT 5011	Yang Ming	8/1/2007	1%	6/1/2009	Years 1-2: 12% Year 3: 8% Years 4-6: 6%
AGRT 5012	Hamburg Sud NA	4/1/2009 (Amend.1)	6%	3/1/2012	Year 1: 8% Year 2: 8% Year 3: 6% Year 4: 6%
AGRT 5028	CMA CGM (America) LLC	11/1/2010	Year 1 - 2% Year 2 - 2.5% Year 3 - 3% Year 4 - 3%	11/1/2010	Year 1: 11% Year 2: 8% Year 3: 6% Year 4: 6% Year 5: 6%

1/ Percentage discount off of CSXT standard fuel surcharge unless otherwise noted
Source: CSXT Reply WP "Contract Summary Reply.xlsx."

TPI's Opening evidence assumes that, in the later years of the analysis period, when most existing contracts have expired, nearly every customer would pay CSXT's highest fuel surcharge. This simply is not reflective of reality where the larger customers have negotiating power to obtain more favorable provisions.

Consistent with CSXT's standard practice, this Reply evidence assumes that contracts renewed in the future maintain the same fuel surcharge terms as the existing contracts. TPI also omitted from its fuel surcharge summary a few coal contracts, perhaps because they expired in

2013. On Reply, CSXT includes these contracts and extends the contract fuel surcharge terms throughout the SARR period.[34]

TPI used the EIA's Short Term Energy Outlook (STEO) from January 2014 to determine prices used to calculate fuel surcharges. On Reply, CSXT updates fuel prices by using the June 2014 STEO, and used those prices to calculate TPIRR fuel surcharge revenues.[35]

iv. Attribution of Revenues for Movements With No Shipment Key

TPI included attributed to the TPIRR revenues from waybills that lacked shipment keys.[36] In most instances that same waybill data was missing information, (such as the origin or destination), required to determine whether it would be associated with a movement that traveled over the lines of the TPIRR. These waybills represent less than 2% of total CSXT waybill revenues.[37]

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[34] *See* CSXT Reply WP "Contract Summary REPLY.xlsx."

[35] TPI used the EIA's Annual Energy Outlook (AEO) 2014 Early Release (December 2013) for fuel prices after 2015. CSXT notes that the EIA's AEO 2014 Final Release fuel prices (released in May 2014) are unchanged from the Early Release.

[36] Shipment keys are 14-character codes that uniquely identify each car movement in the car and container event data. More than one shipment key can exist for a car movement due to in-route diversions or other operational changes.

[37] The waybill data that CSXT produced in discovery is the same data it uses in its normal course of business, and any missing data or anomalies in those records are simply part of those data-sets. The small fraction of waybill records that are missing shipment keys are generally "inserted records" that result from revenue recorded for a particular fiscal period but cannot be matched with a specific operational activity. This usually results from one of three circumstances. First, more than one waybill was generated for the same car movement because the original waybill was canceled (by the customer or CSXT) after the movement was underway and certain operating information does not transfer to the new revenue waybill. Second, the reported revenue may be for a prior period adjustment. The CSXT costing system does not match new waybills to operating activity if the associated movement was conducted more than two periods prior to the revenue adjustment. Third, charges for ancillary revenues (*e.g.*, demurrage or customer switching) that are not directly associated with an operating waybill are sometimes difficult to associate with a particular operational activity or waybill. When the CSXT system cannot match such revenues with an operational waybill, it generates an inserted revenue record

TPI used a grossly overinclusive approach to determine whether such waybill records were associated with movements over the TPIRR that would therefore generate revenue for the TPIRR. For each event record that did not have a shipment key, TPI sacrificed for a field that matched any single one of the following fields on another TPIRR movement. If any waybill matched any one of the following fields, TPI assumed the TPIRR would receive all CSXT revenues associated with that movement:

Price Authority
Origin FSAC and Destination FSAC
Origin FSAC
Destination FSAC
Consignee
Payor
Shipper
Origin IID's
Destination IID's

This error is related to TPI's erroneous approach to determining if shipments that touched the SARR actually traveled over the SARR, but the over inclusion resulting from this approach is even more egregious. Under TPI's approach, only *one field* from waybills needs to match a TPIRR movement for TPI to attribute claim *all* of the movement's revenues to the TPIRR. For example, because Dominion Terminal, VA (via Newport News) is a destination for a small portion of traffic that travels on the TPIRR, TPI assumed that all waybills that terminate at the Dominion Terminal generate revenues for the TPIRR even though, most of this traffic only crosses the SARR and does not travel on the lines of the TPIRR network. As a result, TPI assumed that over 99% of CSXT revenue records without shipment keys generated revenues for the TPIRR.

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without a shipment key. Each of these inserted record scenarios and resulting lack of values in certain waybill fields is a relatively rare occurrence in the huge interconnected traffic and revenue data sets used by CSXT in its normal course of business and produced in discovery in this case.

On Reply CSXT has used a similar matching process to the one it used to correct TPI's SARR volume errors, in order to determine what percentage of revenues in the waybills without shipping keys reasonably attributable to the SARR. CSXT first attempted to match the price authority for the revenue records in each year, and if there is a match, it applied the percentage of shipments for that price authority that actually traveled on the SARR. If price authority could not be matched, CSXT then checked for the Origin FSAC, Destination FSAC, and Consignee and applies that percentage if there is a match. If no match could be identified using those fields, CSXT applied the previously determined overall percentage for the relevant year to estimate the proportion of unidentified CSXT revenues attributed to the TPIRR. *See supra* III-A-6-7 (explaining process CSXT applied to correct similar, related TPI error in identifying TPIRR movements and volumes).[38]

c. Cross-over Traffic

TPI devotes several pages of its III-A-3 narrative to defending the use of cross-over traffic in SAC cases. *See* TPI Opening III-A-17 to III-A-29. Nearly 70% of TPIRR traffic volume is cross-over traffic.[39] As CSXT demonstrated in its multiple filings in the *Rate Regulation Reforms*, STB Ex Parte No. 715 rulemaking, cross-over traffic generally distorts the SAC analysis and results, in part because the ATC revenue allocation method does not accurately reflect the services and attributes of a particular SARR. This case largely does not involve the specific type of traffic that most concerned the Board in *Rate Regulation Reforms* when it considered limiting cross-over traffic—carload shipments that a SARR would handle in "hook-and-haul" overhead service. Because TPI built such a large portion of CSXT's actual

[38] *See* CSXT Reply WPs "2010 No Shipment Key Reply.xlsx," "2011 No Shipment Key Reply.xlsx," "2012 No Shipment Key Reply.xlsx" and "No Shipment Key Forecast Reply.xlsx."

[39] *See* CSXT Reply WP "Revenue Summary (Final) REPLY.xlsx."

network, the TPIRR has relatively limited overhead hook-and-haul service. CSXT stands by its position in EP 715 regarding cross-over traffic, but it elects in this case not to contest TPI's most common use of cross-over traffic, in which the TPIRR is assumed to transport traffic over a single continuous internal TPIRR segment and interchange that traffic with the residual CSXT at one or both geographic endpoints of the TPIRR network.

However, CSXT strongly objects to TPI's heavy reliance on internal cross-over or "leapfrog" traffic, and urges the Board to prohibit TPI and future complainants from using this distorting tactic. As discussed in more detail in Section III-C, TPI's Operating Plan implicitly assumes a number of internal cross-over movements, whereby the residual CSXT would act as an overhead carrier that would move TPIRR traffic over an interior segment between two segments of the TPIRR.[40] *See infra* III-C-37 to 55. That is, TPI hypothesizes that the TPIRR would move traffic over a segment of the TPIRR network, then interchange that traffic with the residual CSXT, which would move the traffic over an isolated interior segment constructed and operated by CSXT to another interchange with the TPIRR, which then would move the traffic over another segment of the TPIRR. This represents a radical expansion of the hypothetical construct of cross-over traffic that is inconsistent with the limited purpose for which the Board has allowed cross-over traffic and contravenes fundamental SAC principles.

Prior to the complainant's introduction of the "leapfrog" device in the recent *DuPont* case, cross-over traffic had consisted exclusively of continuous segments constructed and

[40] TPI does not directly disclose or explain its use of internal cross-over traffic in its opening evidence. It does mention some of the internal cross-over segments, obliquely describing them as "mainline gaps in the CSXT system that the TPIRR does not replicate," but it does not state that they are interior segments of the TPIRR network or that the TPIRR would rely on the residual incumbent to move SARR traffic group movements as a bridge carrier between two segments of the TPIRR. *See* TPI Opening III-A-22. Moreover, TPI nowhere discloses or identifies which trains or cars would move over these interior "leapfrog" segments.

operated by the SARR with interchanges with the residual incumbent at one or both geographic endpoints of the SARR network. DuPont introduced this new tactic in its opening evidence, which the Board characterized as attempting "to connect points within [the SARR] system without building facilities to connect those points directly." *DuPont,* STB Docket No. 42125, at 44. The parties and the Board referred to this tactic as creating "leapfrog" cross-over traffic, which would effectively allow the SARR to leap over interior segments of the SARR network that are expensive to build, operate, or maintain or have low traffic density. *See id.* Defendant carrier NS objected and requested that the Board disallow SARR traffic using that device. The Board found that myriad other flaws in the complainant's operating plan obviated the need to decide whether DuPont's leapfrog traffic was permissible. *See id.* TPI now attempts the same tactic in this case, but without forthrightly disclosing its use of the tactic or identifying affected traffic. As Table III-A-9 illustrates, leapfrog traffic represent 15% of general freight and coal shipments and 9% of TPIRR intermodal containers in the base year.

Table III-A-9
TPIRR Leapfrog Traffic

	Total 2012 Carloads/Containers	Leapfrog Carloads/Containers	Leapfrog %
Coal	706,405	102,332	14.5%
General Freight	2,449,906	378,234	15.4%
Intermodal	2,460,171	216,898	8.8%

Sources: CSXT Reply WPs "TPIRR_TRAFFIC_HISTORICAL_CARLOAD_2012_Updated.xlsx" and "TPIRR_TRAFFIC_HISTORICAL_CONTAINER_2012_Updated.xlsx."

By assuming that the residual CSXT would move TPIRR traffic over significant interior segments of what should be the TPIRR network, TPI is able to avoid very significant costs of constructing and operating lines in the middle of TPIRR routes, while still allowing the TPIRR to collect revenues from less expensive or higher density routes. Carried to its logical conclusion,

use of this internal cross-over device would allow a complainant to avoid any expensive segment or facility on its SARR network (even a single expensive tunnel or bridge) by simply assuming the residual incumbent would construct and operate that line or facility and serve as an overhead carrier for the SARR.

An example from TPI's Opening Evidence helps to illustrate how it used the leapfrog device to evade expensive road property investment and operations expenses of an interior segment of the TPIRR network.[41] The TPIRR traffic group includes cars that move between Selkirk, NY, and Pembroke, NC. In the real world, CSXT transports that traffic in a single-line movement between Selkirk and Pembroke. The discontinuous TPIRR network posited by TPI would replicate the CSXT line segments between Selkirk and Orangeburg, NY, and between Baltimore, MD, and Pembroke, NC, but exclude the 203-mile segment of CSXT's system between Orangeburg, NY, and Baltimore, MD.[42] Instead, TPI posited that the TPIRR would operate trains between Selkirk and Orangeburg, and interchange them to CSXT at that location. TPI assumes that CSXT would then move the trains between Orangeburg, NY and Baltimore, MD—through the operationally complicated, high-value real estate along the Northeast Corridor through New Jersey, Delaware, Pennsylvania, and Maryland[43]—and then interchange them back

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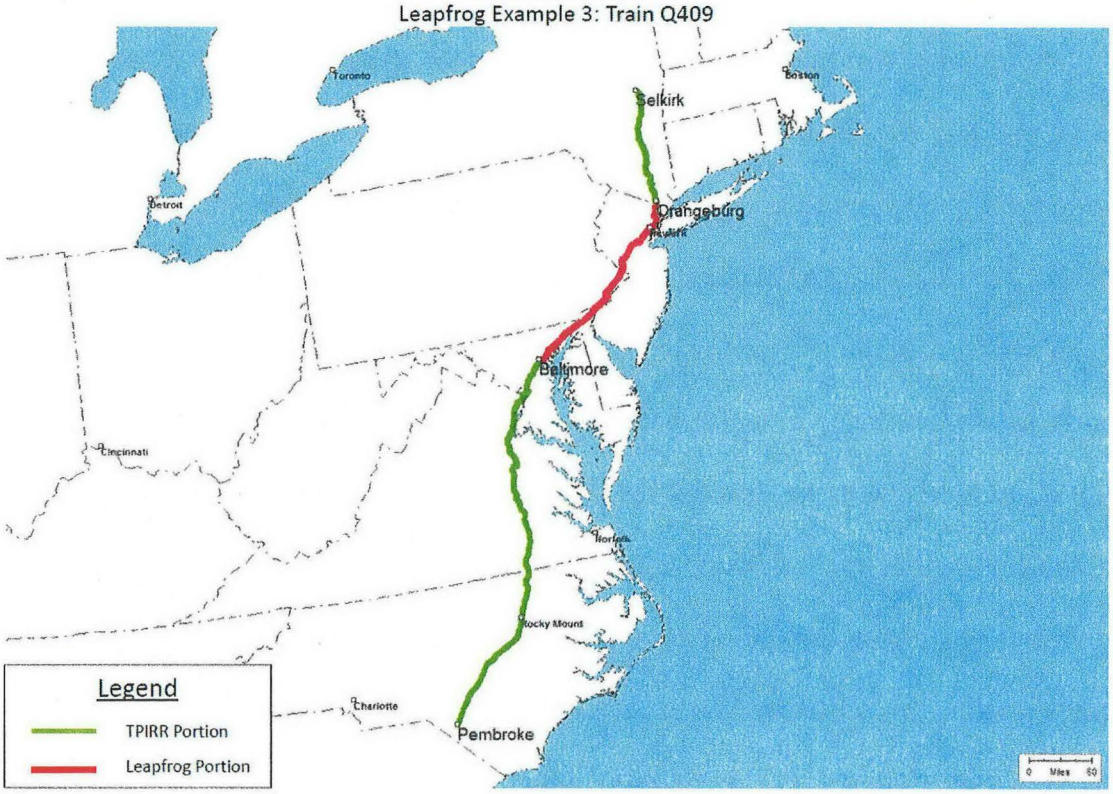
[41] This is but one example of a number of internal cross-over segments and movements—some involving four interchanges between the TPIRR and the residual CSXT for a single movement—created by TPI. CSXT describes a number of other leapfrog movements that TPI relied upon in a more detailed discussion of this tactic and resulting distortions of the SAC analysis, set forth in its Operating Plan Evidence. *See infra* III-C-37 to 55.

[42] The TPIRR does have a line that connects Orangeburg and Baltimore (via Buffalo, NY, Greenwich and Akron, OH, and Cumberland, MD), but handling north-south traffic via that far more circuitous circular north-west, then south-west, then south-east routing would not allow the TPIRR to meet customer service requirements, and would therefore violate the Board's requirements for internal re-routes.

[43] This CSXT line traverses heavily populated and expensive urban areas such as the New York, Philadelphia, and Baltimore metropolitan areas, and a large swath of New Jersey.

to the TPIRR at Baltimore for further movement to Pembroke, and points beyond. This TPI leapfrog movement is depicted in the following map:

Chart III-A-6
Leapfrog Example 3: Train Q409



The Board should reject TPI's attempt to expand the cross-over fiction past the breaking point. The Board's consistent rationale for allowing the crossover traffic device has been to allow complainants to simplify the SAC presentation and analysis by curtailing the geographic scope of the SARR, and avoid "extending the SARR to far-flung origins and destinations of non-issue traffic." *Duke/NS,* 7 S.T.B. at 115. Importantly, the purpose of cross-over traffic is to permit the SARR to achieve "the *same* economies of scale, scope and density that the incumbents enjoy *over the identical route of movement. TMPA I,* 6 S.T.B. at 590 (emphasis added). Permissible use of the cross-over device is intended to allow the SARR to achieve these economies for its selected traffic without building the SARR network all the way to its origins

and destinations on the incumbent's network. Critically, the Board has emphasized that the cross-over fiction is intended to "make the analysis more manageable *without introducing bias*" to the SAC analysis. *Major Issues,* STB Ex Parte No. 657 (Sub-No. 1), at 24 (emphasis added).

As demonstrated below, TPI's manipulation of the cross-over device in the form of leapfrog traffic is inconsistent with the foregoing principles and the limited purpose for which cross-over traffic is permitted. Allowing this abuse of what is intended to be a simplifying device would distort the SAC analysis and undermine the validity and reliability of its results, potentially rendering the entire exercise meaningless. As Commissioner Begeman admonished a recently, any "presentation of leapfrog traffic in future cases [must] be considered very carefully by the Board to ensure its use does not render the SAC process meaningless." *DuPont*, STB Docket No. 42125, at 68 (V.C. Begeman, concurring).

First, the internal cross-over movements posited by TPI do not reduce the geographic extent or reach of the SARR, and do not eliminate the need to build the TPIRR network to far-flung origins and destinations. *See Duke/NS*, 7 S.T.B. at 115. Instead, they eliminate interior segments of the TPIRR network—other TPIRR lines extend well beyond both endpoints of the internal segment that TPI assumes would be constructed and operated by the residual CSXT. This new use of cross-over traffic does nothing to serve a primary purpose of allowing cross-over traffic, allowing a SARR to achieve economies of scale and density enjoyed by the incumbent without building a network with the same geographic reach as the incumbent's network.

Second, the leapfrog device violates a fundamental limitation on the use of the cross-over device by distorting the analysis and creating bias in the results. *See Major Issues*, STB Ex Parte No. 657, at 24. The Board has found cross-over traffic justified to the extent it allows the SARR

to attain "the same economies of scale, scope and density that the incumbents enjoy over the identical route of movement. *TMPA I,* 6 S.T.B. at 590. What TPI seeks to achieve with its internal cross-over tactic is to fabricate *greater* economies of scale, scope, and density than those enjoyed by the incumbent over a continuous single-carrier route traversed by selected traffic in the real world. If accepted, internal cross-over traffic would allow the SARR to leap over rail system lines and facilities that are costly or difficult to construct, operate, or maintain, have low traffic density or are otherwise inconvenient for the SARR, using the fantastic assumption that the residual incumbent would incur and absorb those disproportionate costs on an isolated segment in order to provide bridge carrier service for SARR traffic.[44] This would transform cross-over from a simplifying device intended to make the SAC analysis more manageable to a tool for distorting and manipulating the analysis and bias its results in favor of the complainant. *See Major Issue,* STB Ex Parte No. 657 (Sub-No. 1), at 24 (cross-over traffic allowed in order to simplify the analysis without biasing that analysis). Rather than determining the full costs necessary to provide service over a continuous segment operated by the incumbent carrier and comparing it with revenue generated by traffic that shares the necessary facilities, the leapfrog tactic would allow the complainant to selectively exclude costly or operationally difficult internal segments and cherry-pick for the SARR only those discontinuous segments that would generate the highest ratio of SARR revenues to SARR costs. While the advantage to the complainant is plain, this tactic could render the resulting SAC analysis and conclusions meaningless and worthless for purposes of determining rate reasonableness. Thus, the distortions and bias allowed and fostered by internal cross-over traffic have the potential to destroy SAC—the long-

[44] For good reason, real world Class I carriers like CSXT very rarely participate as an overhead carrier between two lines of another Class I carrier.

acknowledged gold standard for evaluating rate reasonableness—as a valid, useful, and reliable method to evaluate and determine the reasonableness of challenged rail rates.

Third, internal cross-over traffic complicates the analysis and thwarts the Board's primary purpose in allowing the cross-over device—to simplify the SAC analysis. The internal cross-overs inserted by TPI create new, additional interchanges between the TPIRR and CSXT in the geographic core of the TPIRR network. The TPIRR should construct and operate these lines within its geographic boundaries in single-line service. Introduction of additional fictional interchanges creates operational complexities and costs, and in most instances would require additional track and infrastructure. The addition of more segments, interchanges, and facilities also complicates revenue allocations using the ATC process, as well as any maximum markup methodology ("MMM") calculations that may be necessary.

Moreover, the Board suggested in *DuPont* that in order to demonstrate that leapfrog traffic should be removed from the analysis, the defendant carrier may be required to "conduct an entirely separate additional SAC analysis" excluding the traffic. *DuPont*, STB Docket No. 42125, at 44. But the time, resources, and cost required to conduct a second entirely separate SAC analysis are prohibitive. In the unlikely event that a carrier did conduct an entirely separate SAC analysis, the complainant's use of internal cross-over traffic would have dramatically increased the complexity and cost of the overall SAC analyses. Thus, rather than simplify the analysis or make it more manageable, the introduction of internal cross-over movements increases the complexity of the SAC, thereby flouting a principal rationale for allowing the use of the cross-over device.

Fourth, use of internal cross-over traffic allows the SARR to evade the Board's limits and requirements for internal (or "on-SARR") re-routing of traffic. The Board's rules allow internal

re-routing of SARR traffic only if the complainant shows that the alternative route would provide the customer with service that is equal to or better than the service provided by the incumbent carrier. *See, e.g., TMPA I,* 6 S.T.B. at 594-95. If a complainant chooses not to construct a segment of the incumbent's system used by non-issue traffic in the real world, re-routing that selected traffic over other lines replicated by the SARR may require a more circuitous route that prevents time-sensitive traffic from providing the same or faster transit times and service provided by the incumbent's service. The internal cross-over assumption allows the complainant to avoid the choice between: (i) building and operating a continuous SARR line to move that traffic that would not satisfy the Board's service standards if it were re-routed; and (ii) dropping that traffic from its SARR traffic group and losing the associated revenue. The internal cross-over gambit allows the complainant to avoid this dilemma by creating and relying on a new third option—assume the residual incumbent would build and operate the difficult and costly internal segments necessary to allow time-sensitive movements to provide the required service levels, and claim for the SARR the higher margins generated by the less challenging (and often more dense) segments of the movement. Indeed, as explained elsewhere in this Reply evidence, TPI effectively used that device in this case to evade the Board's re-route rules and standards. *See infra* III-C-37-55.

For these and other reasons detailed below, the Board should definitively rule in this case that internal cross-over ("leapfrog") movements are prohibited. The Board should also remove from the SAC analysis all TPIRR movements containing internal cross-over segments and associated TPIRR revenues. Because the Board may decide in this case not to ban movements containing leapfrog segments, CSXT also offers two alternative options to mitigate distortions caused by TPI's use of the leapfrog device.

i. Elimination of High Priority Intermodal Traffic Over Leapfrog Segments

As previously discussed, CSXT has identified two customers with very high priority, time-sensitive traffic who would take their business to a competing transportation provider if rail transit times increased as a result of the increased time consumed by internal cross-over segments and interchanges. *See supra* III-A-9. The Board's SAC precedents require that the SARR provide service that is the same as or better than the service provided by the incumbent carrier. *See, e.g., TMPA I,* 6 S.T.B. at 94-95. Increased transit times for {{ }} traffic moving to and from New York along the I-95 corridor route or for the {{ }} traffic to and from Charlotte, NC would violate the Board's SARR service standards and cause the carrier (here, TPIRR) to lose the business. Trains carrying {{ }} traffic between the New York metropolitan area and Jacksonville would traverse four separate segments, alternating between the TPIRR and the residual CSXT. Similarly, trains carrying high priority {{ }} traffic from Charlotte to Jacksonville and Miami also would traverse four alternating segments on TPIRR and CSXT lines. In both cases, those leapfrog segments would necessitate three new interchanges, each of which would require approximately 4-5 additional hours. Those additional hours alone would cause TPI's proposed CSXT-TPIRR-CSXT-TPIRR service to fail to meet the transit times provided by single-line CSXT service today and thus compel the Board to reject those movements. Because, under the TPIRR system configuration and operating plan, that traffic could not provide the same service that CSXT provides today, this Reply removes that traffic from the SAC analysis, for purposes of TPIRR traffic volumes, revenues, operating plan, and operating expenses.[45]

[45] *See* CSXT Reply WPs "2010 Containers Reply.xlsx," 2011 Containers Reply.xlsx," 2012 Containers Reply.xlsx" and "TPIRR Intermodal Revenue Forecast (Final) REPLY.xlsx."

ii. Alternative Revenue Allocation for Leapfrog Movements.

Separately, CSXT provides two alternative cross-over traffic revenue allocation approaches for internal cross-over movements. Both alternatives address the dichotomy of TPI's reliance on internal cross-over traffic to provide TPIRR end-to-end service for select shippers in the TPIRR traffic group while ignoring the economic cost of the leapfrog segment. The first alternative involves more steps to implement. Without additional guidance from the Board, CSXT has not undertaken these additional steps and has instead implemented the more straightforward second alternative.

Under the first proposed revenue allocation approach for internal cross-over traffic, the incumbent's (here, CSXT) revenues for the movement would first be allocated using "Alternative ATC" between (i) more standard off-SARR segments (operated by the residual incumbent) beyond the geographic endpoints of the SARR; and (ii) the combined on-SARR and leapfrog segments. Next a pro-rata portion of the full economic cost of the leapfrog segment based on an a pro-rata share of the replacement cost for the SARR-avoided leapfrog segment (allocated based on leapfrog segment gross ton miles) and fully allocated Uniform Rail Costing System ("URCS") operating expenses would be deducted from the ATC allocation for the combined on-SARR and leapfrog segments. The remainder would go to the SARR.[46]

Under the second proposal, in lieu of calculating the full economic cost of the leapfrog segment, the Board could use a movement's available contribution above variable costs for the on-SARR portion, in combination with an ATC-based revenue allocation for the leapfrog segment(s) as a surrogate for full economic cost of leapfrog segment. Under this approach, the

[46] A simplified, but less accurate alternative to this approach is to estimate the replacement cost of the avoided leapfrog segment based on the average replacement cost per route mile for the SARR, which the parties will have calculated.

SARR revenue allocation would be the lower of the incumbent's URCS variable cost or the Alternative ATC allocation (if revenues are below URCS variable costs) for the on-SARR segments only. CSXT has provided in its Reply workpapers alternative revenue allocation calculations for TPI's leapfrog traffic using this more straightforward alternative methodology.[47]

iii. Revenue Allocation for All Cross-Over Traffic

TPI used the "Alternative" ATC revenue allocation method that the Board adopted in *Rate Regulation Reforms* and applied in *DuPont* and *SunBelt* to allocate cross-over traffic revenues between the TPIRR and the residual CSXT. CSXT accepts the use of that revenue allocation method in this case but makes several corrections and modifications to TPI's implementation of that revenue allocation methodology.

(a) Correct TPI's network assumptions and recalculate on-SARR mileages

TPI estimated TPIRR miles for each cross-over movement by totaling the miles found in the car event data for any CSXT network link that TPI had flagged as part of the TPIRR network.[48] However, TPI made two significant errors in the method it used to flag network links as part of the TPIRR. These errors significantly overstated the TPIRR miles in TPI's ATC calculations.

The first error TPI made was in its identification of network links that are not on the SARR network at all. TPI erroneously credited the TPIRR with "on-SARR" mileages for the entire length of such segments whose mileages properly should have been identified as "off-SARR" segments in the ATC revenue allocation process. Below are eight examples of network

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[47] *See* CSXT Reply WPs "2010 No Shipment Key Reply.xlsx," "2011 No Shipment Key Reply.xlsx," "2012 No Shipment Key Reply.xlsx" and "No Shipment Key Forecast Reply.xlsx."

[48] "Network links" are relatively short segments (11 miles on average) between two mileposts on the CSXT network. For example, link A771_A840.96 represents the 70 mile segment between mileposts A771 and A840.96.

links, with associated miles and traffic volumes for which TPI erroneously claimed revenue credit for the TPIRR.

Table III-A-10
Sample Residual CSXT Segments for which TPI Claimed SARR Revenue Credit

Residual CSXT Segment	Network Link	Segment Miles (Off-SARR)	Cars for which TPI Claimed SARR Revenue Credit
Folkston, GA - Nahunta, GA	A576.61_A602.16	25.55	78,467
Salem, IL - IN/IL Line	BC189.2_BC267.19	77.99	46,568
Salak, SC - GA/SC Line	AK476.53_AK525.6	49.07	36,972
Laurens, SC – Spartanburg, SC	AK554.63_AK593.5	38.87	34,370
Ridgeway, OH – Peoria, OH	QT81.31_QT97.5	16.19	31,588
Baldwin, FL – Tallahassee, FL	SP652.55_SP802.92	150.37	30,536
Dover, SC – Columbia, SC	C.73_C63.32	62.59	17,180
Sterling, OH – Lester, OH	BJ120_BJ137.12	17.12	7,234
Total for Above 8 Segments		438.75	282,915

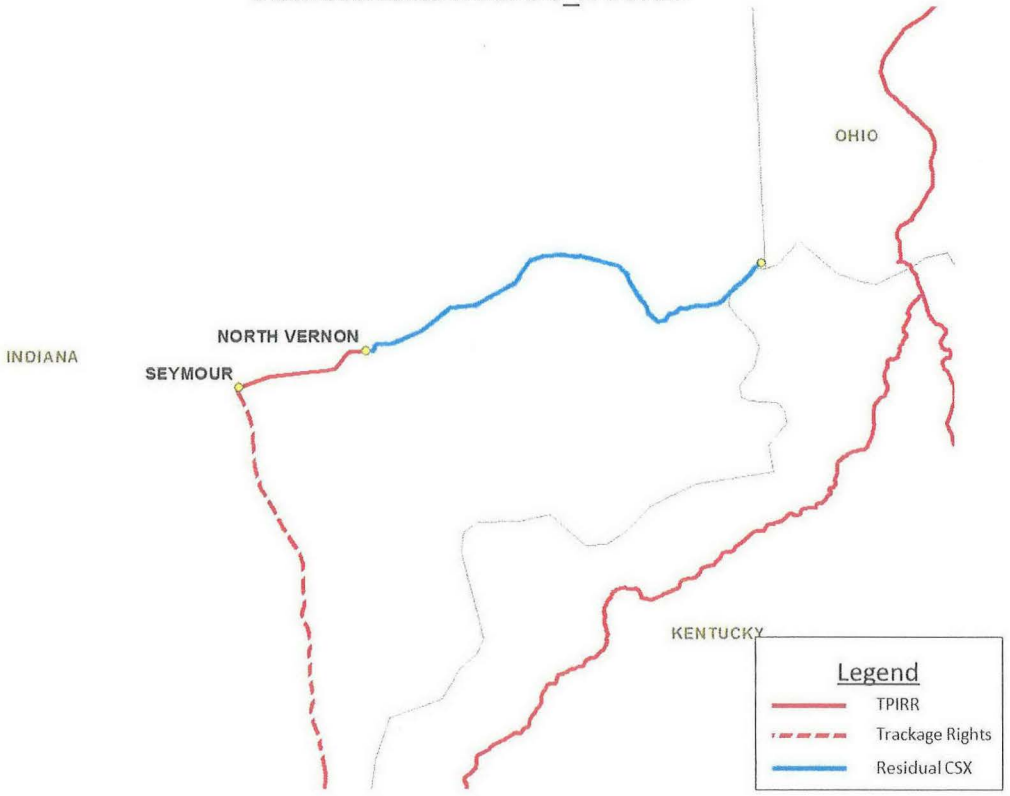
In each instance, one of the two stations of the network link is at or beyond the end point of the TPIRR lines, but TPI assumed that the network extends well beyond the SARR network that TPI posited the TPIRR would build and operate. For example, the TPIRR does not extend further west than Baldwin on the SP line in Florida. However, TPI's cross-over revenue allocations classified the 150- mile segment between Baldwin and Tallahassee as on-SARR. This is a clear error, and CSXT has corrected this category of TPI errors by eliminating those segments from the on-SARR mileage calculations.[49]

TPI's second, similar error involves CSXT network links that are split between the SARR network and the residual CSXT network, and the TPIRR would build and operate over only a portion of that link. In these cases, TPI's revenue allocation methodology inappropriately assigned all miles of the network link to the SARR.

[49] *See* CSXT Reply WP "TPIRR ATC Divisions Reply.xlsx."

For example, TPI identified the 67-mile link from Seymour, IN, to the Indiana/Ohio border (BC19.98_BC87.29) as "on-SARR." However, only the first 14.7 miles to North Vernon are included on the SARR. The remaining 52.6 miles indisputably are off the SARR, but TPI claimed the entire 67 mile segment as SARR miles in its ATC process.[50]

Chart III-A-7
Network Link BC19.98_BC87.29



This is a systemic error in TPI's process—141 of the 541 TPIRR network links contain sections of the residual CSXT network, affecting 2,339 miles that TPI claimed (for cross-over revenue allocation purposes) the TPIRR built and operated. To correct this error, CSXT identified the actual end points of the TPIRR network and properly calculated and allocated the correct mileages to the TPIRR and to the residual CSXT. The 2,339 miles on segments with

[50] *See* TPI Op. WP "TPIRR ATC Divisions.xlsx."

both SARR and residual CSXT sections are properly divided into segments with 1,399 total TPIRR miles and 940 miles on the residual CSXT system.

This mileage correction significantly affects the URCS variable cost inputs for ATC revenue allocations. CSXT also uses these on-SARR and off-SARR distance corrections to correct fixed cost calculations for split segments in the ATC cross-over traffic revenue allocations.[51]

(b) Movements originating or terminating on the TPIRR System for which TPI posits CSXT Local Service.

In numerous instances, in TPI's opening evidence assumes that the TPIRR would not perform the origination or termination of shipments at a customer location that is located *on the SARR network.* TPI instead hypothesizes that a local CSXT train would perform the origination or termination.

This approach is an abuse of the cross-over traffic device and that violates SAC principles and the limited purpose for which the cross-over fiction is permitted. Cross-over traffic is a simplification device to enable a complainant to take advantage of economies of density on the SARR network without having to model the full network (including development of road property investment, operating expenses, and revenues) necessary to serve all traffic from origin to destination. *See, e.g., Xcel,* 7 S.T.B. at 603. Importantly, the Board has emphasized that the use of the cross-over fiction is intended to simplify the SAC presentation without causing any bias to the SAC analysis. *See id.* ("The use of cross-over traffic....provides a reasonable measure of simplification that allows SAC presentations to be more manageable."). However, in this case TPI is using the cross-over device simply to avoid conducting high-cost

[51] *See* CSXT Reply WP "TPIRR ATC Divisions Reply.xlsx."

local service operations necessary to serve customers on the TPIRR network, thereby distorting the SAC analysis and biasing its results. TPI claims its novel approach is justified because it would be inefficient to create inter-line local trains. *See* TPI Opening III-A-23. In fact, it is inefficient (and utterly unnecessary) to create any inter-line movement when the SARR can provide the service directly over its own network. On Reply, CSXT corrects this artificial distortion by assuming the TPIRR would perform these local service operations. *See infra* III-C-22.

In its ATC workpapers TPI treated these moves as received or delivered near the customer location. Because CSXT corrects TPI's failure to serve on-SARR customers, it has changed the SARR movement type for URCS costing from "received or delivered" to "originated or terminated." This consistent adjustment will increase TPIRR revenues for these moves by assigning to the TPIRR an URCS origination or termination.[52]

(c) Update TPI Estimated URCS with Official STB Version

TPI created its own estimated 2012 CSXT URCS to calculate variable costs for each movement and to calculate fixed costs per route mile in its Opening ATC calculations. Because the Board subsequently released the 2012 CSXT URCS, CSXT substituted the Board's version in its Reply evidence.

CSXT's use of the STB's version of the 2012 CSXT URCS corrects an error in TPI's calculations of CSXT's fixed costs per mile. URCS data is used to calculate ATC fixed costs by identifying the fixed portion of URCS costs. However, TPI overstated the variable portion of

[52] *See* CSXT Reply WPs "TPI ATC URCS Input - Cars V42.1_SARR Outputs_with calcs Reply.xlsx and "TPIRR ATC Divisions Reply.xlsx."

Special Services Other costs in its Opening workpapers.[53] This correction increases the fixed costs per route mile.

(d) Refine Coal Traffic Cross-Over Revenue Allocations

TPI calculated ATC percentages for the traffic it selected from 2012 CSXT waybill files. For other years in the historical period for which TPI had actual CSXT traffic data (2010, 2011 and 2013), TPI applied its 2012 ATC percentages by matching moves from those other years to 2012 movements based on a combinations of ultimate origin, CSXT on-station, CSXT off-station, ultimate destination and 2-digit STCC. When those fields did not generate a match TPI simply applied the aggregate 2012 ATC percentage for the particular 2-digit STCC.

For coal movements, TPI's default approach does not account for origin shifting within coal origin regions.[54] Under TPI's unrefined approach, coal movements to a particular destination from mines that did not originate coal moved over the TPIRR in 2012 receive the default SARR-wide 2012 ATC allocation for coal (two-digit STCC 11) rather than a more representative allocation for mines in the same coal origin region to that same destination. For example, in 2012 TPIRR moved coal from five Central App mines to Ashtabula Harbor, OH in 2012. The weighted average ATC allocation for these moves is 24%. In 2013, the TPIRR moved coal from four different (from 2012) CAPP mine origins to Ashtabula Harbor. TPI's matching criteria did not find a match for these new 2013 origins, so TPI assigned those movements the overall coal ATC allocation of 62%, which is clearly too high. This issue is particularly pronounced in 2010, when the specific coal origins were significantly different from

[53] *See* CSXT Reply WP "2012 Fixed Cost Per Mile By Segmentv4.0 REPLY.xlsx."

[54] Coal origin regions relevant here, as categorized by the Federal Energy Information Administration include Central Appalachia, Northern Appalachia, and Eastern Interior.

those in 2012. In 2010 TPI's default approach assigned over one-third of the coal shipments the overall coal ATC allocation of 62%.[55]

On Reply, CSXT refines the process of matching 2012 ATC allocations to other years (and thereby reduced revenue allocation distortions) by adding a step to the matching process for coal movements at an Origin Region/Destination level. CSXT first applies TPI's matching process that used a combination of ultimate origin, CSXT on-station, CSXT off-station, ultimate destination and 2-digit STCC. If a match did not result based on those fields, CSXT then attempts to match 2012 coal movements to other years (2010, 2011, and 2013) using EIA coal Origin Region and ultimate destination.[56] Only if that additional step failed to find a match, does CSXT then apply the overall coal ATC revenue allocation to a movement. In the above example, moves in 2010, 2011 and 2013 from coal mines in Central App to Ashtabula Harbor that did not appear in 2012 received the weighted average ATC allocation from that origin region to that destination of 24%. While the correction in the above example lowered the ATC percentage, in many cases the correction increased the ATC percentage. In both cases, the ATC percentages more closely reflect the proper ATC-based allocation of revenues from an origin to a destination. This Origin Region/Destination approach is consistent with CSXT's approach to applying the CSXT volume forecast to TPIRR selected traffic to project future volume growth. *See supra* III-A-16 to III-A-17.

Table III-A-11 summarizes the corrections and adjustments CSXT made to TPI's opening revenues evidence and compares the results.

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[55] *See* TPI Op. WP "2010 STCC 1 to 26.xlsx."

[56] *See* CSXT Reply WP "TPIRR Coal Revenue Forecast (Final) REPLY.xlsx."

Table III-A-11
Revenues (Historical and Projected)—Millions

	Opening	Reply	Diff	% Diff
July -Dec 2010	$3,152	$2,941	($211)	-7%
2011	6,832	6,476	(355)	-5%
2012	6,851	6,723	(128)	-2%
2013	7,301	7,008	(293)	-4%
2014	7,671	7,456	(214)	-3%
2015	8,139	7,840	(299)	-4%
2016	8,720	8,360	(359)	-4%
2017	9,122	8,742	(380)	-4%
2018	9,721	9,207	(514)	-5%
2019	10,422	9,684	(738)	-7%
Jan-Jun 2020	5,587	5,084	(504)	-9%

Source: CSXT Reply WP "Revenue Summary (Final) REPLY.xlsx

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III. STAND-ALONE RAILROAD SYSTEM

B. STAND-ALONE RAILROAD SYSTEM

1. Routes and Mileage

The rail network that TPI posited for the TPIRR totals 7,356.91 miles, including 6,865.94 miles of track constructed and owned by the TPIRR and 490.97 miles of track owned by other railroads (over which the TPIRR would operate pursuant to CSXT's existing trackage rights and joint facility agreements). *See* TPI Opening III-B-2. The TPIRR system includes 20 main line segments and 50 branch lines traversing 17 states and the District of Columbia. *See* TPI Opening III-B-1 to III-B-2. The TPIRR replicates much of the current CSXT system, extending from Chicago, IL, and Rochester, NY, in the north to New Orleans, LA, and Oneco, FL, in the south, and from Orangeburg, NY, Baltimore, MD, and Jacksonville, FL, in the east to Memphis, TN, and St. Louis, MO, in the west. Although TPI proposes to route certain traffic differently than CSXT does today, CSXT accepts the general scope and configuration of the TPIRR posited by TPI.[1] CSXT's Reply workpapers include stick diagrams depicting the TPIRR system posited by CSXT. *See* CSXT Reply WP "CSXT Reply Stick Diagrams.pdf."

a. Main Line

TPI has included a total of 20 main line segments, and proposes utilizing trackage rights to operate over portions of five of these segments. CSXT's proposed TPIRR configuration also includes CSXT's existing mainline in East St. Louis, MO, between Roselake Yard and the operating connection with the Union Pacific ("UP") at the Terminal Railroad Association of St.

[1] TPI posits the existence of "internal cross-over" traffic that moves in trains that would "leapfrog" between the lines of the TPIRR and the residual CSXT at intermediate points within the TPIRR network. TPI's physical plant does not include the residual CSXT segments over which such "leapfrog" trains would move. For the reasons discussed at III-C-37–56 below, "internal cross-over" traffic violates SAC principles and the Board's prior pronouncements regarding the proper use of cross-over traffic, and should not be permitted.

Louis' ("TRRA's") Madison Yard.[2] Also, as discussed below, CSXT re-classifies trackage rights segments that are in fact partially owned by CSXT.

b. Branch Lines

TPI has included a total of 50 branch line segments, and proposes utilizing trackage rights to operate over eight of them. CSXT's proposed TPIRR configuration also includes the branch line segment in Chicago, IL between Bedford Park and Bensenville on the Indiana Harbor Belt Railroad Company ("IHB")[3], as well as a branch line segment on the TRRA between its Roselake connection and Madison Yard.[4] As discussed in more detail below, CSXT re-classifies trackage rights segments that are CSXT Partially Owned Lines, which TPI must account for in order to step into CSXT's shoes.

While TPI's selected traffic group includes traffic originating and/or terminating on numerous CSXT branch lines, TPI did not include those branches in the TPIRR's track configuration. Rather, TPI posited that the TPIRR would handle that traffic to the junction point between CSXT's current main line (which was replicated by TPI) and the branch lines that TPI elected to exclude. The TPIRR would interchange traffic moving to or from customers located along the excluded branch lines with the residual CSXT, which would bear the cost of originating and/or terminating that traffic while receiving a revenue division based on its limited haul over the branch line. This is an unfair and impermissible assumption that TPI clearly made in a calculated effort to avoid the costs that the TPIRR should be required to shoulder if it is to be permitted to enjoy the revenues associated with such traffic. Nevertheless, CSXT accepts TPI's

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[2] This segment is required to interchange traffic with the Union Pacific in a manner consistent with current operations. *See* III-C-184.

[3] This segment is required to serve traffic at CP's Bensenville yard. See III-C-182.

[4] This segment is required to interchange traffic with the Union Pacific in a manner consistent with current operations. *See* III-C-184.

assumption for purposes of this case, but addresses a separate issue that arises as a result: TPI's track configuration for the TPIRR does not include all of the tracks that would be required to interchange traffic with CSXT at those branch line junctions. For example, TPI failed to include interchange tracks at Contentnea, NC, Rockwood, PA, and Starke, FL, where TPI created new interchange points between the TPIRR and CSXT branch lines. CSXT does not interchange traffic at those locations today, and therefore does not have tracks in place upon which such TPIRR-CSXT interchange could be accomplished. CSXT's track configuration for the TPIRR addresses this omission by incorporating an appropriate number of track feet of interchange trackage for use by the TPIRR and CSXT in transferring cars at those new interchange locations.

c. Partially Owned Lines/Trackage Rights

TPI assumed that the TPIRR will operate over trackage rights on a number of lines in which CSXT has an ownership stake or for which it is responsible for the payment of certain capital-related expenditures. In addition, TPI omitted from the TPIRR route configuration necessary lines owned by the TRRA, in which CSXT maintains a partial ownership interest. These track segments comprise a total of 81.8 of TPI's assumed 490.97 trackage rights route miles, plus an additional 12.6 miles of the TRRA.

The segments include:

- 65.7 miles of the TPIRR's Chicago, IL – Nashville, TN main line between Dolton, IL and Woodland Junction, IL, which is jointly owned by CSXT and UP;
- 17.1 miles of the TPIRR branch lines on segments of the IHB and The Belt Railway of Company of Chicago ("BRC");
- A 62.8 route mile segment between Hazelton and Ashtabula, as well as the Ashtabula Coal Docks;
- 148.53 miles over the Monongahela Railroad ("MGA"), for which CSXT pays a portion of annual capital expenditures, and;

- A portion of the TRRA required for TPIRR operations.[5]

TPI included in its opening evidence certain operating related expenses that the TPIRR would incur for usage of all the lines included as part of its TPIRR configuration. However, TPI erroneously ignored either CSXT's ownership portion and/or the capital related expenditures CSXT incurs for such lines. In stepping into CSXT's shoes, the TPIRR would become responsible for these costs.

CSXT has added those erroneously omitted capital investments and costs in this Reply. To do so, CSXT has assumed, consistent with the Board's decision in *DuPont*, that the TPIRR must account for the pro rata share of the replacement cost of facilities it utilizes for which CSXT's Annual Report Form R-1 identifies CSXT's ownership stake. *See DuPont*, STB Docket No. 42125, at 48-49. Where evidence of ownership is not reported in the R-1, CSXT includes in this Reply evidence capital or other expenditures incurred by CSXT for use of the facility that have been erroneously omitted by TPI. CSXT's treatment of each facility is summarized below.

i. Segments Included by TPI With Explicit CSXT Ownership

(a) Belt Railway Company of Chicago ("BRC")

TPI assumed that the TPIRR would operate over 4.8 route miles of the BRC between Forest Hill, IL, and the BRC's Clearing Yard. CSXT's operating experts have further confirmed that certain carloads in TPIRR's traffic group are interchanged at the Clearing Yard. Schedule 310 of CSXT's 2010 Form R-1 shows that CSXT has a 25% ownership share in the BRC. Accordingly, CSXT's Reply TPIRR configuration and road property investment costs

[5] *See* CSXT Reply at III-C-184.

include the construction costs for the track and yard facilities utilized by the TPIRR, pro-rated by CSXT's ownership share.[6]

(b) Baltimore and Ohio Chicago Terminal Railroad ("BOCT") (IHB)

TPI's opening configuration assumed that the TPIRR operates over an 11.29 route mile segment between Blue Island Junction and BNSF's Bedford Park terminal at McCook, IL, using a CSXT "trackage rights" agreement with IHB. That segment, however, is not owned by the IHB. Instead the IHB operates over this segment under a trackage rights agreement with the segment's owner, the Baltimore and Ohio Chicago Terminal Railroad (BOCT). This is shown on publicly available Chicago area rail maps and confirmed by a document provided to TPI by CSXT in discovery that TPI included in its Opening workpapers.[7] The BOCT is a fully owned subsidiary of CSXT, as evidenced by its inclusion on a list of subsidiaries included in the consolidated financial statements of CSXT's Form R-1 Report.[8] Accordingly, in its Reply, CSXT has included 100% of the road property investment costs for this segment.[9]

(c) Dolton to Woodland Junction

TPI assumed that the TPIRR would operate over a 65.7 route mile segment between Woodland Junction, IL, and Dolton, IL, using CSXT's "trackage rights" agreement with UP. However, CSXT does not operate over this segment under trackage rights. Instead, CSXT is a joint owner of this segment with UP. TPI included as an Opening workpaper a copy of the agreement produced by CSXT in discovery that explains CSXT's joint ownership of this

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[6] *See* CSXT Reply WP "TPIRR Route Miles CSXT Reply.xlsx," Tab "TPIRR Miles," Line 687 and CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "TPIRR yards," Line 278.

[7] *See* TPI Op. WP "Joint Facility Joint Use update.xls," Tab "JF Agreements", at cell L875.

[8] *See, e.g.,* CSXT's 2010 Form R-1 (annual report) at 4.

[9] *See* CSXT Reply WP "TPIRR Route Miles CSXT Reply.xlsx," Tab "TPIRR Miles," Line 973.

segment.[10] This document explains that the agreement relates to "jointly owned track...between Dolton Jct. and Woodland Jct., IL." *Id.* at 6. Moreover, the agreement explicitly defines the ownership stakes of the parties:

> Whereas, on May 12, 1967, Missouri Pacific Railroad Company [*a UP predecessor*] assumed control of Chicago & Eastern Illinois Railroad Company under terms of Finance Docket No. 21755 dated March 5, 1965, which provided among other things, for the sale by Chicago Company [*Chicago & Eastern Illinois Railroad Company*] to Louisville Company [*"Louisville and Nashville Railroad Company", a CSXT predecessor railroad*]...an undivided one-half interest in the estate, right, title and interest in that part of its line of railroad between Woodland Jct. and Dolton Jct, Illinois...[11]

Accordingly, in CSXT's Reply TPIRR configuration and road property investment, CSXT has included 50% of the construction costs for this segment.[12]

ii. Segments With CSXT Ownership Interest Via the Conrail Merger

(a) Monongahela Railway ("MGA")

TPI assumed that the TPIRR system will include 148.53 route miles on the Monongahela Railway ("MGA"), over which TPIRR trains would operate to originate carloads of coal under CSXT's existing rights obtained from NS. However, CSXT's rights and interests in the MGA are not accurately characterized as a trackage rights agreement, but rather as part ownership combined with a cost and revenue sharing agreement that entitles NS and CSXT to equal access to coal customers located on the MGA. Under this agreement, which was negotiated as part of

[10] *See* TPI Op. WP "JFA UP205 from DVD 40.pdf."

[11] *Id.* at 8 (emphasis added and explanatory notes added in *italics*). *See also Louisville & Nashville R. Co.—Purchase (Portion)—Chicago & Eastern Illinois R. Co.,* 334 I.C.C. 273, 275 (1968) (approving L&N's purchase of, *inter alia*, "an undivided one-half interest of [a] line of railroad between Woodland Junction and Dolton Junction, Ill." from Chicago & Eastern Illinois Railroad).

[12] *See* CSXT Reply WP "TPIRR Route Miles CSXT Reply.xlsx," Tab "TPIRR Miles," Lines 198 and 199.

the Conrail acquisition in 1998, CSXT and NS divide operating expenses for the MGA according to their relative usage, but share equally in the capital investment required to maintain and replenish the MGA's physical plant.[13]

CSXT's ownership stake in the MGA was a direct result of CSX's multi-billion dollar investment in Conrail, and included the right to capture approximately half of the MGA's available revenue stream. *See CSX Corp. et al. — Control — Conrail Inc.*, 3 S.T.B. 196, 228-229 (1998) (*Decision No. 89*) (describing the MGA area as one subject to "special arrangements that provide for a sharing of routes or facilities"). The Board stated that, "[a]lthough the Conrail lines formerly a part of the Monongahela Railway will be operated by NS, CSX will have equal access for 25 years, subject to renewal, to all current and future facilities located on or accessed from the former Monongahela Railway, including the Waynesburg Southern." *Id.*, 3 S.T.B. at 228-29.

The Board further noted that as a result of the Conrail transaction, "CSX and NS will directly compete with each other in important markets where Conrail did not compete with other major railroads before," including "the area served by the Monongahela Railroad." *Id.*, 3 S.T.B. at 247. In fact, the Board referred to this "new two-carrier competition" as one of "[t]he most important public benefit[s] resulting from the transaction," creating "a substantial increase in competition by allowing both CSX and NS to serve where only Conrail served before," and bringing "new competition to shippers in such markets as ... the Monongahela coalfields." *Id.*, 3 S.T.B. at 333, 336.

The Board expressly recognized that CSXT and NS planned a number of construction and capital projects and shared infrastructure investments in the Monongahela coal area,

[13] *See* CSXT Reply WP "Exhibit III-H-1 Reply.xls."

including plans by CSX to increase the capacity of Newell Yard to accommodate new coal traffic after the transaction, and required CSXT and NS to make regular progress reports on these projects. *Id.*, 3 S.T.B. at 368-69. The Board expressly approved the acquisition by CSXT of the rights provided by the Monongahela Usage Agreement. *Id.*, 3 S.T.B. at 372-73, 385-86.

The Board also recognized that the parties intended that "CSX will have equal, perpetual access to all current and future facilities in the [Monongahela] area," and that the transaction would "afford equal access to all facilities in the Monongahela area." *CSX Corp. et al. — Control — Conrail Inc.*, STB Finance Docket No. 33388 (served April 24, 1998) (*Decision No. 77*) at 1-2 (footnotes omitted).

Notwithstanding the foregoing, the Board ruled in the recent *DuPont* decision that if a rail carrier's Form R-1 does not reference an ownership stake in a particular joint facility, the Board will not recognize that ownership interest for purposes of a SAC case. *See DuPont*, STB Docket No. 42125, at 48-49. Although CSXT does not agree with that ruling, it will not contest it in this case with respect to the MGA.[14] CSXT therefore includes as a cost to the TPIRR only a pro rata portion of the capital expenditures CSXT has incurred to date on the MGA, along with a projection of those expenditures into the future. Table III-B-1 shows the historical payments made by CSXT from AFE data produced in discovery. CSXT has forecast future expenditures at the annual average of the historical payments.

[14] CSXT does not concede that the *DuPont* ruling was correct, and it reserves the right to contest the Board's ruling in a future case or proceeding.

Table III-B-1
MGA Payments

Year	Payment	Present Value of Payment
2010	5,660,117	5,507,853
2011	8,089,558	7,258,301
2012	8,941,705	7,206,341
2013	8,875,400	6,431,445
2014	9,489,981	6,179,838
2015	9,777,632	5,727,402
2016	9,959,781	5,245,484
2017	10,180,616	4,820,702
2018	10,467,025	4,456,235
2019	10,754,759	4,117,045
2020	5,475,766	1,935,184
Future	122,937,882	42,871,573
Total	220,610,221	101,757,403

CSXT has added the present value of TPIRR MGA-related capital expenditures of $101.7 million to the investment amount to be recovered in the DCF.

(b) Haselton to Ashtabula

TPI's traffic group included carloads traversing a 62.8 mile segment from Haselton, OH, to the Ashtabula Coal Docks, for which TPI included as trackage rights fees those operating expenses paid by CSXT to NS for use of this line. Here again, CSXT's ownership rights to this segment were forged in the Conrail acquisition. These rights are similar to those described above for the MGA. For this segment, CSXT obtained rights to 42% of the revenue available from shippers using the Haselton to Ashtabula line. CSXT also bears 42% of the capital investment required to maintain and replenish the line, and CSXT and NS divide operating expenses according to their relative usage. CSXT intended to develop costs for the Haselton-to-Ashtabula segment in a similar manner to the costs it developed for the MGA. However, unlike the MGA, the actual capital related expenditure detail for this segment was not produced in

discovery. CSXT therefore has not included any pro-rata share of capital expenditures that the TPIRR would be required to incur for this line.

(c) Ashtabula Dock

TPI's treatment of Ashtabula Coal dock is the same as that described above for the MGA and the Haselton to Ashtabula line. In the Conrail transaction, the Board referred to the Ashtabula Harbor area as one of the "Areas With Special Treatments," which were "subject to special arrangements that provide for a sharing of routes or facilities." *Decision No. 89,* 3 S.T.B. 196, 228-29. The Board noted that the transaction would result in new rail competition in areas including Ashtabula Harbor, and emphasized that this additional competition was one of the "most important public benefit[s] resulting from the transaction." *Id.*, 3 S.T.B. at 333. The Board also said that "[n]ew rail-to-rail competition will benefit shippers," *inter alia*, "at the Ashtabula docks in Ohio." 3 S.T.B. at 336. Specifically, the Board noted that in the Ashtabula Harbor Area, NS would have the right to operate and control Conrail's Ashtabula Harbor facilities, "with CSX receiving use and access, up to a proportion of the total ground storage, throughput, and tonnage capacity of 42%." *Id.*, 3 S.T.B. at 229.

CSXT's position regarding the Ashtabula Harbor facilities is the same as its position for the Ashtabula to Haselton line. However, like the Haselton to Ashtabula segment, the actual capital related expenditure detail for the Ashtabula Docks was not produced in discovery. CSXT therefore has not included any pro-rata share of capital expenditures that the TPIRR would be required to incur for its use of the dock facilities

iii. Segments with CSXT Ownership Not Documented in Its R-1

(a) Indiana Harbor Belt Railroad ("IHB")

TPI assumed that the TPIRR operates over a 1.0 route mile segment between Blue Island Yard and North Harvey under existing CSXT trackage rights agreements with IHB. As identified in CSXT's reply configuration, TPIRR operates its trains over an additional 12.6 mile IHB segment extending from McCook, IL, to CP's Bensenville Yard in order to interchange traffic at that location. TPIRR train operations include utilizing the IHB's Blue Island Yard.

Although CSXT has an ownership stake in the IHB, for this proceeding CSXT does not include construction costs for these facilities, because it does not have evidence regarding its ownership that satisfies the Board's requirements established in its recent *DuPont* decision. *See DuPont*, STB Docket No. 42125, at 40-41 (denying defendant carrier's ownership for purposes of SAC evidence because ownership not expressly stated in carrier's in Form R-1).

iv. Additional Segments Needed to Serve TPI Issue Traffic with Explicit CSXT Ownership

(a) Terminal Railroad Association of St. Louis ("TRRA")

TPIRR would operate trains over 2.0 route miles of the TRAA between CSXT's West Rose Lake Yard and TRRA's Madison Yard. *See* CSXT Reply III-C-184. These trains include issue traffic that is interchanged with BNSF at Madison yard.[15] Schedule 310 of CSXT's 2010 Form R-1 shows that CSXT has a 14.29% ownership share in the TRRA.[16] Accordingly, on

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[15] For lane 44 of TPI's complaint (BNSF-East St. Louis-CSXT-Sidney OH, { }, when returning empty cars CSXT operates its merchandise train (Q639) past West Rose Lake Yard on CSXT track and then on TRRA track to Madison Yard. This is shown in the car-event data produced to TPI.

[16] *See* CSXT's 2010 Form R-1 (annual report) at 26.

Reply CSXT's TPIRR configuration and road property investment costs include construction costs for the track and yard facilities utilized by TPIRR, pro-rated by CSXT's ownership share.[17]

d. Interchange Points

TPI posited that the TPIRR would interchange traffic with six Class I railroads (NS, UP, CN, CP, BNSF, and CSXT) and with 82 regional and short-line railroads with which CSXT interchanges traffic today.[18] These interchanges occur at 144 unique locations. Of these, TPI constructed 87 interchange yards along the TPIRR network, and uses nine "major" yards and 36 "other" yards to interchange traffic.[19] TPI also created 51 interchange points with CSXT that do not exist in the real world. TPI posits the remaining interchanges take place at the yards of the interchanging carrier. Based on the detailed operating plan required to serve the TPIRR's selected traffic, CSXT determined that TPI failed to account for 17 additional locations at which the TPIRR would interchange traffic with CSXT.[20]

For example, as identified above, TPI did not account for all of the interchange tracks at locations where TPI posits new interchanges with the CSXT at branch lines that TPI elected not to build. *See supra* CSXT Reply III-B-2. CSXT's Reply Evidence rectifies this omission by accounting for the time and resources required to interchange cars at all of the locations at which the TPIRR would be required to interchange its selected traffic (*see* Section III-C), and by including in the TPIRR's physical configuration all of the track facilities necessary to conduct those interchange operations (*see* Section III-F).[21]

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[17] *See* CSXT Reply WP "TPIRR Route Miles CSXT Reply.xlsx," Tab "TPIRR Miles," Line 981 and CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "TPIRR yards," Line 279

[18] *See* TPI Op. WP "TPIRR Opening RR interchanges".

[19] *See* TPI Op. WP "TPIRR Yard Matrix Opening.xlsx"

[20] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply," Tab "TPIRR Yards."

[21] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx."

e. Total Route Mileage

The route miles for CSXT's and TPI's proposed configures compare as follows:

Table III-B-2

CSXT Reply TPIRR Route Miles			
	TPI	CSXT	Difference
Main Lines			
Partially Owned Lines (Miles pro-rated by ownership share)			
...Dolton to Woodland (50% owned)	0.00	32.85	32.85
...Belt Railway Company (25% owned)	0.00	1.20	1.20
...BOCT Railway (100% owned)	0.00	11.29	11.29
...Terminal RR Ass. of St. Louis (14.29% owned)	0.00	0.29	0.29
East St. Louis Roselake Extension	0.00	0.30	0.30
Other Main Lines	6,161.93	6,161.93	0.00
Other Branch Lines	704.01	704.01	0.00
Total Route Miles	6,865.94	6,911.87	45.93

2. Track Miles and Weight of Track

TPI assumed that the TPIRR would require a total of 11,822.52 miles of main line, interchange, helper pocket and other setouts, and yard tracks. *See* TPI Opening III-B-5, Table III-B-2. As CSXT demonstrates in Section III-C below, the track capacity and configuration posited by TPI are based upon a deficient operating plan and RTC simulation. Among the most glaring deficiencies in TPI's RTC simulation are (1) failed to account for tens of thousands of local trains that are necessary to provide complete train service to the TPIRR's customers—including 39% of the "issue" traffic; (2) failed to model the movement of the TPIRR's road and local trains completely and accurately; (3) incorporated dwell time assumptions that are utterly unrealistic (and contradicted by train-specific arrival and departure time information in the CSXT train event data for the very same trains that TPI purports to model); (4) operated crude oil trains at a speed that violates a rail industry "best practice"

adopted in the wake of the Lac-Mégantic disaster; (4) vastly understated the impact of random failures and track outages that TPIRR trains would encounter on a daily basis; and (5) contained significant errors in the modeling of both train movements and the network over which those trains operate. *See infra* III-C-172 *et seq.* In addition, TPI's yard service plan presents yards that are significantly undersized and contain receiving and departure tracks that are unsupported by evidence and are simply inadequate. The result of those evidentiary failures was a significant understatement of the main line and secondary tracks, interchange tracks, and yard tracks required to support the TPIRR's train operations.

CSXT's Reply Evidence provides the additional main line, secondary track, interchange tracks, and yard tracks that the TPIRR would need to serve its selected traffic group. With the additions and modifications posited by CSXT, the TPIRR would have a total of 12,591.90 miles of track, consisting of 6,911.84 miles of main line track, 3,371.57 miles of second main line track, 136.1 miles of set out and helper track, 2,108.65 miles of yard and interchange track, and 63.71 miles of customer lead track. As discussed above, this includes 45.63 miles of partially owned route miles, 11.29 miles of additional mainline track, and 67.65 miles of yard track which corresponds to the operating miles used by the TPIRR, pro-rated by CSXT's ownership share of those lines.

Table III-B-3 compares the track miles to be constructed and owned by the TPIRR, based upon TPI's Opening Evidence, and the revised number of track miles resulting from CSXT's correction of the errors and omissions in TPI's Opening Evidence.

Table III-B-3
CSXT Reply TPIRR Constructed Track Miles

	TPI	CSXT	Difference
Main Line Track			
Single Main Line (incl. branch lines)	6,865.94	6,911.87	45.93
Other Main (incl. sidings)	3,353.29	3,371.57	18.28
Other			
Helper Pocket and Setout Track	136.10	136.10	0.00
Customer Lead Tracks	0.00	63.71	63.71
Yard and Interchange Track	1,467.19	2,099.70	641.46
Total Track Miles	11,822.52	12,582.95	769.38

a. Main Lines

TPI posited that the TPIRR would construct and operate 20 main line segments with 6,161.93 miles of first main line track and an additional 3,256.20 miles of second main line track and passing sidings.[22] CSXT adds 6.99 miles of passing siding track to facilitate train movements where required by its Reply RTC simulation. This additional track is required in Nashville, TN, where TPI proposes to funnel all trains into Radnor yard from the north via the Nashville-Decatur mainline instead of building the two connection tracks that are used in the real world. CSXT adds a third track to this mainline to avoid congestion.

The TPIRR main line track and passing sidings carrying 20 million or more gross tons per year ("MGT") would be constructed with new 136-pound continuous welded rail ("CWR"). *See* TPI Opening III-B-5. Standard rail is used for all main line track, except that premium (head-hardened) rail is used on curves of three degrees or more, where rail wear is heaviest. Main line segments carrying less than 20 MGT would be constructed with new 115-pound CWR. *Id.* CSXT accepts TPI's proposed specifications for main line tracks.

[22] *See* TPI Op. WP "TPIRR Route Miles Opening Grading.xlsx."

b. Branch Lines

TPI posited that the TPIRR would construct and operate 50 branch line segments, with 704.01 miles of first main line track and an additional 97.09 miles of second main line track and passing sidings.[23] TPI's proposed specifications for branch lines are the same as described above for main lines. CSXT accepts TPI's proposed specifications for branch line tracks.

c. Sidings

The miles and specifications of sidings are discussed above.

d. Other Tracks

TPI's proposed TPIRR configuration includes certain other categories of track, including pocket tracks for helper locomotives and set-out tracks for bad order cars. CSXT's proposed track configuration likewise includes such facilities.

i. Helper Pocket and Other Setout Tracks

TPI proposed using single-ended set out tracks that are 735 feet in length placed on each side of Failed Equipment Detectors. It also identified 13 locations where double-ended 850 foot helper pockets are required. Set out and helper tracks will consist of 115-pound new CWR. CSXT accepts TPI's locations and specifications of setout and helper pocket tracks.

ii. Customer Lead Tracks

TPI failed to include sufficient serving tracks at customer industries to reach all of the customers that TPI selected for its SARR. TPI built a "generic" 200 feet of track beyond the main line switch at all locations and claims that this is sufficient to serve all of its customers. TPI's 200 feet of customer lead track strands 52 customers whose facilities are served via CSTX-owned industrial lead track that TPI did not build. TPI's opening configuration failed to include 24 lead tracks totaling 63.71 miles required to serve those 52 customers that originate or

[23] *See* TPI Op. WP "TPIRR Route Miles Opening Grading.xlsx."

terminate nearly 53,000 carloads of traffic in TPI's selected traffic group.[24] These customers have facilities located off the main and branch lines constructed by TPIRR that use lead tracks to access the CSXT system that TPIRR is replicating. CSXT reviewed sidetrack agreements to determine which portions of sidetrack the customers owned, and using aerial imagery identified the remaining railroad-owned portion of lead track that TPIRR must build to access those customers. CSXT Reply workpapers depict for each location: (1) the actual customer facility where railcars are loaded; (2) the side track agreement and aerial documentation of the tracks owned by the customer; and (3) aerial documentation identifying and measuring the portion of lead track TPIRR is required to build to provide access to its system as does CSXT's physical-plant in the real-world.[25] CSXT has included costs to build these leads using TPI's specifications for building yard tracks.

iii. Yard Lead Tracks

CSXT reviewed TPIRR's yards using aerial imagery and site diagrams and determined that TPI built ten terminal facilities that are located off the TPIRR mainline, but that TPI did not build the necessary lead tracks to access those facilities. These tracks are necessary to make physical connections between those portions of the CSXT route and yard locations that TPI is replicating. For example, the intermodal facility in Tampa (which TPI did build) is located on a CSXT line that TPI did not build but that may be accessed from the TPIRR system via a 2.17 mile lead track. Overall, CSXT determined TPIRR requires 8.77 miles of lead track to facilitate

[24] These tracks were identified and measured using a combination of side track agreements produced in discovery and aerial imagery.

[25] *See* CSXT Reply WP "Customer Lead Tracks.xlsx."

access to these ten terminal facilities.[26] CSXT has included costs to build these leads using TPI's specifications for building yard tracks.

3. Yards

TPI's opening configuration included a total of (229) yards, including 12 "major" yards (eleven of which are hump yards), 68 "other" yards, 87 "interchange" yards, 19 intermodal facilities, 20 automotive facilities, and 23 bulk transfer facilities.[27] These yards and terminal facilities collectively have 1,467.19 miles of track.

CSXT accepts the locations of these yards, but adds five "other" yards, 17 interchange yards, two partially owned yards, three intermodal facilities, and one coal pier facility. CSXT also adds various facilities where required by its Reply operating plan, including locomotive shops for routine service and inspection. Moreover, CSXT adjusts siding, classification, and interchange track quantities to provide adequate capacity and includes lead and runner tracks that correspond to the design templates submitted by TPI. Details for these adjustments are set forth below.

a. Location and Purpose

Based on a detailed review of TPI's operating plan, CSXT has determined the following additional facilities are required:

Locomotive Shops: In addition to the four locomotive shops proposed by TPI, eight Service and Inspection shops are required to perform routine upkeep for TPIRR's locomotive fleet. *See* III-C-154 and III-F-7 "Diesel Service and Inspection Shops."

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[26] *See* CSXT Reply WP "Yard Lead Tracks.xlsx."

[27] *See* TPI Op. WP "TPIRR Yard Matrix.xls."

Intermodal Terminals: TPI failed to construct three intermodal terminals where TPIRR originates and terminates container traffic.[28] These terminals—Marion, OH, North Baltimore, OH, and Louisville, KY—were clearly identified in discovery[29] and, although they opened after 2010, are required to serve peak-year TPIRR traffic, and in fact are included in TPIRR's Base Year traffic.[30]

Coal Piers: TPI did not construct the Curtis Bay coal terminal in Baltimore, MD, despite terminating over six million tons of export coal annually.[31]

Other: Various additional facilities that exist at actual CSXT yards are also required for the TPIRR, including in and out gates, maintenance pads, hostler fueling areas and office/welfare buildings, air compressor buildings, and vehicle service and repair buildings. Details for these are set forth in Section III-F-7 "Additional Facilities."

b. Miles and Yard Design

All yard tracks use 115-pound new CWR rail, which CSXT accepts.

i. Major and Other Yards

CSXT adds five yards with designs that correspond to existing CSXT yards.[32] These yards are necessary for the TPIRR to serve its traffic and are reflected in CSXT's Reply operating evidence. *See* III-C-126-29. Per its treatment of partially owned facilities discussed

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[28] *Compare* TPI Op. WPs "SARRContainers OrigTerm Locations V42 07 03 02082014.xlsx," Tab "Summary", at lines 9, 24, and 25 with "TPIRR Yard Matrix Opening," Tab "TPIRR Yards", at lines 92-109.

[29] *See* TPI Op. WP "Intermodal Terminal Cost and Volume Update.xlsx" (produced by CSXT in discovery).

[30] Because TPI's traffic selection methodology uses 2012 traffic data to determine base year volumes.

[31] *See* CSXT Reply WP "Curtis Bay Coal Pier.xls."

[32] *See* CSXT Reply Folder "Additional Yards" and CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx."

above, CSXT also adds two partially owned yards that the TPIRR requires for its operations. CSXT develops costs for TRRA's Madison Yard and BRC's Clearing Yard based on yard diagrams and aerial images, pro-rated by CSXT's ownership share.[33]

Classification Track: TPI included a total of 346.64 miles of classification tracks at 52 yards (including all 12 "major" yards). Each track has number 10 turnouts at each end. CSXT accepts TPI's design specifications. CSXT increases the amount of classification track necessary to 445.16 miles—an increase of 98.52 miles.[34]

TPI's classification track is insufficient to handle all of the traffic the TPIRR will have to classify at its yards. TPI's methodology for sizing its yards is unsupported and ineffective. TPI's operating plan provides for an insufficient number of classification tracks that are also of an inappropriate length to accommodate the size of blocks that would need to be classified at any given yard. In particular, TPI's failure to include a fluidity factor in its classification track sizing produced yards that are akin to parking lots, with an insufficient amount of track to hold even the peak volume of traffic, let alone have any additional yard track to perform necessary car classification activities. *See* CSXT Reply III-C-83–86. TPI's flawed approach failed to consider the realities of real world railroading, including the needs of different traffic mixes handled at each yard. Accordingly, CSXT adjusted TPI's classification track counts to determine location-specific classification track capacity requirements for all TPIRR yards. *See* CSXT Reply III-C-77– 99.

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[33] *See* CSXT Reply Folder "Additional Yards" and CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx".

[34] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "Class Track Length."

Yard Tracks:[35] TPI includes a total of 776.00 miles of yard tracks at its 12 "major" yards and 68 "other" yards. Each track has number 10 turnouts at each end.[36] CSXT accepts TPI's design specifications. CSXT increases this amount to 876.84 miles.[37]

TPI's quantities of yard track are significantly understated. The yard receiving and departure tracks posited by TPI are utterly inadequate to handle the TPIRR's yard activity. *See* CSXT Reply III-C-99–126. TPI posited that the number and length of running tracks at each yard were determined from the RTC model. *See* TPI Opening III-B-9. According to TPI, running tracks facilitate activities such a train staging, car inspections, car classifications, local train operations, and originating/terminating traffic. *Id.* TPI recognizes that "these activities require trains to wait in yards for various lengths of time." *Id.* However, the amounts of time TPI assumed for these activities are unrealistic, unsubstantiated, and far below what railroads under similar circumstance have achieved in the real-world. *See* CSXT Reply III-C-189–195. One of the (many) reasons for TPI's inadequate track quantity is that TPI postulated "dwell" times for cars and trains on yard tracks that are significantly understated. Adjusting those "dwell" times to realistic levels increases the amount of time cars and trains spend on yard tracks, and in turn increases the quantities of yard tracks required. *Id.* The results of CSXT's adjusted RTC Model indicate that 100.84 additional miles of yard track are required.[38]

Additional Tracks: TPI included a total of 35.09 miles of track for fixed fueling, direct-to-locomotive ("DTL") fueling, locomotive shops, car shops, and repair-in-place ("RIP")

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[35] TPI variously refers to these tracks as yard tracks, siding tracks, and running tracks.

[36] CSXT notes TPI uses number 14 turnouts although its narrative calls for #10 turnouts. CSXT corrects this error and uses number 10 turnouts.

[37] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "Yard Track Length."

[38] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "Yard Track Length."

locations.[39] CSXT adds "RIP" track at five locations using TPI's design specifications. CSXT adds 4,000 feet of track for each of the eight locomotive service and inspection facilities included in its operating plan.[40]

Lead and Runner Tracks: The above classification, yard, and additional tracks must be interconnected to provide a fully functioning yard capable of facilitating fluid, real-world car and train movements. TPI provided conceptual designs depicting yard layouts adequate to achieve this, but did not measure or construct any of these connecting tracks.[41] These portions of track are generally categorized as lead or runner track. Based on the TPI's conceptual templates, CSXT adds 172.79 miles of lead and runner track.[42]

ii. Interchange Yards

TPI included a total of 143.85 miles of track at 87 interchange yards along the TPIRR network. CSXT accepts TPI's design specifications, but adds 17 additional interchange locations. Additionally, CSXT determined that two of TPI's interchange locations required a second interchange track, and ten "other" yards where interchanges take place also required additional track. These interchange tracks are necessary to handle the traffic selected by TPI.[43]

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[39] *See* TPI Op. WP "TPIRR Yard Matrix Opening.xlsx," Tab "Additional Track." CSXT accepts TPI's design specifications and quantities.

[40] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "Additional Track Length."

[41] *See* TPI Op. WP "TPIRR Yard Templates.pdf."

[42] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx," Tab "Additional Track Length."

[43] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply," Tab "TPIRR Yards."

iii. Intermodal, Automotive, and Bulk Transfer Yards

Intermodal Terminals: TPI included a total of 113.87 miles of track at 19 intermodal facilities. CSXT accepts the locations and track quantities for these yards, and developed track quantities for the three omitted intermodal facilities using TPI's opening methodology.

Automotive Terminals: TPI included a total of 33.55 miles of track at 20 automotive facilities. CSXT accepts the locations and track quantities for these yards

Bulk Transfer Terminals: TPI included a total of 18.47 miles of track at 23 bulk transfer facilities. CSXT accepts the locations and track quantities for these yards.

c. Yard Acreage

CSXT adjusts the acreage at hump and flat yards proportionally to the changes in yard track miles discussed above. CSXT accepts the acreage TPI proposes for intermodal and automotive facilities, which correspond to CSXT's actual sizes at these locations. CSXT also uses the actual sizes of yard and terminal facilities it is adding to determine acreage.

However, CSXT rejects the acreage TPI posits for bulk transfer facilities. TPI inexplicably assumes that all bulk transfer facilities only require two acres of land. And yet, in its costing analysis, TPI developed costs for all of the track, lighting, asphalt and other facilities CSXT maintains at its bulk terminals in the real world.[44] TPI based its costing evidence on the diagrams of the terminals produced by CSXT in discovery. TPI produced no documentation to illustrate how all of that track and those other facilities would fit onto a two acre parcel of land. Indeed TPI's proposal is physically impossible. At many locations, TPI could not fit all of the track it allocated into a two acre parcel of land. CSXT's smallest real-world bulk transfer facility (at Petersburg, VA) sits on 3.9 acres of land—twice the size of all of TPI's posited facilities!

[44] *See* TPI Op. WP "TPIRR Facilities CSXT Reply.xlsx."

TPI's position that all of the bulk terminals would be the same size is similarly completely unsupported. CSXT's facilities vary in size, and in fact CSXT's Atlanta terminal is fourteen times larger than the terminal size posited by TPI. CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx." CSXT rejects this unsupported assumption and instead uses CSXT's actual real world sizes at these locations.

TPI neglects to include acreage for its interchange yard locations. CSXT calculates additional land requirements for interchanges based on the conservative assumption that 25-foot track centers are the only feature that must be accommodated. The required yard acreage is included in CSXT's real estate appraisal. *See* CSXT Reply III-F-9.

4. Other

a. Joint Facilities

TPI posits operating over 490.97 miles of trackage rights pursuant to CSXT's existing agreements with other railroads. As discussed above (at III-B-11–12), CSXT adds a segment of track over the TRRA and extends a segment of track over the IHB, which increases trackage operating miles to 505.57.

b. Signal/Communications System

In TPI's configuration for the TPIRR, all main lines are equipped with a Positive Train Control ("PTC") system. As discussed at III-C-155 and Section III-F-6 below, TPI would be a "trailblazer" in the market to develop a functional PTC system in 2010, and would incur further costs to make that system interoperable with other railroads by 2015.

TPI has configured the TPIRR to conduct communications using a microwave system, with microwave towers on average at 20-mile intervals along the TPIRR. *See* TPI Opening III-F-52-53. TPI posits that locomotive engineers, dispatchers, and field supervisory personnel would be equipped with radios connected to the microwave system. Certain employees would

also be equipped with cellular telephones for emergency use as a back-up to the radios. CSXT modifies the costs for material and installation of the TPIRR Communications and Microwave Systems to account for multi-directional locations and spacing limitations imposed by the TPIRR's configuration. *See infra* Section III-F-6.

c. Turnouts, FEDs and AEI Scanners

TPI specified No. 20 turnouts for all turnouts between the TPIRR's main tracks. No. 20 turnouts also are used for the main running tracks at both ends of each of the TPIRR's yards. TPI specified No. 14 turnouts between main tracks and all other tracks, including interchange tracks, and helper pocket tracks, where trains move at slower speeds. No. 10 turnouts are used within yards and for setouts. CSXT accepts these specifications.

CSXT accepts TPI's placement of Failed Equipment Detectors ("FEDs").

Automatic Equipment Identification ("AEI") scanners are located at or near each of the locations where the TPIRR interchanges trains with other railroads. A total of 105 AEI scanners have been provided. The AEI scanners have been placed so as to enable them to capture all train movements that occur on the TPIRR, including both local and interline movements.

d. RTC Model Simulation of TPIRR Configuration

A simulation of a SARR's operations can be used to test whether a complainant's proposed SARR configuration (including main line track capacity, yards, and other facilities) are adequate to enable the SARR to provide the necessary level of service to its selected traffic group.[45] CSXT conducted a simulation of the TPIRR's peak year operations utilizing the Rail

[45] *See, e.g., WFA II*, STB Docket No. 42088, at 16 (RTC model enables complainant to "test the adequacy of the configuration (to make sure the [SARR] would have sufficient capacity to handle the peak forecast demand)"). Contrary to TPI's assertions (TPI Opening Ex. III-C-6 at 1), an RTC Model simulation of a SARR's operations cannot prove that the SARR's operating plan is "feasible." Rather, the Model used to perform an RTC simulation must incorporate all of the

Traffic Controller ("RTC") Model, based upon the physical infrastructure provided for in this Section III-B. The specific inputs to the RTC Model used by CSXT, and the results of that simulation, are discussed at Section III-C-10. CSXT's RTC simulation demonstrates that the track capacity and configuration posited by CSXT are both necessary and adequate to provide the services required to meet the needs of the TPIRR's customers, and that the track configuration posited by TPI are not.

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elements of a "feasible" operating plan in order for the simulation to generate valid results. *See infra* III-C-197.

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III. STAND-ALONE COST

C. OPERATING PLAN

INTRODUCTION

A critical element of any SAC presentation is the operating plan for the SARR. A complainant must proffer an operating plan that is "feasible."[1] The requirements for a feasible SARR operating plan are well-established. A complainant must "design[] a SARR specifically tailored to serve an identified traffic group" selected for its SARR.[2] "Based on the traffic group to be served, the level of services to be provided, and the terrain to be traversed, a detailed operating plan must be developed." *CP&L*, 7 S.T.B. at 245 (emphasis added).[3] While a complainant's operating plan "need not match the existing practices of the defendant railroad,"[4] it must demonstrate that the SARR would be "capable of providing the service required by the SARR's customers."[5] Moreover, "the assumptions used in the SAC analysis, including the operating plan, must be realistic, *i.e.*, consistent with the underlying realities of real-world railroading."[6] While a SARR may choose to "step into the shoes" of the incumbent carrier under existing trackage rights, joint facility, interchange, run-through power and other intercarrier

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[1] *See, e.g., CP&L*, 7 S.T.B. at 259 (complainant carries the burden to provide a feasible operating plan).

[2] *AEPCO 2011*, STB Docket No. 42113, at 4; *see also Rate Regulation Reforms*, STB Ex Parte No. 715, at 5; *Xcel*, 7 S.T.B. at 610 ("The operating plan must be able to meet the transportation needs of the traffic the SARR proposes to serve."); *TMPA I*, 6 S.T.B. at 589 ("[T]he SARR must meet the transportation needs of the traffic in the group by providing service that is equal to (or better than) the existing service for that traffic.").

[3] *See also Otter Tail*, STB Docket No. 42071, at 6; *Xcel*, 7 S.T.B. at 598; *TMPA I*, 6 S.T.B. at 586.

[4] *See DuPont*, STB Docket No. 42125, at 36.

[5] *Duke/NS*, 7 S.T.B. at 99; *see also AEPCO 2011*, STB Docket No. 42113, at 28; *Xcel*, 7 S.T.B. at 610.

[6] *WFA I*, STB Docket No. 42088, at 15. TPI itself acknowledges this essential requirement. *See* TPI Opening I-13.

agreements, a complainant may not hypothesize agreements that do not exist in the real world, or assume that the SARR would enjoy more favorable terms than the incumbent carrier under existing agreements.[7] Finally, the Board has made clear that "[t]he parties must provide appropriate documentation to support their [operating plan and expense] estimates."[8]

The Board's recent decisions in the *DuPont* and *SunBelt* SAC cases provide further explanation of the evidentiary burden that a complainant must satisfy to demonstrate the feasibility of an operating plan for a SARR whose traffic group consists largely of individual "carload" shipments. A feasible carload operating plan must "provide for full service from each specific origin, through the network, and to each specific destination."[9] In particular, the operating plan must account for all of the trains necessary to handle the SARR's selected traffic at each stage from its origin (or on-SARR junction) across the SARR's lines to its destination (or off-SARR junction).[10] A feasible carload operating plan must also account for the time, facilities, and personnel necessary to classify and block individual cars as they move along the SARR network.[11] "[A]dopting the classification and blocking plan of the incumbent railroad, sufficiently adjusted for volume differences, is one way to show that the proper classification and blocking is occurring at yards on a SARR."[12] However, simply asserting that the SARR would employ the same car classification and blocking plan as the incumbent carrier is not sufficient to

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[7] *See AEPCO 2002*, 6 S.T.B. at 328.

[8] *See Rate Regulation Reforms,* STB Ex Parte No. 715, at 6; *AEPCO 2011*, STB Docket No. 42113, at 4-5.

[9] *See DuPont*, STB Docket No. 42125, at 38.

[10] *See id.* at 37-39 (rejecting complainant's operating plan for failing to account for all trains required to provide complete carload service).

[11] *See id.* at 40 (rejecting complainant's operating plan for failing to provide facilities necessary to block and interchange traffic).

[12] *SunBelt*, STB Docket No. 42130, at 16 (emphasis added).

satisfy a complainant's evidentiary burden, especially where the SARR does not also adopt the incumbent's network of yards, yard assignments, and switch locomotives. Rather, "if a complainant adopts the incumbent railroad's car classification and blocking plan, and the complainant modifies or removes a facility, or reduces staffing from the incumbent's classification and blocking plan, it would need to establish that the SARR could still adequately serve the traffic group."[13] An operating plan that does not include adequate yard facilities and personnel to classify and block the SARR's Peak Year carload traffic is not feasible.[14]

Based upon these precedents, a feasible carload operating plan must include (1) a road train service plan capable of providing line-haul transportation between all origins (or on-SARR junctions) and destinations (or off-SARR junctions) between which the SARR's selected traffic moves; (2) a local train service plan that accounts for the pick-up and set-off cars at all customer facilities and interchange points served by the SARR; (3) a yard service plan capable of supporting the SARR's road and local train operations (including the intermediate classification and switching necessary to transfer individual carload shipments from train to train as they move along the network); and (4) adequate shops, facilities, equipment, and personnel to support the SARR's train and yard operations.[15]

The operating plan set forth in TPI's Opening Evidence fails to satisfy those fundamental requirements. TPI posits a SARR that would transport 2.9 million carloads of general freight

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[13] *See SunBelt*, STB Docket No. 42130, at 16; *see also DuPont*, STB Docket No. 42125, at 40 (rejecting operating plan that purported to adopt incumbent's blocking plan but failed to provide the same facilities as incumbent).

[14] *See SunBelt*, STB Docket No 42130, at 17.

[15] CSXT Reply Ex. III-C-1 is a video that illustrates the process of classifying and blocking merchandise cars, swapping blocks, and building outbound trains at CSXT hump yards and flat switching yards.

traffic (and associated empty cars) over a 7,357-mile rail network that would serve 1,610 merchandise customers located at 686 unique stations.[16] TPI posits that in the Peak Year its SARR could handle approximately 20% percent more carload business than CSXT transports today with significantly fewer trains, yard facilities, locomotives, cars, and personnel than CSXT employs in its real world operations. Indeed, TPI's operating expense estimates reflect a Class I railroad with an operating ratio of 38%, a level of efficiency that is unheard of in the rail industry.[17]

In support of its unprecedented claim of SARR efficiency, TPI proffered a skeletal operating plan that is based primarily upon a series of "automated" analyses of CSXT's historical train and car event data. TPI's "train service plan" consists of a computerized list of road and local trains operated by CSXT in the TPIRR's service territory between July 1, 2012 and June 30, 2013 (the period corresponding with the TPIRR's Base Year). The flawed methodologies and erroneous assumptions applied by TPI in compiling the TPIRR's train list resulted in its failure to include tens of thousands of local trains that the data showed are necessary to provide complete on-SARR train service for the TPIRR's selected traffic. TPI's Rail Traffic Controller ("RTC") simulation applied on train dwell times that are both utterly unrealistic and flatly contradicted by the train-specific arrival and departure data that CXT furnished to TPI in discovery. While TPI purported to "incorporate" CSXT's actual car classification and blocking plan into the TPIRR's operations, it did not explain how the TPIRR could implement that plan with a fraction of CSXT's real world yard capacity and personnel.

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[16] *See* TPI Opening I-10; CSXT Reply WP "OnSARR Customers 2012.xlsx;" TPI Op. WP "Unique SRR Origin and Termination Locations.xlsx." TPI itself states that its SARR is "one of the largest ever presented in a SAC case." TPI Opening I-10.

[17] *See* CSXT Reply WP "TPIRR Operating Ratio.xlsx."

Indeed, TPI's proposed yard configurations are based on irrelevant "metrics" that have no discernible connection to the car inventory that the TPIRR yards would be required to accommodate. TPI's claim that its operating plan is feasible "because in many important ways, it is CSXT's own real-world operating plan" (TPI Opening III-C-5) is simply not true.

The most glaring deficiencies in TPI's Operating Plan include the following:

- The process that TPI used to develop its train list for the TPIRR failed to capture 44,694 CSXT trains in which TPI's selected traffic moved during the Base Year. TPI's Opening Evidence indicates that those trains were excluded intentionally by TPI's train selection methodology. This deficiency results in the failure of TPI's operating plan to provide complete on-SARR train service for its selected traffic, including 1,286 carloads—or 39%—of TPI's own issue traffic! *See infra* III-C-15–36.[18]

- In TPI's operating plan, thousands of selected shipments "leapfrog" between the TPIRR's lines and the lines of the incumbent CSXT—sometimes multiple times—during their journey across the TPIRR's service territory. TPI's use of "leapfrog" traffic is transparently designed to avoid expensive construction costs and high operating expenses along substantial portions of the TPIRR's route system, including the Northeast Corridor. TPI's "leapfrog" artifice represents an impermissible expansion of the cross-over traffic device used in prior SAC cases. *See infra* III-C-36–55.

- TPI takes the position that there is "no need" for it to present a car classification and blocking plan for the nearly 3 million carloads of merchandise traffic in the TPIRR's Peak Year traffic group. Instead, TPI says that its operating plan implicitly "incorporates" CSXT's historical blocking plan because (according to TPI) it allegedly "mirrored the critical aspects of CSXT's current train operations." TPI Opening III-C-12. However, TPI altered the routing, movement, and dwell times of the CSXT trains that it purported to "adopt" so substantially that the TPIRR's trains bear little resemblance to CSXT's real world trains. Moreover, TPI posits that the TPIRR would classify and block cars through its yards in a fraction of the time that it takes CSXT to do so pursuant to its real world classification and blocking plan. Those self-serving (and utterly

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[18] *See, e.g., DuPont*, STB Docket No. 42125, at 37-39 (rejecting operating plan that failed to account for required local train service); *FMC*, 4 S.T.B. at 736 (rejecting complainant's operating plan in part for understating the number of trains).

unrealistic) claims fatally undermine TPI's assertion that its operating plan "mimics" CSXT's real world operations. *See infra* III-C-55–74.[19]

- TPI posits a group of hump yards and large flat switching yards that collectively have 30.8% less car classification track capacity than CSXT's real world yards. Likewise, TPI's operating plan includes fewer yard crews and locomotives than CSXT currently utilizes at virtually every yard on the TPIRR network. TPI does not even attempt to explain how the TPIRR could "incorporate" CSXT's historical blocking plan—much less classify and block 20% more cars per day than CSXT—with a fraction of CSXT's real world yard capacity, locomotives and personnel. Moreover, the truncated classification track lengths generated by TPI's approach to yard design are too short to accommodate the CSXT block sizes that the TPIRR supposedly "incorporates" into its yard service plan. *See infra* III-C-76–99.[20]

- TPI's operating plan is replete with assumptions that are utterly inconsistent with real world railroading. Road trains originating at TPIRR hump yards occupy departure tracks for only one minute prior to their departure—TPI does not explain how multiple blocks of cars could be transferred from classification tracks to the departure track, assembled into a train, and inspected, all in a single minute. Likewise, TPI assumes (contrary to real world experience) that every TPIRR train arriving at a hump yard could be disassembled, and its cars switched to the hump track (making the receiving track available to hold another train), in only 30 minutes. Ignoring the train-specific train arrival and departure data provided in discovery, TPI posits that TPIRR trains could pick up and/or set off cars at intermediate yards in only 30 minutes (even though the very same CSXT trains that the TPIRR purports to "adopt" experienced average dwell times of 2.6 hours at flat switching yards and 3.9 hours at hump yards). *See infra* III-C-102–09.

- The track configuration posited by TPI does not include the industrial lead tracks required to reach all of the customer facilities that the TPIRR would be required to serve. In other words, it is physically impossible for the TPIRR (as constructed by TPI) to pick up or set off cars at those customer facilities. *See infra* III-C-134–35.[21]

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[19] *See CP&L*, 7 S.T.B. 255-56 (rejecting complainant's operating plan in part for failure to account for all elements of service).

[20] *See FMC*, 4 S.T.B. 737, nn.88, 89 (discussing problems with mathematical attempts to develop an operating plan).

[21] *See CP&L*, 7 S.T.B. 255-56 (rejecting complainant's operating plan in part for failure to account for all elements of service).

- TPI's assumption that CSXT (and other Eastern railroads) will adopt the same 1/1 Distributed Power locomotive configuration as the TPIRR proposes to employ impermissibly posits future agreements that do not exist today, and is inconsistent with prevailing operating practices in the territory the TPIRR proposes to serve. *See infra* III-C-155–62.

- TPI's RTC simulation—upon which TPI relies to confirm that the TPIRR's configuration, facilities, and operating plan are feasible (TPI Op. Ex. III-C-6)—is based upon TPI's fatally flawed operating plan. TPI's RTC Model (i) fails to model the movement of Peak Week trains that are "missing" from TPI's operating plan, (ii) fails to account for the number of "growth" trains that the TPIRR would need to operate to accommodate its Peak Year traffic volumes, (iii) fails to accurately account for the time during which TPIRR local trains would occupy the main line while serving industries, (iv) adopts the utterly nonsensical yard dwell time assumptions in TPI's operating plan, and (v) fails to account properly for delays due to random failures and track outages. As a result of these (and other) fundamental modeling errors, the track requirements and operating statistics generated by TPI's RTC simulation are vastly understated. *See infra* III-C-169 *et seq.*

In short, TPI has failed to present a "feasible" operating plan—*i.e.*, one that is capable of meeting the service requirements of the TPIRR's customers, particularly shippers of general freight traffic. For that reason, the Board should reject TPI's operating plan in its entirety. Moreover, because TPI's operating expense estimates are inextricably linked to its fatally deficient operating plan and RTC Model simulation, there is no credible evidentiary support for those estimates. Accordingly, the Board should also reject TPI's operating expense estimates, and base its decision on the operating plan and related expense estimates set forth in CSXT's Reply Evidence. CSXT believes that TPI's operating evidence is so thoroughly deficient that outright rejection of that evidence is warranted. Nevertheless, mindful of the Board's preference that a defendant railroad attempt, wherever possible, to correct the deficiencies in the complainant's operating plan rather than proffering an entirely separate plan, CSXT presents this

Reply Evidence in the form of a series of corrections and adjustments to TPI's fatally flawed operating plan.[22]

1. TPI's Operating Plan Does Not Mimic CSXT's Real-World Operations.

The central premise underlying TPI's Opening operating evidence is that "CSXT's own operations [were used] as the template for the TPIRR's operating plan." TPI Opening III-C-3. According to TPI, TPIRR trains "essentially mirror the movement of the corresponding CSXT traffic." *Id.* III-C-5 (emphasis added).[23] Likewise, TPI asserts that there was "no need" for it to proffer a car classification and blocking plan for the TPIRR because it "incorporates the same blocking plans that CSXT currently uses in its operations." TPI Opening III-C-12 (emphasis added). TPI also purports to "adopt[ ] CSXT's car classifications for cars included on the TPIRR system." TPI Opening III-C-13. Indeed, based on the notion that its operating plan closely tracks CSXT's historical operations, TPI asserts that "CSXT cannot realistically claim that TPI's operating plan is not feasible, because in many important ways, it is CSXT's own real-world operating plan." *Id.* III-C-5.

In reality, the operating plan reflected in TPI's Opening Evidence is not CSXT's real world operating plan—not even close. The only elements of TPI's operating plan that even vaguely resemble CSXT's real world operations are (i) TPI's train list, which includes most of the road trains—but less than half of the local trains—that CSXT operated in serving the

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[22] *See SunBelt*, STB Docket No. 42130, at 13; *DuPont*, STB Docket No. 42125, at 41. CSXT's critique of TPI's operating plan is sponsored by CSXT witnesses John Gibson, Dharma Acharya, Stuart Sweat, Rodney Smith, Jeremiah Dirnberger, David Wheeler, Benton Fisher, Michael Matelis, and Kaustuv Chakrabarti. These witnesses' qualifications and verifications appear in Section IV.

[23] *See also* TPI Opening III-C-12 ("Because TPI has mirrored the critical aspects of CSXT's current train operations, there is no need to develop new individual-shipment plans or blocking plans for traffic moving over the TPIRR system.").

TPIRR's selected traffic during the Base Year, and (ii) the fact that the TPIRR's yards are sited at the same locations at which CSXT operates a real world yard today (although TPI failed to build all of the required yards—*see* III-C-126–29). Beyond those two superficial coincidences, TPI's operating plan is fundamentally different than CSXT's real world operations in almost every respect.

a. TPIRR Trains Do Not "Mirror" CSXT's Historical Trains.

TPI's assertion that TPIRR trains "essentially mirror" CSXT's train operations is demonstrably false. As an initial matter, 44,694 CSXT local trains that participated in the movement of the TPIRR's selected traffic during the Base Year are "missing" from TPI's operating plan. As CSXT demonstrates (at TPI Opening III-C-16–37), TPI's experts developed program code that instructed the computer not to include those trains in the TPIRR train list, and TPI manually removed other local trains. The exclusion of those trains was intentional. TPI does not explain how the TPIRR could "mirror" CSXT's train service plan while operating less than half of the local trains that CSXT actually operated in the Base Year.

Moreover, while TPI's train list nominally includes most of the road trains that CSXT operated during the Base Year, the manner in which TPI altered the movement of those trains makes them virtually unrecognizable. Under TPI's operating plan, thousands of trains that CSXT operated in single-line service "leapfrog" between the lines of the TPIRR and the residual CSXT—sometimes multiple times—during their journey. *See infra* III-C-36–54. Moreover, TPI acknowledges that "the route for some TPIRR trains differs slightly from their real-world counterparts." TPI Opening III-A-5. According to TPI, it altered the routing of those trains in order to "rationalize CSXT's system and to create a more efficient railroad." *Id.* III-C-24. TPI represents that the modifications it made to the movement of CSXT's real world trains affected only "a limited amount of TPI issue and non-issue traffic." *Id.* III-C-25–26 (emphasis added).

However, CSXT's review of TPI's workpapers revealed that the trains altered by TPI at four locations alone (Rochester, NY, Nashville, TN, Richmond, VA, and the District of Columbia) handled 1.3 million carloads—or 45% of all TPIRR carload traffic.[24] Such a massive alteration of the movement of so many CSXT trains renders TPI's assertion that the TPIRR "mirrors" CSXT's real world train operations nonsensical.[25]

Finally, as discussed below (at III-C-75), while TPI relied upon CSXT's train event data to select trains for its SARR, to determine their route of movement, and to identify the locations at which each train would make intermediate stops (TPI Op. Ex. III-C-1 at 9-22), TPI made an intentional methodological decision to disregard the train-specific arrival and departure time information set forth in the very same train event file. As a result, trains that experienced actual dwell times (while picking up and setting off cars) averaging 2.6 hours at CSXT flat switching yards and 3.9 hours at hump yards are modeled in TPI's RTC simulation as TPIRR trains that complete those switching operations in only 30 minutes.[26] *See infra* III-C-189. Even more incredibly, road trains originating at TPIRR hump yards occupy departure tracks for only one minute prior to departure in TPI's RTC simulation. In the real world, it requires more than five hours to "build" the CSXT trains that TPI purports to "mirror," by switching multiple blocks of cars from the classification area to a departure track, connecting the cars and locomotives, performing an FRA-mandated pre-departure inspection, attaching locomotives and preparing the

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[24] CSXT Reply WP "TPIRR SARR Mileage Assignments.xlsx." In each case, TPI chose not to build CSXT's higher-density route that "bypasses" those urban areas, but to instead shift all of the traffic to a lighter density line that runs through the "downtown" area in order to reach local customers.

[25] TPI's assertion that "Board precedent permits such reroutes" (TPI Opening III-A-5), is beside the point. The massive alterations that TPI made to CSXT's historical trains demonstrates that the TPIRR's operating plan does not "mirror" CSXT's real world operations.

[26] *See* CSXT Reply Ex. III-C-7.

train for departure. TPI's RTC simulation likewise replaced the real world dwell time experienced by road trains terminating on a receiving track at a hump yard (more than 5.00 hours) with a self-serving assumption that the train could be disassembled, and the cars inspected and moved to the hump (and off the receiving track) in only 30 minutes. *See infra* III-C-189.[27] TPI's utterly unrealistic dwell time assumptions distort the movement of virtually every train in TPI's operating plan and RTC simulation.

In short, while TPI purported to adopt trains from CSXT's historical database as "TPIRR trains," the manner in which TPI assumes those trains would operate does not, in any sense, "mirror" CSXT's real world train service plan. Rather, TPI employed a variety of devices—including "leapfrogging" trains to avoid high-cost areas like the Northeast Corridor, altering the movement of the trains that handled nearly half of the TPIRR's merchandise traffic in order to avoid building CSXT lines, and substituting unrealistic (and unsupported) dwell times for the dwells actually experienced by CSXT trains—all in order to artificially depress the TPIRR's construction costs and operating expenses.

b. TPI's Yard Configurations and Yard Operating Assumptions Are Not Consistent With CSXT's Car Classification and Blocking Plan.

According to TPI, its operating plan "incorporates the same blocking plans that CSXT currently uses in its operations." TPI Opening III-C-12. Likewise, TPI assumes that, because the TPIRR "operates a subset of the same trains as CSXT" and "constructs yards in the same locations as CSXT," the TPIRR can simply "adopt" CSXT's car classifications as its own. *Id.*

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[27] Indeed, TPI witness McDonald's testimony that it takes three hours to inspect a general freight train (TPI Op. Ex. III-C-6 at 6) impeaches TPI's assumption that outbound trains would occupy departure tracks for only one minute, and inbound trains would occupy receiving tracks for only 30 minutes.

III-C-13. Based on those assumptions, TPI asserts that there is "no need" for it to present any further evidence as to how the TPIRR would classify and block its general freight traffic. *Id.* III-C-12.

TPI's Opening Evidence provides no indication that TPI's operating expert, Mr. McDonald, was even aware of—much less "incorporated"—the details of CSXT's real world yard service plan. Nowhere in its Opening Evidence does TPI identify either the number or the size of the CSXT blocks that the TPIRR would build on a daily basis. Indeed, the only evidence regarding the TPIRR's yard operations proffered by TPI is an estimate of the average number of cars per day that the TPIRR would be required to classify at each location.[28]

TPI's claim that its operating plan "incorporates" CSXT's real world car classification and blocking plan is fatally undermined by TPI's own evidence. As discussed below (at III-C-77–99), TPI reduced the classification track capacity at virtually every CSXT yard that the TPIRR replicated. Five flat switching yards at which CSXT classifies substantial volumes of TPI's selected traffic were eliminated altogether from the TPIRR's yard configuration. More fundamentally, the methodologies employed by TPI in sizing the TPIRR's yards resulted in exceedingly short classification track lengths that are utterly incompatible with the block sizes that CSXT assembles in its real world operations. No competent operating expert who intended to "incorporate" CSXT's actual car blocking plan would design classification yards in the manner posited by TPI.

The notion that the TPIRR's car classification and blocking plan is based on CSXT's actual operations is further contradicted by TPI's car dwell time assumptions. Specifically, in

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[28] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Column 18 (Pcak Year Daily Total Cars Classified).

estimating the TPIRR's railcar fleet requirements, TPI posits that railcars would dwell for a total of 15.9 hours as they moved from train to train at TPIRR yards. TPI Opening III-D-8. TPI bases that projection not on CSXT's actual experience, but rather on an amalgamation of the lowest car dwell times reported by any railroad between 2010 and 2013.[29] As both the data from which TPI assembled its "composite most efficient" 15.9-hour dwell time and CSXT's actual car event data show, cars moving through CSXT yards experienced average dwell time of approximately 24 hours. Indeed, the very data source that TPI relied upon in cobbling together its "composite most efficient" dwell time confirms that CSXT's actual dwell time for the period upon which TPI's estimate is based was 24.3 hours.

TPI cannot credibly assert that "TPIRR trains and cars essentially mirror the movement of the corresponding CSXT traffic" (TPI Opening III-C-5) while at the same time positing that cars would flow through TPIRR classification yards 33% faster than those cars do on CSXT today. To the contrary, if TPI's operating plan truly "adopted" CSXT's train schedules and car classification plan, the average dwell time for cars at TPIRR yards would be approximately the same as those experienced by "real world" cars handled by CSXT. TPI's 15.9-hour dwell time assumption is even less credible in light of the massive reduction in CSXT's yard facilities and personnel contemplated by its operating plan (*see infra* III-C-129–35).

In any event, TPI's suggestion that the TPIRR would consistently achieve the lowest car dwell time reported by carriers including Canadian National Railway Company ("CN"), Canadian Pacific Railway ("CP"), and Kansas City Southern ("KCS") over a three year period is wrong, because the carload operations of those carriers are fundamentally different than the carload operations of CSXT (or the TPIRR). CSXT originates more than 5.8 million carloads of

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[29] *See* TPI Op. WP "Most Efficient Dwell Times.xlsx."

traffic annually, and the TPIRR would handle almost 3 million carloads of general freight per year. In contrast, CN's U.S. affiliates originate less than 1.7 million carloads annually, while CP's U.S. affiliates and KCS originate only 500,000 carloads and 385,000 carloads, respectively, per year.[30] Moreover, the rail networks of the Canadian carriers are essentially "T" shaped, consisting predominantly of east-west transcontinental lines in Canada and north-south lines extending into the United States. As a result, the car classification and blocking operations of those carriers are less complex, involving far fewer cars and a simpler network of north-south and east-west routes. By contrast, the CSXT rail network is a "hub and spoke" configuration, with cars classified at twelve major hump yards (and numerous "regional" flat switching yards). CSXT operates trains that move north, south, east, and west from each of its Louisville, Willard, Cincinnati, Avon, Nashville, and Hamlet hump yards. Cars arriving at those yards must be blocked for further movement in all directions on a daily basis. Given the more complex size and configuration of CSXT's network, and the substantially higher volume of carload traffic that CSXT handles (not to mention the TPIRR's even greater Peak Year volumes), TPI's assumption that the TPIRR could achieve car dwell time of only 15.9 hours at the very same yards—with less track capacity and fewer yard crews—is simply not "consistent with the realities of real world railroading."

c. TPI's Yard Configurations And Personnel Do Not Replicate CSXT's Yard Operations.

TPI's claim that its operating plan for the TPIRR closely resembles CSXT's real world operations is further undercut by the massive reductions that TPI made in the CSXT yards included in its SARR. As discussed at length below (at III-C-75 *et seq.*), TPI slashed virtually

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[30] *See* Association of American Railroads, *Railroad Facts*, at 71-75 (2012 cd.); Association of American Railroads, *Railroad Facts*, at 71-75 (2011 ed.).

every feature of the those yards. The yards posited by TPI have 30.8% less car classification capacity, fewer receiving and departure tracks at busy hump yards and flat switching yards, fewer yard locomotives and yard crews, and fewer ancillary facilities than CSXT has today. TPI eliminated entirely the important "support" personnel who enhance the efficiency of CSXT's yard crews at many of the yards replicated by the TPIRR. Not only did TPI fail to provide sufficient capacity at virtually every yard in its operating plan, it eliminated existing CSXT yards at five other locations where (according to TPI's own evidence) the TPIRR would classify significant numbers of cars on a daily basis. *See infra* III-C-126–29.

TPI's Opening evidence does not even address—much less demonstrate—how the TPIRR could possibly "incorporate" CSXT's real world yard service plan with such truncated resources. The reality is that TPI's "yard service plan" consists of a single spreadsheet containing unsupported calculations based upon meaningless "metrics" that produce significantly undersized yards. The yard configuration and staffing posited by TPI are incapable of supporting TPI's "same as CSXT" operating plan, or, for that matter, any feasible operating plan for the TPIRR's selected traffic.

2. TPI's Operating Plan Does Not Account For All Of The Train Services Required To Serve The TPIRR's Selected Traffic Group.

TPI's train service plan for the TPIRR consists of a list of trains extracted from CSXT's historical train and car event data pursuant to what TPI describes as "a laborious process of data analysis and evaluation." TPI Opening I-16. TPI's Opening Exhibit III-C-1 describes the "novel and complex programming solutions" that TPI employed to identify which historical CSXT trains the TPIRR would need to serve its selected traffic. TPI Op. Ex. III-C-1 at 11. As TPI's Opening Evidence makes clear, TPI's train list was not developed by its operating expert, witness McDonald. Rather, witnesses Burris, Mulholland, Timothy Crowley, and Humphrey

"developed the TPIRR train lists and operating specifications" (TPI Opening III-C-1), and witness McDonald then "used the list of real-world CSXT trains to develop the specific parameters of the TPIRR operating plan." *Id.* III-C-5.

TPI's computerized approach to train service design resulted in an operating plan that is incapable of meeting the needs of the TPIRR's customers. Specifically, TPI's train list does not account for 44,694 CSXT Base Year local trains that are needed to "provide for full service from each specific origin, through the network, and to each specific destination" of TPIRR's selected traffic.[31] As CSXT demonstrates below, TPI's failure to capture those trains is directly traceable to the automated methodologies and computer program code that TPI employed in compiling its TPIRR train list. This massive deficiency renders TPI's operating plan infeasible.

The trains that are missing from TPI's Opening operating plan fall into three categories:

a. Local Trains That CSXT Operated Both On-SARR And Off-SARR In The Real World.

As the Board observed in *DuPont*, a SARR's local trains "are important to an effective rail network . . . . Without local trains, a railroad could not pick up or deliver shippers' goods."[32] The methodology that TPI employed to identify the CSXT local trains to be included in the TPIRR's train service plan is described in TPI Opening Exhibit III-C-1 (at 28-34). According to TPI:

> TPIRR designed its local train operations to streamline and maximize the efficiency of both its own local train service and the local train service of the residual CSXT. Specifically, with the exception of a few local trains carrying issue traffic, all TPIRR local trains are local to the TPIRR. . . . All

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[31] *See DuPont*, STB Docket No. 42125, at 38. In addition, as witness Wheeler testifies (at III-C-178), TPI failed to account for 133 "growth" local trains that would be required to accommodate the TPIRR's Peak Year traffic volumes.

[32] *DuPont*, STB Docket No. 42125, at 38.

> local trains carrying cars that originate and/or terminate at Off-SARR points will be handled by the residual CSXT as they are in the real world.

TPI Op. Ex. III-C-1 at 29-30 (emphasis added). In other words, TPI made an intentional methodological decision to exclude from the TPIRR's train list any CSXT Base Year local train that operated on the lines replicated by the TPIRR if that local train also originated or terminated one or more loaded or empty cars at an off-SARR location.

The problem with TPI's methodology is that literally thousands of CSXT local trains that operated both on TPIRR lines and on other CSXT segments during the Base Year transported not only "cars that originate and terminate at Off-SARR points" but also cars that originate and terminate at the facilities of TPIRR's own online customers. Indeed, in many instances, TPI's automated train selection process selected a particular CSXT local train symbol on some days (when it operated exclusively between points physically located on the TPIRR) but excluded the very same local assignment on other days (when its consist also included cars that moved to or from off-SARR points).

FIGURE III-C-1
Local Trains Included And Excluded By TPI On Alternating Dates

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For example, CSXT Local Train A700 operates five days per week in turnaround service from a yard at Cartersville, GA (a yard that is part of the TPIRR system). Train A700 serves a route that includes stations such as Cartersville, Stilesboro, and Ladds, GA (each of which is located on the TPIRR) as well as Rockmart, Cedartown, and Taylorsville, GA (which are located

beyond the end point of the TPIRR at Stilesboro).[33] As Figure III-C-1 shows, on April 1, 2013, Train A700 made pick ups and/or setoffs at the {{ }} facility at Stilesboro, a TPIRR-served customer, and at {{ }} at Rockmart and {{ }} at Cedartown, which are not served by the TPIRR. Based on its edict that "all TPIRR local trains are local to the TPIRR" (TPI Op. Ex. III-C-1 at 29-30), TPI excluded this train from the TPIRR's train list because it operated both on-SARR and off-SARR on that date—even though the train picked up and set off TPIRR selected traffic at an on-SARR customer facility {{ }}. Conversely, TPI did include the Train A700 that operated on April 2, 2013 in its operating plan, because that train made pick ups and/or setoffs only on-SARR (at {{ }} at Cartersville, {{ }} at Stilesboro, and a third TPIRR-served industry at Ladds), but did not travel beyond the lines that TPI chose to replicate. On the next day, April 3, 2013, TPI once again intentionally excluded Train A700 from the TPIRR's train list, even though that train delivered six loaded cars to {{ }}, because the train happened to set off two empty cars at Cedartown and picked up one empty car at Rockmart. Reversing course, TPI once again selected Train A700 on April 4, 2013 because it worked only at Cartersville and Ladds (both TPIRR-served stations).

Likewise, as Figure III-C-1 shows, CSXT Local Train D762 operates five days per week in turnaround service from Lordstown, OH. Train D762 serves a route that includes Lordstown, Ohio Jct., Youngstown, Newton Falls, Ravenna, and Akron, OH (all of which are located on the TPIRR) as well as Niles and Warren, OH (which are not located on-SARR). On December 11,

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[33] CSXT Reply Exhibit III-C-3 contains maps of the routes served by the CSXT local trains depicted on Figure III-C-1.

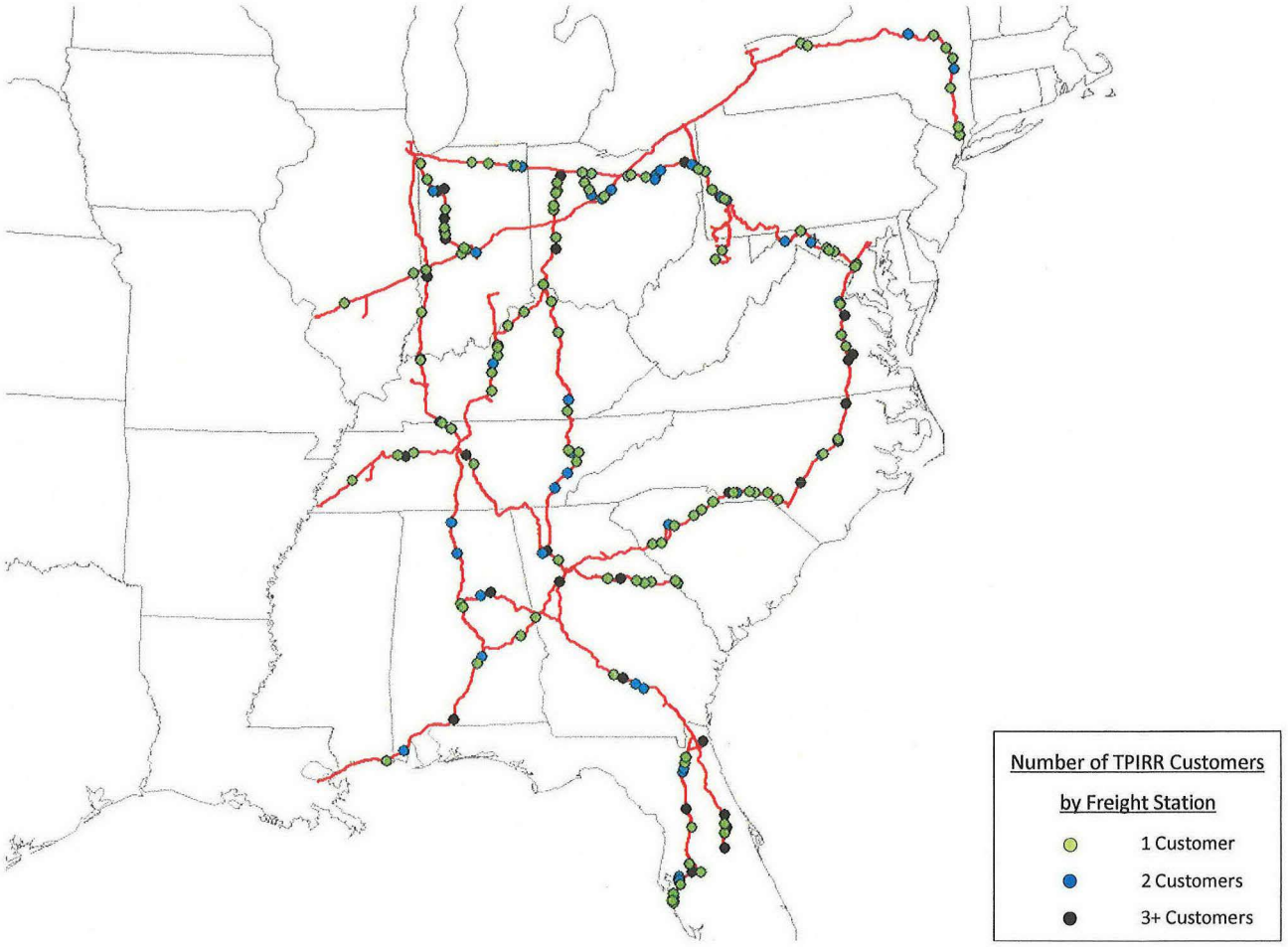
2012, Train D762 picked up loaded and empty cars at {{

}}, two TPIRR-served customers at Lordstown. However, TPI decided that the TPIRR would not operate this train because it also picked up one empty car at Niles. But TPI did select the Train D762 that operated two days later, on December 13, because it served industries only at Ohio Jct. and Lordstown on that date.

TPI's nonsensical train selection methodology accorded the same inconsistent treatment to CSXT Train O825, a local train that operates five days per week serving customers near Tampa, FL. As Figure III-C-1 shows, TPI included Train 0825 on June 4, 2013 because that train picked up 70 loaded cars and 16 empty cars at the {{ }} facility at Central, FL (a TPIRR-served station), and delivered them to {{ }} at Tampa. However, TPI excluded the same local train from its operating plan for June 6, 2013 because, in addition to serving {{ }}, the train set off loaded and empty cars at Hooker's Point, FL, a station located on the residual CSXT.

As these examples illustrate, TPI's decision to assume that "[a]ll local trains carrying cars that originate and terminate at Off-SARR points will be handled by the residual CSXT" (TPI Op. Ex. III-C-1 at 29-30)—even where the data indicated clearly that those trains were carrying the TPIRR's selected traffic to/from stations physically located on the TPIRR—relegated hundreds of customers who currently have access to daily CSXT local service into customers that the TPIRR would serve only on occasion. Based on this train selection criterion, TPI intentionally excluded a total of 5,940 CSXT local trains that picked up and/or delivered the TPIRR's selected traffic at 365 TPIRR-served customer facilities during the Base Year. As Figure III-C-2 shows, this service failure was not confined to a limited geographic area, but affected local service to 180 stations, or 26%, of the 686 TPIRR-served stations across the TPIRR network.

FIGURE III-C-2
365 OnSARR Customers Served by Local Trains that TPI Excluded



TPI's intentional methodological decision to exclude from the TPIRR's train list thousands of local trains that actually served on-SARR industries violates well-established SAC principles in several ways:

First, a feasible operating plan must demonstrate that the SARR will be "capable of providing the service required by the SARR's customers." *Duke/NS*, 7 S.T.B. at 99.[34] A SARR may not shift to the incumbent carrier responsibility for providing local service to customers that

[34] *See also AEPCO 2011*, STB Docket No. 42113, at 28; *Xcel*, 7 S.T.B. at 610.

are physically located on, and served by, the SARR itself. Rather, a SARR is responsible for providing all elements of on-SARR service for the traffic that it selects. Tellingly, TPI created an "exception" for local trains that handled "issue" traffic by including in the TPIRR's train list 122 local trains that handled issue shipments and also provided local service at locations beyond the TPIRR network. TPI Op. Ex. III-C-1 at 30 and n. 86. However, the Board's precedents do not recognize any distinction between the service obligations owed to issue traffic and to other selected shipments moving to and from SARR-served stations. TPI made a conscious decision to configure its SARR to include stations served by the 5,940 local trains that it eliminated from its operating plan. TPI also made a choice to select (and take revenue credit for) the traffic moving to and from those TPIRR-served stations. Accordingly, the TPIRR is obligated to provide all of the local train service necessary to serve that traffic.[35]

Second, it is well-established that, in order for an operating plan to be feasible, it must "provid[e] service that is equal to (or better than) the existing service for that traffic."[36] TPI itself acknowledges that "TPIRR has an obligation to ensure that its traffic group receives the same or greater level of service as the traffic group does in the real world." TPI Op. Ex. III-C-1 at 30 (emphasis added). An essential element of customer service is the frequency with which a railroad provides pick ups and setoffs at the customer's facility. Indeed, it is not uncommon for shippers to pay higher rates in order to obtain more frequent train service. By intentionally excluding 5,940 local trains that CSXT operated to/from TPIRR-served stations during the Base

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[35] In *Intermountain Power Agency v Union Pacific Railroad*, STB Docket No. 42136, the complainant acknowledged that "the [SARR] cannot rely upon [the incumbent railroad] in any respect to service this on-SARR local traffic." *See* Rebuttal Evidence of Complainant Intermountain Power Agency, *Intermountain Power Agency v Union Pa. R.R Co.*, STB Docket No. 42136, at III-A-18 (filed July 13, 2013).

[36] *See, e.g.*, *TMPA I*, 6 S.T.B. at 589.

Year, TPI impermissibly reduced the frequency of TPIRR service available to 365 shippers—who represent nearly a quarter of the TPIRR's 1,610 merchandise customers.[37] Moreover, by assuming that local service would be performed by CSXT (rather than the TPIRR) on certain days, TPI interposed an otherwise unnecessary TPIRR-CSXT interchange between the line-haul on TPI and the local delivery (or pick up) at the customer's facility, thereby degrading the service that the affected shippers receive from CSXT today. The TPIRR is required to provide local service whenever its selected customers need that service, and not only when TPI deems it "efficient" to do so.

Third, TPI's assertion that the residual CSXT would originate and terminate cars at customer facilities that are physically located on the TPIRR's lines necessarily assumes that CSXT would enter into an agreement to switch those customers for the account of the TPIRR.[38] But the Board has made clear that a complainant may not "hypothesize" that its SARR would enjoy the benefit of agreements that do not exist in the real world.[39] Moreover, while railroads sometimes enter into switching arrangements, such agreements almost always involve situations in which the carrier on whose line the shipper is located provides last-mile switching for the account of a carrier that does not enjoy physical access to the shipper, not the converse. The notion that CSXT would agree to provide local service to customers located on the TPIRR's lines—much less that it would agree to do so only on those days on which the TPIRR found it

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[37] CSXT Reply WP "OnSARR Customers 2012.xlsx."

[38] The fact that TPI's operating plan contemplates direct TPIRR service to those 365 customers on some days, but not on others, confirms that those customer facilities are physically sited on the lines the TPIRR and not the residual CSXT. TPI may not posit that a customer's facility is located on the SARR on certain days of the week but located on the incumbent carrier's lines on other days.

[39] *AEPCO 2002*, 6 S.T.B. at 328-29.

"inefficient" to serve the customer directly—is simply not consistent with the realities of real world railroading.

Fourth, the operating scenario posited by TPI, in which the residual CSXT would be responsible for picking up and setting off cars at customer facilities physically located on (and served by) the TPIRR constitutes an impermissible expansion of the "cross-over" traffic device. As the Board recently explained, the purpose of cross-over traffic is to "allow a SARR to expand the scope of its traffic group without having to extend its geographic scope."[40] But the Board has never sanctioned a cross-over movement that would require the incumbent carrier (rather than the SARR) to serve the SARR's own online customers. TPI's use of cross-over traffic in this way is transparently intended to relieve the TPIRR of the obligation to operate thousands of local trains that transport small numbers of cars over short distances. While the elimination of such trains might serve to "streamline" the TPIRR's train service, the TPIRR may not avoid the cost of providing local service to its own online customers by assuming that CSXT would provide that service instead.

TPI's rationale for eliminating those 5,940 local trains from the TPIRR's train list is unpersuasive.[41] According to TPI, "[its] treatment of both TPIRR and residual CSXT's local train service ensures that the vast majority of these complex short-haul train movements will be provided by a single railroad, and therefore will not require en route interchanges between the TPIRR and the residual CSXT." TPI Op. Ex. III-C-1 at 30. Contrary to this assertion, TPI's failure to include those 5,940 local trains has exactly the opposite effect, by converting real

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[40] *See DuPont*, STB Docket No. 42125, at 44 (emphasis added).

[41] TPI excluded approximately 28,000 trains on the grounds that they operated both on-SARR and off-SARR. CSXT does not challenge the exclusion of trains other than the 5,940 local trains discussed here.

world CSXT single-line train service into an interline movement in which the TPIRR performs the line haul, delivers traffic to a TPIRR serving yard, and assumes that CSXT will pick up that traffic (along with other cars moving off-SARR) and perform the "last-mile" local service at customer facilities located on TPIRR's lines.[42] Nor does TPI's attempt to blame its decision to exclude those necessary local trains on "CSXT's network structure" hold water. TPI Op. Ex. III-C-1 at 30. It was TPI's decisions to select that traffic for the TPIRR, and to structure its SARR to include the stations at which that traffic originates and terminates, that obligates the TPIRR to provide local service to those 365 online customers. Finally, TPI's assertion that "[t]he only alternative [to foisting on CSXT the obligation to serve TPIRR's online customers] would be to expand the SARR well beyond the footprint required to serve the issue traffic" (*id.*) is wrong. Rather, the proper solution is for the TPIRR to provide local service to its online customers on every day that such service is required to meet their needs, and for the TPIRR to interchange with CSXT those other cars that move to or from points beyond the TPIRR's lines. Indeed, that is precisely what TPI itself did with the 122 local trains that handled both "issue" traffic and other cars moving off-SARR. *Id.* at 29, n. 86.

TPI's failure to account for 5,940 local trains that are necessary to provide uninterrupted service to online customers renders the TPIRR incapable of meeting the needs of those shippers.

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[42] TPI cites the example of "a real-world CSXT local train [that] moves cars from Off-SARR stations near Birmingham to Birmingham, which is a TPIRR station." TPI Op. Ex. III-C-1 at 29. This example makes no sense—if a car originated off-SARR on CSXT, and CSXT (rather than TPIRR) handled the movement to a destination customer facility located on the TPIRR, that car would never be handled by TPIRR and therefore would not be part of its selected traffic group. As CSXT Reply workpaper "ExaminingTPITrains.xlsx" shows, the traffic handled by the 5,940 trains excluded by TPI does not move in that manner. Rather, the traffic originates (or enters the SARR) at a different location, moves in line-haul service on one or more TPIRR trains, and the TPIRR takes revenue credit for those cars. According to TPI, the cars are then picked up by CSXT at a TPIRR serving yard for movement to/from a TPIRR-served customer facility.

It also resulted in a substantial understatement of the TPIRR's locomotive, car and crew expenses.[43] CSXT corrects this serious flaw in TPI's operating plan by adding to the TPIRR's train list the 5,940 trains that provided local train service to customer facilities located on the TPIRR.

b. Industrial Yard Trains That Pick Up And Set Off Cars At Customer Facilities.

A second category of trains that TPI's train selection methodology completely failed to account for are "industrial yard trains." Unlike the 5,940 local trains discussed in the previous section, industrial yard trains operate entirely on the lines replicated by the TPIRR, performing local pick ups and setoffs at customer facilities. While industrial yard trains are assigned a "Y" (yard) train symbol in CSXT's event data, they operate in essentially the same manner as local trains in "turnaround" service, traveling to industries located beyond the yard, setting off inbound cars and picking up outbound cars, and returning to the yard with the outbound shipments.[44]

The CSXT car event data produced to TPI in discovery identify each of the trains on which a particular shipment moved (including where a "Y" train handled that car to or from a customer facility).[45] TPI claims that it "processed the [CSXT] car-event data to identify all of the trains upon which each individual car moved." TPI Op. Ex. III-C-1 at 11(emphasis added). However, CSXT's review of TPI's train selection workpapers revealed that this assertion is not

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[43] *See FMC*, 4 S.T.B. at 736 (rejecting complainants operating plan in part because FMC "understated the number of trains, and in turn the locomotive and crew requirements").

[44] TPI's RTC Model does reflect the movement of any "Y" trains over the road between a TPIRR yard and one or more customer facilities.

[45] CSXT Reply workpaper "EventData_Sample.xlsx" is an excerpt from the CSXT car event data that illustrates the manner in which industrial yard assignments were associated with carload shipments in the data.

correct. Rather, it appears that TPI applied a computer program whose search criteria were based on specific train types and CSXT train "symbols." Specifically, TPI's workpapers indicate that it compiled its list of TPIRR unit trains by performing an automated search of the CSXT car event data for trains with "E," "G," "K," "N," "T," "U," "V" and "W" train symbols.[46] In order to identify TPIRR merchandise road trains, TPI's computer program searched the CSXT data only for trains bearing the symbols "L," "Q," "R," "S," and "X."[47] Likewise, the program code applied in identifying local trains for the TPIRR train list searched only for CSXT trains with an "A," "B," "C," "D," "F," "H," "J," "M," or "O" symbol.[48] In other words, TPI's program code did not instruct the computer to search for CSXT trains bearing a "Y" symbol, even where those trains were associated with one or more cars of the TPIRR's selected traffic in the car event data.

If TPI had bothered to evaluate CSXT's "Y" trains, it would have discerned that industrial yard trains with 92 unique yard jobs participated in handling the TPIRR's traffic—including "issue" traffic—during the Base Year.[49] For example, CSXT Train Y110 operates from Winston, FL along a route than includes Lakeland, Griffin, and Galloway, FL. As Figure III-C-3 shows, on December 13, 2012, Train Y110 departed Winston and traveled to Griffin, where it set off cars at {{ }}, a TPIRR selected customer. The train then proceeded to Galloway, FL (located 7.9 miles from Winston), where it set off four cars—including two carloads of "issue" traffic—at the {{ }} facility, before returning to Winston. The revenue claimed by TPI for those shipments included the termination credit for delivering them

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[46] *See* TPI Op. WP "TrainListDevelopment Step III-TS Unit.sql."

[47] *See* TPI Op. WP "TrainListDevelopment Step III-TS Merch.sql."

[48] *See* TPI Op. WP "TrainListDevelopment Step III-TS Local.sql."

[49] Those 92 industrial yard train symbols, their frequency and route of movement are set forth in CSXT Reply Ex. III-C-4.

at Griffin and Galloway. Yet TPI's train selection methodology intentionally excluded Train Y110, which handled the final 7.9 miles of the movement.

FIGURE III-C-3
Industrial Yard Trains Excluded by TPI

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Likewise, CSXT Train Y120 operates from the CSXT flat switching yard at Evansville, IN (which is also a TPIRR yard). As shown on Figure III-C-3, Train Y120 departed Evansville Yard on July 25, 2012. The crew first worked at the {{ }} facility at Evansville, where it set off two loaded cars of "issue" traffic. Train Y120 then traveled to Wansford, IN (located 15.4 miles from Evansville Yard), where it set off 4 loaded cars and 8 empty cars. Upon returning to Evansville, it made a final stop at the {{ }} facility, where it set off 4 loaded cars and one empty car. TPI claimed the revenue for all of those pick ups and setoffs (including the delivery of "issue" cars at {{ }}, but its train service plan for the TPIRR did not include Train Y120.

Yet another example of TPIRR's failure to account for first-mile/last-mile train service involves CSXT Train Y221, which operates from a home terminal at Augusta, GA. Figure III-C-3 shows that, on December 13, 2012, Train Y221 traveled to Beech Island, SC (located 5.2 miles from Augusta), where it set off seven loaded cars and one empty car of TPIRR's selected traffic at {{ }}, then returned to Augusta. TPI claimed revenue credit for terminating those cars at Beech Island, but its train selection methodology excluded Train Y221.

As these examples illustrate, TPI's operating plan fails to account for the pickups and setoffs performed on a daily basis for the TPIRR's customers—including TPI itself—by CSXT industrial yard trains. In each case, the participation of the "Y" train in the movement was clearly indicated in the CSXT car event data. However, TPI's train selection criteria intentionally disregarded a total of 92 separate industrial yard train symbols—representing 555 weekly train starts, or 28,860 Base Year trains—that participated in the movement of the

TPIRR's traffic.[50] More importantly, 864 of the industrial yard trains excluded by TPI originated or terminated 1,286 carloads of TPI's own traffic—fully 39% of the "issue" traffic in this proceeding. *See* CSXT Reply WP "IssueTrafficYardTrains.xlsx."

TPI cannot claim that those 28,860 trains are not necessary to "provide for full service from each specific origin, through the network, and to each specific destination."[51] Nor can TPI credibly assert that the critical first-mile/last-mile service provided by those trains could be performed by other "yard jobs" included in TPI's operating plan. For example, TPI reduced the yard staffing at TPIRR's Evansville Yard from the 8.6 yard jobs per day that CSXT utilizes in its real world operations to only 2.0 daily TPIRR yard jobs. TPI's yard sizing evidence indicates that the TPIRR would perform 180 daily car classifications at Evansville.[52] That would leave little time for one of only two yard assignments at Evansville to travel more than 15 miles to perform pick ups and setoffs at Wansford, as Train Y120 does today. Indeed, service to customer facilities would occupy both of the yard jobs assigned by TPI at Evansville, as the TPIRR's selected traffic is handled by two real world CSXT industrial yard trains, Train Y120 discussed above (which operates 5 days per week) and Train Y102 (known as the "East Side Job"), which operates 7 days per week.[53] TPI reduced the yard staffing at Augusta, GA from the 7.6 yard jobs per day utilized by CSXT to only 3.0 daily TPIRR yard jobs.[54] TPI does not

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[50] The 28,860 industrial yard trains that TPI's train selection methodology categorically excluded are listed in CSXT Reply workpaper "YardJobs_NotINcludedTPITrains.xlsx."

[51] *See DuPont*, STB Docket No. 42125, at 38.

[52] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 65, Column 15.

[53] *See* CSXT Reply Ex. III-C-4.

[54] As discussed at III-C-128–29 below, the only "evidence" proffered by TPI to support its significant reduction in yard personnel is the opinion of its operating witness, Mr. McDonald. *See* TPI Op. WP "TPIRR Yard Operations.xlsx" at note 10.

explain how only three yard crews could perform 220 daily car classifications at Augusta[55] as well as the work of three yard industrial trains (Trains Y150, Y221, and Y650) that currently serve TPIRR customers in and around Augusta.[56]

Even more absurdly, TPI's operating plan allocated "0" yard jobs at Winston, FL—in other words, the TPIRR has no train or crew to handle the duties performed by CSXT Train Y110. Likewise, TPI's train list failed to include CSXT Train Y201, which operates from CSXT's yard at Oakworth, AL, and serves {{ }} and {{ }}, both TPIRR customers, at Decatur, AL.[57] The work performed by Train Y201 could not be shifted to another TPIRR yard assignment, because TPI did not assign any yard crews at Oakworth. Indeed, as discussed above (at III-C-126–27), TPI's operating plan does not even provide a yard at Oakworth!

TPI's operating plan likewise slashed existing yard crew levels at virtually every CSXT yard that the TPIRR replicates. TPI cannot assume that the critical work performed by the 28,860 industrial yard trains that its train selection methodology overlooked could be performed by other TPIRR locomotives and crews. CSXT corrects this massive deficiency in the TPIRR's local train service plan by adding to the TPIRR's train list those industrial yard trains that handled selected traffic between a TPIRR yard and one or more customer facilities.

c. Other Local Trains That Perform First-Mile/Last-Mile Switching At Customer Facilities.

TPI's operating plan also failed to account for another 9,894 local trains that provide critical "first-mile/last-mile" service for TPIRR's selected traffic. CSXT's analysis of TPI's

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[55] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 44, Column 15.

[56] *See* CSXT Reply Ex. III-C-4.

[57] *See* CSXT WP "Profiles2 Update.xlsx."

workpapers indicates that TPI's failure to capture those "missing" trains was the result of both the "automated" train selection process that TPI employed and a number of decisions made by TPI in compiling and reviewing its train list.

Specifically, it appears that 5,302 of those trains were discarded because they were not associated with selected traffic in the car event data (at least on certain days), and therefore did not meet TPI's "automated" train selection criteria. Many of the trains discarded on that basis are local trains that perform "switcher" service. Like the industrial yard trains discussed above, local switcher trains operate entirely on the lines replicated by the TPIRR. Among the duties that those trains may perform is switching blocks of cars left by other CSXT road or local trains near customer facilities. Local switcher trains improve the efficiency of road train service by relieving road crews of responsibility for switching individual cars to and from customer facilities (reducing road train dwell time at intermediate locations and avoiding situations in which a road train blocks the main line for an extended time while performing local service). Likewise, switcher assignments enable other local trains to serve a greater number of stations during a single shift. In most cases, local switcher trains that did not appear in the car event data were documented in the train sheets and other data sources provided to TPI in discovery.

For example, CSXT Train F760 (the "Bowater Switcher") provides local switching service in and around Catawba, SC. TPI selected this train on 214 days in the Base Year, but removed the train from the TPIRR train list on 111 other days because it did not appear in the car event data on those days.[58] TPI excluded the Train F760 that operated on November 14, 2012

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[58] TPI likewise included other local assignments on some days but not on others. However, in order to meet the needs of its selected customers, the TPIRR must provide local service with the same frequency as CSXT does in its real world operations.

because it was not found in the CSXT car event data.[59] TPI likewise excluded every CSXT Train M777 ({{ }}), which performs switching and blocking within the {{ }} facility at Smynra, TN, because the service provided by that train was not reflected in the car event data. However, both Train F760 and Train M777 appeared in the CSXT train sheet data that TPI analyzed in its train selection process on those dates for which TPI excluded them.[60]

TPI states that it "conservatively" included in the TPIRR train list any unit train or merchandise road train that appeared in the train event data, even if it did not also appear in the car event data. TPI Op. Ex. III-C-1 at 11. However, TPI made a methodological decision to apply "different rules" in compiling the list of TPIRR local trains. *Id.* TPI's failure to follow the same procedure in selecting local trains as it did in compiling the TPIRR's (more complete) list of road trains is largely to blame for the massive deficiency in local train service in TPI's Opening operating plan.

Another 2,558 local trains appear to have been discarded by TPI because they handled only empty cars (again, at least on certain days), and therefore did not meet TPI's criteria that selected trains carry "revenue" shipments. But providing empty cars for loading is a critical element of merchandise train service. It is not uncommon for a railroad to operate a train to a customer's facility to place empty cars for loading even on days when the customer does not have any loaded "revenue" cars ready for pickup.

CSXT's review of TPI's workpapers indicates that TPI excluded CSXT Train F760 on 18 days (in addition to the 111 days discussed above) because the car event data showed that only

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[59] *See* CSXT Reply WP "Examples_TPI_Dropped_Trains.xlsx."

[60] *See* TPI Op. Ex. III-C-1 at 16-19.

empty cars moved in those trains.[61] For example, Train F760 placed three empties at a TPIRR customer's facility at Catawba, SC, on August 29, 2012. TPI discarded this train because it did not also carry any loaded cars. Indeed, the program code that TPI developed to conduct its "automated" train selection process explicitly instructed the computer to eliminate any train (other than certain coal and grain trains) that carried an empty car, unless that train was also carrying one or more loaded cars of TPIRR's selected traffic.[62] Witness McDonald—who TPI touts as "one of the nation's leading rail operations and management experts" (TPI Opening III-C-1)—surely would have discerned the need to deliver empty cars to the TPIRR's customers for loading, had he actually been involved in preparing the TPIRR's train list (which, TPI acknowledges, he was not). TPI's reliance upon "complicated coding solutions," "novel and complex programming solutions," and "logic loops," rather than operating knowledge, to design the TPIRR's train service plan (predictably) resulted in an operating plan with massive deficiencies in local train service.

CSXT's analysis of TPI's workpapers indicates that 332 other local trains were initially selected by TPI but were subsequently removed from the TPIRR train list as a result of a "manual review" process. TPI does not explain that process or the reason(s) why those 332

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[61] *See* CSXT Reply WP "ExaminingTPITrains.xlsx."

[62] *See* TPI Op. WP "TrainListDevelopment Step I – CEWB.sql," which contained the following code:

```
DELETE aSarrEShTrn
 WHERE ID NOT IN (    SELECT X1.ID
                        FROM aSarrEShTrn AS X1
                  INNER JOIN aSarrLShTrn AS X2
                          ON X1.TrainID             = X2.TrainID
                         AND X1.FirstNodeTrainSuffix = X2.FirstNodeTrainSuffix)
   AND LEFT(TrainID,1) <> 'E'
   AND ID NOT IN (    SELECT X2.ID
                        FROM aSarrEShTrn AS X2
                       WHERE X2.TrainID >= 'G700'
                         AND X2.TrainID <= 'G999')
```

trains were eliminated from the TPIRR's final train list. CSXT could not discern the reason(s) why TPI excluded the remaining 1,702 local trains that participated in handling the TPIRR's Base Year traffic.

In total, these methodological errors resulted in the exclusion of another 9,894 Base Year local trains that are needed to provide complete service to the TPIRR's traffic group. CSXT corrects this deficiency in the TPIRR's local train service plan by adding to the TPIRR's train list those local trains that served the TPIRR's selected customer facilities during the Base Year at the same level of service.[63]

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As the foregoing discussion demonstrates, TPI's operating plan failed to account for 44,694 CSXT local trains that the TPIRR would have to operate in order for it to "provide for full service from each specific origin, through the network, and to each specific destination."[64] TPI's failure to capture the necessary trains was the direct result of the methodological decisions and computer programming code that TPI's experts applied in compiling a train list for the TPIRR. In each case, more thoughtful evaluation of the CSXT car event and train event data—not to mention reliance on operating knowledge rather than computer code—could have avoided these fatal gaps in TPI's operating plan. The trains "missing" from TPI's Opening Evidence represent more than half of the local trains required for a feasible operating plan (TPI's Opening operating plan included only 42,208 of the 86,902 local trains that the TPIRR would need to operate).[65] Having based its Opening Evidence on the premise that the TPIRR's operating plan

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[63] A list of the 9,894 local switcher trains excluded by TPI is set forth in CSXT Reply workpaper "ExaminingTPITrains.xlsx."

[64] *DuPont*, STB Docket No. 42125, at 38.

[65] *See* TPI Op. Ex. III-C-1 at 30.

"mirrors" CSXT's real world operations, TPI cannot credibly claim that the TPIRR could adequately serve its selected traffic with fewer than half of the local and yard trains that CSXT operates to meet the needs of those customers today.

3. The Board Should Not Permit TPI's Attempt To Rely Upon "Internal Cross-Over" Movements ("Leapfrog Traffic").

a. TPI's Reliance Upon "Internal Cross-Over" Movements is Both Inconsistent With Real World Railroading and Contrary to SAC Principles, And The Board Should Reject Them.

TPI's traffic group includes massive volumes of "cross-over" traffic for the TPIRR. TPIRR derives nearly 87% of TPIRR originates, terminates, or both, at points beyond its service territory. However, TPI expands the cross-over traffic device in a new manner that has only recently been introduced in a SAC proceeding. TPI posits the existence of "internal cross-overs" between the TPIRR and the residual CSXT at intermediate points within the TPIRR's service territory. TPI's operating plan contemplates that trains carrying cross-over traffic would not only enter or exit the TPIRR at the geographic end points of its system, but would also shift back and forth between TPIRR and the residual CSXT—in some cases, multiple times—during their journey across the TPIRR network. This assumption—resulting in hypothesized movements labeled "leapfrog" traffic in a prior case—results in trains that jump between lines operated by the TPIRR and the residual CSXT as they traverse the territory replicated by TPI's SARR. Not only is "leapfrog" traffic contrary to fundamental SAC principles and inconsistent with the proper purpose of cross-over traffic articulated by the Board in past cases, it is completely incompatible with the realities of real world railroading, and should be disallowed.

For example, the TPIRR's traffic group includes cars that move between Selkirk, NY, and Pembroke, NC. In the real world, that traffic is transported by CSXT in a single-line movement between Selkirk and Pembroke. The TPIRR network posited by TPI replicates the

CSXT line segments between Selkirk, NY, and Orangeburg, NY, and between Baltimore, MD, and Pembroke, NC, but excludes the 146-mile segment of CSXT's system between Orangeburg and Baltimore. The TPIRR does have a line that physically links Orangeburg and Baltimore (via Buffalo, NY, Greenwich and Akron, IN, and Cumberland, MD). But handling north-south traffic via that far more circuitous and circular north-west, then south-west, then south-east routing would not enable the TPIRR to meet customer service requirements, and would therefore violate the Board's rules regarding re-routes. Instead, TPI posits that the TPIRR would operate trains between Selkirk and Orangeburg and interchange them to CSXT at that location. Under TPI's assumption, CSXT would then move the trains between Orangeburg, and Baltimore MD—through the operationally complicated, high real estate value territory that includes the Conrail Shared Assets Area and the Northeast Corridor through New Jersey, Delaware, Pennsylvania and Maryland—and interchange them back to the TPIRR at Baltimore for further movement to Pembroke and points beyond.

Likewise, rather than constructing a contiguous TPIRR route to serve selected traffic moving between Jacksonville, FL, and New Orleans, LA, TPI carved out a 393-mile segment of CSXT's real world route across the Florida Panhandle between Baldwin, FL, and Flomaton, AL. TPI posits that trains would "leapfrog" between the TPIRR's line at Baldwin, FL, and its line at Flomaton, AL, via an "internal cross-over" with the residual CSXT.

Indeed, TPI's operating plan features traffic that traverses multiple "internal cross-over" segments along its route of movement, resulting in trains that are interchanged between the TPIRR and CSXT as many as four times during their journey across the TPIRR network. For example, as Exhibit III-C-6 illustrates, TPIRR Train {{

}} on December 12, 2012, which (in the real world) handles extremely time-sensitive

intermodal traffic for {{ }} along CSXT's I-95 Corridor route between Jacksonville, FL, and Northern New Jersey. Rather than operating that train in single-line service as CSXT does today, TPI posits that the TPIRR would move the train from Jacksonville to Folkston, GA, (a distance of 40 miles), where it would be interchanged to CSXT.

According to TPI, CSXT would then handle the train from Folkston to Pembroke, NC, and interchange it back to the TPIRR at Pembroke. TPIRR would then operate the train between Pembroke and Baltimore, where it would be interchanged to CSXT a second time. CSXT would then complete the movement of the train from Baltimore to North Bergen, NJ. In other words, TPI's operating plan posits that the TPIRR would transport {{ }} intermodal traffic—which is one of the most time-sensitive movements on the entire CSXT network (*see supra* III-A-40)—via a route that replaced CSXT single-line service with an interline movement that required three interchanges between the TPIRR and CSXT—all at locations that are internal to the TPIRR's service territory. That type of multi-interchange train service could not possibly meet the needs of {{ }} and other time-sensitive shippers and would force the traffic to the highways. Indeed, {{

}}[66] *See supra* III-A-40.

Incredibly, TPI's Opening Evidence fails to explain these leapfrog movements. *See* TPI Op. Ex. III-C-1 at 20, 25 (acknowledging, without identifying, "trains that exited and reentered the SARR" and "split trains"). The fact that TPI failed even to clearly identify the movements impacted by this bizarre and unrealistic practice is particularly surprising given how wide spread it is across the SARR. TPI's SARR includes 25 leapfrog segments, involving more than 4,500 miles over which TPIRR would be dependent on CSXT to transport its traffic. *See* CSXT Reply

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[66] *See* CSXT Reply WP "AGRT 2020combined.pdf," at CSX-TPI-HC-056772 at 056789.

Ex. III-C-5 (providing a map of the leapfrog segments). TPI's use of leapfrog traffic stretches the concept of cross-over traffic to new extremes and constitutes a blatant abuse of the cross-over traffic concept.

While complainants have incorporated cross-over traffic into their SAC presentations for many years, positing an "internal cross-over" at an intermediate point within the geographic boundaries of a SARR network is a novel tactic that has been proposed in only one prior case.[67] While the Board did not rule on the validity of leapfrog movements in *DuPont*, Board Member Begeman expressed well-founded concern regarding this unwarranted expansion of the cross-over traffic concept.[68] In the present case, TPI's use of the leapfrog device is utterly inconsistent with "the realities of real world railroading" and renders its SARR implausible. Examination of the specific segments excluded from the TPIRR network through TPI's "internal cross-over" device demonstrates that they were carefully selected to eliminate costs and increase traffic density in a manner that improperly distorts the SAC analysis in precisely the manner about which Board Member Begeman cautioned.

In some instances, the "internal cross-overs" posited by TPI avoid constructing costly facilities. Most notably, TPI invoked its "internal cross-over" device to avoid the high real estate values and complicated operating restrictions along the Northeast Corridor between Orangeburg, NY and Baltimore, MD. That segment of CSXT's network passes through some of the most expensive real estate on the East Coast, including the New York metropolitan area (including rail

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[67] *See DuPont*, STB Docket No. 42125, at 44 ("DuPont, in this case, utilizes cross-over traffic in a previously unused manner.").

[68] *See id.* at 68 (V.C. Begeman, concurring) ("There is a limit at which [leapfrog] traffic becomes implausible in a SARR. A presentation of leapfrog traffic in future cases would need to be considered very carefully by the Board to ensure its use does not render the SAC process meaningless.").

lines located within sight of Manhattan), Philadelphia, and Baltimore. By positing that CSXT would provide service to the TPIRR's customers through the Northeast Corridor, TPI has avoided potentially hundreds of millions of dollars in real estate costs. In addition to avoiding substantial real estate investments, TPI also avoided the cost of constructing 146 miles of track in this area.

Likewise, the "internal cross-over" segment between Grafton, WV, and Cumberland, MD, encompasses approximately 102 miles through CSXT's "Mountain Subdivision." The Mountain Subdivision (as its name suggests) is characterized by steep grades through mountainous terrain, including the "Seventeen Mile Grade," a 17-mile stretch of railroad whose grade exceeds two percent, and at least three other segments with grades exceeding two percent for much of the ascent.[69] By positing that CSXT (rather than the TPIRR) would be responsible for handling trains between Grafton and Cumberland, this "internal cross-over" excuses the TPIRR from incurring the capital costs of replicating CSXT's Mountain Subdivision, as well as the challenging task of conducting day-to-day operations (which consist primarily of heavy loaded coal trains) over that segment.

In other instances, TPI used "internal cross-overs" to avoid building lines that are characterized by relatively light density, without otherwise reducing the geographic footprint of the TPIRR or requiring it to forego the opportunity to participate in traffic that must traverse those segments. For example, the "internal cross-over" segment across the Florida Panhandle from Flomaton, AL to Baldwin, FL (393 miles) has an average density of only { } million gross tons ("MGT"). Several other "internal cross-over" segments posited by TPI, including Montgomery, AL to Waycross, GA { }, Henderson, KY to Louisville, KY

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[69] *See* CSXT Reply WP "Mountain Sub Track Charts Cumberland-Grafton.pdf."

{ }, and Indianapolis, IN to Hamilton, IL { }, are likewise characterized by significantly lower traffic densities than segments that TPI chose to include in its TPIRR network.

b. TPI's Internal Cross-Overs are Inconsistent with Real World Railroading.

As TPI recognizes, one of the fundamental principles of SAC is that the "SARR operating plan must be 'realistic, *i.e.*, consistent with the underlying realities of real-world railroading.'" TPI Opening I-17 (citing *WFA I*, STB Docket No. 42088, at 15). Despite TPI's acknowledgement of that standard, the "internal cross-overs" posited by TPI create an operating plan that is utterly divorced from "the realities of real world railroading." Railroads (and shippers) strive to minimize the number of interchanges required to move traffic, and to maintain a continuous route of movement where possible. It is simply not industry practice to interchange traffic back and forth between carriers multiple times during a line-haul movement. Such routes would not be commercially viable, especially for time-sensitive shipments. For example, TPI's Pembroke, NC to Folkston, GA internal cross-over posits that the TPIRR would hand cars off to CSXT at Pembroke, and that CSXT would transport them for 343 miles to Folkston, GA. Rather than completing the final 40-mile movement from Folkston to Jacksonville, FL (a point that the residual CSXT would continue to serve), CSXT would (according to TPI) interchange the traffic back to the TPIRR, which would transport the traffic a mere 40 miles to Jacksonville. This highly inefficient routing would create two otherwise unnecessary interchanges, significantly increasing both the time and the cost of providing the transportation.[70] The ICC long ago

[70] TPI's RTC Model masks the inefficiency of leapfrog movements by modeling the train as it is handed off by TPIRR to CSXT, and the train as it is received from CSXT at the end of the leapfrog movement, as two separate trains. *See* III-C-199.

recognized that "single-line routings are normally more time- and cost-efficient than joint-line ones, simply because no interchange costs are involved." *Restructured Rates on Grain and Grain Products, Conrail,* 365 I.C.C. 635, 640 (1982); *see also Burlington Northern, Inc. – Control and Merger – St. Louis-San Francisco Ry. Co.*, 360 I.C.C. 788, 940 (1980) ("Interchanging freight . . . adds significantly to delivery time, since the time a railcar spends in a yard or terminal is most of its time in transit and an inefficient use of cars."). Interchanges require additional crews, equipment, and facilities.[71] Because of these additional expenses and inefficiencies neither railroads nor shippers would be willing to accept these sorts of movements.

CSXT's traffic data provide quantitative proof that the concept of "leapfrog" shipments is inconsistent with real world railroading. CSXT reviewed the revenue waybill files produced to TPI in discovery. That search revealed that, out of a total of more than 3.7 million carload shipments, only 301 waybill records—or less than one hundredth of one percent—listed CSXT as both the originating and terminating railroad, with a different carrier participating in the movement in between. Further examination of those 301 waybill records indicates that virtually all appear to be data errors rather than actual leapfrog movements. Of the 301 carloads, 157 cars were automobile shipments from local CSXT points for which the waybill data reported CSXT as both the origin and destination carrier, but also showed an interchange to a foreign railroad in the route. In each case, the data incorrectly reported the same location as both the interchange point and the ultimate destination of the shipment. *See* Figure III-C-4 below. For example, the 157 automotive shipments included 38 cars originating on CSXT at Obannon, KY and interchanged with UP at East St. Louis for movement to Texas. The CSXT waybill file reported

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[71] In fact, many of the new interchanges between the SARR and CSXT will occur at places that are not existing crew-change locations on CSXT today. This adds further complication, inefficiency and costs, requiring increased expenses for taxis and re-positioning of crews.

East St. Louis as the CSXT-UP interchange point, but also (erroneously) listed East St. Louis as the destination.

Figure III-C-4
Potential CSXT Leapfrog Traffic Includes Automotive Shipments Where The Ultimate Destination Matches The Off Junction

OffJctRoadCity	Ult_Dest	2012 Carloads
UPESTL	EAST ST LOUIS, IL	38
BNSFBHAM	BIRMINGHAM, AL	34
BNSFCHGO	CHICAGO, IL	23
UPCHGO	CHICAGO, IL	13
UPMEMPH	MEMPHIS, TN	12
UPSALM	SALEM, IL	9

Similarly, 34 carloads originated by CSXT at Gabbettville/Snowdoun and interchanged to BNSF at Birmingham for movement to points in California and New Mexico are incorrectly shown in CSXT's waybill file as terminating at Birmingham.[72] As Figure III-C-4 shows, the reported destination ("Ult_Dest") for each of these 157 automotive shipments was, in fact, the point at which CSXT interchanged the cars to a western carrier ("OffJctRoadCity"). In reality, CSXT did not receive these cars back from UP (or BNSF), and they are not "internal cross-over" movements.

The second largest group of cars that suggest potential leapfrog shipments in CSXT's waybill data includes 60 carloads of scrap iron or steel for which the waybill records appear to report an incorrect interchange point. Specifically, while the data report that those cars were interchanged to the Birmingham Terminal Railroads at Ensley, AL, the shipments all have origins and destinations that would not involve a movement via Birmingham. For example, 27 of the 60 carloads originated at points in Indiana, Maryland, and Tennessee, and were destined to

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[72] *See* CSXT Reply WP "140625_CSXT 2012 Potential Leapfrog.xlsx."

New Haven, CT. None of those shipments would require either a movement via Birmingham or the participation of the Birmingham Terminal Railroads as an "overhead" carrier.[73] Once again, these movements reflect data anomalies, not real world leapfrog movements.

The majority of the remaining 84 carloads are similar to the automobile shipments discussed above. In each case, the data reflect a shipment from a CSXT origin to a location that is shown as both an off-junction and the ultimate destination. Again, those traffic records do not represent true "leapfrog" movements, but rather appear to be minor data inconsistencies likely resulting from an input error.

CSXT also reviewed the 2012 revenue waybill file for shipments where, conversely, CSXT was shown as a bridge carrier between separate segments of a movement handled by the same foreign railroad. CSXT's review identified a total of only 28 such carloads—less than 0.001% of total carloads. Eight of those waybill records involved shipments of {{

}}. All eight of the cars moved on the same date. These waybill records reflect a unique occurrence that required special handling and routing—essentially a detour—on account of the oversize dimensions of the {{ }} being transported. At the time, NS's direct route between Charleston and { } was subject to a height restriction { } and could not physically accommodate the shipment. CSXT cooperated with NS, permitting it to route the

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[73] *See id.* For example, Waybill Number 809098 shows an "Ult_Orig" as Crawfordsville, IN, and an "Ult_Dest" as New Haven, CT, but erroneously contains an "OffJctRoadCity" indication at BHRRENSLY. This shipment from Indiana to Connecticut would not have been routed through Ensley to travel across this north-eastern route.

cars over CSXT between Giant and Columbia, SC, in order to ensure that this shipment could be delivered for {{ }}.

The remaining 20 shipments for which the waybill data reported CSXT as an overhead carrier between two segments operated by the same connecting railroad could be Rule 7 errors. In other words, these were shipments that the foreign carrier mistakenly interchanged to CSXT, and were then interchanged back to that foreign carrier at the same junction at which they were received, when the error was discovered. These data entries also could simply be minor data errors. Regardless, they do not reflect any pattern of CSXT "leapfrogging" traffic.

Waybill errors can arise for many different reasons, including shipper error at the outset; shipments that are lost or misdirected in transit; or shipments that are mistakenly interchanged with another railroad. The mere 329 (out of 3.7 million—a total of 0.008%) waybill records that might appear to indicate leapfrog shipments are simply examples of clerical and other human errors that occur in real world railroading. Those data anomalies certainly do not validate TPI's proposed "internal cross-over" traffic practice. To the contrary, the data provide overwhelming quantitative proof that "leapfrog" traffic is utterly inconsistent with the realities of real world railroading. For that reason alone, TPI's use of leapfrog traffic should be rejected.

c. Leapfrog Traffic Is Inconsistent With Board Precedent Regarding Proper Use Of Cross-Over Traffic.

The Board should reject TPI's position that a complainant may employ "internal cross-overs" between a SARR and the residual incumbent at locations that are internal to the SARR's geographic footprint. "While a complainant has considerable flexibility in designing and locating the SARR and grouping traffic to take advantage of traffic densities, it does not have unbridled discretion." *TMPA I*, 6 S.T.B. at 589 (emphasis added). As the Board stated in *TMPA*, "in determining the reasonableness or propriety of assumptions and selections made by a SAC

proponent, we are guided by the underlying purpose and objectives of the SAC test." *Id.* TPI's "internal cross-over" assumption violates both fundamental SAC principles and limits on the use of cross-over traffic articulated by the Board in past cases.

The fundamental purpose of cross-over traffic is to simplify the SAC analysis by enabling complainants to reduce the geographic reach of their SARRs:

> The use of cross-over traffic . . . . provides a reasonable measure of simplification that allows SAC presentations to be more manageable. Curtailing the geographic scope of the SARR greatly simplifies the operating plans that must be developed, thus limiting the complexity of what is nevertheless still a dauntingly large and detailed task.

Xcel, 7 S.T.B. at 603 (emphasis added).[74] Permitting complainants to select cross-over traffic is intended to allow the SARR to achieve "the same economies of scale, scope and density that the incumbents enjoy over the identical route of movement." *TMPA I*, 6 S.T.B. at 590 (emphasis added).[75] As the Board observed in *Duke/NS*, "[the complainant] may also use the device of cross-over traffic—rather than extending the SARR to far-flung origins and destinations of non-issue traffic (which could lead to a SARR of potentially nationwide reach)—to realize the full benefit of those economies." 7 S.T.B. at 115 (emphasis added). Recently, the Board explained that "cross-over traffic was originally designed to allow a SARR to expand the scope of its traffic

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[74] *See also WFA I,* STB Docket No. 42088 (June 15, 2012), at 2 ("To make this [SAC] modeling task easier, the Board permits complainants to design smaller SARRs that use something called 'cross-over traffic.'"); *Xcel*, 7 S.T.B. at 601-02 ("Creating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR."); *Otter Tail*, STB Docket No. 42071, at 12 ("Without cross-over traffic, the SARR would replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis . . . . Such an expanded SAC analysis, however, would be impracticable."); *Major Issues*, STB Ex. Parte No. 657, at 32 ("the use of cross-over traffic is nothing more than a simplifying device").

[75] *See also Xcel*, 7 S.T.B. at 601 (cross-over traffic enables the SAC analysis to take into account the economies of scale, scope and density that the defendant carrier enjoys); *Otter Tail*, STB Docket No. 42071, at 11 (same); *WFA II*, STB Docket No. 42088, at 12 (same).

group without having to extend its geographic scope." *DuPont*, STB Docket No. 42125, at 44. The Board has made clear that its intent in permitting the use of cross-over traffic is to "make the analysis more manageable without introducing bias to the SAC analysis." *Major Issues*, STB Ex Parte No. 657, at 24 (emphasis added). In particular, the Board cautioned that cross-over traffic "is not designed to allow for the avoidance of otherwise legitimate costs." *DuPont*, STB Docket No. 42125, at 44, n. 89.

Thus, the Board's prior decisions sanction the use of cross-over traffic for the purpose of "simplifying" a SAC presentation. Such simplification is achieved by allowing a SARR to interchange cross-over traffic with the incumbent carrier at the geographic end points of a SARR network that serves a smaller geographic area, rather than extending the SARR to distant origins and destinations of that traffic.[76] In that way, cross-over traffic affords the SARR the same economies of scale, scope, and density that the incumbent railroad experiences in the real world on the lines replicated by the SARR.

In *Major Issues*, the Board made clear that the right of complainants to utilize cross-over traffic movements is constrained by these stated objectives:

> Coal Shippers disagree that cross-over traffic should be viewed as a simplifying device. They contend that under *Guidelines*, complainants have an absolute right to use cross-over traffic and to choose any segment of the incumbent's market they wish the SARR to serve . . .
>
> We do not share Coal Shippers' views of the nature of cross-over traffic. First, it is clear that the concept of cross-over traffic was not contemplated by the ICC when it adopted *Guidelines*. Indeed, the name of the test itself (the 'stand-alone' cost test) reflects an implicit assumption that the SAC analysis would examine a stand-alone network designed to meet the transportation needs of the SAC traffic group. . . . The use of cross-over

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[76] *See Bituminous Coal – Hiawatha, UT to Moapa, NV*, 10 I.C.C.2d 259, 267 (1994) ("cross-over traffic should be included in the SARR and treated as if it would be interchanged with the incumbents carriers at the appropriate end points of the SARR.") (emphasis added).

> traffic, however, results in a hypothetical SARR that would not stand alone in any meaningful sense, but rather would be dependent on the residual defendant carrier to provide the feeder network needed to sustain its operations. As the *Nevada Power* decision made clear, the use of cross-over traffic was permitted only to 'allow shippers to make effective cases . . . using smaller hypothetical SARR's than would otherwise be required.'

Major Issues, STB Ex Parte No. 657, at 31 (emphasis added). While the Board did not take the opportunity presented to it in *DuPont* issue a definitive ruling on the permissibility of leapfrog traffic, the skepticism expressed by Board Member Begeman about such traffic is instructive. *See DuPont*, STB Docket No. 42125, at 68 (V.C. Begeman, concurring) ("There is a limit at which [leapfrog] traffic becomes implausible in a SARR. A presentation of leapfrog traffic in future cases would need to be considered very carefully by the Board to ensure its use does not render the SAC process meaningless.").

The "internal cross-overs" posited by TPI are utterly inconsistent with both the limited purposes of cross-over traffic and fundamental SAC principles, and must be disallowed:

First, the "internal cross-overs" posited by TPI are inconsistent with the Board's stated objective of enabling a SARR to achieve "the same economies of scale, scope and density that the incumbents enjoy." *TMPA I*, 6 S.T.B. at 590 (emphasis added). Permitting a SARR to "carve out" segments within its network that have lower traffic densities, and to impose on the incumbent carrier responsibility for providing service between those intermediate points, enables the SARR to achieve greater overall economies of scale, scope and density than are available to the incumbent carrier. In the real world, CSXT does not have the luxury of delegating responsibility for operating the restricted Northeast Corridor, or its lower density route between Flomaton, AL and Baldwin, FL, to a fictitious "residual incumbent." Excusing a SARR from the obligation to build and operate lower density segments within its own network by allowing it to rely upon "piecemeal" routes that alternate between rail lines operated by the SARR and the

residual incumbent inappropriately distorts the SAC analysis. TPI's approach produces an "apples to oranges" comparison of the costs incurred by the SARR and the residual incumbent in serving the selected traffic group, undermining the fundamental goal of the SAC test—*i.e.,* to determine the amount that the defendant carrier (not a hypothetical SARR that enjoys greater economies of scale, scope and density) needs to charge in order to fully cover all of its costs.[77]

Second, the "internal cross-overs" posited by TPI do not reduce the geographic reach of its SARR. Unlike cross-over movements authorized in prior SAC cases, which involved interchanges with the residual incumbent at the end points of a SARR's territory, the "internal cross-overs" posited by TPI create additional interchanges at intermediate points within the TPIRR network. Those "internal cross-overs" do not eliminate the need for the TPIRR to extend its network to far-flung origins and destinations.[78] To the contrary, the TPIRR serves both end points of each "internal cross-over" segment posited by TPI and has the ability to operate trains between those points (albeit via more circuitous routes that TPI did choose to build). Thus, the "internal cross-overs" posited by TPI do not serve the fundamental purpose of enabling the TPIRR to participate in traffic without unduly extending the geographic reach of its network. Rather, they are transparently intended to excuse the TPIRR from constructing internal portions of its network that (for various reasons, such as low density or high costs) it would simply prefer to avoid building and/or operating.

Third, "internal cross-overs" certainly do not simplify a SAC presentation. To the contrary, the "internal cross-overs" posited by TPI create additional interchanges between the TPIRR and CSXT at intermediate points that do not exist in the real world, and which the TPIRR

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[77] *See, e.g., Major Issues*, S.T.B. Ex Parte No. 657, at 6; *WFA II*, STB Docket No. 42088, at 8; *Otter Tail*, STB Docket No. 42071, at 6; *Duke/NS*, 7 S.T.B. at 115.

[78] *See Duke/NS*, 7 S.T.B at 115.

is itself capable of serving on a single-line basis. Such (otherwise unnecessary) interchanges create a need for additional track facilities and give rise to complicated issues relating to the coordination of train operations at intermediate points along the TPIRR network.[79] TPI's Opening Evidence simply ignores those complications, by treating the TPIRR's portions of a leapfrog movement as two separate trains. Such complicating assumptions would be unnecessary in the absence of TPI's reliance upon its "internal cross-over" device.

Fourth, TPI's reroutes are patently inconsistent with the Board's standards governing the rerouting of traffic. TPI rerouted some of its issue traffic that moves (in the real world) over "internal cross-over" segments to other lines that the TPIRR did choose to construct. At the same time, TPI assumes that the non-issue traffic TPI selected would remain on its real world route of movement, but that the TPIRR would nevertheless participate in (and earn revenues from) those shipments via an "internal cross-over" movement with CSXT. The Board's prior decisions give a complainant three choices with respect to non-issue traffic: (1) build the lines and facilities necessary to move the non-issue traffic within the SARR's service territory; (2) reroute that traffic over other SARR lines if the alternate route can provide equal or better service (thereby enabling the SARR to avoid building the lines over which the traffic actually moves); or (3) forego such non-issue traffic. TPI's "internal cross-over" construct is a blatant attempt to side-step these well-established rules governing the permissibility of rerouted traffic movements.

Specifically, TPI employs "internal cross-overs" as a means of enabling the TPIRR to participate in traffic that would not qualify for rerouting under the Board's standards (because

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[79] These interchanges not only complicate the hypothesized TPIRR operations, but also add complexity to the average total cost ("ATC") revenue allocations and maximum markup methodology ("MMM") analysis.

the alternate TPIRR route cannot provide equal or better service). For example, the "internal cross-over" segment between Flomaton, AL and Baldwin, FL, posited by TPI is used by CSXT today to carry both issue traffic selected by TPI and non-issue traffic which TPI also selected for the TPIRR. Rather than build the Florida Panhandle line, TPI posits that its issue traffic will move in an inefficient and circuitous route from Flomaton, north through Montgomery, AL to Atlanta, GA, and then move south toward Waycross, GA for transport to Jacksonville, FL and beyond. At the same time, non-issue traffic, which includes time-sensitive intermodal traffic, is interchanged to CSXT at Flomaton to be transported over the "leapfrog" route to Baldwin. Handling this traffic over the northern Montgomery/Waycross route would result in a failure to achieve on-time delivery and meet customer requirements. In addition to TPIRR/CSXT interline service via the Flomaton to Baldwin "internal cross-over" segment, TPI's operating plan separately provides for TPIRR single-line train service for its issue traffic between Indianapolis IN, and Hamilton, OH, via a circuitous route via Sidney and Dayton, OH. Again, the non-issue traffic selected by TPI is left on the leapfrog segment between Indianapolis and Hamilton, which CSXT is expected to serve.

Instead of incurring the expense of building either of those segments, or foregoing the non-issue traffic, TPI simply assumes that CSXT would be responsible for "bridging the gap" in the TPIRR's network between those locations. The disparate treatment of issue and non-issue traffic at those locations creates two classes of traffic: (1) issue traffic, which receives single-line (albeit often circuitous) service, and (2) non-issue traffic, which receives disjointed service from two carriers over leapfrog segments.

If TPI had simply attempted to reroute this traffic, the Board would be required to "look at [the] proposed rerouting to ensure that it is permissible and consistent with SAC principles."

Duke/NS, 7 S.T.B. at 112; *see also CP&L*, 7 S.T.B. at 253; *TMPA I*, 6 S.T.B. at 594-95. The Board does not permit reroutes that "inappropriately shift a greater share of the revenues from the movement onto the SARR and/or shift costs of serving that traffic off of the SARR onto the residual railroad." *CP&L*, 7 S.T.B. at 253. TPI's "internal cross-over" scheme has precisely that impermissible effect, by enabling the TPIRR to participate in cross-over traffic that cannot be rerouted (for service reasons) while shifting the costs associated with constructing and operating the facilities needed to handle that traffic within the TPIRR's service territory to the residual CSXT. By treating its issue and non-issue traffic in a different manner, TPI effectively concedes that the TPIRR network and its operations are insufficient to meet the needs of the revenue traffic it selected.[80]

Finally, permitting a complainant to posit the existence of "internal cross-overs" within a SARR network would create opportunities to "game" the SAC analysis. As discussed above, "internal cross-overs" might be used (as they are by TPI) to avoid building and operating integral portions of a SARR network that have high construction costs and/or low traffic densities. For example, a complainant could avoid the cost of constructing a rail bridge over the Mississippi River simply by carving the bridge out of its SARR network, and assuming that the residual incumbent would provide service between a point west of the river and a point east of the river via an "internal cross-over." A complainant might use "internal cross-overs" to avoid replicating rail lines through major metropolitan areas, where land values are higher and operating conditions more complex. This sort of gaming is illustrated by TPI's failure to acquire land and

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[80] Indeed, TPI is implicitly acknowledging that TPI's own traffic would tolerate such circuitous routing which could not meet the standards to which TPI (as customer) is accustomed to in the real world. The idea that TPI would accept this routing if proposed by CSXT is ludicrous. The only reason for this routing in TPI's Opening Evidence is to avoid violating the Board's rule that the complainant build the routes required to move the issue traffic.

construct a rail line through the high-value Northeast Corridor. *See supra* III-C-40. Indeed, if the Board were to authorize TPI's Northeast Corridor "internal cross-over" to avoid constructing the line through some of the most expensive cities in the country (without foregoing the traffic and revenue that moves over that line), what would stop a complainant from building all portions of a defendant carrier's network except the segments through urban areas, in an effort to gain even more revenue while avoiding expensive real estate? Similarly, by cutting out a large swath of CSXT's Mountain Subdivision, TPI has avoided expensive construction of rail lines with steep grades over challenging terrain. Such practices distort the SAC analysis by vastly understating the defendant carrier's cost of providing service. Sanctioning "internal cross-overs" would also undermine the Board's standards for rerouting non-issue traffic, by excusing complainants from the need to choose between building all of the lines and facilities required to handle traffic that cannot be rerouted (for service reasons) or foregoing that traffic.

Additionally, of significant concern for the integrity of the SAC process is the possibility that "internal cross-overs" could be used to "game" the RTC Model simulation. Specifically, where a complainant was unable to run its RTC simulation to a successful completion (due to unrealistic operating inputs or the inadequacy of the SARR's facilities), the complainant could eliminate the "problem" by carving out those segments of its SARR network where such modeling failures occur and converting those segments into "internal cross-overs" with the defendant carrier. Such a practice would undermine the integrity of the RTC simulation exercise, upon which the parties (and the Board) rely to test the adequacy of the physical facilities posited by the complainant.

Indeed, TPI "games" the results of its RTC Model simulation in this case by masking the impact of "internal cross-over" traffic on service quality. In its RTC evidence, TPI models each

leapfrog train from its origin (-or on-SARR junction) to the point where it is handed off by TPIRR to CSXT, and the train from the point where it is interchanged by CSXT back to the TPIRR at the end of the leapfrog movement, as two separate "trains." For example, trains carrying {{ }} time-sensitive traffic between New York and Jacksonville are modeled in the following manner: The RTC Model reflects the movement of the train over the TPIRR between Jacksonville, FL and Folkston, GA, where (according to TPI), it is interchanged to CSXT. However, TPI does not model the movement of the train between Folkston and Pembroke, NC on CSXT's lines—rather, the train "disappears" from TPI's RTC simulation at Folkston. When CSXT interchanges the train back to the TPIRR at Pembroke, it reappears in the RTC Model, but as an entirely "new" train. The RTC Model documents the movement of that new train by the TPIRR from Pembroke to Baltimore, MD, where it is interchanged to CSXT. Once again, the train "disappears" from TPI's RTC simulation as it operates from Baltimore to its destination at North Bergen, NJ. Thus, in its RTC Model, TPI misrepresents this highly time-sensitive real world movement as two disconnected TPIRR trains (from Jacksonville to Folkston and from Pembroke to Baltimore), with no acknowledgement that they are part of a single through movement involving the residual CSXT. Tellingly, TPI does not include any leapfrog trains in the transit time comparison it proffers as proof that the TPIRR's train service would be equal to or better than, CSXT's current service. *See infra* III-C-199.

For the foregoing reasons, the Board should reject TPI's attempt to expand the cross-over traffic device to include "internal cross-overs" at intermediate points along the SARR network.[81]

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[81] In *DuPont*, the Board suggested that it would not be inclined to eliminate leapfrog traffic from SAC analysis where the defendant railroad does not submit an "entirely separate SAC analysis" demonstrating the effects of excluding that traffic. *See DuPont*, STB Docket No. 42125, at 44. CSXT considered whether it had the capability of developing two separate SAC cases—one with leapfrog traffic and one without—but determined that the development of two parallel Reply

4. Car Classification and Blocking Plan

The operations involved in transporting merchandise traffic are far more complex and capital intensive than those of a rail system designed primarily to handle unit trains. A merchandise railroad must be capable of accommodating an ever-changing mix of hundreds of different commodities tendered for shipment by thousands of customers, both large and small. Merchandise shipments may require specialized car types, or "transload" facilities to transfer the product from rail cars to trucks (or vice versa). Traffic volumes and train sizes vary from day to day, and service schedules must be adjusted to meet the needs of customers. Carriers must be able to track the location of each car as it travels across the network, and to advise customers regarding the status of their shipments at each stage in the process of transporting them. In order to handle thousands of daily general freight shipments in accordance with customer service requirements, a railroad must design a scheduled train service plan (including both road train and local train service) that is capable of meeting those requirements, and yard classification and switching operations that are adequate to support the required train services.

As the Board observed in its recent *SunBelt* decision a car classification and blocking plan is "[an] essential part of the operating plan for a predominantly carload system." *SunBelt*, STB Docket No. 42130, at 13. But TPI's Opening Evidence contains no car classification and blocking plan whatsoever for the TPIRR. To the contrary, TPI takes the position that "[b]ecause

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analyses was not feasible in the time available under the procedural schedule in this case. Accordingly, CSXT elected to submit one SAC analysis that does includes TPI's leapfrog traffic (other than the expedited intermodal traffic movements discussed above) rather than risk rejection of its operating and other evidence if the Board decided not to exclude the leapfrog traffic. CSXT urges the Board to take this opportunity to unequivocally prohibit the use of leapfrog traffic. Failing to do so, or requiring a defendant carrier to present alternative SAC analyses when challenging a complainant's use of leapfrog shipments, would place an unreasonable burden on the parties to future rate proceedings.

[it] has mirrored the critical aspects of CSXT's current train operations, there is no need to develop new individual-shipment plans or blocking plans for traffic moving over the TPIRR system...." TPI Opening III-C-12 (emphasis added). Instead, TPI purports to "incorporate[ ] the same blocking plans that CSXT currently uses in its operations." *Id.* (emphasis added). Moreover, "[b]ecause [according to TPI] TPIRR operates a subset of the same trains as CSXT . . . and because TPIRR constructs yards in the same locations as CSXT, it also adopts CSXT's car classifications for cars included on the TPIRR system." *Id.* at III-C-13 (emphasis added). Such conclusory statements do not come close to satisfying the requirement that TPI demonstrate that its operating plan "would provide for full service from each specific origin, through the network, and to each specific destination for the selected traffic group."[82]

As the Board recently observed in *SunBelt*:

> We note that adopting the classification and blocking plan of the incumbent railroad, sufficiently adjusted for volume differences, is one way to show that the proper classification and blocking is occurring at yards on a SARR. But if a complainant adopts the incumbent railroad's car classification and blocking plan, and the complainant modifies or removes a facility, or reduces staffing from the incumbent's classification and blocking plan, it would need to establish that the SARR could still adequately serve the traffic group.

STB Docket No. 42130, at 16 (emphasis added); *see also DuPont*, STB Docket No. 42125, at 40 (rejecting operating plan where complainant "argues that it is adopting NS's historical blocking plan, but fails to provide the same facilities NS uses to block and interchange traffic").

TPI's Opening Evidence does not address in any meaningful fashion the adjustments to CSXT's historical car classification and blocking plan that would be required to tailor that plan to the TPIRR's Peak Year traffic. TPI posits that the TPIRR's general freight traffic volumes

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[82] *DuPont*, STB Docket No. 42125, at 38.

would grow by approximately 20% between the Base Year and the Peak Year (which extends to June 2020).[83] Those higher Peak Year traffic volumes would, by definition, generate larger "blocks" of cars moving to and from intermediate yards and customer facilities. In order to handle those increased block sizes efficiently, a least cost, most efficient railroad would evaluate a variety of potential adjustments to its yard operations, including changing the blocks to which cars were assigned, changing the trains to which blocks were assigned (to avoid trains of excessive length), adding more trains to accommodate growth traffic, and perhaps even changing the yards at which certain blocks were built in order to mitigate congestion at the busiest yards.[84] Local train assignments would need to be reviewed to (i) eliminate service to those historical CSXT customers whose traffic TPI did not select, and (ii) to accommodate the larger blocks of cars moving to and from TPIRR customer facilities in the Peak Year. CSXT's MultiRail evidence reflects the adjustments to CSXT's actual Base Year train service and car blocking plan that would be required to handle the TPIRR's Peak Year traffic volumes in a least cost, most efficient manner. *See* III-C-61–69

Likewise, the physical plant posited by TPI for its SARR differs in several important respects from that which CSXT operated in the Base Year. TPI did not replicate all of CSXT's routes over which the selected traffic moved, choosing instead to convert the vast majority of the

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[83] *See* TPI Opening III-A-6 through III-A-11. Conversely, TPI did not select all of the general freight traffic that CSXT handled during the Base Year over the lines replicated by the TPIRR. Accordingly, CSXT's car blocking plan contemplates the classification and switching of traffic that is not part of the TPIRR's selected traffic group (and is therefore irrelevant to this case.

[84] As the Board knows, a Class I railroad's operating plan is not carved in stone. Real world railroads make frequent adjustments to their train services and yard operations in response to changes in (and seasonality of) traffic volumes, surges in demand at particular locations, weather conditions, and a variety of other factors. As witness Dharma Acharya testifies (at III-C-60–61), CSXT makes frequent adjustments to its operating plan to optimize it to account for those and other factors.

TPIRR's traffic into "crossover" traffic and "leapfrog" shipments.[85] TPI also purported to "rationalize" the CSXT network by eliminating parallel rail lines and rerouting nearly one-third of all TPI general freight trains over different lines than they traversed on CSXT in 2012. Most importantly, TPI reduced the capacity of both the classification tracks and the receiving/departure tracks at virtually every CSXT yard that it replicated, and eliminated entirely several yards that the TPIRR would need in order to classify and switch its selected traffic. *See infra* III-C-75–129. TPI made all of these major modifications to (and removals from) CSXT's real world track and yard facilities without proffering any analysis of the impact of those changes on the TPIRR's classification and blocking plan, or otherwise demonstrating that "the [TPIRR] could still adequately serve the traffic group" with such a truncated physical plant.[86]

While TPI identified the average number of cars that would require classification at each TPIRR yard during the Peak Year, neither TPI's operating plan narrative nor its workpapers provide documentation of any "adjustments" that TPI made to CSXT's historical classification and blocking plan to accommodate those increased volumes. Indeed, TPI proffered no evidence whatsoever regarding the number (and size) of blocks that the TPIRR would build at each yard. As CSXT demonstrates below (at III-C-81), the number and size of the blocks that a railroad would be required to build are critical inputs in properly sizing the classification tracks within a yard. Likewise, TPI has not proffered credible evidence demonstrating that the major reduction in CSXT's real world yard track capacity, and the significantly reduced yard staffing, posited by

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[85] CSXT's MultiRail analysis adjusts CSXT's historical operating plan to account for new "interchanges" between the TPIRR and the incumbent CSXT.

[86] *See SunBelt*, STB Docket No. 42130, at 16 (complainant that adopts incumbent carrier's blocking plan and modifies or removes facilities must demonstrate that SARR can adequately serve the traffic group); *DuPont*, STB Docket No. 42125, at 40 (rejecting operating plan where complainant failed to provide the same facilities as incumbent to block and interchange traffic).

TPI still enable the TPIRR to accommodate its Peak Year traffic group. To the contrary, as CSXT demonstrates below, virtually every element of TPI's yard service plan—including classification track capacity, receiving and departure tracks, yard crews and yard locomotives—is utterly inadequate to maintain fluid operations. Thus, TPI's Opening Evidence fails to satisfy the Board's requirements for a complainant that elects to rely upon the incumbent's car classification and blocking plan (rather than presenting its own plan).[87]

In short, TPI's operating plan—and the RTC Model, operating statistics, and operating expenses generated from that plan—are all based on the fallacy that a least-cost, most efficient railroad doing business in 2020 with a traffic group that was 20% larger than CSXT's real world traffic, and with fewer rail routes and smaller yard facilities available to it, would nevertheless employ exactly the same car classification and blocking plan as CSXT used in 2012. That assumption is, on its face, simply not credible. TPI's failure to analyze the need to adjust CSXT's historical blocking plan to accommodate the TPIRR's traffic, or to demonstrate that the TPIRR could classify and switch 20% more traffic than CSXT with significantly less yard capacity and fewer yard locomotives and personnel, constitutes a failure of proof warranting a finding that TPI's operating plan is infeasible.

* * * * *

CSXT's Reply Evidence addresses the fatal deficiencies in TPI's Opening car classification and blocking plan by adjusting the plan that CSXT actually used as of June 2012 (the beginning of the Base Year) to reflect the increased traffic volumes that the TPIRR would be required to classify and block during the Peak Year. In developing the TPIRR's carload blocking and train service plan, CSXT utilized the widely accepted MultiRail modeling tool that

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[87] *SunBelt*, STB Docket No. 42130, at 16.

integrates information regarding a railroad's traffic, network configuration, and customer service requirements to generate blocking and train service plans that are optimized to serve the specified traffic.[88] CSXT utilizes MultiRail in the normal course of business in connection with its network planning and service design functions. Indeed, the "real world" operating plan that CSXT followed during the Base Year (and which TPI purports to mimic) was developed with the MultiRail program.

CSXT's real world train service and car blocking plans undergo constant review and frequent adjustments in response to changes in traffic patterns, planned and unplanned network outages, weather, and other circumstances that affect day-to-day operations. Any significant change to CSXT's operating plan is analyzed in MultiRail before it is implemented to assess its impact. Once the proposed change has been tested successfully in MultiRail, CSXT's Service Design Department forwards the recommended change to the Field Transportation Department and to other company resource providers (*e.g.*, the departments that manage CSXT's locomotive fleet and crew personnel) for final approval. When the proposed change is approved, it is input to the operating plan (which resides on CSXT's mainframe computer), and the MultiRail model is refreshed to reflect that change in CSXT's operations.

In the present case, the MultiRail program facilitated the task of identifying the specific train and yard services required to handle the nearly three million carloads of general freight

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[88] MultiRail was developed by Oliver Wyman, and is commercially available at http://rail.railplaning.com/multi-rail/. The Board has accepted the use of MultiRail to create blocking plans and train service plans in prior SAC cases and other STB proceedings. *See, e.g., SunBelt*, STB Docket No. 42130, at 17-19; *DuPont*, STB Docket No. 42125, at 41; Reply Evidence of CSX Transportation, Inc., *Seminole Elec., Inc. v. CSX Transp., Inc.*, STB Docket No. 42110 (filed Jan. 19, 2010); *Canadian Nat'l R.R. Co., Grand Trunk Corp. and Grand Trunk W. R.R. Inc.—Control—Illinois Cent Corp., Illinois Cent. R.R. Co., Chicago, Cent. and Pac. R.R. Co. & Cedar River R.R. Co.*, STB. Fin. Docket No. 33556 (served May 25, 1999).

traffic that TPI selected for the TPIRR. CSXT's MultiRail evidence is based upon the car classification and blocking plan, and train profiles, that CSXT actually utilized in developing its real world operating plan as of June 2012 (the beginning of the TPIRR's Base Year). The following is a description of the methodology that CSXT employed in developing the TPIRR's carload blocking and train service plan.[89]

First, CSXT witness Stuart Sweat input to the MultiRail program those segments of CSXT's real world physical network that TPI replicated in the TPIRR system. Witness Sweat added links and nodes to the MultiRail network database as needed to provide for traffic interchanges between the TPIRR and the residual CSXT (which do not occur in the real world today). CSXT also added to the physical network posited by TPI five flat switching yards and three intermodal facilities that TPI did not include in its SARR configuration, but that CSXT's Reply Evidence demonstrates would be needed to enable the TPIRR to serve its selected traffic group.[90] Witness Sweat also input to the MultiRail network certain line segments owned by other railroads over which the TPIRR would operate pursuant to trackage rights, in order to model properly the train movements over those lines and to determine the number of crews and locomotives, and volume of fuel, required for the TPIRR's overall operations.

Second, the TPIRR's selected Base Year carload traffic was analyzed, broken out for each shipment, and imported into the MultiRail program.[91] The Base Year traffic volumes were

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[89] The methodologies and processes that CSXT employed in conducting its MultiRail analysis of the TPIRR's traffic are described in greater detail in CSXT Reply MultiRail workpapers.

[90] Those additional yards and intermodal facilities, and the reasons why they would be needed by TPIRR, are discussed at III-C-125–29, 137.

[91] The TPIRR's unit train traffic was not input to MultiRail, as that traffic moves in trainload service between a single origin (or on-SARR junction) and a single destination (or off-SARR junction), so that a "trip plan" for each individual car was not necessary. Where coal, grain, crude oil or ethanol shipments moved in smaller quantities, those shipments were included in the

increased based on commodity group-specific growth factors provided by witness Benton Fisher, to determine the Peak Year traffic volumes that needed to be accounted for in the TPIRR's car blocking and train service plan.[92] The number of empty car movements associated with the TPIRR's carload shipments was developed by applying CSXT's actual loaded/empty car-mile ratios, by car type and ownership type, for the Year 2012 (as reported in CSXT's R-1 Annual Report, Schedule 755). The resulting loaded and empty volumes were then input to the MultiRail program for blocking and train service analysis. As Figure III-C-5 shows, the traffic selected by TPI consisted of approximately 93% of all general freight and automotive traffic that CSXT handled in the territory replicated by the TPIRR during the period replicated by the TPIRR Base Year.

Figure III-C-5[93]
Percentage of CSXT Traffic Selected by TPI

	Carloads/Containers (000s)		
Commodity Group	**TPIRR**	**CSXT System**	**% of CSXT**
Intermodal (IM)	2,277	2,289	99%
Coal	936	1533	61%
General Freight	2,471	2,654	93%
Total	**5,684**	**6,476**	**88%**

Third, CSXT input to the MultiRail program an initial list of "blocks" to be created at classification yards and moved along the network by the TPIRR. Because TPI's selected traffic

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MultiRail analysis and blocked for transportation in the TPIRR's general freight road trains. While the TPIRR's intermodal trains were input to MultiRail, intermodal traffic was analyzed separately to determine train schedules and terminal handling for those trains.

[92] The commodity group-specific growth factors applied by witness Dharma Acharya are set forth in CSXT Reply workpaper "Adjusting_OperatingPlan_Dataset_Peak_Factors.xlsx." The TPIRR's Peak Year traffic volumes are discussed in detail in Section III-A above.

[93] *See* CSXT Reply WP "TPIRR Selected CSXT Traffic.xlsx."

group included more than 90% of the carload traffic that CSXT actually handled in the territory replicated by the TPIRR during the Base Year, CSXT started with the list of the blocks that CSXT maintained in its real world operations as of June 2012. Thus, CSXT's MultiRail blocking analysis is based upon the same blocking plan that TPI purports to "incorporate" into its operating plan. TPI Opening III-C 12-13. The list of blocks input to MultiRail included both "internal" blocks designed to move cars between points along the TPIRR network, and "external" blocks of cars to be interchanged with connecting rail carriers. Accordingly, the TPIRR blocking plan presented in MultiRail accounts for both traffic blocks that would be built by other railroads (including the residual CSXT) off-SARR and received by the TPIRR, and blocks that the TPIRR would reciprocally be required to build for delivery to CSXT and other connecting carriers. This ensured that the TPIRR's interline traffic would move in a manner consistent with CSXT's intercarrier agreements (which the TPIRR purports to adopt).

Fourth, after the initial TPIRR blocking plan was input to MultiRail, the TPIRR's carload traffic was "flowed" through the MultiRail program, which assigned each car to one or more blocks as necessary to move it from its specific origin over the TPIRR network to its specific destination. In each case, MultiRail selected the most efficient routing, based upon the blocking scheme actually used by CSXT as of June 2012. In performing this blocking analysis, witness Acharya applied the same MultiRail parameters as those used by CSXT in developing its real world operating plans.[94] This process generated, for each car, a "blocking sequence" that defined its movement across both the TPIRR and residual CSXT systems.[95]

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[94] In developing a blocking plan, MultiRail enables the user to select various parameters (including "blocking penalties" and "weight factors") that encourage the movement of cars through more efficient hump yards, and avoids assigning to smaller flat switching yards a daily classification volume that exceeds their practical switching capacity. In this way, MultiRail "optimizes" the blocking and classification of general freight traffic as it flows across the system,

Cars that failed to flow completely were flagged in a "Traffic Routing – Flows with No Block Option Report" generated by MultiRail. Witness Acharya 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 until more than 99% of the cars in the TPIRR's traffic group flowed successfully through the program and were assigned a complete blocking sequence.[96]

When the TPIRR cars flowed successfully through the MultiRail program, CSXT performed a "quality control" check to enhance the efficiency of the TPIRR's blocking plan. MultiRail generates "Traffic Circuity" and "Excessive Handling" reports that identify unnecessarily circuitous routings and excessive car handlings. CSXT used those reports to ensure that there were no data errors or issues in the operating plan. The foregoing steps produced a comprehensive "blocking plan" that provides for the movement of TPIRR's carload traffic across the TPIRR network in an efficient manner, and enables the TPIRR to track those movements. CSXT Reply workpaper "sarr19f_forecast_blocksummary_sys_reg_7-7-14.xls" contains a list of the TPIRR general freight traffic blocks generated by CSXT's MultiRail

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thereby improving network efficiency. A description of the MultiRail parameters applied by witness Acharya is set forth in CSXT Reply Ex. III-C-8.

[95] *See* CSXT Reply WP "SARR19F_EstimatedTrainVolumes.xlsx"

[96] A minuscule number of cars were not assigned a complete blocking sequence by MultiRail. These consisted primarily of "fractional" cars (representing extremely low volume, infrequent shipments) or cars for which the origin and/or destination in the CSXT traffic data are incorrect. In the aggregate, this affected only 65 cars out of more than 11,000 daily carloads, or 0.6% of the cars input to MultiRail. The occurrence of a small number of such unblocked shipments is not unusual in the MultiRail studies conducted by CSXT in its day-to-day operations, and does not affect the overall reliability of the resulting blocking plan. In the real world, CSXT would not create a "block" in its car classification plan for sporadic single-car shipments. Rather, such cars would be handled by CSXT on a shipment-by-shipment basis according to the routing specified on the shipment record.

analysis. Unlike TPI's evidence—which blithely asserts that its operating plan "incorporates" CSXT's real world blocking plan—CSXT's Reply Evidence documents a car classification and blocking plan that would be required to enable the TPIRR to provide full service from each specific origin, through the network, to each specific destination.[97]

Fifth, once a detailed blocking plan for TPIRR carload traffic was created, witnesses Acharya and Rodney Smith developed a train service plan capable of transporting those traffic blocks across the TPIRR network. CSXT utilized MultiRail in designing the TPIRR's train service plan. Because TPIRR's selected traffic includes the vast majority of the carload traffic that CSXT handled in TPIRR's service territory during the Base Year, CSXT input an initial list of TPIRR trains based on the train profiles for the general freight, automotive, and intermodal road, local, and yard trains included in CSXT's real world operating plan as of June 2012.[98] Accordingly, the train profiles input in CSXT's MultiRail analysis reflect the same trains that appeared in CSXT's Base Year train event data, from which TPI selected its train list. However, CSXT adjusted the maximum length of CSXT's historical trains to match the maximum train lengths specified by TPI in its Opening Evidence (which CSXT adopted for purposes of its MultiRail analysis). CSXT also input to MultiRail the same block-to-train assignment parameters that CSXT used to develop its real world operating plan as of June 2012.

Given the greater volume of traffic that TPI posits would move in the Peak Year, the blocks developed for the TPIRR contained more cars than those handled by CSXT in 2012. Witness Acharya adjusted certain block-to-train assignments to avoid trains of excessive length, where other trains were available to handle high-volume blocks. This adjustment reflected the

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[97] *DuPont*, STB Docket No. 42125, at 38.

[98] CSXT produced those train profiles to TPI during discovery.

real world practice of allocating high-volume blocks among multiple trains operating over the same route in order to balance train sizes. In an iterative process similar to that used in developing the TPIRR's blocking plan, trains were added or adjusted as necessary to provide complete on-SARR train service for all TPIRR traffic. Witness Acharya reviewed a "Block Train Validity Check Report" generated by MultiRail to confirm that blocks were not "stranded" (*i.e.*, not assigned to the trains required to transport them) during the block-to-train process.[99] Based on the block-to-train assignments, witness Acharya 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.

Starting with the local train service plan that CSXT employed as of June 2012, witness Rodney Smith adjusted the TPIRR's local trains as necessary based upon the daily volume of merchandise cars that would flow through each yard location, the number of distinct customer facilities to be served by each local train assignment, the distance (and direction of travel) of TPIRR's customer facilities from the subject TPIRR serving yard, and the required level of service (*i.e.*, does the customer receive local service, three, five or seven days per week). Witness Smith also added those local trains that TPI erroneously failed to include in its Opening operating plan.

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[99] Blocks which contained less than one whole "car" were not given complete train assignments by MultiRail. Those blocks represent either very low volume, infrequent shipments, or cars for which the origin and/or destination information in the CSXT traffic data were incorrect. In the aggregate, this affected only 144 cars out of more than 11,000 daily carloads, or 1.3 % of the cars analyzed by MultiRail. The occurrence of unassigned blocks containing fractional cars is not unusual in MultiRail studies conducted by CSXT in its day-to-day operations, and does not affect the overall reliability of the resulting train service plan. In the real world, such infrequent shipments are switched from train to train by CSXT in accordance with their specified routing (and cars misrouted due to inaccurate waybill information would be rerouted to their proper destination upon discovering the data error).

CSXT Reply Workpaper "SARR19F_EstimatedTrainVolumes.xlsx" contains a complete list of the road and local trains that the TPIRR would be required to operate in order to "provide for full service from each specific origin, through the network, and to each specific destination for the selected traffic group," as required by the Board's *DuPont* decision.[100]

Sixth, once all of the required trains were input to MultiRail, and blocks were assigned to the trains required to move them, CSXT conducted a simulation of the TPIRR's Peak Year train operations utilizing MultiRail's "SuperSim" (or trip planning) function. The "SuperSim" analysis simulated the movement of TPIRR trains along the network, and the transfer of blocks of cars between trains (and of individual cars between blocks) during a typical seven-day period during the Peak Year. The simulation confirmed that CSXT's changes to TPI's operating plan account for the complete movement of the TPIRR's selected traffic. It also generated "Terminal Clock Reports" that identified when TPIRR trains (and the blocks of cars traveling in them) arrived at, and departed from, intermediate terminals along the network.

The "SuperSim" element of CSXT's MultiRail analysis generated a "trip plan" for each individual TPIRR carload shipment. That "trip plan" includes, for each car, (1) scheduled train services that provide line haul transportation (on one or more trains) along the TPIRR network; (2) a blocking sequence that identifies each of the intermediate yards at which the car must be classified; (3) the locations at which the car must be transferred between trains; and (4) a local

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[100] *DuPont*, STB Docket No. 42125, at 38. CSXT Reply Workpaper "BaseYearTrainComparison.xlsx" compares the train list in CSXT's MultiRail analysis with the train list posited by TPI. As that workpaper shows, because CSXT's MultiRail analysis was based upon its actual car blocking and train service plans as of June 2012, the two lists of trains are substantially similar. The differences between TPI's train list and the TPIRR train list generated by MultiRail are attributable primarily to the fact that CSXT's MultiRail analysis incorporates the literally thousands of local trains that CSXT operated in 2012 (and the TPIRR would be required to operate), but which TPI failed to include in its operating plan . *See supra* III-C-15–37.

train service plan to deliver empty cars for loading at origin, pick up loaded cars for line-haul movement, and deliver loaded cars to destination customer facilities.

CSXT validated the feasibility of its train service plan by reviewing a "Train Volume Summary Report" generated by MultiRail to identify trains that were "too long" or "too short" in comparison to CSXT's real-world trains.[101] Where appropriate, trains and/or block-to-train assignments were adjusted to produce appropriately sized trains. Overall, the optimized train service plan developed by CSXT in MultiRail required 2,983 (or 2.5%) fewer manifest trains than the number posited by TPI based on its historical train selection methodology.

Figures III-C-6, III-C-7, and III-C-8, provide examples of the blocking sequences and train assignments developed by MultiRail for each TPIRR shipment.

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[101] CSXT's Operating Plan adopts the same assumption regarding maximum train length as TPI —*i.e.,* the maximum length of TPIRR trains is based upon the longest comparable trains operated by CSXT between Q3 2012 and Q2 2013. *See* TPI Opening III-C 15.

FIGURE III-C-6
Development of Blocking Sequences In MultiRail: CSXT to TPIRR Interline Movement
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For example, Figure III-C-6 depicts a MultiRail blocking plan for a car that is received by the TPIRR in interchange from CSXT. The shipment of {{ }} originates at {{ }} on CSXT and is shipped to {{ }} via interline movement over CSXT and the TPIRR. As Figure III-C-6 indicates, this movement is released ("Rlse") from the customer at {{ }}. The shipment is classified by CSXT at {{ }} into a {{ }} block.[102] At {{ }}, CSXT Train {{ }} picks up ("PU") the shipment on December 12, 2019 and transports it to {{ }} where it is set out ("SO") and

[102] The "T" preceding the location and block names indicates that this is a location on the TPIRR. For example, {{ }} indicates that {{ }} is a location on the SARR. Comparatively {{ }} indicates that {{ }} is a CSXT-served location.

interchanged to the TPIRR at TPIRR's {{ }} yard. The shipment is subsequently classified ("Class") by the TPIRR at {{ }} yard into a block destined for {{ }}. That block departs {{ }} on TPIRR Train Q514, and is transported to {{ }}, where the forest products shipment is reclassified into a block destined for {{ }}. That block of traffic departs {{ }} on the Q358 train on December 14, 2019 and is transported to {{ }}, where the shipment is classified yet again into a local block destined for {{ }}. That block departs {{ }} yard on TPIRR local train D721 and moves to {{ }} where it arrives ("Avail") at the customer's facility.

FIGURE III-C-7
Development of Blocking Sequences In MultiRail: TPIRR to CSXT Interline Movement
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Figure III-C-7, above, illustrates a MultiRail blocking plan for an interline shipment that originates on the TPIRR and is forwarded to CSXT at {{ }}. This merchandise shipment of metals originates at a customer in {{ }} and is originally classified into a block destined for TPIRR's {{ }} yard. The shipment is transported on TPIRR Train {{ }} on December 13, 2009 to {{ }} where it is classified into a {{ }} block and is moved on Train {{ }} train to {{ }}. The shipment travels on three more TPIRR trains—the {{ }} train between {{ }} and

{{ }}; the {{ }} train between {{ }} and {{ }}; and the {{ }} train between {{ }}. At {{ }} the TPIRR classifies the car into a block for {{ }}. The shipment is subsequently interchanged to CSXT at {{ }} having already been "pre-blocked" by the TPIRR for its ultimate destination in {{ }}. CSXT transports the shipment on Train {{ }} between {{ }}, where it is delivered to the customer.

FIGURE III-C-8
Development of Blocking Sequences In MultiRail: TPIRR Local Movement
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Figure III-C-8 illustrates a MultiRail blocking sequence for a "local" TPIRR shipment. This chemicals shipment originates on the TPIRR at {{ }} and is moved over the TPIRR to {{ }}. The shipment is released from the customer at {{ }} and is classified at that point into a {{ }} block. On December 12, 2019, TPIRR Train

{{ }} train picks up the shipment and transports it to {{ }}, where it is classified into a new block destined for {{ }}. The {{ }} block departs on Train {{ }} on December 13, 2019 and travels to {{ }} where the subject car is classified into a new block for {{ }}. TPIRR Train {{ }} train picks up the shipment on December 15 and delivers it to {{ }}. At {{ }}, the car is classified for movement in Train {{ }} for delivery to its ultimate destination.

As the preceding examples illustrate, CSXT's Reply MultiRail analysis identified a blocking sequence (and associated train assignments) for each carload shipment in the TPIRR's traffic group.

Unlike TPI's Opening Evidence, CSXT's MultiRail-developed Reply Evidence provides detailed documentation of the TPIRR's ability to "provide for full service from each specific origin, through the network, and to each specific destination for the selected traffic group," as required by the Board's recent *DuPont* decision.[103] The MultiRail analysis also reflects the adjustments to CSXT's historical car classification and blocking plan that would be necessary to accommodate the TPIRR's higher Peak Year volumes, as required by the Board's *SunBelt* decision. *See SunBelt*, STB Docket No. 42130, at 16.

CSXT performed two separate analyses of the TPIRR's carload traffic using the MultiRail process described above. One analysis, based on the TPIRR's projected Peak Year traffic volumes, was used to identify the changes to TPI's Opening operating plan and infrastructure configuration that would be required to make that plan and configuration feasible. Witness Dirnberger utilized information generated by MultiRail regarding the number and size

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[103] *DuPont*, STB Docket No. 42125, at 38. The detailed block and train assignments developed by MultiRail for the TPIRR's Peak Year traffic are set forth in CSXT Reply workpaper "SARR19F_EstimateTrainVolumesxls"

of blocks that the TPIRR would build at each yard during the Peak Year in determining the classification track capacity required at each location.[104] A second analysis, based on Base Year traffic levels, was utilized by witness Benton Fisher in calculating various TPIRR operating expenses.

5. TPI's Yard Service Plan Is Infeasible.

A critical element of a "feasible" operating plan—particularly for a railroad like the TPIRR that proposes to handle nearly three million carloads of general freight traffic (and associated empty car movements) annually—is a network of yards, and a yard service plan, that are adequate to support the carrier's road and local train operations. The activities performed daily at a carload railroad's yards include "classifying" cars delivered by road trains for further movement along the network in other road trains (and organizing those cars into blocks to facilitate their movement); "swapping" blocks of cars between arriving and departing road trains; switching cars delivered by road trains into local trains for delivery to customer facilities; classifying cars picked up by local trains at customer facilities into blocks for movement in outbound road trains; making running repairs to loaded and empty freight cars so they can be placed back into service; performing a variety of tasks (such as fueling and conducting Federal Railroad Administration ("FRA") mandated inspections) required to service inbound and outbound locomotives; and serving as a "home" terminal or crew change location for road and local train crews. TPI's Opening Evidence fails to satisfy its evidentiary burden to demonstrate

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[104] As discussed at III-C-76–88, the car blocking outputs generated by MultiRail make clear that the classification tracks proposed by TPI at virtually every hump yard and regional flat switching yard are inadequate to handle the blocks required to accommodate TPIRR's peak traffic volumes.

that the TPIRR's yard facilities and personnel are adequate to enable it to perform these essential functions.

The size and configuration of the yards posited by TPI are insufficient to support the TPIRR's Peak Year carload operations. The classification tracks posited by TPI are based upon a meaningless metric ("CSXT Cars per Classification Track") that fails to take into account either the inventory of cars present during the busiest period of a typical day, or the number and size of the blocks into which those cars would be classified. TPI's reliance on its "cars per classification track" construct consistently produced classification tracks that are too short to accommodate the block sizes contemplated by CSXT's real world blocking plan—much less the larger blocks that would be generated by TPI's increased Peak year volumes—even at the busiest hump yards.[105] The yard receiving and departure tracks posited by TPI are supported only by an RTC Model simulation that failed to account for the time that trains would occupy those tracks. Specifically, TPI's RTC Model incorporated a generic assumption that road trains stopping en route to pick up and/or set off cars at TPIRR yards could accomplish that work in only 30 minutes. However, the train event data produced by CSXT—upon which TPI purported to base its operating plan—included train-by-train arrival and departure information showing that CSXT's real world trains making intermediate stops to change consist experienced actual dwell times averaging 2.6 hours at flat switching yards and 3.9 hours at hump yards.[106] Likewise, the "generic" dwell time assumptions in TPI's RTC Model for trains originating or terminating at TPIRR hump yards failed to account for the substantial amount of time required to "build"

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[105] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx."

[106] *See* CSXT Reply Exhibit III-C-7. CSXT's Reply RTC Model conservatively assigns a dwell time of 2.0 hours to TPIRR through trains making intermediate stops to pick up or set off blocks of cars at flat switching yards where CSXT trains experience dwell time greater than two hours. *See infra* III-C-123.

outbound trains on departure tracks and to switch cars on inbound trains from receiving tracks to the hump for classification. These fundamental methodological errors in TPI's analysis resulted in a collection of yards that are simply incapable of supporting the classification activities that the TPIRR would have to perform on a daily basis. Figure III-C-9 compares the actual track miles in CSXT's real world hump yards with the highly truncated versions of those yards posited by TPI for the TPIRR.

FIGURE III-C-9
Comparison of Total Track Miles At CSXT and TPIRR Hump and Regional Flat Yards

Hump Yards					Regional Flat Yards				
City	State	Yard Name	TPI Total Processing Yard Length	CSX Actual Processing Track Length w/o turnouts	City	State	Yard Name	TPI Total Processing Yard Length	CSX Actual Processing Track Length w/o turnouts
Willard	OH	Willard	48.28	64.37	Chicago	IL	Barr	29.68	37.82
Selkirk	NY	Selklrk	46.19	90.43	Cleveland	OH	Collinwood	12.02	19.05
Indianapolis	IN	Avon	43.82	46.25	Syracuse	NY	DeWitt	12.73	19.00
Nashville	TN	Radnor	66.39	57.18	Evansville	IN	Howell	13.37	23.75
Atlanta	GA	Tilford	34.18	35.76	Richmond	VA	Acca	19.52	23.77
Cumberland	MD	Cumberland	30.41	33.96	Rocky Mount	NC	Rocky Mount	17.58	29.36
Cincinnati	OH	Queensgate	48.80	38.08	Montgomery	AL	S & N	18.67	21.52
Louisville	KY	Osborn	38.99	58.57	Mobile	AL	Siebert	12.27	16.05
Birmingham	AL	Boyles	26.35	34.18	New Orleans	LA	Gentilly	14.28	26.54
Hamlet	NC	Hamlet	35.14	47.43	Jacksonville	FL	Moncrief	23.74	32.76
Waycross	GA	Rice	44.62	71.55	Tampa	FL	Yoeman	13.88	18.78
Total			**463.17**	**577.77**				**187.74**	**268.40**

a. TPI's Estimate Of The TPIRR's Classification Track Requirements Is Based Upon Methodologies That Are Fatally Flawed.

Nowhere in its Opening Evidence does TPI explain the methodology that it employed to determine the classification track capacity required to accommodate Peak Year switching and car blocking at TPIRR's hump yards and flat switching yards. While TPI declares that its operating plan "incorporates the same blocking plans that CSXT currently uses in its operations" (TPI Opening III-C-12) and "adopts CSXT's car classifications for cars included on the TPIRR system" (*id.* III-C-13), TPI does not proffer any evidence demonstrating that the yard capacity

that it posits—which is 30.8% less than CSXT's real world yard capacity—is adequate to support the TPIRR's operations. Indeed, the only "evidence" proffered by TPI to support its estimate of the TPIRR's classification track requirements is a workpaper titled "YardOperationsV3_Jan1614 classification tracks.xlsx" (referred to hereinafter as the "TPI Classification Track Summary"). That workpaper contains a series of spreadsheet calculations and TPI's conclusions (based upon those calculations) regarding the length and configuration of the classification tracks that the TPIRR would need at each yard location.[107]

CSXT's analysis of the TPI Classification Track Summary revealed that TPI apparently determined the length of the classification tracks required at TPIRR's yards in the following manner:

Using information produced by CSXT in discovery, TPI first ascertained the number of classification tracks at each of CSXT's real world yards, and the number of cars classified daily at each of those facilities during the time period replicated by the Base Year.[108] Then, for each yard, TPI divided the average number of cars classified per day by the number of available classification tracks to develop a data point that TPI calls "CSX Cars per Classification Track," which is shown in Column 11 of the TPI Classification Track Summary. For example, Column 6 of the TPI Classification Track Summary indicates that CSXT's hump yard at Willard, Ohio has 41 classification tracks, and Column 10 shows that CSXT switched an average of 1,192 cars per

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[107] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx". TPI also filed with its evidence another workpaper "TPIRR Yard Operations.xlsx" which contains substantially the same data, with slight modifications and additional footnotes providing limited information regarding TPI's apparent methodology. It is unclear which workpaper TPI intended to be the final version.

[108] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Column 6 ("CSX Classification Tracks"), Column 10 ("CSX Avg. daily handled/switched").

day at Willard during the Base Year.[109] TPI divided the average daily classification volume (1,192 cars) by the number of classification tracks (41) to calculate a "CSX Cars per Classification Track" of 29.07 cars per day at Willard.[110] Likewise, for CSXT's flat switching yard at Mobile, AL, TPI divided the average classification volume shown in Column 10 (352 cars per day) by the number of classification tracks at that facility shown in Column 6 (27) to calculate a "CSX Cars per Classification Track" of 13.04 cars at Mobile.[111]

The "CSX Cars per Classification Track" metric developed by TPI became the cornerstone of TPI's classification track length calculations.[112] Specifically, for each yard, TPI multiplied the "CSX Cars per Classification Track" by an assumed average car length of 60 feet to determine the length of the classification tracks that TPI posited for each yard.[113] For

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[109] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2, Column 6 (41 classification tracks), Column 10 (average of 1,192 cars per day).

[110] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2, Column 10 (average of 1,192 cars per day) divided by Column 6 (41 classification tracks) = Column 11(29.07 Cars per Classification Track).

[111] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 30, Column 10 (average of 352 cars per day) divided by Column 6 (27 classification tracks) = Column 11(13.04 Cars per Classification Track).

[112] The "CSX Cars per Classification Track" metric developed by TPI is essentially meaningless for purposes of determining required classification track capacity. Cars are not evenly distributed across all of the tracks in a classification bowl during the classification process. Rather, the number of cars switched onto a particular track is determined by the size of the "block" being assembled on that track on that day. Moreover, as CSXT witness Dirnberger explains, the key factors in determining classification track capacity are the number and size of the blocks (rather than cars) to be built at a particular yard. In addition, some tracks in the classification area are used for purposes other than block building, such as temporary placement of cars that are identified as bad ordered during the classification process (until those cars can be transferred to the repair in place ("RIP") tracks in the yard). Those factors must be evaluated to determine the optimal configuration for a particular yard.

[113] TPI's use of an assumed average car length of 60 feet results in an overstatement of the actual capacity of the TPIRR's classification tracks. While 60 feet is fairly representative of the length of most car types used in general freight service, TPI's calculations make no provision whatsoever for the spaces between cars occupied by the couplers that connect them. Depending

example, at the Willard hump yard, TPI multiplied the "CSX Cars per Classification Track" (29.07 cars rounded down to 29) by 60 feet per car to arrive at a required average classification track length of 1,740 feet.[114] Similarly, TPI rounded the "CSX Cars per Classification Track" calculated for Mobile, AL (13.04) down to 13, then multiplied it by 60 feet to support its contention that classification tracks of 780 feet in length would be adequate to accommodate the TPIRR's switching operations at Mobile.[115] The same calculation was made for each of the TPIRR's hump yards and flat switching yards.

While TPI's workpapers suggest that the number of classification tracks assigned to each TPIRR yard was based on the opinion of witness McDonald, it appears that the number of classification tracks at TPIRR hump yards was, in fact, determined in a similar manner.[116] Specifically, it appears that, for each hump yard, TPI divided the average number of cars per day that the TPIRR would classify during the Peak Year (shown in Column 18 of the TPI Classification Track Summary, "Peak Year Daily Total Cars Classified") by the "CSX Cars per

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on car type, couplers create a gap of several feet between cars. Moreover, the classification process does not result in cuts of cars that are tightly shoved together during the "humping" operation. In order to prevent cars moving over the hump from colliding at excessive speed with cars previously switched onto the same track, car retarders limit car speed on the downward slope of the hump track to approximately 4 MPH. This safety measure frequently can cause individual cars to come to a stop at a point short of the prior car to which it will be coupled. *See* CSXT Reply Ex. III-C-1 (video) at 5:48 (depicting gaps between cars humped at CSXT's Atlanta yard). The yard hump crew "trims" each track by shoving the cars together as needed. CSXT's classification track analysis uses a more realistic estimate of 61.5 feet per car (based on CSXT's real world experience).

[114] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2 (unnumbered columns to the right of Column 24) ("average # cars per track rounded" of 29 x "Length at 60' per car" = 1740 feet).

[115] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 30 (unnumbered columns to the right of Column 24) ("average # cars per track rounded" of 13 x "Length at 60' per car" = 780 feet).

[116] *See* TPI Op. WP "TPIRR Yard Operations.xlsx," footnote 9 ("TPI Class Tracks based on expert witness Dick McDonald").

Classification Track" figure for that yard (shown in Column 11) to determine the number of tracks (shown in Column 20) that the TPIRR would need to accommodate its peak year traffic volumes.[117]

For example, at Willard, OH, TPI divided the projected peak year average classification volume (1,345.7 cars per day) by the "CSX Cars per Classification Track" (29.07) to calculate that the TPIRR would require 46 classification tracks at Willard.[118] Similarly, for the TPIRR hump yard at Selkirk, NY, TPI divided the average daily peak year classification volume (1,961.4) by the "CSX Cars per Classification Track" (25.07) to determine that the TPIRR would require 78 classification tracks at Selkirk.[119] Dividing the average peak year classification volume of 1,494.7 cars per day at Nashville by the "CSX Cars per Classification Track" (20.58) resulted in a calculation that TPIRR would require 72 classification tracks at Willard.[120]

TPI's approach to determining the TPIRR's classification track capacity is fatally flawed, and should be rejected, for several reasons:[121]

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[117] While having "more" classification tracks might appear to provide more flexibility at a yard, an efficient yard design will account for the number of blocks required at that facility, the size of the blocks and the flow of traffic arriving and departing trains (terminal clock). The yard must be able to handle peak traffic volumes. Increasing the number of bowl tracks but making all of the tracks shorter than expected blocks will bog down the yard, require additional crews and locomotives and ultimately create congestion on the main line.

[118] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2, Column 18 ("Peak Year Daily Total Cars Classified") of 1,345.7 per day ÷ Column 11 ("CSX Cars per Classification Track") of 29.07 = 46.29, rounded down to 46 classification tracks at Willard.

[119] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 3, Column 18 ("Peak Year Daily Total Cars Classified") of 1,961.4 per day ÷ Column 11 ("CSX Cars per Classification Track") of 25.07 = 78.24, rounded down to 78 classification tracks at Selkirk.

[120] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 5, Column 18 ("Peak Year Daily Total Cars Classified") of 1,494.7 per day ÷ Column 11 ("CSX Cars per Classification Track") of 20.58 = 72.63, rounded down to 72 classification tracks at Nashville.

[121] As an initial matter, by rounding all of its calculations down, TPI systematically understates the number and length of the classification tracks indicated by its own (flawed) methodology.

First, TPI's reliance upon the average number of cars classified (by CSXT in the Base Year and TPIRR in the Peak Year) to determine both the number and length of the classification tracks that would be required at each yard is conceptually wrong. The required track capacity of a classification yard cannot be accurately gauged on the basis of "average" car volumes. By definition, the "average" daily car volume will be exceeded on many days during the year. A yard sized to handle only the "average" number of cars will not have sufficient capacity to accommodate above-average car volumes. A proper analysis of yard capacity must take into account not only the number of cars handled each day, but also the time at which those cars are present. A more relevant consideration in sizing a yard is the "inventory" of cars—*i.e.*, the number of cars that the yard will be required to hold—during the busiest period on a typical day. Failing to account for the inventory of cars present in a yard at the "peak" time of day virtually ensures that a railroad will experience congestion at that yard every day (resulting in cars and trains backing up on the main line).[122]

Moreover, in determining the required classification track capacity, one must consider not only the number of cars to be classified, but also the number of blocks that need to be built on a typical day and the various size(s) of those blocks. For example, a yard at which 1,000 cars are classified daily into 50 blocks of 20 cars requires more classification tracks than a yard that classifies 1,000 daily cars into 25 blocks of 40 cars. At the same time, the yard at which 40-car blocks are built would need longer classification tracks than the yard creating 20-car blocks. As discussed below (at III-C-89), CSXT's Reply Evidence correctly bases the TPIRR's yard

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[122] *See SunBelt*, STB Docket No. 42130, at 15 (failing to provide adequate yard capacity would "forc[e] trains to be held outside of the yard and creat[e] a cascading effect of delays for all following trains").

classification configuration on a location-specific evaluation of the peak car inventories, number of scheduled blocks and the size of the blocks at each yard.

Second, TPI's methodology fails to apply any "fluidity factor" in determining the required classification track capacity. TPI simply multiplied the "CSX Cars per Classification Track" by an assumed average car length of 60 feet to determine the length of the classification tracks required at each yard. For example, as discussed above, TPI posited that the TPIRR would classify an average of 1,346 cars per day at Willard, OH.[123] By dividing that daily volume by the "CSX Cars per Classification Track" at Willard (29.07), TPI concluded that the TPIRR would need 46 classification tracks in its Willard yard. TPI then determined the length of those 46 classification tracks by multiplying the same 29 cars per track metric (that TPI invented for purposes of this case) by an assumed average car length of 60 feet, to support its proposed average classification track length of 1,740 feet at Willard (29 cars per track x 60 feet per car = 1,740 feet per track).[124] TPI's calculations result in a Willard yard that has a total of 80,040 track feet available classification track space.[125] However, even accepting TPI's (understated) 60-foot-per-car standard, the 1,346 cars that the TPIRR would classify daily at Willard during the peak year would, if parked end-to-end, occupy a total of 80,760 track feet—720 feet more

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[123] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2, Column 18.

[124] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 2 (unnumbered columns to the right of Column 24) ("average # cars per track rounded" of 29 x "Length at 60' per car" = 1740 feet).

[125] The figure of 93,840 total track feet for Willard shown on the TPI Classification Track Summary includes two 150-foot turnouts for each classification track. Those turnouts, while necessary to provide access to the classification tracks, do not add to their usable car holding capacity. Subtracting the turnout track footage from the 93,840 feet posited by TPI produces a total track capacity usable for holding blocks of cars of 80,040 track feet (300 feet of turnout track x 46 classification tracks = 13,800 feet of turnout track; 93,840 total track feet—13,800 feet of turnout track = 80,040 feet of classification track capacity).

than the entire capacity posited by TPI. TPI's track capacity methodology leaves no track whatsoever to enable TPIRR yard crews and locomotives to operate within the classification bowl or to move cars around as required during the blocking process. In essence, TPI proposes to construct a group of "parking lots," rather than functioning rail classification yards.

Designing a rail yard that is capable of supporting train operations efficiently requires analysis of both "static" track capacity and "practical" track capacity.

> There are two aspects to the capacity of a terminal or yard: static and dynamic capacity. . . . Static capacity is a simple measurement of the length of railroad cars against the trackage available for them.[126] . . . The practical static capacity of a yard is considered to be between 60 and 80 percent of the theoretical static capacity. A yard must always have some open tracks available to receive, process, and dispatch cars.[127]

"Static" track capacity refers to the number of track feet required just hold a given inventory of rail cars—*i.e.*, literally to "park" those cars end-to-end. For example, TPI's proposed classification yard at Willard contains barely enough track feet to "park" 1,346 sixty-foot rail cars end-to-end. The "static" capacity of a yard does not take into account the additional footage required to move cars around during the classification process. Various studies have determined that the occupancy of yard tracks should not exceed 60% of the total track available. In order to determine the "practical" track capacity of a yard—*i.e.*, the number of track feet required to enable the carrier to process (*i.e.*, receive, classify and prepare for departure) a given

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[126] "The static capacity may be broken into categories if portions of the yard trackage are designed for or assigned to a specific purpose. For example, if certain tracks are assigned to storage, classification, arriving trains, departing trains, repair, or trains that are stopping to set out or pick up, each has a separate capacity." *See* CSXT Reply WP "Statewide Rail Capacity and System Needs Study.pdf" at A-4.

[127] *See id.* at A-4. In order to achieve track utilization at the recommended 60 percent of static capacity, the "static" capacity must be multiplied by 1.67 (1.00/0.60 = 1.67).

inventory of cars efficiently—the "static" capacity must be increased by a "fluidity factor" that allows for the movement of cars (and switch engines) within the yard. The need for a fluidity factor to maintain fluid operations within a rail facility is a commonly accepted principle of rail yard capacity design.

A fluidity factor of 1.67 (added to a yard's "static" track capacity) has been endorsed by a number of independent analyses. For example, the State of Washington Rail Capacity Study made the following observation regarding capacity requirements within a rail yard:

> Tacoma Rail uses a rail industry rule of thumb for infrastructure utilization which states that available track should not be utilized in excess of 60 percent by railcars. Utilization in the range of 50 to 60 percent indicates mild congestion. At that level, there are some restrictions on operations. Ratios in excess of 60 percent indicate significant congestion and reduced responsiveness. At a time of significant utilization, railcars have to be moved and shuffled excessively to make room for other cars while attempting to keep cars in logical sequences. Utilization in excess of 80 percent indicates a yard is in gridlock and all activities are severely delayed.[128]

A similar fluidity factor has also been endorsed by the Federal government. For example, the "Railroad Classification Yard Technology Manual" published by the Federal Railroad Administration ("FRA") in 1981 advised that, in designing a rail classification yard, "[a] utilization of 60% to 70% [of static capacity] is considered to be close to the limit in most cases."[129] Likewise, a 2003 Department of the Army study titled "Army Rail Operations" discussed a variety of planning factors for rail classification yards, and recommended that "[d]aily yard capacity is equal to 1.6 times SYC [Static Yard Capacity]. This Figure takes into

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[128] *See id.* at A-27 (emphasis added).

[129] *See* CSXT Reply WP "Wong, Railroad Classification Yard Tech Manual. pdf" at 54.

account that the number of cars in a yard at any given time will not exceed 60 percent of the static capacity."[130]

TPI's failure to provide any track beyond the bare minimum "static" capacity that it calculated for each yard—which was itself understated because of TPI's methodological errors in basing that calculation on "average" rather than "peak" inventory, and using an assumed 60-foot car length that ignored coupler distance and the realities of the humping process—to support fluid car classification switching at the TPIRR's yards renders its yard service plan infeasible.

Third, in order for a yard to be capable of supporting "real world" train operations, both the number and the length of the classification tracks in the yard must be tailored to accommodate the specific blocks contemplated by the railroad's train service plan. The classification tracks at CSXT's twelve real-world hump yards average 2,453 feet in length, with most tracks between 2,000 feet and 3,500 feet. CSXT's experience indicates that classification tracks of that length range provide optimal flexibility for most carload classification purposes. At the same time, CSXT has longer classification tracks at yards where they are needed to support the particular train operations conducted through those facilities. For example, the CSXT yards replicated by TPI include classification tracks as long as 4,646 feet (at Selkirk), 5,540 feet (at Willard) and even 6,000 feet (at Cumberland).[131] By contrast, the classification tracks posited by TPI for the TPIRR's eleven hump yards average only 1,489 feet in length—40% shorter than those used in CSXT's real world operations.

TPI's Opening Evidence does not mention—much less account for—important differences in the types of traffic blocked and classified at particular yards. For example, in

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[130] *See* CSXT Reply WP "Army Rail Operations.pdf" at 10-10.

[131] *See* CSXT Reply WP "CSXT Hump Yard Classification Track Length.xlsx."

sizing the TPIRR's Louisville yard, TPI simply multiplied the "CSX Cars per Classification Track" (19) by 60 feet per car to support its claim that classification tracks with an average length of 1,140 feet would be adequate. Based on the assumption that each 1,140-foot classification track would be capable of holding 19 rail cars, TPI then calculated that 70 tracks would be sufficient to hold TPIRR's projected average classification volume of 1,334 cars per day at Louisville.[132]

What TPI's formulaic approach failed to consider is the reality that Louisville is CSXT's (and would be TPIRR's) primary automotive traffic sorting facility. The average length of an auto rack car is 89 feet, not 60 feet.[133] Accordingly, TPI designed a Louisville yard at which the average 1,140-foot classification track would be capable of holding only 13 auto rack cars. By contrast, the classification tracks at CSXT's real world Louisville yard average 2,229 feet—nearly double the length posited by TPI—with tracks as long as 3,144 feet that are capable of holding blocks of up to 35 auto rack cars.[134] CSXT's MultiRail analysis indicates that, during the Peak Year, TPIRR's Louisville Yard would be required to build automotive blocks of 67 cars for movement to Birmingham, AL, 44 cars to Walbridge, OH, 36 cars to Nashville, TN, and Jessup, MD, 34 cars to Jacksonville, FL, and 33 cars to both Twin Oaks, PA, and Dixiana, SC.[135] TPIRR would also be required to build merchandise blocks averaging 116 cars for movement to

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[132] *See* TPI Op. WP "YardOperationsV3_Jan1614 classification tracks.xlsx," Line 9 (unnumbered columns to the right of Column 24) (positing 70 classification tracks of 1,140 feet in length).

[133] Based on CSXT's traffic volumes, the overall average length of rail cars that move through Louisville yard is approximately 79 feet.

[134] *See infra* Figure III-C-11.

[135] *See* CSXT Reply WP "sarr19f_forecast_blocksummary_sys_reg_7-7-14.xls."

Cincinnati, OH, and 40 cars to Toledo, OH, on a daily basis at Louisville.[136] TPI's defective yard sizing methodology produced a yard at Louisville that is not designed to accommodate the required blocking operations at that facility, and is therefore infeasible.

TPI's specifications for other major TPI classification yards are likewise inadequate. For example:

- At Nashville, TN, TPI posits a hump yard with 72 classification tracks averaging 1,260 feet, capable (according to TPI's flawed calculations) of holding 21 sixty-foot cars. But CSXT's MultiRail analysis demonstrates that, in order to handle its Peak Year traffic efficiently, TPIRR would be required to build general freight blocks averaging 123 cars to Atlanta, GA, blocks of 92 and 69 cars to Chicago, 66 cars to Hamlet, NC, 64 cars to Waycross, GA, 58 cars to Cincinnati, OH, and 40 cars to Birmingham, AL.[137]

- At Atlanta, GA, TPI posits a hump yard with 48 classification tracks averaging 1,260 feet (fewer than 21 cars). CSXT's MultiRail analysis demonstrates that TPIRR's Peak Year classification operations at Atlanta would generate blocks averaging 113 cars moving to Nashville, 60 cars to Birmingham, AL, 84 cars to Hamlet, NC, and 64 cars per day to Greenwood, SC.[138]

- TPI posits a flat switching yard at Rocky Mount, NC, that would include 32 classification tracks averaging 1,200 feet (fewer than 20 cars). CSXT's MultiRail analysis shows that the TPIRR's Peak Year blocking operations at Rocky Mount would involve building blocks averaging 86

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[136] *Id.* In order to build very large blocks like the TPIRR Peak Year blocks to Cincinnati and Avon, a real world railroad would classify the cars onto two (or more) classification tracks and either transfer them individually to the departure track, or "double" the cuts into a single block prior to leaving the classification area (if sufficient track is available to make doubling possible). However, regularly relying upon multiple classification tracks to build a single block—as TPIRR would be required to do for most of its merchandise traffic if its classification tracks were configured in the manner posited by TPI—is inefficient, and would result in increased switching time and yard congestion.

[137] *See id.*

[138] *Id.*

> cars moving to Cumberland, MD, 69 cars to Hamlet, NC, 55 cars per day to Boykins, VA, and 42 cars per day to Lee Creek, NC.[139]

As these examples demonstrate, TPI's proposed classification track design simply will not enable the TPIRR to "incorporate[ ] the same blocking plans that CSXT currently uses" or to "adopt[ ] CSXT's car classifications," as TPI claims it would do. TPI Opening III-C-12-13 (emphasis added). Indeed, TPI's operating plan does not include sufficient classification track capacity even to park the average number of cars in each TPIRR yard end-to-end (much less the additional track length required to permit fluid yard operations). TPI has failed to satisfy the Board's requirement that it support its across-the-board downsizing of CSXT's real world classification facilities with credible evidence proving that the TPIRR "could still adequately serve the traffic group."[140]

TPI's Opening Evidence fails to establish that the TPIRR could serve a Peak Year traffic group that is 20% larger than CSXT's actual traffic volume with a fraction of CSXT's classification track capacity.[141] Therefore, TPI's classification and blocking plan for the TPIRR is not feasible.

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CSXT's Reply Evidence corrects the massive deficiency in car classification capacity at the TPIRR's humps yards and flat switching yards. The corrected yard sizes and configurations posited by CSXT account for both the inventory of cars that each yard would be required to hold during a typical week during the Peak Year and the number and size of the blocks that the TPIRR would be required to build on a daily basis at each location. Following is a description of

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[139] *Id.*

[140] *See SunBelt*, STB Docket No. 42130, at 16.

[141] *See id.*

the methodology that witness Dirnberger employed to determine the TPIRR's location-specific classification track capacity requirements.

i. Hump Yards

The classification track capacity required to support car blocking operations at a major "hump" yard is primarily a function of the number and size of the blocks that must be assembled in executing the railroad's car blocking plan, rather than simply the average number of cars moving through the yard on a given day (as TPI assumes). For example, two hump yards (Yard A and Yard B) may both classify an average of 1,000 merchandise cars per day. However, if the car blocking plan at Yard A requires that cars be sorted into 40 different blocks ranging in size from 15 cars to 40 cars (and averaging 25 cars) per block, while the daily blocking plan at Yard B calls for 20 blocks ranging in size from 25 cars to 60 cars (and averaging 50 cars) per block, the optimal size and configuration of Yards A and B will be quite different. Yard A will require twice as many classification tracks as Yard B in order to accommodate the need to build twice as many daily general freight blocks. At the same time, because the average block size at Yard B is twice as large as the average block size at Yard A, Yard B must be designed with longer classification tracks than Yard A, in order to allow as many larger blocks as practicable to be built on a single classification track.[142] As this examples demonstrates, the number and size of the blocks contemplated by a SARR's car classification and blocking plan, rather than the total number of cars classified, is the critical driver of classification track design. Moreover, the classification tracks within a hump yard must provide not only enough track space to "park" cars as they move over the hump (as TPI's methodology assumes), but also sufficient additional track

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[142] *See* CSXT Reply WP "Statewide Rail Capacity and System Needs Study.pdf" at 4 ("if a classification yard has five tracks, each with a capacity of 50 cars, the capacity is 50 cars for each of five destinations, not 250 cars").

footage to enable yard assignments to handle cars and blocks in a fluid manner, to build "oversized" blocks during periods when traffic levels surge (*e.g.*, following a major winter storm), and to hold bad ordered cars awaiting transfer to the car repair tracks.

Based upon these principles, witness Dirnberger redesigned the hump yard classification track configurations posited by TPI to enable the TPIRR to execute its daily car classification and blocking plan. The methodology employed by witness Dirnberger involved the following steps:

First, witness Dirnberger reviewed the "Block Summary Report" generated by CSXT's MultiRail analysis to identify the daily number of merchandise and automotive traffic blocks to be assembled at each TPIRR hump yard during the Peak Year.[143] For each "road train to road train" block (*i.e.*, blocks consisting of merchandise and automotive cars that arrived on inbound road trains and were classified for further movement along the network in outbound road trains), witness Dirnberger assigned one classification track for each block contemplated by the TPIRR's car blocking plan. Because the TPIRR's train service plan (which, according to TPI, was also based on CSXT's real world train plan) contemplates only one "outlet" (departing train) per day for each block, the classification tracks at TPIRR hump yards would not "turn over" to enable them to be used to build more than one yard train block per 24-hour period. Accordingly, the TPIRR would need a minimum of one classification track per block to handle the classification of each merchandise/automotive block. In determining the number of classification tracks required to hold "local" blocks (*i.e.*, blocks consisting of cars that arrived on inbound road trains and were classified for movement to customer facilities in a local train) in the TPIRR's car

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[143] CSXT Reply workpaper "sarr19f_forecast_blocksummary_sys_reg_7-7-14.xls" contains the Block Summary Report that witness Dirnberger used in performing this step in his yard capacity analysis.

blocking plan, witness Dirnberger divided the number of daily blocks shown in the Block Summary Report by two, to reflect the common practice of assigning two "local" blocks (which generally have fewer cars than "road train to road train" blocks) to a single classification track.

For example, in sizing the TPIRR's Atlanta hump yard, witness Dirnberger reviewed the Block Summary Report generated by MultiRail to determine that the TPIRR would be required to assemble 19 merchandise/automotive blocks, and 13 "local" blocks, at that location each day. Based on that information, witness Dirnberger assigned 26 classification tracks at Atlanta (19 merchandise + 13 local/2 = 6.5, rounded to 7 local tracks = 26 classification tracks).[144]

Second, witness Dirnberger determined the optimal length of the classification tracks required for both merchandise/automotive blocks and "local" blocks. Independent studies of classification yard design recommend that classification tracks be capable of holding 30-60 cars per track. For example, the FRA's *Railroad Classification Yard Technology Manual* observes that "the length of the classification track normally varies from 30 to 60 car lengths . . . Assuming a teardrop design, the outside tracks would be the shortest and the center tracks the longest."[145] Likewise, a 1985 paper published in the Transportation Research Record titled "Optimal Use of Classification Yards" recommended that "[t]he track length in the classification yard should be a minimum of 30-car capacity, with the longest track in the center (teardrop design)."[146] Based on those studies, and CSXT's real world experience in executing the 2012 car blocking plan upon which CSXT's MultiRail analysis was developed, witness Dirnberger specified an average track length of 45 cars for those classification tracks assigned to

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[144] CSXT Reply Exhibit III-C-9 provides a step-by-step depiction of witness Dirnberger's methodology for sizing the TPIRR's hump yards.

[145] *See* CSXT Reply WP "Wong, Railroad Classification Yard Tech Manual.pdf," at 94.

[146] *See* CSXT Reply WP "Wetzel, Optimal Use of Classification Yard.pdf," at 40.

accommodate merchandise/automotive blocks, and an average track length of 30 cars for classification tracks holding "local" blocks. For example, in sizing the Atlanta hump yard, witness Dirnberger assigned track lengths ranging from 30 to 60 feet (and averaging 45 feet) to each of the 19 merchandise/automotive classification tracks, and an average of 30 feet to each of the seven local classification tracks.[147]

Third, witness Dirnberger calculated the total number of classification track feet for each TPIRR hump yard by multiplying the number of cars per track determined in Step 2 above by an average car length of 61.5 feet per car, then multiplying that figure by the number of merchandise/automotive and "local" blocks to be built at that yard developed in Step 1.[148] For example, to determine the number of classification track feet required at the TPIRR's Atlanta hump yard, witness Dirnberger performed the following calculations: For classification tracks assigned to the merchandise/automotive blocks, witness Dirnberger multiplied the average of 45 cars per track by 61.5 feet to determine the average length of a single classification track. He then multiplied that figure by the number merchandise/automotive blocks (19) to arrive at a total of 52,582.50 track feet (or 9.96 track miles) for classification tracks assigned to merchandise/automotive blocks at Atlanta.[149] Witness Dirnberger performed the same calculation for the classification tracks assigned to "local" blocks, multiplying 30 cars per track

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[147] *See* CSXT Reply Ex. III-C-9.

[148] As CSXT demonstrated above (at III-C-78, n. 113), the average car length of 60 feet assumed by TPI makes no provision for the space occupied by car couplers. In performing yard capacity analyses in its day-to-day operations, CSXT uses a more realistic average car length of 61.5 feet per car.

[149] 45 cars/track x 61.5 ft./car x 19 tracks = 52,582.50 track feet ÷ 5,280 = 9.96 merchandise/automotive classification track miles. In calculating the classification track capacity for TPIRR's Louisville Yard, witness Dirnberger used an average car length of 79 feet, rather than 61.5 feet, to account for the fact that a large percentage of the traffic classified at Louisville is automotive traffic, which moves in 89-foot auto rack cars.

by 61.5 feet, then multiplying that product by the 7 "local" classification tracks assigned at Atlanta, to arrive at a total of 12,915 track feet or 2.45 track miles to hold "local" blocks.[150]

Fourth, in order to provide sufficient capacity to enable the TPIRR to build the largest blocks required by its day-to-day blocking plan, and to accommodate surges in traffic levels, witness Dirnberger added "swing track" capacity at each yard.[151] The number of swing tracks at each location was determined by increasing the total number of classification tracks specified above for each yard (based on the number of daily merchandise/automotive and local blocks) by 15%. For example, at Atlanta, witness Dirnberger multiplied the number of classification tracks assigned in Step 1 above (26 tracks) by .15 to arrive at 3.9 swing tracks (which witness Dirnberger rounded down to 3.0 tracks). Swing tracks were assigned an average length of 45 cars. Multiplying the three swing tracks at Atlanta by 45 cars per track, and multiplying that product by 61.5 feet per car, resulted in total swing track length of 8,302.50 feet, or 1.57 miles. Finally, witness Dirnberger added a single 30-car track to each classification bowl to be used to hold cars identified as bad ordered during the classification process. That track would enable the TPIRR to transfer defective cars to the car repair track in a single movement once a day, rather than performing multiple switch movements between the classification bowl and the rip tracks.

Finally, witness Dirnberger added the total track allocated for merchandise/automotive blocks (9.96 miles), "local" blocks (2.45 miles), swing tracks (1.57 miles) and a bad order track (.35 miles) to arrive at a total classification track requirement of 14.33 track miles at Atlanta.

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[150] 30 cars/track x 61.5 ft./car x 7 tracks = 12,915 track feet ÷ 5,280 = 2.45 local classification track miles.

[151] As CSXT demonstrated above, the TPIRR—like CSXT—would be required to build blocks of up to 100 cars or more at its largest hump yards.

Figure III-C-10 sets forth the classification track capacity for each of the TPIRR's eleven hump yards, based on witness Dirnberger's analysis. That Figure also compares CSXT's Reply classification track capacity with the reduced capacity posited by TPI, and with the actual classification track capacity at each of CSXT's real world yards.

FIGURE III-C-10
Comparison of Classification Track Capacity At TPIRR Hump Yards

City	State	Yard Name	TPI Class Track Count	CSXT ClassTrack Count	Difference	TPI Class Yard Miles	CSXT Class Yard Miles	Difference	CSX Actual Class Track Count	CSX Actual Class Miles
Willard	OH	Willard	46	41	**5**	17.77	20.79	**-3.02**	50	36.61
Selkirk	NY	Selkirk	78	51	**27**	26.59	26.03	**0.56**	70	44.43
Indianapolis	IN	Avon	64	42	**22**	21.82	21.14	**0.68**	54	17.27
Nashville	TN	Radnor	72	43	**29**	21.27	22.19	**-0.92**	56	23.23
Atlanta	GA	Tilford	48	30	**18**	14.18	14.33	**-0.15**	42	13.37
Cumberland	MD	Cumberland	40	42	**-2**	15.91	21.49	**-5.58**	30	14.53
Cincinnati	OH	Queensgate	66	33	**33**	23.25	16.60	**6.65**	49	18.55
Louisville	KY	Osborn	70	47	**23**	19.09	30.52	**-11.43**	49	20.69
Birmingham	AL	Boyles	40	30	**10**	15	15.20	**-0.20**	40	14.50
Hamlet	NC	Hamlet	68	44	**24**	21.64	22.19	**-0.55**	58	19.50
Waycross	GA	Rice	76	60	**16**	26.77	30.05	**-3.28**	64	25.31
Total			**668**	**463**	**205**	**223.29**	**240.53**	**-17.24**	**562**	**247.99**

ii. Flat Switching Yards

The operations performed at most flat switching yards involve less "block building" than the operations at a hump yard. Rather, the switching activity at flat switching yards more often involves "swapping" blocks of cars between trains making intermediate stops at the yard, and switching cars into and out of local trains that perform pick ups and set offs at nearby customer facilities. For those reasons, the required track capacity at a flat switching yard is more closely related to daily car volume than it is at a hump yard. The methodology applied by witness Dirnberger reflects this fundamental difference between hump yards and flat switching yards.

First, witness Dirnberger determined the "static" classification track capacity required at each TPIRR flat switching yard based upon the output of the "SuperSim" simulation of the

TPIRR's operations performed by witness Acharya. Specifically, witness Dirnberger identified the inventory of cars that would be present in a particular yard during the peak hour of each day during the "SuperSim" simulation period.[152] The car inventory present during the busiest hour of a given day defines the "static" capacity required to accommodate the volume of carload traffic moving through the yard. Witness Dirnberger averaged the peak hourly inventories for the days included in CSXT's "SuperSim" simulation, to arrive at an "average peak daily inventory" for each flat switching yard. Because CSXT's "SuperSim" process is based upon an average week (rather than the peak week) during the Peak Year, the average peak daily inventory developed by witness Dirnberger for each yard is conservative—*i.e.*, it represents the number of cars that the TPIRR would need to accommodate during the busiest hour of a typical day during the Peak Year (rather than the absolute maximum capacity required for the peak hour of the peak week).[153] Witness Dirnberger then multiplied the average peak daily inventory by an average car length of 61.5 feet to determine the "static" classification track capacity requirement for each flat switching yard.

Second, consistent with the studies cited above (at III-C-82–85), witness Dirnberger determined the "practical" classification track capacity required at each flat by adding a "fluidity factor" to the "static" capacity developed for each yard in Step 1. Specifically, he multiplied the "static" track capacity for each location by 1.67 to reflect the commonly accepted principle that average track occupancy should not exceed 60% during normal operations. The fluidity factor applied by witness Dirnberger is also consistent with the methodologies utilized by CSXT in conducting real world yard capacity analyses.

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[152] *See* CSXT Reply WP "SARR19F_EstimatedTrainVolumes.xlsx"

[153] The use of an average week is conservative, and actually results in lower track capacity requirements. *See DuPont*, STB Docket No. 42125, at 37.

Third, witness Dirnberger allocated the classification track capacity assigned to each flat switching yard in a manner designed to provide maximum operating flexibility. At each location, witness Dirnberger first assigned one track of 3,700 feet, capable of accommodating up to 60 cars (3,700 feet ÷ 61.5 feet per car = 60.16 cars). He then reduced each successive classification track by 30 feet until all of the available classification track capacity was accounted for.[154] This process gave the TPIRR a group of flat switching yards constructed in a "ladder" configuration (the preferred design for such yards) with tracks capable of holding cuts of cars of varying length.[155]

Figure III-C-11 sets forth the classification track capacity for each of the TPIRR's eleven "regional" flat switching yards, based on witness Dirnberger's analysis.[156] Figure III-C-11 also compares CSXT's Reply flat switching yard classification track capacity with the reduced capacity posited by TPI, and with the actual classification track capacity at each of CSXT's real world yards.

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[154] The 30-foot difference between adjacent classification tracks is dictated by the geometry of the "ladder" tracks connecting the classification tracks, which have a lead angle of 135 degrees.

[155] CSXT Reply Exhibit III-C-10 provides a step-by-step depiction of witness Dirnberger's methodology for sizing the TPIRR's regional flat switching yards.

[156] CSXT Reply workpaper "Local Flat Yard Class Track Calc from MultiRail.xls" contains witness Dirnberger's calculations of the track capacity requirements for the largest of the TPIRR's "other" flat yards.

FIGURE III-C-11
Comparison of Classification Track Capacity At TPIRR Regional Flat Yards

City	State	TPIRR Yard Name	TPI Class Track Count	CSXT Class Track Count	Difference	TPI Class Track Miles	CSXT Class Track Miles	Difference	CSXT Actual Class Track Count	CSXT CSX Actual Class Miles
Chicago	IL	Barr	62	57	**5**	13.39	30.49	**-17.10**	50	25.32
Cleveland	OH	Collinwood	12	14	**-2**	2.32	9.29	**-6.97**	13	6.93
Syracuse	NY	DeWitt	22	11	**11**	4.25	7.40	**-3.15**	22	10.50
Evansville	IN	Howell	8	11	**-3**	1.55	7.40	**-5.85**	29	12.67
Richmond	VA	Acca	22	15	**7**	3.25	9.91	**-6.66**	34	16.19
Rocky Mount	NC	Rocky Mount	32	24	**8**	9.09	15.25	**-6.16**	20	19.19
Montgomery	AL	S & N	10	18	**-8**	6.36	11.74	**-5.38**	34	13.04
Mobile	AL	Siebert	15	16	**-1**	3.07	10.53	**-7.46**	30	11.63
New Orleans	LA	Gentilly	12	24	**-12**	5.18	15.25	**-10.07**	33	12.24
Jacksonville	FL	Moncrief	24	14	**10**	4.64	9.29	**-4.65**	32	17.15
Tampa	FL	Yoeman	20	16	**4**	2.73	10.53	**-7.80**	19	11.15
		Total:	**239**	**220**	**19**	**55.83**	**137.09**	**-81.26**	**316**	**156.01**

As the foregoing discussion demonstrates, CSXT's Reply Evidence corrects a major deficiency in the yards posited by TPI, by ensuring that the TPIRR would have sufficient classification track capacity to maintain fluid operations during its Peak Year. CSXT also replaces the nonsensical classification track lengths posited by TPI (based on application of its meaningless "CSX cars per classification track" metric) with tracks that are tailored to the specific block lengths and car volumes that the TPIRR would handle at each location. The classification yard configuration presented by CSXT is supported by independent studies conducted by multiple impartial observers—including the Federal Railroad Administration—and the results are consistent with (indeed, conservative in light of) CSXT's real world yards. The Board should reject the classification tracks posited by TPI, and adopt CSXT's well-supported classification track configurations.

b. The Yard Receiving And Departure Tracks Posited By TPI Are Unsupported By Credible Evidence And Utterly Inadequate.

In addition to the tracks used to classify and block cars for movement over the network, every hump and flat switching yard needs an adequate number of "receiving" and "departure" tracks (sometimes referred to as "long" tracks). At a hump yard, receiving tracks are utilized to move inbound trains off the main line into the yard, and to hold them until the locomotives are removed and a yard assignment completes the task of transferring the cars in the train to the hump track for classification. Departure tracks at a hump yard are used to "build" outbound trains by switching blocks of cars from the classification area to the designated departure track, where the blocks are combined, their air hoses are connected, the outbound cars are inspected, and locomotives are attached to the train for movement. At flat switching yards, receiving and departure tracks are used to hold road trains while cars (or blocks) are added to (or removed from) the train, and to build (or break up) local trains that deliver cars to and from customer facilities.[157]

TPI's Opening Narrative states that "[t]he number and length of the 'running tracks' in each yard (the tracks necessary to handle the peak period trains moving through the yards of the TPIRR) were based on the results of the RTC Model." TPI Opening III-B-9 (citing TPI Op. WP "TPIRR Yard Matrix Opening Grading.xlsx," tab "TPIRR Yards," footnotes 1 through 3).[158]

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[157] At smaller flat switching yards, "long" tracks may be used interchangeably as both receiving and departure tracks.

[158] In its Opening Narrative (at III-B-9), TPI incorrectly refers to those tracks as "running" tracks. Unlike "receiving" tracks, upon which inbound trains are held until cars can be switched into or out of them, and "departure" tracks upon which trains originating at the yard are built, "running" tracks are tracks that extend the length of the yard and enable trains (or locomotives) to "run around," or bypass, other yard tracks. Running tracks generally are not used to hold arriving trains or cuts of cars as they are assembled into an outbound train.

The referenced footnotes confirm that TPI relied exclusively on the output of its RTC Model simulation as the source for determining the number and length of the receiving and departure tracks at all TPIRR merchandise yards.[159] Neither TPI's Opening Narrative nor its workpapers contains any other support for the receiving and departure track configuration posited by TPI.

TPI's RTC Model simulation provides no credible evidentiary support for the receiving and departure tracks posited by TPI. As the Board has recognized, the RTC Model is not a yard sizing tool.[160] Rather, the Model is designed to analyze train movements, not activities within a railroad yard. While the RTC Model can be programmed to model road trains "dwelling" on a yard's receiving and departure tracks, it's ability to measure that dwell accurately depends entirely on the values input by the user—*i.e.*, unlike train dwells caused by conflicting movements on line-of-road, the Model itself does not determine yard dwell time. More fundamentally, the RTC Model is not designed to account for (1) the time during which receiving and departure tracks are occupied by yard switching activities such as the transfer of blocks from receiving tracks to the hump track (or to other tracks within a flat switching yard), (2) the time required to "build" outbound trains at a hump yard by switching one or more blocks of classified cars to a departure track, (3) the time during which receiving and departure tracks are occupied by road engines moving "light" from arriving trains to the locomotive servicing area (or from the locomotive serving area to a departure track on which an outbound train is

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[159] *See* TPI Op. WP "TPIRR Yard Matrix Opening Grading.xlsx," tab "TPIRR Yards," n.1 ("From RTC Model (except where noted"); n.2 ("'x' in this column indicates that the yard information was taken from the RTC Model"); n.3 ("Number of tracks for use by trains in addition to mainline tracks (from RTC Model except where noted) for Major and Other yards; see other footnotes for intermodal, automotive and bulk transfer terminals and additional interchange yards").

[160] *See SunBelt*, STB Docket No. 42130, at 16 ("the RTC Model does not model yard operations").

built), (4) delays caused by conflicting train movements in the receiving and departure areas of a yard, (5) delays caused by "bunching" of arriving or departing trains or yard congestion, or (6) other operating conditions (*e.g.*, weather) that affect yard operations on a daily basis. All of those factors—which the RTC program does not model—have a substantial impact on the number of receiving and departure tracks required to maintain fluid operations at a rail yard. In short, the number (and length) of receiving and departure tracks at a yard cannot (as TPI posits) be reliably estimated by simply incorporating those tracks into an RTC Model simulation of train movement activity.

Moreover, the train dwell time assumptions that TPI input to its RTC Model are demonstrably incorrect—indeed, they are nonsensical. TPI's dwell time inputs are flatly contradicted by the train-specific data furnished to it in discovery regarding the actual dwell times experienced by the very same CSXT trains that TPI purported to "mirror." As a result, TPI's RTC Model vastly understates the amount of time that trains arriving and departing the TPIRR's yards would occupy receiving and departure tracks at those facilities. Accordingly, any conclusion drawn from TPI's RTC Model simulation regarding the number of "running" tracks required to accommodate the TPIRR's trains is, on its face, invalid.

TPI states that, in its RTC Model, "[d]well times have been allotted for trains at the TPIRR's yards based on the kind of activities being performed." TPI Op. Ex. III-C-6 at 6. TPI's Exhibit III-C-6 identifies dwell time assumptions that TPI input to the Model for activities such as 1,000/1,500 mile inspections (5 hours), interchange with other carriers (30 minutes) and crew changes (15 minutes). *Id.* at 6-8. Neither that Exhibit nor TPI's Opening Narrative identifies the dwell time that its RTC Model assumed for road trains stopping at intermediate yards to pick up or set off cars. However, CSXT's analysis of TPI's RTC workpapers revealed that TPI's RTC

Model incorporated a "generic" assumption that every TPIRR through train that made an intermediate stop at either a hump yard or a flat switching yard to pick up or set off blocks or cars (*i.e.*, change consist) would dwell for only 30 minutes.[161]

TPI's 30-minute dwell time input is flatly contradicted by the actual dwell time information provided by CSXT in discovery. In describing the methodology that it used to create the TPIRR's train list, TPI states that:

> [it] developed routing data for line-haul merchandise trains and unit trains for the July 2012 through June 2013 time period based on a combination of: (1) CSXT provided 'Train Sheet Root Records' (TM600) data, which contain overview data for the segments that make up a train's full route, including train size, weight, and car count data; and (2) CSXT provided 'Train Sheet Intermediate Station' (TM605) data, which contain routing and mileage detail for the intermediate stations along the segments that make up the train route . . . . . [F]or most trains, hundreds of individual routing detail records were linked, aligned, verified, and analyzed to compile detailed train routing and SARR mileage data.

TPI Op. Ex. III-C-1 at 15-16. As this excerpt from TPI's Opening Exhibit III-C-1 indicates, TPI made extensive use of the CSXT train event data to develop a list of TPIRR trains, to verify their route of movement, to identify the yards and other locations where each train made intermediate stops, and to determine where those trains changed consist. TPI Op. Ex. III-C-1 at 9-22. The TM600 "Train Sheet Root Records" that TPI used in this process also identify, on a train-specific basis, the time at which the CSXT trains included on TPI's train list arrived at, and departed from, intermediate yards. While TPI "adopted" the information in CSXT's train sheet data as the basis for determining the size, consist, route of movement, and intermediate stops for TPIRR trains, TPI made an intentional methodological decision not to also utilize the actual yard dwell times experienced by the CSXT trains that TPI's operating plan purports to "mirror." TPI

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[161] *See* TPI Op. WP "TPI Open RTC Train Inputs.xls."

Opening III-C-12. Instead, TPI substituted an unsupported generic assumption that those trains, when operated by TPIRR, would dwell for only 30 minutes at an intermediate yard, regardless of whether the train was required to undergo a consist change.

FIGURE III-C-12
Dwell Time and Consist Changes at Mobile, Train Q572
December 10 to 16, 2012[162]

1	2	3	4	5	6	7	8	9	10	11
			TPI	CSXT Actual						
TPI RTC Train	CSXT Train	Day	Dwell Time	Dwell Time	Event	Loads	Empties	Total	Tons	Length
M2683NEWBIR	Q57220121210	10	0.50	4.75	Arrival	44	17	61	5,980	3,954
					Depart	52	24	76	7,185	4,652
M2684NEWBIR	Q57220121211	11	0.50	1.95	Arrival	36	19	55	4,156	4,129
					Depart	57	38	95	7,730	6,097
M2685NEWBIR	Q57220121212	12	0.50	2.23	Arrival	36	29	65	5,234	4,058
					Depart	55	35	90	8,067	5,721
M2686NEWBIR	Q57220121213	13	0.50	2.38	Arrival	20	14	34	3,183	2,292
					Depart	29	27	56	4,840	3,360
M2687NEWBIR	Q57220121214	14	0.50	1.62	Arrival	43	9	52	5,551	3,494
					Depart	55	23	78	7,595	4,830
M2688NEWBIR	Q57220121215	15	0.50	1.23	Arrival	55	33	88	7,770	5,829
					Depart	56	40	96	8,100	6,280
M2689NEWBIR	Q57220121216	16	0.50	1.57	Arrival	58	22	80	7,452	5,252
					Depart	61	31	92	8,114	5,921
	Average Dwell:		**0.50**	**2.25**						

For example, as Figure III-C-12 illustrates, CSXT Train Q572 (one of the trains adopted by TPI for its train list) operated on a daily basis between December 10, 2012 and December 16, 2012, following a route from New Orleans, LA, through Mobile and Montgomery, AL, to Birmingham, AL. The data provided by CSXT in discovery showed that the number of loaded

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[162] *See* CSXT Reply WP "CSXT Actual Intermediate Yard Dwell Times.xlsx."

and empty cars on the train changed at CSXT's Mobile Yard on each of those days, indicating that Train Q572 picked up and set off cars at Mobile.[163] CSXT's TM600 train records also identified the time at which each train arrived at, and departed from, Mobile. As shown in Column 5 of Figure III-C-13, the dwell time experienced by CSXT's real world Q572 trains at Mobile averaged 2.25 hours, with a minimum dwell time of 1.23 hours. However, as indicated in Column 4, when TPI modeled these Q572 trains in its RTC simulation, TPI ignored the dwell time that they actually experienced at Mobile, and programmed the RTC Model to assume that those trains would require only 30 minutes to pick up and set off cars at Mobile.

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[163] Columns 7 and 8 of Figure III-C-12 indicate the number of loaded and empty cars, respectively, on Train Q572 when it arrived at, and departed from, Mobile on each day. Column 9 shows the total number of cars in the train upon arrival and departure.

FIGURE III-C-13
Dwell Time and Consist Changes at Mobile, Train Q619
December 10 to 16, 2012[164]

1	2	3	4	5	6	7	8	9	10	11
			TPI	CSXT Actual						
TPI RTC Train	CSXT Train	Day	Dwell Time	Dwell Time	Event	Loads	Empties	Total	Tons	Length
M3015HAMNEW	Q61920121210	10	0.25	1.25	Arrival	25	60	85	4,968	5,332
					Depart	17	44	61	3,544	3,810
M3016HAMNEW	Q61920121211	11	0.25	1.60	Arrival	21	58	79	4,382	4,739
					Depart	12	39	51	2,831	3,137
M3017HAMNEW	Q61920121212	12	0.25	2.93	Arrival	11	61	72	3,485	4,506
					Depart	9	38	47	2,408	3,052
M3018HAMNEW	Q61920121213	13	0.50	1.48	Arrival	21	89	110	5,345	6,645
					Depart	8	67	75	3,262	4,670
M3019HAMNEW	Q61920121214	14	0.25	2.23	Arrival	14	50	64	3,350	3,718
					Depart	9	25	34	1,851	2,060
M3020HAMNEW	Q61920121215	15	0.50	1.57	Arrival	25	88	113	5,872	6,836
					Depart	20	53	73	4,131	4,433
M3021HAMNEW	Q61920121216	16	0.50	2.68	Arrival	25	108	133	6,745	8,081
					Depart	25	64	89	5,175	5,543
	Average Dwell:		**0.36**	**1.96**						

Likewise, as shown in Figure III-C-13, CSXT Train Q619 operated each day between December 10-16, 2012 from Hamlet, NC via Greenwood, SC, Atlanta, GA and Mobile, AL to New Orleans, LA. The CSXT train event data indicate that the consist of Train Q619 changed substantially at Mobile on each of those days. *See* Figure III-C-14, Columns 7, 8 and 9. According to the TM600 train records produced to TPI in discovery, Train Q619 experienced an average dwell time of 1.96 hours at Mobile during this period, with a dwell time of nearly three hours on December 12. *See* Figure III-C-13, Column 5. However, as shown in Column 4, TPI

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[164] *See* CSXT Reply WP "CSXT Actual Intermediate Yard Dwell Times.xlsx."

modeled those trains based on an assumed dwell time of 30 minutes on December 13, 15 and 16, and applied an even shorter dwell time of only 15 minutes on December 10, 11, 12 and 14.[165]

The dwell time of 30 minutes for trains changing consist at intermediate yards assumed by TPI in performing its RTC Model simulation is simply not consistent with "the realities of real world railroading." The process of picking up or setting off one or more blocks of cars during an intermediate stop at a rail yard involves multiple steps that require far more time than TPI's RTC Model assumes. If the road crew performs the pick up or set off, the road crew must separate the cars (or blocks) to be left at the yard from the train, and switch them from the receiving track to one or more yard tracks, as necessary. The crew must then couple the locomotive(s) to each outbound block of cars and switch those cars from the yard track(s) to the receiving track on which the road train stopped. During each of those switch movements, the road crew may encounter delays caused by conflicting movements within the yard. Once all inbound cars have been placed onto the designated yard track(s) and all outbound cars have been switched to the receiving track, the outbound cars must be connected to the train, their air hoses connected, unless the yard is equipped with yard air, the train's brake system must be pumped up by the locomotive and a brake test must be performed by the road crew. If the required switching is to be performed by a yard crew, additional delay may be encountered if the yard assignment is not immediately available upon arrival of the road train.

CSXT Reply Exhibit III-C-7 sets forth the <u>actual</u> dwell time experienced by CSXT road trains that stopped en route to pick up and/or set off cars at CSXT's hump yards and flat

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[165] TPI's RTC Model assumed that trains requiring only a crew change at an intermediate yard would dwell for 15 minutes. TPI Op. Ex. III-C-6 at 9. The 15-minute dwell time assigned by TPI to Train Q619 on December 10-12 and December 14 indicates that TPI did not account for the pick ups and setoffs required for those trains.

switching yards between July 1, 2012 and June 30, 2013 (the period from which TPI's train list was compiled).[166] As CSXT Reply Exhibit III-C-7 shows, the average dwell time for trains that made an intermediate stop to change consist at a hump yard was 3.9 hours, while the average dwell time experienced by trains that changed consist at a flat switching yard was 2.6 hours. These real world train event data—which TPI conveniently chose to ignore—belie TPI's assumption that TPIRR trains could, in every instance, change consist at intermediate yards in 30 minutes or less. Indeed, as CSXT Reply Exhibit III-C-7 shows, CSXT's real world experience indicates that even those TPIRR trains that do not change consist could be expected to experience dwell times in excess of 30 minutes at intermediate yards.

TPI's RTC Model likewise vastly understates the time that road trains arriving at, or departing from, TPIRR's eleven hump yards would occupy receiving or forwarding tracks in those yards. Again, neither TPI's Opening Narrative nor TPI Opening Exhibit III-C-6 mentioned the dwell time assigned to arriving and departing trains at hump yards in TPI's RTC Model. However, CSXT's analysis of TPI's RTC evidence indicates that, for trains arriving at a TPIRR hump yard, the Model applied 30 minutes of dwell time following arrival for most inbound trains, and "0" dwell time after arrival for other inbound trains.[167] For example, in TPI's RTC simulation, Train M063CLEWIL, a TPIRR road train operating from Cleveland to Willard, OH, arrives at Willard Yard on December 10, 2012.

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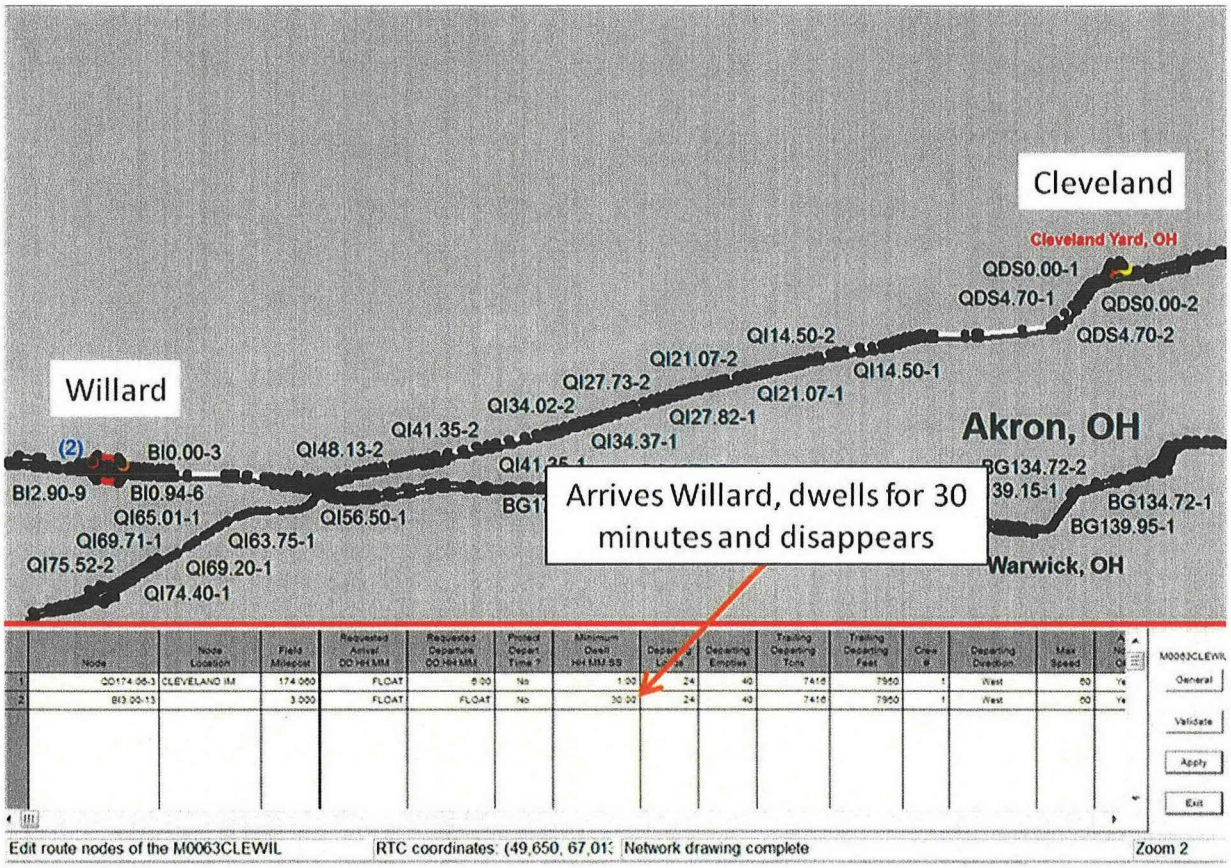
[166] CSXT Reply Exhibit III-C-7 includes intermediate yard dwell time for each of the CSXT hump yards replicated by TPI, as well as for flat switching yards at which ten or more CSXT trains changed consist during the year.

[167] TPI Op. WP "TPI Open RTC Train Inputs.xls." The RTC Model automatically accounts for the elapsed time from when the lead locomotive reaches the yard limits until the last car in the train clears the main line and the train comes to a stop on a receiving track. However, a dwell time value for the period from the time when a train comes to a stop until the train's consist is transferred by a yard assignment to the hump track (thereby freeing up the receiving track for use by another train) must be input to the Model by the person performing the simulation.

As Figure III-C-14 shows, upon arrival, the train occupies the receiving track for 30 minutes then simply "disappears" from TPI's RTC simulation. As this example illustrates, in TPI's RTC Model, inbound road trains occupy receiving tracks for only 30 minutes after they arrive—or, in some cases, they simply "disappear" immediately upon arrival!

FIGURE III-C-14

Example of 30 minute Arrival Dwell at Hump Yard as Modeled by TPI
TPIRR Opening Train; M0063CLEWIL = Q357 on Dec 10, 2012



Even more nonsensically, TPI's RTC Model assumed that every train originating at a TPIRR hump yard would occupy its departure track for only <u>one minute</u> prior to the time that the train began to move from the yard onto the main line.[168] For example, in TPI's RTC simulation,

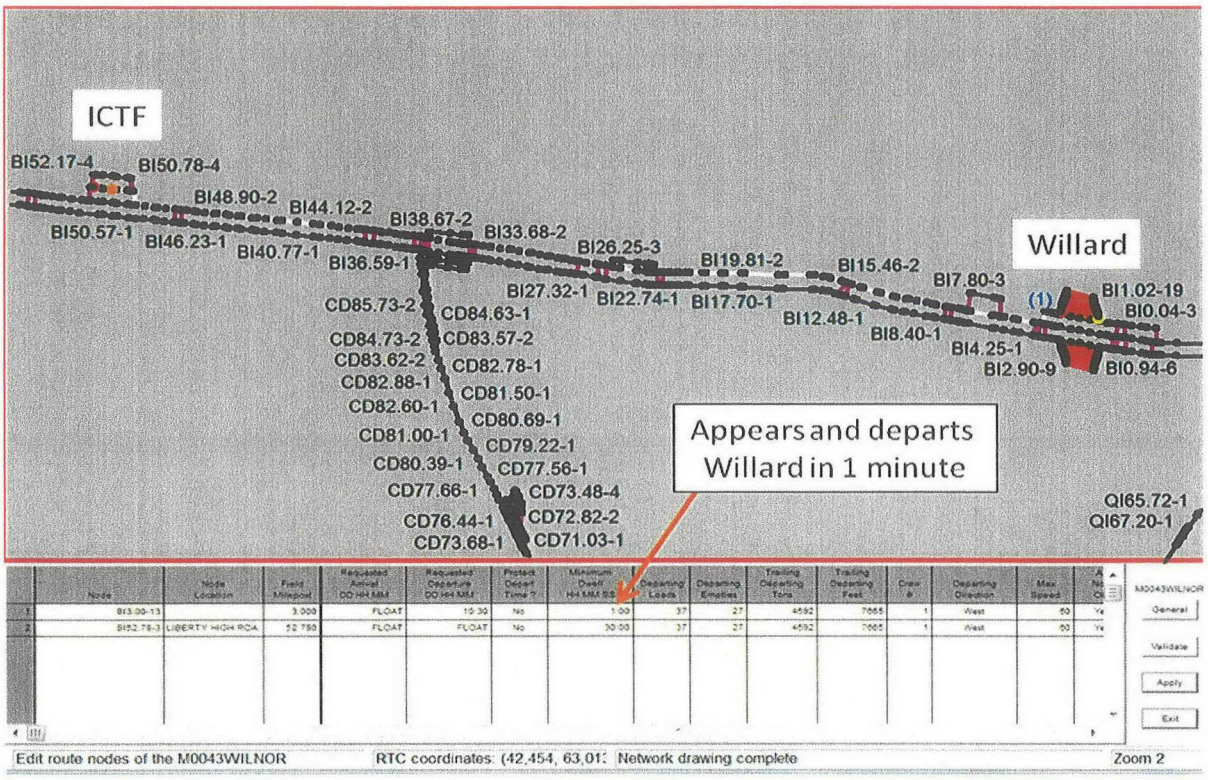
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[168] *See* TPI Op. WP "TPI Open RTC Train Inputs.xls." As with inbound trains, the RTC Model automatically determines the elapsed time from when the lead locomotive begins to move until

Train M0043WILNOR originated at Willard Yard on December 9, 2012. As Figure III-C-15 shows, TPI input a pre-departure dwell time for Train M0043WILNOR of only one minute prior to the time it departed the yard.

Figure III-C-15

Example of 1 minute Departure Dwell at Hump Yard as Modeled by TPI
TPIRR Opening Train; M0043WILNOR = X783 on Dec 9, 2012



The yard dwell times for trains arriving at and departing from hump yards posited by TPI, and input to its RTC Model, are utterly unrealistic. Inbound trains "occupy" receiving tracks for a minimum of five to six hours after they come to a stop in a hump yard. Likewise, the process of "building" an outbound train on a departure track occupies that track for a minimum of five to

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the last car in the train clears the yard limits and enters the main line. However, a dwell time value for the period prior to the time the outbound train actually begins to move (during which the departure track is occupied while the outbound train is being assembled and inspected) must be input to the Model.

six hours prior to the train's departure. As the following discussion explains, a multitude of tasks must be performed before a receiving track holding a terminating train (or a departure receiving track holding an originating train) is "empty" and available to hold another train:

Inbound Trains: Once an arriving train comes to a stop on the receiving track, the conductor gets off the train and sets a sufficient number of hand brakes to secure the train. The required number of hand brakes depends upon the length and weight of the train and the grade upon which it is parked.[169] Upon completing that process, the conductor walks back to the head of the train and cuts the locomotives from the consist.[170] Once the power is removed from the train, the conductor notifies the Mechanical Department, which assumes responsibility for the train. A mechanical employee sets "blue flags" at both ends of the train to signify that yard personnel will be working on and around the train. The process of setting hand brakes, removing the locomotives and setting blue flags typically requires approximately 45 minutes. A mechanical employee (qualified inspector) then walks the train, bleeds the air from the brake cylinders of each car, and visually inspects each car to identify defective cars (which are tagged as "bad ordered"). This bleeding and inspection process takes approximately two hours.[171] Once

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[169] The practice of setting hand brakes to secure a train applies to unattended trains, whether stopping on a main line or in a rail yard. The July 2013 disaster at Lac Mégantic, Quebec underscores the importance of this safety procedure.

[170] TPI's assumption that TPIRR road trains would operate with locomotives in a 1/1 DP configuration would increase the time required to remove locomotives from inbound trains, and attach locomotives to outbound trains. Instead of simply connecting two units at the head end (as CSXT does today), the TPIRR crew would have to run locomotives to (or from) both ends of the train, and initiate DP communications between the head end and rear unit. This could add up to an hour to the "dwell" time experienced by CSXT in its operations today.

[171] FRA regulations mandate that all cars in an outbound train be inspected prior to departure, but do not require an "inbound" inspection. However, FRA's *Railroad Classification Yard Technology Manual* explicitly acknowledges the efficient practice of inspecting inbound trains upon arrival. *See* CSXT Reply WP "Wong, Railroad Classification Yard Tech Manual.pdf" at 46 ("The humping can start after inspection of arrival trains"), 49 (discussing "Inbound

the inspection is complete, the blue flags are removed from the train, and the Transportation Department is notified that the train is ready to be moved over the hump. At this point, the Yardmaster assigns a yard locomotive and crew to switch the cars in the inbound train to the hump track for classification. Upon receiving its assignment, the yard job proceeds from its location in the yard to the receiving track. The crew may be required to line and reline switches, and may encounter interference from conflicting movements, while moving to the receiving yard. Upon arrival at the receiving track, the crew couples the yard locomotive to the cars. Prior to moving the cars, the yard conductor must walk the train to disengage the hand brakes that were set by the inbound road train's conductor upon arrival. At a busy hump yard, it typically takes up to 45 minutes from the time that the Transportation Department is first notified that an inbound train is available until the movement of the inbound cars to the hump track commences. The conductor may be required to align one or more switches to facilitate a continuous movement from the receiving track to the hump track. The conductor proceeds to the end of the cars opposite the yard locomotive where, using a hand-held device (belt pack), he can control the yard locomotive as it shoves the cars from the receiving track to the hump track. Prior to

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Inspection Time Interval"). Performing an inspection upon arrival is considered a "best practice" because it enables CSXT to identify (and remove) bad order cars before they can be placed into an outbound train. It is far more efficient to identify defective cars at this stage of the yard process. The bad order car can be moved over the hump and switched on to a track within the classification bowl designated for bad order cars (and subsequently moved in a block with other defective cars to the rip track). If a defective car is detected only during the pre-departure inspection, the outbound train must be cut apart to remove that car from the train, resulting in substantial delay to that train's departure. Moreover, given the configuration of most hump yards, a switch movement of bad order cars from the classification bowl to the rip track is a "forward" movement, whereas a switch engine transferring a defective car from the departure area to the rip track must operate against the prevailing flow of traffic within the yard. Finally, because the mechanical employee is required, in any event, to stop at each inbound car on a receiving track to bleed the air, performing a visual inspection adds little time to the overall inbound handling process.

commencing this movement, the conductor must confirm that the hump track is available to receive the train (as only one inbound train can be classified at a time). Upon arrival at the hump track, the conductor works in tandem with the hump operator, manually pulling a release lever to separate each cut of cars as it moves over the hump while the operator sets the power switches to enable each cut to move onto the correct classification track.[172]

As the foregoing description of the steps involved in preparing an inbound train for classification demonstrates, the process is time consuming even with modern technological tools such as remote controlled locomotives. CSXT witness Jeremiah Dirnberger estimated that the minimum time that would be required for the TPIRR to "clear" a receiving track (*i.e.*, the interval between the time an inbound train stopped on a receiving track and the time when the cars on that train were moved to the hump area, thereby making the receiving track available for another train) is between five and six hours.

Witness Dirnberger's estimate is supported by CSXT's industry-leading Hump Yard Simulation System ("HYSS"). HYSS is a yard modeling tool developed by CSXT (in cooperation with Optym, formerly Innovative Scheduling, Inc., to enable it to measure, and model, the various functions that take place in a hump yard.[173] To date, CSXT has developed working models of six major CSXT hump yards that are replicated by the TPIRR (*see* Figure III-C-17 below), based upon their actual operating experience during 2012 (the beginning of the TPIRR's Base Year).[174] Figure III-C-16 sets forth data regarding the average dwell time actually

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[172] The process of working on inbound train at a hump yard is illustrated in CSXT Reply Ex. III-C-1 (Video) at 4:28.

[173] CSXT Reply Workpaper "HYSS for Academic Research.pdf" provides a more detailed description of HYSS and its capabilities.

[174] The Belt Railway of Chicago, BNSF, and Canadian Pacific Railway have also utilized HYSS in their yard planning activities.

experienced by cars arriving on inbound CSXT road trains at CSXT's Avon, Birmingham, Hamlet, Nashville, Selkirk, and Willard hump yards during 2012.

FIGURE III-C-16
Average Hump Yard Dwell Time (By Function)

	Arrival to Inspect Complete	Inspect Complete to Hump Complete	Hump Complete to Pullout Complete	Pullout Complete to Inspect Complete	Inspect Complete to Depart	Total:
Willard	3.30	3.38	13.57	2.02	2.43	**24.70**
Avon	3.15	2.23	13.19	3.50	2.22	**24.29**
Nashville	1.91	3.00	15.49	2.12	1.73	**24.25**
Selkirk	2.17	2.87	15.29	2.75	3.28	**26.36**
Birmingham	3.75	2.95	12.60	3.30	2.43	**25.03**
Hamlet	3.58	1.58	13.82	3.48	1.83	**24.29**
Average:	**2.98**	**2.67**	**13.99**	**2.86**	**2.32**	**24.82**

Column 1 of Figure III-C-16 identifies, for each yard, the average time that it takes from the arrival of an inbound train until the inbound inspection of the arriving cars is completed. Column 2 identifies the average elapsed time, based on CSXT's actual experience during 2012, between the completion of the inbound inspection and the movement of the cars over the hump track. Together, those two data points define the average time required to "clear" a receiving track for use by the next inbound train. As Figure III-C-16 shows, that average time across the six major CSXT hump yards, based on CSXT's real world 2012 operations, was 5.65 hours. Based upon witness Dirnberger's experience, and the real world dwell time data set forth in Figure III-C-16, CSXT's RTC Model conservatively assigns a "dwell" time of 5.00 hours to trains arriving on receiving tracks at TPIRR hump yards.

By contrast, TPI proffered no evidence whatsoever to support its assumption that inbound trains would occupy receiving tracks at TPIRR yards for only 30 minutes after arrival. TPI's assumption is fatally undermined by reality—indeed, as shown above, the time incurred just to complete the tasks required prior to commencing the movement of the inbound cars from the receiving area to the hump track (including setting hand brakes, removing the locomotives, blue flagging the train, bleeding the air, and performing an inbound inspection) is approximately

3.00 hours. CSXT's estimate of 5.00 hours dwell time for inbound trains occupying receiving tracks in a hump yard is supported by real world evidence, and should be adopted.

Outbound Trains: In TPI's RTC Model, outbound trains magically "appear" on the departure tracks in TPIRR hump yards just one minute before they depart.[175] In reality, the process of "building" an outbound road train takes five to six hours. The first step in this process is the designation by the Yardmaster of the specific departure track upon which a scheduled outbound train will be assembled. From that moment until the outbound train clears the departure track and enters the main line, the designated departure track is not available for use by any other train, car or locomotive. The Yardmaster then identifies which classification tracks are holding the blocks of cars that need to be placed into the outbound train, and assigns a "puller" crew to switch those blocks from the classification area to the designated departure track. The puller crew may experience significant delay in commencing this process, for several reasons. In order to avoid operating congestion in the classification bowl, the puller crew must obtain permission from the Hump Yardmaster before entering the lead tracks to the classification bowl. Even after such permission is granted, the puller crew cannot begin the process of switching a particular block to the departure track until all of the cars scheduled to move in that block have been moved over the hump and into that block. Likewise, because blocks must be placed in the outbound train in a designated order (to facilitate the efficient handling of those blocks at points further along the network), the puller crew cannot switch a completed block into the outbound

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[175] The RTC model requires the operator to supply a time value to any period during which trains are not moving along the network. Thus, TPI's one minute "dwell prior to departure" assumption is not a "computer error" but rather represents an input supplied by TPI's experts in setting up TPI's RTC Model.

train unless all of the blocks to be placed "in front of" that block in the train have been completed and switched to the departure track.

As the puller job travels to the classification bowl, the crew may be required to align one or more switches en route. Upon arriving at the track that holds the first block to be switched into the outbound train, the conductor walks the length of the block to confirm that all of the cars are properly coupled together. As discussed above (at III-C-78, n. 113), it is not uncommon for the humping process to leave gaps between cars in a block; when this occurs the crew must "trim" the block by shoving all of the cars together.[176] Upon coupling the yard locomotive to the block, the puller crew commences the movement from the classification bowl, over the classification area lead track, to the departure area of the yard. The puller crew may experience delays en route on account of conflicting movements in either the classification area or on the lead tracks serving the departure yard.[177] Upon arriving at the departure area lead track, the crew pulls the block "high" (*i.e.*, beyond the departure track), so that the block can be shoved back into the departure track. (Again, the process of pulling the block onto the departure lead track and shoving it back into the designated departure track may require the crew to align one or more switches.) [178] Once the first block has been placed on the departure track, the puller job travels back to the classification bowl to retrieve the next block to be placed into the train. This process

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[176] *See* CSXT Reply Ex. III-C-1 (Video) at 5:48 (showing crew "trimming" a block of cars prior to moving from the classification track).

[177] *See* CSXT Reply Ex. III-C-1 (Video) at 12:27(showing puller movement holding outside the classification area on account of a conflicting train movement).

[178] *See* CSXT Reply Ex. III-C-1 (Video) at 6:20 (illustrating the process of preparing a block of cars for movement from the classification bowl, and pulling the block from the classification area to the departure track).

is repeated until all of the blocks destined for the outbound train have been transferred from the classification area to the departure track.

When the last block of cars has been placed on the departure track, the puller crew sets a sufficient number of hand brakes to secure the train. The puller crew then departs and the outbound train is ready to undergo the FRA-mandated mechanical inspection. Before the inspection commences, "blue flags" must be placed at both ends of the train to signify that yard personnel will be working on and around the train. The inspector is required to walk both sides of the train. During the first pass, the inspector couples the air hoses between cars, so that the train can be connected to "yard air" (air supplied by a trackside source). Based on CSXT's experience, the outbound inspection of a road train takes approximately two hours. Because the length of TPIRR's road trains would be based upon the longest real world trains operated by CSXT, the average time required to inspect TPIRR trains would, in all likelihood, be greater.[179]

If a car is bad ordered during the outbound inspection, the departure of the outbound train is delayed significantly. A yard job must be called to switch the defective car from the outbound train. The process of breaking up the train, removing the bad ordered car, reassembling the train and reconnecting the air can take 30-45 minutes, depending upon the location of the defective car in the train. As discussed above, CSXT follows the best practice of inspecting cars on inbound

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[179] TPI witness McDonald allotted three hours to perform inspections on TPIRR through trains. TPI Op. Ex. III-C-6 at 6. Because the car inspection process for an originating train is not materially different than that performed on a through train, witness McDonald's opinion demonstrates that the inspection time posited by CSXT is conservative.

trains upon arrival in order to cull out defective cars at an earlier stage of the yard process and minimize delays to outbound trains.[180]

Once the outbound train has been inspected, the road locomotives can be attached to the train. After reporting for duty and completing the required safety briefing and paperwork, the outbound road crew proceeds (via taxi) to the locomotive servicing area (or other track upon which the outbound power has been placed), and obtains permission and a designated route of movement from the Yardmaster to move the locomotives to the departure track. Upon arrival at the departure track, the road crew couples the locomotives to the train, performs an air brake test, and arms the End-of-Train device. While these actions take approximately 30 minutes on CSXT today, TPI's decision to utilize Distributed Power on all TPIRR-originated road trains would result in a significantly longer process. Rather than attaching both locomotives to the front end of the train (as CSXT does), the TPIRR road crew would be required to attach one unit to the front of the train, then move the second locomotive to the rear of the train and attach it there as well. Depending on the level of activity in the departure yard area and on the main line, the road crew might encounter delays due to conflicting train movements. Once both locomotives were coupled to the train, the crew would initiate the process of establishing communication between the lead and rear units (a process that takes approximately 45 minutes). Upon completion of those actions, the outbound train would be ready for departure.

As the foregoing discussion of the train building process makes clear, TPI's decision to program its RTC Model to provide for only one minute of yard dwell time for outbound trains

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[180] TPIRR's plan to call crews in advance of the time at which trains are scheduled to depart would result in increased crew costs for outbound trains from which bad ordered cars were removed after being placed on the departure track.

prior to departure from a hump yard is beyond ludicrous.[181] Indeed, TPI's dwell time assumption is fatally undermined by its Opening Evidence, in which witness McDonald allotted three hours to perform a 1,000/1,500 mile inspection of a TPIRR through train (TPI Op. Ex. III-C-6).[182]

The average time actually required to build outbound trains during 2012 at the six major CSXT hump yards identified on Figure III-C-16 was 5.18 hours. This time interval (which begins at the point when "pullout" of the cars from the classification track was complete) does not include the time required to switch one or more blocks of cars from the classification bowl to the departure track. Based upon witness Dirnberger's experience, and the real world data set forth in Figure III-C-16, CSXT's Reply RTC Model conservatively assigns 5.00 hours of pre-departure dwell time to TPIRR departure tracks, in order to account for the time that those tracks would be occupied to build and inspect outbound trains prior to departure (and therefore unavailable to other trains). Again, CSXT's estimate is supported by real world evidence, and should be adopted in lieu of the one-minute dwell time upon which TPI's RTC Model is based.

As the foregoing discussion demonstrates, TPI manipulated the modeling of TPIRR road trains in its RTC Model simulation by disregarding the detailed information provided by CSXT regarding the dwell time actually experienced by the very trains that TPI purported to "mirror," and ignoring the substantial amount of time that inbound and outbound trains would occupy "long" tracks in TPIR yards. TPI's unsupported—indeed, nonsensical—dwell time assumptions invalidate the output of its RTC Model simulation, and fatally undermines the only evidence

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[181] The notion that TPI's operating expert, Mr. McDonald, played any role in determining that input is not credible.

[182] The process of performing a mechanical inspection on an originating train is not materially different than that involved in performing an intermediate inspection on a through train.

proffered by TPI to support the number of receiving and departure tracks assigned to TPI yards.[183]

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In correcting the woefully inadequate receiving and departure track capacity assigned by TPI to the TPIRR's yards, witness Dirnberger applied the same fundamental principle that he followed in determining the TPIRR's classification track configuration—*i.e.*, that the TPIRR must have sufficient track capacity to accommodate all of the activities that take place in the receiving and departure areas of a rail yard, with a fluidity factor that would enable it to avoid congestion (and resulting train delays) on a daily basis. Unlike TPI's Opening Evidence, witness Dirnberger's analysis also applied realistic assumptions regarding the time periods during which arriving and departing trains would occupy tracks within a yard.

Following is a description of the methodology that witness Dirnberger employed to determine the TPIRR's location-specific receiving and departure track requirements.

i. Hump Yards

The required receiving and departure track capacity for a particular hump yard depends upon both the number of trains arriving at (and departing from) the yard on a daily basis, and the amount of time during which each arriving (or departing) train occupies a track in the receiving (or departure) yard classification track. The receiving and departure areas must also have sufficient capacity to accommodate the movement of light engines (*i.e.*, road locomotives that are removed from inbound trains and transferred to the locomotive servicing area) and yard locomotives assigned to switch inbound cars to the hump track for classification. (In its real

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[183] As discussed below, it also invalidates the train transit time analysis proffered by TPI to support the assertion that TPI's operating plan provides service to TPIRR's customers that is equal to, or better than, CSXT's current service.

world hump yard operations, CSXT plans for at least one track in the receiving and departure yards to remain vacant available at all times to accommodate such related engine movements.) Based upon these sound operating principles, witness Dirnberger redesigned the hump yard receiving and departure track configurations posited by TPI to ensure that the TPIRR would be able to handle all arriving and departing trains in a safe and efficient manner. The methodology employed by witness Dirnberger involved the following steps:

First, witness Dirnberger reviewed the "Yard Lineup by Train with Train Volume" Report generated by the "SuperSim" simulation conducted by witness Acharya to identify merchandise and automotive trains arriving at, and departing from, the TPIRR's hump yards during each day of the SuperSim period.[184] Witness Dirnberger calculated the average number of trains arriving and departing each day in the "SuperSim" simulation to develop the "average peak daily train arrivals and departures" for each hump yard. Because CSXT's "SuperSim" process was based upon an average week (rather than the peak week) during the peak year, the average peak daily train arrivals and departures developed by witness Dirnberger is conservative—it represents the number of trains that the TPIRR would need to accommodate at each yard on a typical day during the Peak Year (rather than the maximum number of trains arriving and departing during the peak week).[185]

Second, witness Dirnberger divided both the average daily train arrivals and the average daily train departures by 24 (hours) to determine the average number of trains per hour that would arrive at the yard, and the average number of trains per hour that would depart from the

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[184] CSXT Reply workpaper "station_lineup_system.xls" contains the "Yard Lineup by Train with Train Volume" Report from which witness Dirnberger identified arriving and departing trains.

[185] Again, the use of an average week is conservative, and actually results in lower track capacity requirements. See *DuPont*, STB Docket No. 42125, at 37.

yard, on a typical day during the Peak Year. Those calculations identified the "Average Hourly Train Density" in the receiving and departure yards, respectively.

Third, consistent with CSXT's real world experience (discussed above at III-C-112–13), witness Dirnberger assumed that each train arriving on a receiving track in the yard would occupy that track for 5.00 hours after its arrival. Based on that assumption, witness Dirnberger multiplied the Average Hourly Train Density in the receiving yard calculated in Step 2 by 5.00 to determine the "static" track capacity requirement for the receiving yard.

Likewise, witness Dirnberger assumed that it would take 5.00 hours to "build" an outbound train, so that one departure track would be occupied for 5.00 hours prior to the departure of each outbound train. Based on that assumption, witness Dirnberger multiplied the Average Hourly Train Density in the departure yard calculated in Step 2 by 5.00 to determine the "static" track capacity requirement for the departure yard.

Fourth, witness Dirnberger calculated the "practical" receiving and departure track capacity required at each hump yard by adding a "fluidity factor" to the "static" capacity developed for each yard in Step 3. Specifically, he applied the same 1.67 fluidity factor that he used in determining the yard's classification track requirement, in order to account for the commonly accepted principle that average track occupancy should not exceed 60% during normal operations. Application of a fluidity factor in sizing the receiving and departure areas of a hump yard is necessary to account for congestion and "bunching" of arrivals and/or departures caused by delays to inbound trains and surges in train activity (*e.g.*, as the railroad recovers from a winter storm or other temporary disruption of normal operations). This fluidity factor is also consistent with the methodologies utilized by CSXT in conducting real world yard capacity analyses.

Fifth, witness Dirnberger added to the "practical" capacity calculated in Step 4 one additional track to account for light engine movements (in both the receiving and departure areas), yard switchers moving into place to transfer inbound traffic from the receiving yard to the hump track, and switch engines moving between the classification bowl and the departure area (or cutting bad ordered cars from a train on a departure track).

Finally, witness Dirnberger (conservatively) determined the length(s) of the additional receiving and departure tracks assigned to each yard, based upon the shortest receiving (or departure) track posited by TPI at that location.

Figure III-C-17 sets compares the receiving and departure track capacity posited by TPI, the revised (and more realistic) receiving and departure track capacity developed by witness Dirnberger, and the real world receiving and departure track capacity at CSXT's existing hump yards.

Figure III-C-17
Comparison of Receiving and Departure Tracks at Hump Yards

City	State	Yard Name	TPI R&D Track Count	CSXT R&D Track Count	Difference	TPI R&D Length	CSXT R&D Length	Difference	CSXT Actual R&D Track Count	CSXT Actual R&D Miles
Willard	OH	Willard	15	14	**1**	30.51	25.90	**4.61**	24	27.77
Selkirk	NY	Selkirk	8	14	**-6**	19.60	32.20	**-12.60**	28	46.00
Indianapolis	IN	Avon	10	15	**-5**	22.00	30.00	**-8.00**	24	28.98
Nashville	TN	Radnor	20	15	**5**	45.12	27.90	**17.22**	28	33.95
Atlanta	GA	Tilford	10	12	**-2**	20.00	21.60	**-1.60**	22	22.39
Cumberland	MD	Cumberland	7	11	**-4**	14.50	20.90	**-6.40**	16	19.43
Cincinnati	OH	Queensgate	11	15	**-4**	25.55	30.75	**-5.20**	21	19.53
Louisville	KY	Osborn	8	13	**-5**	19.90	29.25	**-9.35**	39	37.88
Birmingham	AL	Boyles	5	10	**-5**	11.35	21.50	**-10.15**	22	19.68
Hamlet	NC	Hamlet	6	13	**-7**	13.50	27.30	**-13.80**	22	27.93
Waycross	GA	Rice	7	18	**-11**	17.85	44.10	**-26.25**	27	46.24
Total			**107**	**150**	**-43**	**239.88**	**311.4**	**-71.52**	**273**	**329.77**

ii. Flat Switching Yards

Witness Dirnberger employed a similar methodology in evaluating the required receiving and departure track capacity at the TPIRR's flat switching yards:

First, witness Dirnberger reviewed the "Yard Lineup by Train with Train Volume" Report generated by the "SuperSim" simulation conducted by witness Acharya to identify merchandise and automotive trains arriving at, and departing from, the TPIRR's flat switching yards during each day of the SuperSim period.[186] Witness Dirnberger calculated the average number of trains arriving and departing each day in the "SuperSim" simulation to develop the "average peak daily train arrivals and departures" for each flat yard.

Second, witness Dirnberger divided both the average daily train arrivals and the average daily train departures by 24 (hours) to determine the average number of trains per hour that would arrive at the yard, and the average number of trains per hour that would depart from the yard, on a typical day during the Peak Year. Those calculations identified the "Average Hourly Train Density" for the receiving and departure tracks at each flat switching yard. (Because "long" tracks at flat switching yards may be used interchangeably to hold either arriving or departing trains, witness Dirnberger calculated only one "Average Hourly Train Density" for each flat yard.

Third, consistent with CSXT's real world experience, witness Dirnberger determined the number of hours that each train would occupy a receiving or departure track at a particular flat yard. Because the trains that move to, from, and through flat switching yards on a daily basis occupy tracks for varying periods of time, witness Dirnberger performed a separate calculation

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[186] CSXT Reply workpaper "station_lineup_system.xls" contains the "Yard Lineup by Train with Train Volume" Report from which witness Dirnberger identified arriving and departing trains.

for each type of train.[187] For trains originating at a flat switching yard, witness Dirnberger assumed that the train would occupy a track for 5.00 hours prior to departure.[188] For trains making an intermediate stop to pick up and/or set off cars at a flat yard, witness Dirnberger assumed (conservatively) that the train would occupy a track for 2.00 hours prior to departure.[189] For those trains that made intermediate stops, but did not change consist, at a flat switching yard, witness Dirnberger assumed that the train would occupy a track for only 30 minutes. Based on those realistic dwell time assumptions for each train category, witness Dirnberger multiplied the Average Hourly Train Density, by train type, in the receiving yard calculated in Step 2 by the assumed dwell time for each train category to determine the "static" track capacity required to accommodate those trains.

Fourth, witness Dirnberger calculated the "practical" receiving and departure track capacity required at each hump yard by adding to the "static" capacity developed for each yard in Step 3 the same 1.67 fluidity factor that he used in determining the receiving and departure track requirements for the TPIRR's hump yards. Application of a fluidity factor in sizing the receiving and departure tracks at a flat yard is necessary to account for congestion and "bunching" of

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[187] By contrast, the vast majority of trains occupying tracks within the receiving and departure areas of a hump yard either arrive (and terminate) at, or originate at (and depart from) the hump yard.

[188] The process of building, inspecting and readying an originating train for departure is essentially the same, regardless of whether the train originates at a flat switching yard or a hump yard.

[189] As CSXT Reply Exhibit III-C-7 shows, real world trains picking up or setting off cars at CSXT's flat switching yards experience an average dwell time of 2.6 hours.

arrivals and/or departures caused by delays to inbound trains and surges in train activity (*e.g.*, as the railroad recovers from a winter storm or other temporary disruption of normal operations).[190]

Finally, witness Dirnberger determined the length(s) of the additional receiving and departure tracks assigned to each yard, based upon the shortest receiving (or departure) track posited by TPI at that location.

Figure III-C-18 sets compares the receiving and departure track capacity posited by TPI, the revised receiving and departure track capacity developed by witness Dirnberger, and the actual receiving and departure track capacity at CSXT's existing flat switching yards.

Figure III-C-18
Comparison of Receiving and Departure Tracks at Flat Yards

City	State	TPIRR Yard Name	TPI # of R&D Tracks	CSXT # of R&D Tracks	Difference	TPI R&D Track Miles	CSXT R&D Track Miles	Difference	CSXT Actual R&D Track Count	CSXT Actual R&D Miles
Chicago	IL	Barr	8	11	**-3**	16	19.69	**-3.4**	16	12.50
Cleveland	OH	Collinwood	4	8	**-4**	10	18.16	**-8.46**	13	12.12
Syracuse	NY	DeWitt	4	6	**-2**	8	12.36	**-3.88**	11	8.51
Evansville	IN	Howell	6	3	**3**	12	5.43	**6.39**	10	11.08
Richmond	VA	Acca	7	5	**2**	16	10.75	**5.52**	6	7.58
Rocky Mount	NC	Rocky Mount	4	6	**-2**	8	12.3	**-3.81**	8	10.17
Montgomery	AL	S & N	7	5	**2**	12	7.55	**4.76**	15	8.48
Mobile	AL	Siebert	6	7	**-1**	9	9.38	**-0.18**	7	4.41
New Orleans	LA	Gentilly	5	6	**-1**	9	9.72	**-0.62**	14	14.30
Jacksonville	FL	Moncrief	10	7	**3**	19	12.81	**6.29**	17	15.61
Tampa	FL	Yoeman	6	5	**1**	11	8.35	**2.8**	12	7.63
		Total:	**67**	**69**	**-2**	**131.91**	**126.5**	**5.41**	**129**	**112.39**

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As the foregoing discussion demonstrates, CSXT's Reply Evidence corrects a major deficiency in the yard configuration posited by TPI, by ensuring that the TPIRR would have sufficient track capacity to maintain fluid operations during its Peak Year. In particular, CSXT's

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[190] For flat switching yards, witness Dirnberger did not add any additional receiving or departure tracks to the "practical" capacity calculated in Step 4.

analysis replaces the nonsensical train dwell time assumptions that TPI input to its RTC Model with realistic (but conservative) dwell times based upon the actual experience of CSXT trains during the period replicated by the TPIRR's Base Year. The methodology employed by witness Dirnberger in developing the TPIRR's receiving and departure track requirements is supported by independent yard capacity studies. The Board should reject the receiving and departure track configurations posited by TPI, and adopt CSXT's well-supported receiving and departure track configurations.

c. TPI's Operating Plan Does Not Provide For All Of The Yards That The TPIRR Would Need To Handle Its Selected Traffic.

Not only does TPI's operating plan fail to provide sufficient track capacity at virtually every hump yard and flat switching yard included in its operating plan, but TPI ignored entirely the need to replicate CSXT's yard facilities at five other locations along the TPIRR network. TPI's own workpapers, and car event data provided by CSXT in discovery, indicate that the TPIRR would classify and switch a significant number of cars at each of those locations.[191] Figure III-C-19 identifies the CSXT yards that TPI failed to include in its operating plan, and the Base Year classification and switching that would take place at each location.

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[191] *See* TPI Op. WP "Base Year Car Class L and E w O-IR Class Sw V5.xlsx" ("TPI Base Year Car Classification Workpaper").

FIGURE III-C-19
Daily Car Classification and Switching Requirements At Missing Yards

Yard	State	Base Year Inter Train Switch Classification IT Switch	Daily Inter Train Switch Classification Events **Daily Average**	Base Year Industry Pull Events Originated	Daily Pulled Cars **Daily Average**	Base Year IR Events Received	Daily IR Cars **Daily Average**	Total Classified Cars Class Event	Daily Total Cars **Daily Average***	**CSXT Avg daily cars switched or through yard TOTAL****
BALT CURTIS BAY	MD	24,898	**68.2**	21,766	**59.6**	415	**1.1**	47,079	**129.0**	**496**
OAKWORTH	AL	16,549	**45.3**	22,948	**62.9**	4	**0.0**	39,501	**108.2**	**155**
CARTERSVILLE	GA	11,371	**31.2**	21,841	**59.8**	597	**1.6**	33,809	**92.6**	**97**
CALERA	AL	23,770	**65.1**	7,186	**19.7**	6	**0.0**	30,962	**84.8**	**93**
IVORYDALE	OH	260	**0.7**	26,222	**71.8**	54	**0.1**	26,536	**72.7**	**116**

*Source of data from all preceeding columns: TPI WP "Base Year Car Class L and E w O-IR Class Sw V5.xlsx"
**Source: CSXT Discovery file "CSXT Yard Matrix Update"

For example, the TPI Base Year Car Classification Workpaper indicates that the TPIRR would switch an average of 68.2 general freight cars per day between TPIRR trains at Curtis Bay (Baltimore), MD during the Base Year.[192] In addition, an average of 59.6 cars per day would need to be pulled from customer facilities that are served via CSXT's Curtis Bay Yard. In total, TPI's own workpapers show that the TPIRR would be required to classify or switch an average of 129 general freight cars per day at Curtis Bay.[193] Moreover, the data produced by CSXT to TPI in discovery showed that the "Average daily cars switched or through the yard" at Curtis Bay Daily was 496 cars per day during 2013.[194] While TPI incorporated the "Average daily cars switched or through the yard" information provided by CSXT into the TPI Classification Track Summary for the yards that TPI posited, TPI failed to include the same data—or to construct a yard—at Curtis Bay.

Likewisc, TPI's car classification workpaper indicates that the TPIRR would switch an average of 45.3 cars per day between trains, and pull an average of 62.9 cars per day from

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[192] *See id.*

[193] *Id.*

[194] *See* CSXT Reply WP "Yard Matrix Update.xls."

customer facilities, at Oakworth, AL.[195] In total, TPI's own workpapers show that the TPIRR would be required to classify or switch an average of 108 cars per day at Oakworth.[196] The data produced by CSXT to TPI in discovery showed that the "Average daily cars switched or through the yard" at Oakworth 155 cars per day during 2013Q2.[197] Yet TPI neither included this information in its car classification workpaper nor provided for any yard facilities at Oakworth, AL. CSXT's Reply Evidence corrects this major deficiency in TPI's yard service plan by providing for appropriately-sized yard facilities at each of the locations identified in Figure III-C-19.

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CSXT's Reply Evidence presents a network of yards for the TPIRR that is optimally sized and configured to accommodate the specific traffic group selected by TPI. CSXT's yard sizing and configuration is based upon a detailed analysis of the TPIRR's anticipated workload and car inventory at each location, and takes into account not only the number of cars that would move through each TPIRR yard daily, but also the number and size of the blocks in which those cars would arrive and depart and the amount of time that blocks and cars would dwell (and, therefore, occupy track space) at each yard. CSXT's location-specific analysis of the TPIRR's yard requirements results in a significant increase in the size of many TPIRR yards, due primarily to TPI's failure to account properly for the time that trains and cars would dwell at those facilities.

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[195] TPI Op. WP "Base Year Car Class L and E w O-IR Class Sw V5.xlsx."

[196] *Id.*

[197] *See* CSXT Reply WP "Yard Matrix Update.xls."

d. Insufficient RIP and support tracks

TPI proposes to include RIP tracks at its 12 major yards as well as at 15 "other" yards. TPI Op. WP "TPIRR Yard Matrix Opening Grading.xlsx." The only support TPI proffers for its RIP tracks is in a (rather circular) footnote to its workpaper that explains that the number of RIP tracks is "based on TPIRR operating plan." *Id.*, Tab "TPIRR Yards," n.4. TPI includes 2,800 feet of RIP track at hump yards and 1,400 feet at the 15 "other yards" where it included them. CSXT accepts the need for RIP tracks at those locations identified by TPI, but also determined that it was necessary to include RIP tracks at five additional yards: Atkinson, Evansville, Buffalo, East St. Louis (West Rose Lake), and New Orleans. Witness Gibson determined that RIP tracks would be necessary to handle the car and train volumes, and inspection requirements, at those yards. Both Atkinson and Evansville are locations which handle many long coal and grain trains, requiring additional track in the yard. Buffalo, West Rose Lake, and New Orleans are large gateways that handle significant volumes of interchange traffic. In order to account for the nature of yard operations at those locations, CSXT has included RIP tracks at each location.

6. TPI's Daily Yard Jobs And Yard Locomotive Counts Are Unsupported And Infeasible.

As explained above at III-C-75, the yards posited by TPI are inadequate to support TPIRR's Peak Year carload operations. TPI proposes yards that are consistently smaller than CSXT's in the real world without justification. Similarly, the daily yard jobs and the yard locomotive assignments proposed by TPI are consistently below those actually employed by CSXT in the real world. TPI's inadequate yard locomotive and crew assignments render the TPIRR's yard operations all the more infeasible.

As with other aspects of its evidence, TPI failed to support its yard crew and yard locomotive assumptions with any evidence. TPI's yard crew and yard locomotive evidence

appear in one workpaper: "TPIRR Yard Operations.xlsx."[198] That workpaper has two columns that list "TPI daily yard jobs" (Column 21) and "Yard Crew Personnel" (Column 23) and one column listing yard locomotive counts (Column 24). The only proffered explanation as to how TPI arrived at its yard crew numbers is a footnote in the workpaper explaining that "TPI Daily Yard Jobs [are] based on expert witness Dick McDonald."[199] TPI provides no basis for explaining how Mr. McDonald determined those counts. Nothing is said about the yard locomotive counts in TPI's narrative. However, in a footnote to its "TPIRR Yard Operations.xlsx" workpaper indicates that "Column (24) [Yard Locomotives] = Column 21 [Daily Yard Jobs] ÷ 3".[200] In other words, TPI's yard locomotive counts are derived by dividing the total daily yard jobs by three. No authority or explanation whatsoever for this mathematical calculation is provided. Nowhere in TPI's evidence does it explain what factors witness McDonald may (or may not) have considered in determining TPI's yard job counts, nor does TPI show that they are in any way tethered to TPIRR's yard requirements. TPI's evidence falls far short of the evidentiary standards required by the Board and should be rejected.[201]

In addition to failing to support its daily yard job counts, nowhere does TPI explain how many yard assignments are allotted to any given yard on any particular day. Thus, the fundamental data point underlying TPI's yard locomotive and yard crew calculations—*i.e.*, the number of yard assignments at each location—is unsupported by any record evidence. In any

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[198] TPI also produced what appears to be a slightly different version of this same workpaper titled "TPIRR Yard Operations V3_Jan1614 classification tracks.xlsx," which offers slightly different yard crew and yard locomotive counts.

[199] *See* TPI Op. WP "TPIRR Yard Operations.xlsx," n.10.

[200] *See* TPI Op. WP "TPIRR Yard Operations.xlsx."

[201] *See SunBelt*, STB Docket No. 42130, at 16 (noting that if "the complainant modifies or removes a facility, or reduces staffing . . . it would need to establish that the SARR could still adequately serve the traffic group").

event, CSXT's Reply Evidence demonstrates that the number of yard assignments posited by TPI at TPIRR yards is woefully inadequate. Indeed, when compared to the work to be done at any given yard, TPI's yard job counts are illogical. For example, at Hawthorne, IN, TPI posits only one person to classify 75.4 cars per day (which increases to 94.9 cars per day in the Peak Year). Comparatively, CSXT had a total of 7.7 daily scheduled yard jobs at Hawthorne in 2010. Similarly, in Demmler, PA, TPI posits that one person would be able to classify 90.5 cars per day in the Base Year. TPI's own spreadsheet acknowledges that CSXT has on average 4.4 yard jobs at Demmler on a daily basis.[202] Overall, TPI's yard crew assignments—including at hump yards— are consistently lower than CSXT's.

Moreover, TPI's methodology assigns no yard crews or locomotives at numerous yards where CSXT has yard jobs in the real world.[203] For example, TPI assigns no yard crews at Grafton, WV, or Danville, IL, while CSXT had more than three daily yard jobs at each of those locations in 2010.[204] TPI does not explain how car switching would be accomplished at those yards without a locomotive or crew. To the extent that TPI takes the position that any required switching would be performed by road train locomotives and crews, its operating plan does not account for the additional time required for road crews to do so, or the impact of such an assumption on the TPIRR's overall locomotive and crew requirements.[205]

The utter illogic of TPI's approach to determining the TPIRR's yard sizing, yard locomotive, and yard crew requirements is perhaps best illustrated by the fact that TPI did not

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[202] TPI Op. WP "TPIRR Yard Operations.xlsx."

[203] *See Id.*

[204] *See Id.*

[205] Indeed, TPI's RTC model allows only 30 minutes of dwell time for road trains to work at intermediate yards. *See infra* III-C-188–91.

assign any yard locomotives or yard crews at Plant City, FL, where it did build four classification tracks.[206] Again, if TPI assumed road train crews would handle the work at these yards, TPI has not accounted for that road crew (or train dwell) time. These inconsistencies reflect TPI's failure to apply operational experience or judgment in developing and verifying the TPIRR's yard, and related equipment and personnel, requirements.

In addition to positing fewer yard crew assignments at virtually every yard on its system than CSXT had in 2010, TPI proposes to eliminate entirely the scheduled "support jobs" that are assigned to expedite the work flow at certain CSXT yards.[207] Yard switchmen work with different support crews to expedite various tasks, such as coupling cars, aligning switches, protecting shove movements, lacing air hoses, and applying and releasing hand brakes. Support personnel also assist in assembling blocks from various tracks into trains and setting out cars designated for the yard when a road train arrives. Other support roles in the yard include delivering crews or work orders to trains at their locations within the yard to avoid the need for every train to stop at the yard office. As is clear from the video evidence of CSXT's real world yard operations, these positions are necessary to maintain the fluidity of yard operations and to alleviate congestion during the busiest periods.[208]

Indeed, the number of yard jobs assigned to any particular location is premised on the presence of support personnel. Yard crews rely upon support personnel to perform certain tasks. Without utility crews, yard crews would themselves have to handle those tasks. For example, without a support crew to align yard switches, a conductor would have to stop the locomotive

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[206] *See* TPI Op. WP "TPIRR Yard Operations.xlsx."

[207] CSXT provided TPI with data regarding yard support jobs in discovery in its "Yards Matrix.xlsx" files.

[208] *See* CSXT Reply Ex. III-C-1 (Video) at 6:24.

and get off the train at each switch that needed to be set in order to cross the yard. This would require him to start and stop the locomotive repeatedly, and get on and off the train to set the switch and re-set the switch to its original position once his locomotive has cleared the switch. This is a highly inefficient process that can result in significantly longer dwell times—and higher crew counts. Having a support job in place to align the switches allows for more continuous train movements and increases efficiency.

Because TPI both reduced the number of yard jobs at its yards, and failed to include any support jobs in its yard operations, TPI's already-low yard crew counts are clearly infeasible. TPI concluded that the TPIRR could be served by a total of 421 daily yard jobs. Those 421 daily jobs could, according to TPI, be covered by 566 people. TPI's proposed staffing is simply insufficient to handle all of the traffic that the TPIRR would flow through its yards.

As CSXT demonstrates above, TPI's yard service plan fails to account for the primary activity at all but the smallest TPIRR yards—car classification and blocking. Moreover, TPI proffered no explanation whatsoever as to how it determined its reduced count of daily yard jobs and provided no information whatsoever regarding yard crew assignments. As a result, TPI's estimates of the TPIRR's yard locomotives and yard crew requirements are unsupported by any record evidence, and should be rejected.

In contrast, CSXT's Reply Evidence properly accounts for all of the activities—including intermediate classification and switching—necessary to meet the needs of the TPIRR's general freight customers. CSXT's operating plan includes an appropriate number of yards that are optimally sized and configured to handle the TPIRR's carload traffic. Because TPI has failed to show that the TPIRR could adequately serve its customers with such truncated resources (*SunBelt*, STB Docket No. 42130, at 16), CSXT applies its actual 2010 yard staffing levels for

the yards on the SARR network. CSXT's decision to apply its real-world 2010 figures is consistent with Board precedent.[209] CSXT's actual yard job counts represent the best evidence of the number of yard crew personnel that TPIRR would need to operate its yards in the Base Year.

In 2010, CSXT had a total of 506 yard jobs in addition to 99 support jobs at the on-SARR yards, for a total of 605 daily yard jobs. CSXT employed a total of 765 personnel to staff those positions. These are the figures that CSXT has adopted for its yard crew personnel. Figure III-C-20 illustrates the difference between TPI's selected yard jobs and those posited by CSXT.

Figure III-C-20
Daily Yard Jobs

	TPI Yard Jobs	**CSXT Yard Jobs**	**CSXT Support Jobs**	**Difference**
Willard	18	21	12	(15)
Selkirk	26	29	19	(22)
Indianapolis	20	21	3	(5)
Nashville	27	28	9	(10)
Atlanta	22	24	0	(2)
Cumberland	12	12	7	(7)
Cincinnati	29	28	3	(2)
Louisville	26	33	4	(11)
Birmingham	20	24	6	(10)
Hamlet	18	19	7	(9)
Waycross	24	23	15	(14)
TPIRR Hump Yards	**242**	**262**	**87**	**(107)**
TPIRR Flat Yards	**179**	**243**	**13**	**(77)**
TPIRR Total	**421**	**506**	**99**	**(184)**

TPI posits that the TPIRR could operate its yards with a total of 203 locomotives, including spare engines. Because CSXT has employed more personnel at many yards, CSXT makes a corresponding adjustment to its Reply yard locomotive counts to reflect the needs at

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[209] *Cf. SunBelt*, STB Docket No. 42130, at 16.

those yards. CSXT determined that the TPIRR would require a total of 230 total yard locomotives. *See* CSXT Reply WP "TPIRR Yard Operations_Reply.xlsx." This total includes the 37 spare engines that TPI claims the TPIRR would require. *See* TPI Op. WP "TPIRR Yard Operations.xlsx."

a. TPI Failed To Construct All Of The Track Required For The TPIRR To Physically Serve Its Customers.

TPI failed to include sufficient serving tracks at industries to reach all of the customers that TPI selected for its SARR. TPI built 200 feet of track beyond the main line switch and asserted that trackage would be sufficient to serve the TPIRR's customers. TPI's "generic" 200 feet of customer lead track does not consider the particular layout at individual customer facilities.

TPI's generic assumption fails to provide trackage sufficient for the TPIRR to reach its customers where(i) the customer's facilities are located more than 200 feet from the TPIRR main line switch, and (ii) CSXT (rather than the customer) owns the industrial lead track. Had TPI consulted the side track agreements produced by CSXT in discovery, it would have discovered that there are 52 unique customer facilities at approximately two dozen locations for which TPI's generic 200-foot industrial track allowance is insufficient. Those 52 customers account for nearly 53,000 carloads of the TPIRR's Base Year traffic.[210] Based upon a review of the relevant side track agreements, CSXT determined that TPI failed to account for 64 miles of CSXT-owned industrial track required to physically reach those 52 customers. While TPI claimed the revenue for all of the traffic originating and termination at those customer facilities, its track

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[210] *See* CSXT Reply WP "Customer Lead Tracks.xlsx."

configuration fails to account for the cost of providing the lead track necessary to reach that traffic.

Figure III-C-21 identifies those on-SARR customer locations at which the TPIRR would be required to construct more than a generic 200 feet of industrial lead track to serve customers selected by TPI. Without those tracks, service to the TPIRR's general freight customers is not only not "feasible," it is physically impossible.

FIGURE III-C-21
Additional Industrial Track Required to Serve TPIRR Customers

Location	# of On-SARR Customers	Total Miles
Montgomery, AL	4	5.9
Theodore, AL	3	5.8
Jacksonville, FL	1	2.3
Palmetto, FL	2	1.1
Starke, FL	1	2.2
Sutton, FL	1	1.5
Camak, GA	1	3.4
Cartersville, GA	5	0.9
Lithonia, GA	2	2.2
Elizabethtown, KY	1	2.6
Henderson, KY	4	5.2
Louisville, KY	3	3.2
Patio, KY	1	0.4
Michoud, LA	2	0.8
Baltimore, MD	3	5.3
Jessup, MD	1	1.1
Pascagoula, MS	1	2.6
Niagara, NY	6	4.3
Sidney, OH	1	0.6
Jackson, TN	1	1.7
Lewisburg, TN	2	2.7
Nashville, TN (ONW Spur)	4	4.9
Nashville, TN (Front St. Spur)	1	1.2
New Johnsonville, TN	1	1.5
Total	**52**	**63.7**

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In short, by failing to address the necessary elements of "carload" railroading, TPI's operating plan and RTC Model simulation understate the time, facilities, equipment, and personnel required to serve the TPIRR's general freight customers. This glaring deficiency renders TPI's Operating Plan infeasible, and its estimated train transit times, car and locomotive cycle times, locomotive and car fleet sizes, and crew requirements invalid. CSXT's Reply Evidence corrects those deficiencies by properly accounting for the time required to perform local pick-ups, set-offs, and intermediate switching; incorporating those time requirements into CSXT's RTC Model simulation; and developing an accurate estimate of the number of locomotives, cars, and crews actually required to serve the TPIRR's traffic group in a manner consistent with shipper needs (as required by the Board's SAC regulations).

b. Intermodal Traffic

The traffic selected by TPI for the TPIRR includes approximately 3.8 million units of intermodal traffic in its Peak Year. TPI Opening III-C-6, Table III-C-1. CSXT generally accepts TPI's selection of intermodal traffic and included the CSXT intermodal train plan in its MultiRail analysis. However, CSXT made certain corrections to TPI's intermodal operations in three main areas: First, CSXT added a third locomotive to expedited trains. Second, CSXT corrected TPI's incorrect RTC routing of intermodal traffic in Chicago. And third, CSXT added three additional intermodal facilities not built by TPI.

First, CSXT added a third locomotive to certain time-sensitive intermodal trains. As explained in more detail in section III-D, CSXT operates its expedited intermodal trains with three locomotives in the real world. This practice is necessary to meet customer time commitments and ensure the reliability of these time-sensitive movements. In particular, three locomotives guards against significant delays in the event of a locomotive failure.

Second, CSXT corrected the routing of TPIRR intermodal train movements in Chicago in its RTC Model. TPI incorrectly assumed that intermodal traffic would terminate at CSXT's Barr Yard. However, CSXT routes all of its intermodal traffic to the Bedford Park intermodal terminal. CSXT adjusted the RTC Model to reflect the real-world movement of these trains. *See infra* III-C-182.

Third, TPI failed to build three intermodal facilities that would be necessary to serve the TPIRR's intermodal traffic. *See* CSXT Reply III-B-19. Those locations include Marion, OH, North Baltimore, OH, and Louisville, KY. These are new intermodal facilities that were opened in 2010. Information about each of those facilities was produced to TPI in discovery. Furthermore, while TPI did not construct the facilities, it recognized the need for them by including the cost of staffing those facilities in its operating expenses. By adopting CSXT's train plan, TPI is reliant upon the work conducted at those facilities. Because those facilities are necessary for intermodal traffic across the TPIRR, CSXT has included them in its operating plan.

These modifications to TPI's intermodal operations were necessary to properly account for the time and costs associated with intermodal operations on the TPIRR network. CSXT's operating plan reflects these operations.

c. Unit Train Traffic

The traffic selected by TPI for the TPIRR also includes 850,000 cars of coal, most of which moves in unit train service.[211] Because unit train shipments, by definition, move intact between a single origin (or, on-SARR location) and a single destination (or, off-SARR point), it was not necessary to develop "trip plans" in MultiRail for individual cars traveling in a unit train.

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[211] *See* TPI Opening III-C-6, Table III-C-1. TPI also selected smaller volumes of grain, ethanol, and sulfur that move in less-than-trainload quantities. Those shipments were incorporated into the carload Operating Plan presented by CSXT.

Rather, CSXT incorporated the intact movement of unit train traffic between SARR origin and SARR destination directly into its operating plan and RTC Model simulation.

d. Trains and Equipment

i. Train Sizes

In its RTC Model, TPI based the maximum length of TPIRR trains on the "comparable CSXT trains operated between 3Q12 and 2Q13" as shown in the historical train data furnished by CSXT in discovery. *See* TPI Opening III-C-15. CSXT accepts TPI's methodology as a reasonable approach to determine maximum train sizes. CSXT therefore accepted TPI's train lengths for purposes of CSXT's operating plan and RTC simulation.

ii. Locomotives

TPI posits that the TPIRR could operate a 7,300-mile rail network with a locomotive fleet consisting of 709 ES44AC road locomotives, 167 SD40-2 locomotives to power local trains and work trains, and 181 SW 1500 locomotives for use in yard switching operations.[212] TPI assumes the TPIRR would operate road trains in a 1/1 "Distributed Power" ("DP") locomotive configuration. TPI Opening III-C-16-17. TPI's Operating Plan fails to provide a locomotive at every yard. TPI includes 68 "other yards," but provides for yard engines at only 38 of those facilities, leaving nearly half of TPIRR's "other yards" without any "resident" motive power.[213]

CSXT accepts TPI's specification of ES44AC locomotives for TPIRR road trains, and SD40-2 locomotives for local and work trains. However, virtually every other element of TPI's locomotive plan is either wrong or deficient. TPI substantially understates the number of locomotives that the TPIRR would need to operate its road and local trains. TPI's proposal to

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[212] *See* TPI Opening III-C-16, Table III-C-2.

[213] *See* TPI Op. WP "TPIRR Yard Operations.xlsx."

operate all TPIRR road locomotives in DP configuration is both wasteful and inefficient. TPI's selection of SW1500 locomotives for the TPIRR's extensive yard service requirements is nonsensical—that antiquated locomotive model's limited availability, limited braking ability, and limited tractive power make it an illogical choice for a least cost, most efficient railroad.

(a) Road Locomotives

The fleet of only 709 ES44AC locomotives posited by TPI is inadequate to handle the TPIRR's road train and helper service operations. TPI's estimate of the TPIRR's locomotive requirements is based directly upon operating statistics generated by its RTC simulation.[214] As CSXT has demonstrated above, TPI's RTC simulation suffers from numerous flaws—not the least of which is its failure to account for train (and locomotive) dwell time. Accordingly, TPI's estimate of the TPIRR's locomotive requirements is not supported by any credible evidence.

Various assumptions underlying TPI's operating plan also contributed to an understatement of the TPIRR locomotive requirements. TPI's assumption that nearly half of its "other yards" could be operated without even a single yard engine led to a gross understatement of the TPIRR's yard locomotive requirements.[215] As CSXT demonstrates below, the TPIRR would need a fleet of 230 SD40 locomotives to accommodate the classification, switching, and other tasks performed at the TPIRR's yards. TPI's failure to model the TPIRR's operations completely and accurately—and, in particular, its failure to account for local train service to all customer facilities—resulted in a further understatement of the TPIRR's road and local train locomotive requirements.

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[214] *See* TPI Op. Ex. III-C-6 at 2.

[215] *See* TPI Op. WP "TPIRR Yard Operations.xlsx.".

The inadequacy of the locomotive fleet posited by TPI is clearly demonstrated by considering the level of utilization implied by TPI's estimate. To put that estimate into perspective, conducting the TPIRR's operations with a fleet of only 709 road locomotives, 167 SD40-2s for local service, and 181 switch engines would require TPIRR locomotives to achieve an average of 167,000 locomotive unit miles ("LUMs") per year. In reality, during the year 2012, CSXT's actual locomotive fleet averaged 56,000 LUMs for all locomotives, while NS averaged 49,000 LUMs for all locomotives.[216] As these figures demonstrate, TPI's locomotive fleet assumptions for the TPIRR are divorced from reality.

Not only is the road locomotive fleet posited by TPI grossly inadequate, but its assumption that the TPIRR would deploy those locomotives in DP configuration on all road trains (TPI Opening III-C-16) is both unrealistic and highly inefficient. The environment in which Eastern railroads operate is significantly different than that experienced by Western carriers. In particular, trains operated by Eastern railroads like CSXT (and the TPIRR) are generally shorter in length and travel shorter distances than trains typically operated in the West. The general freight trains that the TPIRR would operate average approximately 4,600 feet in length.[217] The average length of haul for TPIRR trains is only 281 miles for general freight trains, 426 miles for coal trains and 501 miles for intermodal trains.[218] Given those operating parameters, the cost of outfitting TPIRR (and other railroads') locomotives for DP operations, and the extra time (and yard expense) required to position locomotives and to initialize communications between units for DP operation, DP configuration is simply not justified. That

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[216] *See* CSXT Reply WP "R1 Operating Expenses and Train Loco Stats.xlsx."

[217] *See* TPI Op. WP "TPIRR Base Year Manifest Train List_Statistics.xlsx."

[218] *See* TPI Op. WP "TPIRR Base Year Manifest Train List_Statistics.xlsx" and "TPIRR Base Year Unit Train List v2_Statistics.xlsx."

is why CSXT's use of DP today is confined to a very limited number of road trains. Because TPI "mirrors"[219] CSXT's real world operations (which do not rely upon DP), DP is a poor choice for the TPIRR.

CSXT's Reply Evidence provides sufficient power to conduct the TPIRR's road train operations safely and efficiently. CSXT developed the TPIRR's locomotive requirements by individual location (rather than on a "system-wide basis"), to account for the TPIRR's fleet needs at particular locations. The methodologies that CSXT used to develop the correct number of TPIRR road, local, helper, and yard locomotives are discussed in III-D.

TPI's road locomotive estimate includes a spare margin of {{ }} percent for ES44AC locomotives and {{ }} percent for SD40-2 locomotives. TPI Opening III-C-17. TPI's estimates are understated. In calculating its out-of-service factor, TPI included time that was not linked to a particular activity and was identified only as "Unknown CSX On-line Days (cannot determine CSX time bucket.)" TPI Op. WP "Loco stats Update_Spare Margin.xlsx.". Tab "Update," cell K2. By including this indeterminate metric, TPI's spare margin estimate is rendered unreliable. CSXT corrected the spare margin calculation by removing any time that was associated with that metric. CSXT's corrected calculations result in spare margins of { } for TPIRR's ES44AC units and { } for the SD40-2 locomotives. *See* CSXT Reply III-D-17.

In total, the TPIRR would require a fleet of 882 ES44AC locomotives to accommodate its road train and helper service operations.

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[219] TPI Opening III-C-5.

(b) Helper Locomotives

TPI's operating plan provides for helper service at 12 locations on the TPIRR system. TPI Opening Table III-C-3 and Exhibit III-C-6, Table 2, identify the TPIRR's "helper districts," specifies whether one or two additional road locomotives would be added to the train at each location, and states the number of trains per day that would require helper service during the peak period. CSXT accepts TPI's helper service proposal.

(c) Switch/Work Train Locomotives

TPIRR's operating plan provides for the use of SW1500 locomotives "in flat switching service in both hump yards and flat yards."[220] TPI attempts to justify the selection of the SW1500 for yard service by claiming "switch locomotives are relatively low horsepower locomotives with high torque and typically four-axle locomotives which are specifically designed to be used in switching service" and "this type of locomotive is commonly used by Class I and other railroads (including CSX) for such service."[221] TPIRR's selection of the SW1500 locomotive is not feasible and is inconsistent with the design of a highly efficient railroad for several reasons:

First, contrary to TPI's assertion that "this type" of locomotive is "commonly" used by Class I and other railroads, including CSX for switching service in flat yards, SW1500s are largely out-of-favor with Class I railroads. Indeed, TPI's inference that the SW1500 is the same "type" of locomotive used by Class I railroads today is incorrect. CSXT relies primarily on GP38-2 locomotives for yard switching operations. GP38-2 locomotives are not the same "type" of locomotive as the SW1500. Today's Class I railroads are efficient and use locomotives and

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[220] TPI Opening III-C-19

[221] *Id.* (emphasis added)

locomotive consists with an adequate balance of horsepower and braking capability for the assigned task—none of which the SW1500 can offer.

Second, the SW1500's braking power is limited, creating safety hazards and inefficiencies in yard operations. The SW1500 is equipped only with an engine air brake and a trainline air brake, and is not equipped with dynamic braking. Because those locomotives are lightweight and underpowered, it is difficult to initiate and control the speed of the movement when pulling out of the bowl of classification yards, which can lead to accidents.[222] The application of the engine brake during switching operations results in railcars continuing to shove the locomotive beyond its intended stopping point. Attempts to correct the insufficient braking capacity of the SW1500 by coupling the air hoses of some or all of the railcars in the classification track to use the braking capacity of the railcars is inefficient. This would require multiple additional steps, all of which add time to the process. Those steps include: coupling the air hoses; charging the brake reservoir and brake line of the cars in the classification track; testing the brakes on the railcars to ensure they are operable; and finally using the trainline brake instead of the engine brake to control the movement of the switch locomotive and railcars. Not only are the attempted remedies to compensate for lack of horsepower and lack of braking capacity of the SW1500 inefficient and time consuming, they are also dangerous.

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[222] In the early 1980s (when SW1500s were newer and used more extensively) a series of derailments, sideswipes, and accidents involving switch engines running off the end of the pullback tracks occurred due in large part to the insufficient braking capability of the lightweight switch locomotives. Attempts to achieve better control of movements by use of the trainline brakes exacerbated the inefficiency of class yard operations due to the time required to charge the trainlines and main reservoirs of the braking system. Classification and hump yard operations slowed to a crawl as the throughput of the classification yard was not sufficient to keep up with the volume of inbound trains.

Third, use of the SW1500 results in inefficient classification and switching service—the very service that TPI asserts would rely upon SW1500 locomotives. The SW1500 locomotive is a low horsepower locomotive, powered only by a 1,500 hp engine. This engine is not powerful enough to generate sufficient tractive power to perform switching activities, either at flat yards or at hump yards.[223]

The SW1500's design limitations do not support safe and efficient modern flat yard classification operations with railcar weights of 286,000 pounds.[224] The SW1500's low horsepower, light weight, and inadequate braking capability make it an illogical choice for flat yard operations. In flat yard switching operations a conductor pulls the cut lever to lift the knuckle pin to open the coupler to allow a railcar to roll free from the block of cars being switched and into a classification track. The conductor positions himself on the switching lead at the yoke of the classification yard tracks so that he can align the initial switch to establish the route for movement of the free rolling car and to operate the cut lever on the car being separated from the block of cars that is being switched. Additional switchmen may be positioned further down along the lead tracks to align subsequent switches to allow railcars to roll into the proper classification track. The locomotive engineer has to generate sufficient momentive force from the locomotive to bunch the slack in the block of cars being switched so that the conductor can lift the cut lever to open the knuckle so that the railcar can roll free. The engineer also has to apply the engine brake quickly enough so that the movement of the block of cars will stop once the conductor has operated the cut lever. When a locomotive has an adequate balance of horsepower and stopping capability, a conductor can stand in one location at the yoke of the

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[223] *See SunBelt*, STB Docket No. 42130, at 35.

[224] The SW1500 was developed at a time when many railcar shipments were limited to 263,000 pounds or lower gross weight on rail.

classification yard without having to move more than a few feet in either direction to align the initial switch and operate the cut lever. However, if the locomotive lacks sufficient horsepower to kick off the railcars or lacks sufficient stopping capability (as does the SW1500), the classification operation degrades into a seesaw back-and-forth shove operation that endangers the crew members who have to work to compensate for the inability of the locomotive to start and stop the movement properly. If the movement of the block of cars does not stop quickly enough, the conductor has to run alongside the block of cars holding up the cut lever while jumping over footing hazards such as intervening rails and switches until the engineer is able to stop the movement. As such, for efficiency and safety reasons, the SW1500 is an unsuitable choice for flat yard switching.

Similarly, the SW1500 is an inappropriate choice for hump yard switching activities. The engine lacks the tractive effort necessary to perform the coupling operations required on blocks of railcars in long classification tracks. Once cars are switched on to classification tracks to be made up into blocks, the cars need to be coupled. The coupling of cars on classification tracks requires sufficient horsepower to pull forward or to reverse direction to separate equipment so that the conductor can safely move between the railcars to align mismatched couplers, open knuckles, and perform coupling operations. The SW1500 lacks the horsepower to respond to the engineer's throttle positions on long blocks of cars in compliance with the conductor's commands and is therefore ineffective for such operations. In order to accomplish the same work with a SW1500, blocks of cars would have to be pulled from the classification tracks and shoved into the forwarding yard in small cuts. This requires multiple movements into and out of the same classification track to move blocks of cars into the forwarding yard for the building of outbound trains. Higher horsepower locomotives can accomplish this task in one movement.

The time that it would take the SW1500 to complete these multiple switches is time lost to the Yardmaster or Terminal Trainmaster as the classification track would be blocked.[225]

For these reasons SW1500s are inappropriate yard switching locomotives. SW1500s reduce efficiency in the yards and create an unsafe working environment.

Even if the SW1500's considerable operating and performance limitations could be set aside, the simple fact is that there are not sufficient quantities of the units in existence today to adequately meet the TPIRR's locomotive power needs for the 2010- 2020 period. The SW1500 was produced in limited numbers more than forty years ago. General Motors Electro-Motive Division produced a total of 808 SW1500s between June 1966 and January 1974.[226] A total of 519 SW1500s were owned by U.S. railroads as of 2009 and it is unknown how many of these units remain in active service.[227] CSXT's ownership of SW1500 locomotives was limited to 18 units as of 2009.[228] By 2012, CSXT's SW1500 fleet had decreased to a total of two units.[229]

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[225] When faced with backup in classification tracks in the bowl of a hump yard, the Yardmaster or Terminal Trainmaster has to decide whether operations on the hump are to be suspended or whether some cars will have to be dropped over the hump into a "rehump" track until more classification tracks are made available. The "rehump" track is used when there are an insufficient number of classification tracks available to create a destination block for all of the railcars that are being shoved over the hump. The cars sent to the "rehump" track then have to be pulled from the classification yard back over the hump into the receiving tracks and shoved over the hump again once a sufficient number of classification tracks become available. Rehumping not only delays the outbound shipment of railcars and mainline trains, but it also creates congestion in the receiving yard and delays the inbound receipt of trains for classification.

[226] Wikipedia, "EMD SW1500," http://en.wikipedia.org/wiki/EMD_SW1500.

[227] JAMES W. KERR, *The Official Locomotive Rosters & News of North America* (2009 ed.). The figure represents the total number of units owned by U.S. Carriers as of 2009 and does not reflect the number of units that were still in active service. There were considerably fewer owned by U.S. Carriers as of 2012. *See* JAMES W. KERR, *The Official Locomotive Rosters & News of North America* (2012 ed.) (listing number of SW1500s owned by all Class Is and Shortlines of North America).

[228] KERR, *supra* (2009 ed.).

In short, it would be irrational for a least cost, most efficient railroad commencing operations in 2010 to choose the SW1500 model to handle yard operations across a newly constructed 7,300-mile rail network. Witness Gibson rejected the use of the SW1500 locomotive for switching service, in favor of the SD40 model that TPI proposed to power local service and work trains.

As discussed above, TPI's operating plan significantly undersized its yards and did not account for all of the traffic that would need to be handled from its yards. As a result, TPI's estimate of the TPIRR's yard locomotive fleet requirements is understated. CSXT corrects this deficiency by providing a fleet of 230 SD40 locomotive units for switching operations at the TPIRR's yards. The number of yard locomotives allocated to each yard facility in CSXT's Reply Evidence is set forth in CSXT Reply WP "TPIRR Yard Operations_Reply.xlsx." The number of yard assignments, yard locomotives, and yard crews (per shift) contemplated by CSXT's operating plan was developed by CSXT witnesses Gibson and Fisher, based upon CSXT's actual yard and support job assignments at CSXT yard locations replicated by TPI for the SARR. Witness Gibson accepts TPI's identification of spare yard engines that would be needed.[230]

Figure III-C-22 summarizes the estimates of TPI and CSXT regarding the number of locomotives that the TPIRR would require to execute a feasible operating plan for the TPIRR's selected traffic group.

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[229] *See* KERR, *supra* (2012 ed.).

[230] The inclusion of additional spare units for yard power is appropriate because those units are assigned to specific locations and thus do not travel throughout the system as do the TPIRR's road locomotive units.

Figure III-C-22
TPIRR Locomotive Requirements

Locomotive Type	TPI Opening	CSXT Reply	**Difference**
ES44AC	709	882	**173**
SD40-2	167	515	**167**
SW1500	181	0	**(181)**
Total	**1,057**	**1,397**	**340**

iii. Railcars

TPI utilized shipment data produced by CSXT to determine car ownership. TPI Opening III-C-20. TPI's car ownership percentages are consistent with those developed by CSXT and CSXT does not challenge TPI's mix of system cars and shipper-provided equipment.

TPI's car requirements, however, are significantly understated. TPI calculated the TPIRR's car requirements based upon operating statistics generated by its RTC Model simulation. *See id.* As CSXT demonstrated above, those operating statistics are essentially meaningless because the Model upon which that simulation was based suffers from numerous flaws and omissions—not the least of which is TPI's failure to incorporate into its model all of the necessary dwell time in yards—let alone the all of the trains necessary to serve its customers. Accordingly, TPI's railcar estimates are not credible.

As CSXT explains in greater detail in Part III-D below, CSXT's railcar fleet estimates are based upon the number of car-miles and car-hours derived from CSXT's detailed operating plan, which properly accounts for all of the activities required to handle merchandise traffic moving in TPIRR trains. CSXT's car fleet estimates is the best evidence of record, and should be adopted by the Board.

a. Crew Districts and Crew Requirements

TPI's operating plan provides for "111 crew-district home-terminal locations." TPI Opening III-C-11. As TPI explains, it selected its crew district locations based upon crew assignments used by CSXT in the real world. CSXT accepts TPI's assumed crew district locations.

CSXT accepts TPI's proposed crew districts, with certain modifications, which are described in further detail in III-D below. In particular, TPI's assumption that train crews would average 270 shifts per year is unrealistic. Furthermore, TPI failed to properly calculate crew imbalances (deadheading) and a realistic re-crew rate. CSXT made appropriate adjustments to TPI's crew requirements to account for the actual number of shifts a crew member could reasonably be expected to work, and for appropriate re-crewing rates.

i. Road Crews

TPI states that the TPIRR's road-crew assignments were developed by Mr. McDonald. TPI Op. Ex. III-D-1 at 1. TPI used the RTC Model to "confirm that train crews operating in these crew districts generally could complete each tour of duty within 12 hours and otherwise comply with the federal hours-of-service law, as amended." *Id.* at 1-2. However, as explained in more detail in Section III-D, below, TPI's road crew counts are understated for three reasons. First, TPI failed to include all of the necessary local trains needed to provide complete service to all of the SARR customers, and also failed to account for the crews needed to operate those trains. Second, TPI failed to properly account for road train directional imbalances. *See* CSXT Reply III-D-11–14. TPI included a re-balancing additive for TPIRR road crews of 1.5%. That additive is significantly understated. TPI's assumption strands crews as far as 400 miles from their home locations without making any provision to return them to their home base. *See id.* at 48. The inadequacy of TPI's crew balancing additive is confirmed by CSXT's 2010 payroll

records, which indicate that deadheading hours represent more than { }of the total operating hours incurred by road crews.[231] CSXT replaced TPI's inadequate 1.5% additive with a 3.1% deadheading rate, which is the same as the rate CSXT applied to the TPIRR's locomotive imbalances and { } of the actual expense that CSXT incurs in the real-world.

Third, TPI's re-crew rate is understated. TPI's 0.7% re-crew rate belies TPI's claim that its crews will "comply with the federal hours-of-service law." TPI Op. Ex. III-D-1 at 2. CSXT's real world re-crew rates range from { }. Moreover, TPI has applied longer crew districts, and fewer crew changes, along TPIRR routes than CSXT does in its real world operations. *See* CSXT Reply III-D-49–52. TPI's supposedly "efficient" operating practices—including calling crews for duty prior to the arrival of the train and arranging locomotives in DP configuration—are likely to increase TPIRR's re-crew rate, as crews will inevitably face delays upon arrival at the yard and will expire prior to arrival at the ultimate destination. As a result, CSXT has applied a conservative 3.4% re-crew rate to TPIRR's road trains.

TPI's failure to account for the necessary number of local trains, and its failure to properly calculate the deadheading and re-crew rates for road crews, result in a road crew calculation that is significantly understated. As a result, CSXT has determined that the TPIRR would require 2,830 road crews.

ii. Helper Crews

TPI assigns helper service at twelve locations on the TPIRR. It asserts that helper crews are engineer-only crews. TPI Opening III-C-11. CSXT accepts TPI's helper districts. TPI's narrative evidence indicates that TPI included 65 employees to staff the helper service. *Id.*

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[231] *See* CSXT Reply WP "CSXT_TE_Payroll_Data_Reply.xlsx."

However, TPI failed to include for those 65 helper crews in its final count of 3,108 T&E crew personnel. CSXT accepts TPI's 65 helper crew count and includes those crews in its Reply.

7. Other

a. Car Repair Facilities

Because the TPIRR proposes to acquire its rolling stock pursuant to "full service" leases under which TPIRR cars would be repaired and maintained by the lessor (TPI Opening III-D-9), TPI assumed that the TPIRR would not need any car repair facilities or personnel, and none are provided for in the TPIRR Operating Plan. This assumption makes it physically impossible for the TPIRR to perform running repairs on foreign line cars that become disabled while on the TPIRR network, as required by the AAR's Interchange Rules. The increased "out of service" time resulting from TPI's assumption would also impair the TPIRR's operations by preventing it from placing cars quickly back into service and increasing the number of cars required to serve its selected traffic.

Coupled with TPI's failure to include car repair facilities is the false statement that "TPI has incorporated the need to make running repairs to foreign cars operating on its rail lines." TPI Opening III-C-9. Without any facilities and equipment to make small repairs, TPI cannot with a straight face assert that it has met the responsibilities imposed upon it by the AAR Interchange Rules. *Id.*[232] TPI attempts to claim that it has met its reciprocal responsibilities to make running repairs to foreign cars because it "has provided 281 railcar-equipment inspectors, part of whose task is to make minor (running) repairs to railcars during the inspection process." *Id.* TPI's

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[232] The AAR Interchange rules require that handling line railroads complete minor repairs. *See* AAR, *2012 Field Manual of the A.A.R. Interchange Rules*, Rule 1(2)(a)(7) ("Running repairs as provided in these rules that are owner's responsibility may be made by a repair facility acting as the railroad's agent without requesting owner's disposition. Repairs must be completed while on handling line railroad or at a facility served by the handling line railroad.")

assertion not only contravenes real world railroad practices, but is directly contradicted by its own evidence!

It is not railroad practice for inspectors to repair railcars. An inspector is tasked with inspecting an entire train in a relatively short period of time—two to three hours—during which he will flag cars with any perceived defects with a bad order label. Those cars are then switched out of the train and are sent to a repair facility or RIP track within the yard to be repaired. It would not be possible for an inspector to also repair cars within the time allotted for his inspection by TPI. Even simple car repairs can take an hour to complete. TPI's proposal would lengthen inspection times, further congest its already-undersized yards, and result in considerable delays across the system.

Furthermore, TPI's assertion is contradicted by its own evidence. TPI's witness McDonald allotted five hours of dwell at each yard for through trains requiring inspections. TPI Op. Ex. III-C-6 at 6. According to TPI "this includes time for the inspection itself (three hours) and removal of any bad order cars from the train and addition of spare or repaired cars (one hour)." *Id.* (emphasis added) TPI's own evidence illustrates that inspectors would not take the time out of their inspections to repair railcars. TPI's attempt to prove that it has complied with the AAR Interchange Rules and its reciprocal responsibilities owed to its interchange partners is belied by its own evidence.

CSXT addressed this issue by including RIP tracks in 5 locations in addition to those proposed by TPI: Atkinson, Buffalo, Evansville, East St. Louis, and New Orleans.[233] CSXT determined that those tracks would be necessary to permit bad ordered cars to be removed from the train consist and be repaired prior to further movement. CSXT's operating plan is provides

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[233] *See* CSXT Reply WP "TPIRR Yard Matrix CSXT Reply.xlsx."

the necessary car repair facilities to account for running repairs that the TPIRR would inevitably have to perform along its system.

b. Switching and Yard Activity

i. Locomotive inspections and fueling

TPI assumes that the TPIRR can service its locomotive fleet with only four locomotive shops. TPI Opening III-C-13. But, as CSXT has shown, TPI's locomotive fleet (and corresponding locomotive servicing and repair requirements) are based upon a faulty operating plan and RTC simulation that failed to account for tens of thousands of local trains that are necessary to provide complete train service to the TPIRR's customers—including 39% of the "issue" traffic. Both TPI's road and yard locomotive fleets are markedly understated. As a result, TPI also significantly underestimated the need for locomotive servicing facilities on the TPIRR. The four locomotive shops posited by TPI are insufficient to perform the necessary inspections and repairs required for TPIRR locomotives. Based upon CSXT's operating plan evidence, which accounts for all of the required train services, CSXT accepts TPI's four proposed heavy locomotive shops. However, CSXT determined that the TPIRR would require an additional 12 Servicing and Inspection facilities to provide additional locomotive servicing and fueling across the TPIRR.

TPI included fixed fueling platforms at 20 yard locations and assumed DTL fueling at five others. However, TPI has not provided enough track at those facilities for the servicing and inspection requirements for all of the TPIRR locomotives. If a locomotive arrived at a yard and was due for inspection—or in the event that a routine review turned up a needed repair—it would be inefficient to block the fueling tracks and delay other units while also making simple mechanical repairs on the fueling tracks. In order to avoid delays and congestion to address minor locomotive mechanical problems, it is industry practice to include servicing and

inspection facilities at rail yards. In the real world, CSXT has these 'Service Centers' (which provide fueling, sand, service, and perform basic inspections) at 25 on-SARR locations. Accordingly, CSXT has conservatively added servicing and inspection facilities at 12 TPIRR locations: the seven hump yards where TPI did not include a locomotive shop as well as at five flat switching yards: Chicago-Barr, Baltimore, Jacksonville, New Orleans, and Richmond. Figure III-C-23 identifies the locations of these facilities:

Figure III-C-23
Servicing & Inspection Facilities

8 Major Yards (excl. Heavy Shop Locations)		**4 Other Yards w/ Fixed Fueling**	
Birmingham	AL	Jacksonville	FL
Atlanta	GA	New Orleans	LA
Chicago	IL	Baltimore	MD
Indianapolis	IN	Richmond	VA
Louisville	KY		
Hamlet	NC		
Selkirk	NY		
Cincinnati	OH		

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c. Train Control and Communications

TPI assumes that "the TPIRR network employs a Positive Train Control ("PTC") system for all train control and communications." TPI Opening III-C-27. As CSXT explains in Section III-F-6, CSXT accepts the hypothetical assumption that a functioning, but not interoperable PTC system could be installed in 2010 and that the TPIRR would rely on a microwave system for communications. TPI failed to provide any support for its assumption that the TPIRR would operate using a fully functioning PTC system at the outset of its operations. TPI made no effort to show how it would implement a technology that still does not address the myriad complexities

of real-world railroad operations, more than four years after the TPIRR would being operations. Nor did TPI take the simple step of explaining what PTC system the TPIRR would acquire. Despite the significant shortcomings in TPI's communications evidence, CSXT's Operating Plan is designed with the assumption that a non-interoperable PTC system will be installed at the outset, and would later be upgraded to meet the 2015 Rail Safety Improvement Act interoperability requirements, as the Board required in *DuPont* and *SunBelt.*[234] CSXT believes that the Board's PTC rulings in those cases are impractical; however, CSXT will abide by those rulings in its Reply. CSXT fully explains the costs and effects of this process in Section III-F-6.

8. TPI's Operating Plan Fails To Account For The TPIRR's Reciprocal Obligations To Connecting Carriers.

TPI posits that the TPIRR would interchange traffic with six Class I railroads (UP, BNSF, CN, CP, CSXT, and NS) and more than 75 regional and short line railroads. TPI Opening III-B-4. TPI asserts that its operating plan "reflects the TPIRR's interchange relationships with the other Class I carriers and various regional and short-line railroads." TPI Opening III-C-7. TPI's operating plan makes assumptions about the TPIRR's relationships with other carriers that do not exist in the real world. Some of the relationships between the TPIRR and connecting railroads portrayed in TPI's operating plan are inconsistent with the terms of CSXT's real world agreements and practices. TPI posits the existence of intercarrier arrangements that not only do not exist today, but are inconsistent with real world operating practices in the territory that the TPIRR would serve.

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[234] *See DuPont*, STB Docket No. 42125, at 229-30; *SunBelt*, STB Docket No. 42130, at 145.

a. TPI's Assumption That Connecting Railroads Will Adopt Distributed Power Locomotive Configurations Is Inconsistent With Real World Operating Practices In The Territory Served By The TPIRR.

TPI posits that all TPIRR trains will operate with locomotives "in a 1/1 distributed power ("DP") configuration." TPI Opening III-C-17. TPI recognizes that not all of the TPIRR's connecting carriers will have locomotives equipped for DP operations. TPI Op. Ex. III-C-6 at 8. Despite that concession, TPI blithely assumes that other carriers will operate with DP power and agree to interchange all trains in the TPIRR's preferred DP locomotive configuration. In support of the latter assumption, TPI asserts that:

> The Class I railroads are converting to DP at a rapid pace; for example, Union Pacific reported at a recent RTC Model users' conference that 70 to 75 percent of its road trains now have a DP locomotive configuration. With the peak RTC simulation period ten years hence, it is reasonable to assume that the TPIRR will have in place run-through agreements that specify trains are to be received with DP power and that foreign-road locomotives will be equipped for DP operation.

TPI Op. Ex. III-C-6 at 8, n.8. TPI's assumption that all connecting carriers will agree to interchange trains with the TPIRR in a DP power configuration violates SAC principles, for several reasons:

First, it is based upon the supposition that the TPIRR will "have in place" hypothetical run-through agreements that do not exist today. As the Board has made clear, a complainant cannot "hypothesize" that its SARR will enjoy the benefit of agreements that do not exist in the real world. *AEPCO 2002*, 6 S.T.B. at 328-29.

Second, TPI's assumption is utterly inconsistent with the terms of the vast majority of CSXT's existing interline service agreements with connecting carriers—which the TPIRR purports to adopt as its own. Those agreements generally do not require the participating carriers to deliver trains with locomotives in a DP configuration—indeed, CSXT does not want its

interline partners to tender trains with DP locomotives.[235] TPI had access to each of those interline agreements, and therefore cannot plead ignorance of their terms.

Third, TPI's claim that "[t]he Class I railroads are converting to DP at a rapid pace" (TPI Op. Ex. III-C-6 at 8, n.8), and its speculation that DP locomotive configurations will become a universal practice in the TPIRR's service territory, are simply not consistent with "the underlying realities of real-world railroading." While western carriers like UP have increased their use of DP configuration in recent years, the same is not true of railroads serving the Eastern United States. The physical characteristics of train operations in the West—in particular, the greater average length of haul and frequency of single commodity unit trains—make DP a far more suitable technology for use in that region of the country. UP and BNSF operate daily intermodal trains between Southern California and Chicago, a distance of 2,100 miles. They also transport unit coal and grain trains to a variety of destinations that are located 1,000 miles or more from their origin. The prevalence of long trains moving over great distances provides an ideal environment in which to utilize DP.

By contrast, trains operated by CSXT and other eastern railroads typically travel much shorter distances. Moreover, the average length of the CSXT trains that TPI "adopted" as TPIRR trains is only 4,930 feet. The cost of outfitting CSXT's locomotive fleet for DP operations, and the extra time (and yard expense) that CSXT would incur to position locomotives and initialize communications between units in a DP configuration far outweigh any benefits that CSXT might achieve by utilizing DP on smaller trains traveling relatively short distances. For

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[235] The only ISA that CSXT currently has with another carrier that contemplates the use of any distributed power is with {{ }}. Even then, CSXT and {{ }} have not agreed to utilize DP power at all locations, but rather utilize it only in connection with a limited number of interline {{
}}

that reason, CSXT operates locomotives in DP configuration on a very small number of its road trains, primarily Appalachian coal trains operating along the Blue Ridge in North Carolina (largely traffic that TPI did not select).[236] CSXT experimented with DP power on one interchange merchandise train over New Orleans. CSXT agreed to accept a DP-configured train from UP and ran it for a short period in a DP configuration. However, CSXT ultimately determined that DP was not an effective configuration for the route and now requires UP to alter the power configuration on the train to front-end power prior to offering this train in interchange.[237]

In an attempt to support its contention that CSXT uses DP, TPI misguidedly cites to a 2010 article in *Progressive Railroading* magazine.[238] That article focuses on fuel-saving practices among Class I railroads and does discuss the use of DP. However, had TPI carefully read the article, it would note that at no point does the article say that CSXT relies upon DP power. Of the fuel-saving practices employed by CSXT, the article lists: (1) acquisition of efficient locomotives for road and local operations; (2) installation of AESS devices to control locomotive idling; (3) improvements to train sizes and horse-power-per-trailing-ton ratios; (4) coaching techniques for engineers on optimal train-handling techniques; (5) use of TOR

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[236] *See* CSXT Reply WP "Distributed Power Trains Magazine Article.pdf." The article provides details regarding CSXT's use of DP at "just one terminal: Erwin, Tenn." As the article explains, CSXT uses DP for trains carrying Appalachian coal over the mountainous Blue Ridge at Altpass, N.C.

[237] *See* CSXT Reply Ex. III-C-1 (Video) at 14:44 (depicting rain received from UP with three locomotives in head-end configuration).

[238] *See* TPI Opening III-C-17, n. 25. CSXT has included the Progressive Railroading article in its workpapers. *See* CSXT WP "Progressive Railroading Fuel Saving Practices.pdf."

lubricators; and (6) trip optimizing technology. Conspicuously absent from any discussion specifically relating to CSXT is the mention of distributed power.[239]

The fact that Northeast railroading relies very little on DP power was reported in *Trains* Magazine:

> Indeed, the entire northeast quadrant of the country is practically devoid of distributed power. Norfolk Southern's system road foreman of engines, Shannon Mason, says the shorter distances his trains operate make the setup time and logistical challenges of distributed power less worthwhile.
>
> Even UP's [Mike] Iden, a distributed power proponent, says he believes it's a tool that's not for use everywhere. 'You cannot look at distributed power as a technology you can just plug in and use,' he says. 'You have to have the right operation and the right railroad to use it properly.'
>
> In 2010, NS and CSX officials believe only certain routes in their networks justify the expense and effort that distributed power entails.[240]

Accordingly, TPI's assumption that Eastern carriers like CSXT and NS will outfit their entire locomotive fleets for DP operations in the coming years, and enter into agreements that would require them to deliver and receive all trains interchanged with the TPIRR in DP configuration, is simply not consistent with reality.

Indeed, TPI's assumption that the TPIRR itself would deploy locomotives in a DP configuration on all road trains operating over its network is both unrealistic and highly inefficient. Because TPI chose to base its operating plan on CSXT's "real world" trains, the TPIRR's average length of haul is similar to that of CSXT. Specifically, the average length of haul for TPIRR trains would be 281 miles for general freight trains, 426 miles for coal trains and

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[239] Furthermore, the section of the article that focuses on DP makes no mention of CSXT, while it does discuss other Class I railroads individually. *See* CSXT Reply WP "Progressive Railroading Fuel Saving Practices.pdf."

[240] *See* CSXT Reply WP "Distributed Power Trains Magazine Article.pdf," at 31-32 (emphasis added).

501 miles for intermodal trains.[241] Such relatively short train movements are not conducive to realizing the benefits of DP power.

Fourth, because TPI's operating plan assumes DP movements, the plan effectively imposes on CSXT and other connecting carriers the obligation (and expense) of ensuring that all locomotives on trains interchanged with the TPIRR are capable of operating in a DP configuration. It is well-established that a complainant may not assume that connecting railroads would change their operations to suit the SARR's preferences without accounting for any costs that such changes would impose on the connecting carriers. Even if TPI's "all DP" assumption made real-world sense—and it does not—TPI would be required to bear the massive cost of equipping the locomotive fleets of each of its connecting carriers with DP capability.[242] TPI's operating expense evidence makes no provision for those costs. Instead, TPI attempts to side-step the Board's requirement by assuming (contrary to fact) that "foreign road locomotives will be equipped for DP operations" before the TPIRR's "peak period" (in 2018) and that connecting carriers will voluntarily enter into run-through arrangements with the TPIRR that require a DP locomotive configuration on all trains. TPI Op. Ex. III-C-6 at 8, n.8. TPI's self-serving assumption violates both the prohibition on "hypothesized" agreements (*AEPCO 2002*, 6 S.T.B. at 328) and the requirement that all operating assumptions be "consistent with the underlying realities of real-world railroading" in TPIRR's service territory, the Eastern United States. *WFA I*, STB Docket No. 42088, at 15; *see also AEPCO 2011*, STB Docket No 42113, at 16; *Xcel*, STB Docket No. 42057, at 12 (served Jan. 19, 2005).

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[241] *See* TPI Op. WP "Base Year Train List_Statistics_Open_Errata.xlsx."

[242] *See Duke/NS Reconsideration*, 7 S.T.B. at 872-73 (including as SARR costs the outfitting of foreign locomotives for assumed on-SARR DP operations).

Finally, even if the TPIRR were entitled to assume that DP operations will become a universal practice in the "peak RTC simulation period" (2019/2020)—and it may not—that assumption does not support the DP-based locomotive operating plan presented by TPI. The TPIRR commences operations on July 1, 2010—more than nine years prior to the "peak period" simulated by TPI's RTC Model. As demonstrated above, Eastern carriers like CSXT have utilized DP power configurations only in limited circumstances over the past four years, and have no plans to adopt an "all DP" locomotive operating plan in the foreseeable future. Thus, TPI's speculative assertion regarding what run-through arrangements might be available to the TPIRR in 2019 does not support TPI's proposal to operate an "all DP" SARR from the outset of the DCF period.

In short, TPI's assumption that connecting carriers would agree to deliver all trains to (and receive all trains from) the TPIRR with locomotives in DP configuration is inconsistent with both the realities of railroading in the TPIRR's service territory and the terms of existing run-through agreements. TPI's unsupported attempt to impose unilaterally an obligation to interchange all trains in DP configuration (regardless of the benefits for connecting carriers) also violates the principle of reciprocity that underlies intercarrier cooperative agreements.[243]

For these reasons, CSXT witness Gibson rejected TPI's assumption that the residual CSXT would accept trains in interchange with the TPIRR with their locomotives in a 1/1 DP configuration. Rather, consistent with CSXT's real world operating practice, witness Gibson assumed that, where the TPIRR operated a train over its own lines in DP configuration, it would be required to reposition the locomotives on the front end of the train prior to tendering it to

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[243] *See CP&L*, 7 S.T.B. at 255 (requiring a showing by complainant that "affected connecting carrier … would not object").

CSXT. Likewise, all trains delivered to the TPIRR by CSXT would have their locomotives placed on the front end, and the TPIRR would need to configure the power into a 1/1 DP setup prior to departure from the interchange point. Witness Gibson's more realistic assumption reflects real world operating practice in the territory in which the TPIRR would operate.

b. TPI makes assumptions about car classification and blocking arrangements that are inconsistent with CSXT's real world practices.

TPI makes certain assumptions regarding the pre-blocking of cars received in interchange from other carriers. In particular, TPI claims that "based on [unspecified] interchange agreements . . . . Mr. McDonald estimates that 25% of cars interchange received in Chicago and ten percent of cars interchange received in Saint Louis, New Orleans, and Buffalo require classification at those locations, and the remaining cars received at these locations are pre-blocked." TPI Opening III-C-13, n. 22. TPI's assumption is wrong for two reasons: First, Mr. McDonald's estimates are simply wrong and do not reflect the actual agreements that CSXT has with its interchange partners. Second, this assumption ignores the reciprocal nature of interchange agreements that would require CSXT to pre-block outbound traffic for its interchange partners just as those partners do for CSXT.

First, Mr. McDonald's "estimates" of the amount of traffic pre-blocked at these locations are inaccurate. For example, at New Orleans, Mr. McDonald's estimate that CSXT has to block only ten percent of the cars received in interchanged is vastly understated. CSXT blocks approximately sixty percent of the traffic that it receives at New Orleans. Even then, only 80% of the traffic that CSXT receives from UP is in blocks. Traffic received from CN, KCS, and BNSF, is delivered to CSXT's yard without any pre-blocking. All of that traffic must be flat switched at New Orleans. Mr. McDonald's estimate that the TPIRR would need to block only ten percent of the cars received from other carriers at New Orleans is a clear understatement.

Mr. McDonald's assumption that the TPIRR would need to block only ten percent of the traffic received at Buffalo is also incorrect. CSXT receives no merchandise traffic from any railroad pre-blocked at Buffalo. In fact, the agreement between CN and CSXT for Buffalo requires that CSXT block traffic for CN, but CN provides no reciprocal pre-blocking of merchandise traffic for CSXT. As the ISA between CN and CSXT reflects at this location, CN separates its auto traffic for CSXT, but provides no other blocking services.[244]

In Chicago, CSXT pays the BRC to block a large portion of its traffic. Thus, while CSXT's yards are not congested with traffic needing to be pre-blocked for other carriers, CSXT incurs a cost to have that traffic blocked elsewhere.[245] CSXT's joint facilities agreements and fees provide for payment by CSXT to the BRC for the blocking of this traffic. Mr. McDonald's assumption that the TPIRR would block only 25% of its traffic received in Chicago fails to take into account CSXT's relationship with the BRC. TPI selected for the SARR traffic group more than 98% of CSXT's shipments that report an origination or termination at the BRC's Clearing Yard. Accordingly, the TPIRR will be responsible for the payments CSXT makes to BRC for its classification and puller service. *See* CSXT Reply III-D-239–40.

Second, TPI's failure to accurately gauge the amount of traffic that it would have to block at these yards constitutes a failure to acknowledge the reciprocal nature of the agreements that occur in real-world railroading. Except in rare cases (such as the agreement between CN and CSXT in Buffalo), railroads will not willingly take on the time and expense of pre-blocking

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[244] *See* CSXT Reply WP "CN-CSXT Buffalo ISA.pdf."

[245] {{

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traffic for another carrier without receiving the same benefit in return. For example, {{

}}[247] TPI's assumption that the TPIRR would not have to account for significant blocking at these yards because it receives a substantial amount of traffic from its interchange partners in ready-made blocks is simply wrong. That assumption ignores the fact that those interchange partners will likewise expect to have TPIRR out-bound shipments pre-blocked. Thus, TPI would have to account for the blocking of out-bound traffic, which it has not done. This constitutes a failure to recognize the reciprocal nature of intercarrier agreements.

c. TPI's attempt to allocate locomotive fueling responsibilities fails to take into account common railroad practices.

In defending the reciprocal nature of TPIRR operations, TPI asserts that it "has also taken into consideration the need to inspect and fuel locomotives used in interline service to fulfill the common reciprocity with connecting carriers." TPI Opening III-C-8. While TPI is correct that connecting carriers will have an expectation that the locomotives received in interchange will

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have a certain minimum level of fuel remaining, TPI ignores the fact that the TPIRR would have to "equalize" that fueling responsibility by also receiving locomotives that are not fully filled.

TPI assumes that because the average TPIRR length of haul is 359.6 miles and because TPIRR's locomotives have a fuel capacity of 5,000 gallons and an average fuel consumption of {{ }} gallons per mile that "virtually every train that the TPIRR provides in interchange will have a minimum range of {{ }} miles before it must be refueled." TPI Opening III-C-9. This estimate is not only wrong,[248] but proves that TPI's attempt to show that it has accounted for the reciprocal nature of fueling for railroad interchanges is incorrect. TPI may account for the fuel that the TPIRR would consume prior to interchange, but TPI does not account for the fact that connecting carriers would still require "equalization" of fueling costs.

While the terms of railroad interchange and run-through train agreements may vary in certain respects, one common principle underlying those agreements is the reciprocity of each party's obligation with respect to locomotive fueling and inspections. If TPI assumes that locomotives tendered to other carriers are not full of fuel, it also must assume that locomotives received from a those carriers would likewise be less than fully fueled.

Industry practice recognizes that it is simply not feasible to require a railroad to refuel every locomotive at every interchange point just prior to delivery to the receiving carrier. Such a practice would require carriers to build and operate fueling facilities at or near every interchange point—a particularly onerous and expensive requirement for the TPIRR itself, given its plan to interchange traffic at approximately 144 locations. Rather than impose such an unreasonable

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[248] If the TPIRR's average length of haul is just under 360 miles, it is obvious that it cannot be true that "virtually every train" offered in interline service will have a minimum range of {{ }} miles. By definition, an average haul of 360 miles suggests that many TPIRR's trains travel a greater distance.

requirement, intercarrier agreements typically balance the parties' obligation to provide fuel used in interline train operations by adopting some form of fuel "equalization." Equalization agreements are designed to guarantee both carriers the economic equivalent of a full fuel tank in connection with locomotives received in interchange, without literally requiring that every locomotive be delivered with a full tank.

TPI's observation that "virtually every train that the TPIRR provides in interchange" will have some amount of fuel on it is beside the point. TPI's plan still ignores the fact that it too will receive locomotives with less than a full tank of fuel in interchange.

* * * * *

9. TPI's Operating Plan Does Not Comply With Regulations And Best Practices Relating To The Transportation Of Crude Oil.

TPI failed to properly account for the handling of crude oil unit trains. TPI permitted all of its crude oil trains to operate at a maximum speed of 60 miles per hour, ignoring the industry-wide 50 mile per hour limit. The transport of crude oil in unit train quantities by Class I railroads has risen from 9,500 carloads in 2008 to 407,761 carloads in 2013. *See* AAR, "Moving Crude Oil by Rail" (June 2014), *available at* https://www.aar.org/keyissues/Documents/Background-Papers/Crude%20oil%20by%20rail.pdf. This sudden rise in the transport of crude oil, along with numerous high-profile accidents involving crude oil unit trains over the past year,[249] brought into sharp focus the importance of enhanced crude oil safety. Railroads reacted quickly by voluntarily updating their operating practices by reducing maximum train speeds, applying

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[249] Most notably, the July 5, 2013 tragedy at Lac-Mégantic, Quebec in which the derailment and subsequent explosion of a crude oil unit train led to 47 deaths and impacted more than 125 businesses. *See* Transport Canada, Presentation to the Railroad Safety Advisory Committee on Derailment at Lac-Mégantic, Quebec (Aug. 29, 2013), *available at* https://rsac.fra.dot.gov/meetings/20130829.php.

route selection methodologies that are typically reserved for Toxic-By-Inhalation ("TIH") commodities to crude oil trains, and increasing track and equipment inspections. *Id.*

Effective August 5, 2013, the AAR updated Circular Number OT-55-N (CPC-1258) to include in the definition of "Key Trains" those trains carrying 20 or more carloads of crude oil. OT-55-N is the industry-wide standard governing recommended railroad operating practices for the transportation of hazardous materials. Key Trains are restricted to, among other things, a maximum speed of 50 miles per hour. *See* CSXT Reply WP "OT-55-N.pdf."

As a Class I railroad, TPI would be subject to these same restrictions as the other Class I railroads. In particular, TPI would have to limit the speed of its trains carrying 20 or more carloads of crude oil to 50 miles per hour. *See id.* TPI's operating plan includes 247 loaded crude oil trains in the Base Year (July 2012-June 2013). The RTC Model included 11 such trains and assumed that all could move to speeds up to 60 MPH. In order to comply with industry-mandated practice, CSXT has limited the speed of all trains carrying 20 or more carloads of crude oil to 50 miles per hour. Figure 24 identifies the loaded crude oil trains that CSXT has limited to 50 miles per hour in its Reply RTC Model.

Figure III-C-24
Loaded Crude Oil Trains in RTC:
Limit to 50 MPH

Train Symbol	TPI RTC Runs
K002	4
K010	5
K018	1
K091	1

a. TPI's Operating Plan Fails To Provide The Personnel That The TPIRR Would Need To Safely Handle TIH Commodities.

Transporting TIH commodities in compliance with government regulations and industry best practices requires a railroad to employ staff to organize internal employee training, coordinate safety procedures both internally and with other railroads, and to interact with federal and state authorities on matters relating to the handling of hazardous shipments. Federal regulations require that railroads designate one primary and at least one alternate Rail Security Coordinator ("RSC") at the corporate level to serve as the point of contact for intelligence information and security related activities and communications with TSA. 49 C.F.R. § 1580.101(b). While the RSC may perform other duties, this individual must be available 24-hours a day, seven days a week, and must coordinate the railroad's security practices and procedures with law enforcement and emergency response agencies. 49 C.F.R. § 1580.101(b).

In addition, TSA, in conjunction with the Department of Homeland Security and the Department of Transportation, has issued 24 recommended "action items" relating to the handling of TIH materials, including a recommendation that railroads "designate an individual with overall responsibility for hazardous materials transportation security planning, training, and implementation . . . [as well as] an individual with overall responsibility for security planning and countermeasure implementation for company-designated critical infrastructure."[250] Other TSA-recommended action items include establishing a liaison with other railroad security officers as well as with "state and local law enforcement, emergency responders, security agencies, and industry partners." *Id.* The responsibilities contemplated by these

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[250] *See* Transportation Security Administration, "System Security Practices Affecting the Transportation of TIH Materials," http://www.tsa.gov.sites/default/files/publications/pdf/stakeholders_PDF/tih_sai_final_062306.pdf.

recommendations are extensive and time-consuming, particularly for a Class I railroad (like the TPIRR) that would operate across a twenty-state area.

TPI's operating plan does not provide sufficient personnel to perform these safety-related functions in connection with the TPIRR's TIH traffic. For example, TPI does not have a Rail Security Coordinator (much less a primary and alternate person in that position, as recommended by TSA). Rather, TPI assumes that a "Manager—Testing and Environmental" would be responsible for all safety issues relating to hazardous commodities across the entire TPIRR system. TPI posits that this person's duties would include "investigation of any problems involving cars containing hazardous commodities while on the TPIRR (and related federal reporting requirements)." *See* TPI Op. Ex. III-D-1 at 14. TPI also posits one "Manager – Environmental Services" responsible for working "with all areas of the railroad to keep the railroad compliant with water treatment and hazardous materials regulations." As is explained in further detail in Section III-D, relying upon two employees to comply with the myriad government regulations relating to the transportation of hazardous shipments is not feasible. *See infra* Section III-D-150–56.

10. TPI's RTC Model Simulation Is Fatally Flawed And Should Be Rejected.

TPI attempts to satisfy its evidentiary burden to demonstrate that its operating plan is feasible by proffering a simulation of the TPIRR's peak week operations developed with the Rail Traffic Controller ("RTC") Model.[251] According to TPI, "the RTC simulation of the TPIRR's operations in the peak week of its peak traffic year confirm[s] that the TPIRR's configuration and facilities can accommodate the peak-period volumes and that the TPIRR's operations in the

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[251] TPI Opening III-C-23-24; TPI Op. Ex. III-C-6.

peak period of the Peak Year meet its customers' requirements." TPI Opening III-C-23. TPI is mistaken.

As an initial matter, TPI's suggestion that an RTC simulation that runs to completion "confirms" that a complainant's operating plan "meet[s] its customers' needs" is not correct. An RTC Model simulation does not—and cannot—prove that an operating plan has accounted for all of the services required to meet the needs of the SARR's traffic group (and therefore is "feasible"). Rather, an RTC simulation tests whether the track configuration posited by a complainant is adequate to enable the SARR to execute whatever operating plan is input to the Model.[252] In order for an RTC simulation to produce meaningful results, the operating plan on which it is based (i) must include all of the necessary facilities and train services, and (ii) must incorporate operating assumptions that are consistent with the realities of real-world railroading. In other words, a "feasible" operating plan is a necessary input to a credible RTC simulation. If the train services or operating assumptions input to the RTC Model are unrealistic or do not "provide for full service from each specific origin, through the network,[] to each specific destination,"[253] a "successful" simulation cannot cure those deficiencies. Such is the case with the RTC Model simulation presented by TPI.

TPI's RTC simulation is based upon a fatally deficient operating plan that, among other things, (1) failed to account for tens of thousands of local trains that are necessary to provide complete train service to the TPIRR's customers—including 39% of the "issue" traffic; (2) failed

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[252] *See, e.g., WFA II*, STB Docket No. 42088, at 14 (RTC Model enables complainant to "test the adequacy of the configuration (to make sure the [SARR] would have sufficient capacity to handle the peak forecast demand)" (emphasis added)); *WFA I*, STB Docket No. 42088, at 16 (same); *AEP Texas*, STB Docket No. 41191, at 17 (RTC simulation used "[t]o assess the adequacy of the proposed track configuration for the [SARR] to handle expected traffic" (emphasis added).

[253] *DuPont*, STB Docket No. 42125, at 38.

to model the movement of the TPIRR's road and local trains completely and accurately; (3) incorporated dwell time assumptions that are utterly unrealistic (and contradicted by train-specific arrival and departure time information in the CSXT train event data for the very same trains that TPI purports to model); (4) operated crude oil trains at a speed that violates a rail industry "best practice" adopted in the wake of the Lac-Mégantic disaster; (4) vastly understated the impact of random failures and track outages that TPIRR trains would encounter on a daily basis; and (5) contained significant errors in the modeling of both train movements and the network over which those trains operate. In short, the RTC simulation proffered by TPI (and the outputs of that simulation) are the product of an "infeasible" operating plan, and the Board should reject them.

CSXT witness Wheeler presents the results of CSXT's Reply RTC Model simulation. Unlike TPI's RTC evidence, CSXT's RTC Model is based upon an operating plan that accounts for the road and local trains that the TPIRR would have to operate; applies realistic train dwell times at TPIRR yards; corrects TPI's inaccurate modeling of the TPIRR network and train movements; and posits a track configuration that is optimally sized to accommodate the TPIRR's operations. CSXT's RTC simulation is well-documented, and the operations portrayed in that simulation are consistent with real world operating practices and the service requirements of the TPIRR's selected customers. The Board should reject TPI's RTC Model simulation, and base its decision in this case on the well-supported RTC simulation presented by witness Wheeler.[254]

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[254] CSXT's Reply RTC evidence was prepared using Version 69P of Berkeley Simulation's RTC Model. Earlier versions (including Version 69E, upon which TPI based its RTC simulation) contained a number of flaws that adversely affected the Model's ability to generate accurate results, particularly when modeling a large rail network like the TPIRR. For example, Version 69E failed to detect input errors such as TPI's inclusion of a train with a negative number of cars in its consist. *See* TPI Op. WP "RTC," Train L321CLACLA." Version 69E sometimes generated illogical solutions, such as placing trains on tracks that were not long enough to hold

Following is a description of the operating data and assumptions that witness Wheeler input to CSXT's Reply RTC Model, and the corrections that witness Wheeler made to TPI's physical network, train list, train routings, and dwell times in conducting CSXT's RTC Model simulation:[255]

a. Train Sizes and Weight

In its RTC Model, TPI based the maximum length of TPIRR trains on the "[longest] comparable CSXT trains operated between 3Q12 and 2Q13 for which CSXT produced car- and train-movement data." TPI Opening III-C-15. CSXT accepted TPI's methodology as a reasonable approach to determining maximum train sizes. Accordingly, witness Wheeler adopted the list of trains that TPI utilized in developing its RTC simulation as the starting point for developing the list of TPIRR trains in CSXT's Reply RTC Model.[256]

However, as CSXT demonstrated above (at III-C-15–36), TPI's operating plan failed to account for literally tens of thousands of local trains that the TPIRR would need to operate to

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them (thereby understating track capacity requirements). The improved code in Version 69P enhances the Model's ability to resolve conflicting train movements, increases the number of nodes (*i.e.*, network size) that can be accommodated by the Model, and corrects program logic that resulted in errors such as trains holding on tracks of insufficient length. Version 69P is the most current available iteration of the RTC Model.

[255] CSXT's Reply RTC Model simulation is documented in detail in the electronic workpapers set forth in CSXT Reply WP Folder "CSXT Reply RTC TPI.zip."

[256] Consistent with practice in prior SAC proceedings, the train list that CSXT utilized in conducting its RTC analysis includes the road and local trains that the TPIRR would be required to operate during the peak week of the Peak Year. By contrast, the train list generated by CSXT's MultiRail evidence reflects traffic levels and train activity during an average week during the Peak Year. Use of an average week is common for planning purposes, such as developing train schedules and car blocking plans, because railroads normally design those plans based on anticipated operations during a "typical" week rather than planning for the single busiest week. By contrast, the RTC Model analysis in a SAC case must evaluate the SARR's "peak week" operations in order to assure that it would not experience gridlock under peak traffic conditions.

provide complete on-SARR service to its selected traffic group. That glaring omission was carried forward into TPI's RTC simulation. By failing to account for all of the trains that would operate over the TPIRR network during the peak week, TPI's RTC simulation understated the TPIRR's track capacity requirements. Witness Wheeler corrected this major deficiency in TPI's Opening RTC Model.

i. "Missing" Trains

The train selection methodologies employed by TPI disregarded more than 44,000 CSXT local trains that the TPIRR would have to operate to serve its selected traffic. As CSXT demonstrated (at III-C-16–26 above), TPI intentionally eliminated from the TPIRR's train list 5,940 CSXT local trains that picked up and/or delivered cars to 365 TPIRR-served customers at 180 stations across the TPIRR network, simply because CSXT also operated those trains to/from points beyond the SARR during the Base Year. Based on the dates upon which those 5,940 local trains moved, witness Wheeler determined that TPI's RTC Model failed to account for 95 trains during the peak week of the Peak Year.[257] Of those 95 missing local trains, 39 had the same CSXT train symbol as other local trains that TPI did include in its train list, while 56 missing local trains had CSXT train symbols for which TPI failed to capture any trains.[258] Witness Wheeler added those 95 local trains to the list of train movements modeled in CSXT's Reply RTC simulation.

TPI also intentionally excluded from the TPIRR's train list more than 28,000 Base Year "industrial yard trains," apparently because those trains were designated with a "Y" (yard) train

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[257] *See* CSXT Reply WP "Addl SARR Locals for Reply RTC.xls."

[258] The common CSXT train symbols shared by 39 of the "missing" local trains and trains included in TPI's RTC Model reflects the fact that, in some instances, TPI's train selection methodology provided local service to TPIRR customers on certain days of the week but not on others.

symbol in CSXT's event data. As CSXT explains above (at III-C-26–32), the trains that TPI disregarded are not "yard jobs" that perform switching and classification within a yard. Rather, industrial yard trains travel outside CSXT yards to perform pickups and setoff at customer facilities in the same manner as local trains in "turnaround" service. Witness Wheeler addressed this omission in TPI's operating plan and RTC Model by adding a sample of 16 industrial yard trains to the TPIRR's peak week train list.

In developing its operating plan, TPI made a methodological decision to "mirror" CSXT's real world trains, rather than independently creating a train service plan (and list of trains) for its SARR. Therefore, TPI cannot credibly claim that the TPIRR could meet the needs of its customers without operating the same local trains in which the TPIRR's selected traffic moved over the CSXT network in 2012. TPI's flawed train selection methodology resulted in the exclusion of local trains that the TPIRR would need to operate during the peak week of the Peak Year.

ii. Trains Required to Accommodate Peak Year Volumes

TPI's RTC Model understated the number of "growth" trains that would be required to handle TPI's projected increase in the TPIRR's traffic in the Peak Year. This methodological error affected all categories of TPIRR trains (unit trains, merchandise road trains, and local trains).

Based on its projected Peak Year traffic, TPI should have added 17 more unit trains in its peak week RTC simulation. However, as CSXT demonstrates in Section III-A of its Reply Evidence, TPI's Peak Year unit train traffic projections are significantly overstated, both because TPI exaggerated the growth of its selected bulk traffic and because certain power plants to which selected coal shipments currently move are scheduled to cease operations prior to the Peak

Year.[259] Witness Wheeler determined that, when TPI's projected Peak Year coal volumes are adjusted downward to reflect those factors, the net effect is that the TPIRR would need to operate 3 fewer unit trains in the peak week of the Peak Year than TPI included in its RTC simulation. Accordingly, consistent with the analysis presented in Section III-A of CSXT's Reply Evidence, CSXT's Reply RTC Model includes 3 fewer peak week unit coal trains than TPI's Model.

Based on TPI's Peak Year merchandise, intermodal, and automotive traffic projections, it should have added to its RTC Model 124 "growth" road trains, rather than the 30 road trains that TPI actually did add. The nonsensical nature of TPI's growth train assumption for general freight traffic is demonstrated by the fact that 30 trains represents less than one percent "growth" over the approximately 3,500 road trains operated by TPIRR in the Base Year. The notion that the TPIRR could accommodate a 20% increase in traffic with virtually the same number of road trains as it operated in the Base Year is simply not credible. At the same time, as shown in Section III-A of CSXT's Reply Evidence, TPI's Peak Year merchandise, intermodal and automotive traffic projections are overstated. Taking into account the offsetting reduction in Peak Year traffic volumes posited by CSXT in Section III-A, witness Wheeler added 62 "growth" merchandise/intermodal/automotive road trains to CSXT's Reply RTC Model.

Even more incredibly, TPI's operating plan assumed that the TPIRR could accommodate its Peak Year traffic volumes without adding any local trains to its Base Year train list. But many of the CSXT local trains that the TPIRR adopted are assignments that regularly operate for 11+ hours in performing pickups and setoffs at customer facilities along their route of

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[259] The unit coal trains that witness Wheeler removed from the RTC Model on account of scheduled plant closings are identified in CSXT Reply workpaper "Coal Train Removal – Plant Closings.xls."

movement. The 20% growth in traffic posited by TPI would, in many cases, cause those local trains to outlaw, requiring re-crews and delaying the delivery of cars to customers. Figure III-C-25 identifies 22 different local train symbols in TPI's train list that currently average 11+ hours in CSXT's real world operations, the average number of intermediate stops that TPI's RTC Model assumes those train would make at customer facilities, and the average number of overtime hours incurred by those trains in 2013.

FIGURE III-C-25
TPI Locals That Incurred 3+ Hours of Overtime in 2013[260]

Train Symbol	TPI RTC Runs	TPI Avg. # of Stops	CSXT Overtime
A701	7	2.7	3.7
A703	7	2.6	4.4
A750	7	3.7	4.6
A754	6	2.5	4.0
A775	4	1.5	3.2
A789	6	1.3	3.7
A792	7	1.0	3.5
A795	7	1.0	3.7
A799	4	0.8	3.6
C718	6	1.0	3.2
D780	4	4.0	3.0
F707	3	2.7	3.4
J726	9	1.8	3.1
M712	6	3.2	3.5
M713	4	1.5	3.7
M717	6	3.8	3.2
M721	6	2.0	3.6
M722	6	2.0	3.8
M723	3	2.3	3.4
M724	8	1.8	3.5
M725	10	1.6	3.5
O708	5	2.0	4.0

[260] CSXT Reply WP "TPI_Locals_with_Overtime_in_RTC_Model.xlsx."

For each of the 22 train symbols listed in Figure III-C-25, witness Wheeler conservatively added one train during the peak week to accommodate the efficient handling of TPI's projected traffic growth.

The net effect of the adjustments made by witness Wheeler to reflect the TPI's failure to include a sufficient number of peak week "growth" trains, and the offsetting correction of TPI's overstatement of the TPIRR's Peak Year traffic volumes, was an increase of 59 road trains and 22 local trains to the RTC Model.[261]

iii. Trains Removed From TPI's RTC Model

Witness Wheeler removed from the list of trains in TPI's RTC Model 66 road trains that did not meet TPI's train selection criteria. According to TPI, "[i]n order to qualify as a TPIRR train, the train was required to have reported two or more consecutive On-SARR stations and to have cumulative SARR miles of 10 or more." TPI Op. Ex. III-C-1 at 22. Witness Wheeler reviewed TPI's RTC simulation and determined that 66 road trains did not move at least 10 miles on the TPIRR. Accordingly, witness Wheeler removed those 66 road trains from CSXT's Reply RTC Model.[262]

* * * * *

Witness Wheeler's adjustments to the number of road and local trains modeled by RTC results in a simulation that more accurately reflects the TPIRR's peak week operations. Based upon the adjustments discussed above, CSXT's Reply RTC simulation includes 7 fewer road trains and 133 more local trains than TPI's Opening RTC simulation.

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[261] The trains added by witness Wheeler are identified in CSXT Reply workpapers "Addl SARR Locals for Reply RTC.xls" and "Addl SARR Freight for Reply RTC.xls."

[262] The road trains removed by witness Wheeler for failing to meet TPI's selection criteria are identified in CSXT Reply WP "TPIRR RTC Removed Trains for Train Sheet Mileage Fix.xls."

b. Trains With Routing Modeled Incorrectly

In addition to its failure to account for all of the trains that the TPIRR would operate during the peak week of the Peak Year, TPI's Opening RTC evidence contains a number of errors in the modeling of trains that had a material impact on the results of TPI's RTC simulation.

i. Local Trains Blocking The Main Line.

Among the materials produced to TPI in discovery was a profile of the services provided by CSXT trains at more than 4,000 customer facilities. Those customer profiles identified the amount of time typically required to perform pickups and setoffs at the customer's facility, and indicated whether the track configuration at each location requires the CSXT local train to block the main line while switching cars to and from the customer's tracks.[263] TPI purported to rely upon CSXT's customer profiles in determining the dwell time assigned to TPIRR trains performing pickups and setoffs at customer facilities.[264] While TPI's RTC simulation incorporated the dwell time shown in the customer profiles for intermediate stops by local trains, TPI's Model failed to account for situations in which local industry switching operations would block the main line. The CSXT customer profiles identified both the locations where industry switching occupies the main line and the length of time during which the main line is blocked (and therefore unavailable for other train movements). By disregarding that important location-specific information, TPI's RTC Model assumes (contrary to reality) that TPIRR road trains would never encounter delays due to switching activity by local trains serving TPIRR customers.

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[263] *See* CSXT Reply WP "CSA Report.xlsx."

[264] *See* TPI Op. Ex. III-C-6 at 9.

Witness Wheeler corrected this error in TPI's modeling of local train service by adjusting CSXT's Reply RTC Model to take account of those locations where local switching activity would block the main line. Witness Wheeler identified 177 TPIRR local trains that (collectively) made 198 intermediate stops at 150 different on-SARR locations during the peak week, and would block the main line (or one of two main line tracks) for one hour or longer while picking up or setting off cars at customer facilities.[265] Of those 198 intermediate stops, 175 involved switching activity that would block the main line for at least one hour, and the remaining 23 intermediate stops would occupy the main line for at least two hours. Witness Wheeler adjusted the modeling of those 177 local trains to reflect the fact that the main line would be occupied (and unavailable for other train movements) while those trains were performing local switching operations.

ii. Trains With Incorrect Routing And Event Locations

TPI's Opening RTC simulation models certain TPIRR trains in a manner that does not accurately reflect their real world route of movement.

(a) Mobile, AL

TPI's RTC simulation models incorrectly the single largest movement on the TPIRR—unit train shipments of export coal that enter the TPIRR at Birmingham, AL and terminate at the McDuffie Island Coal Terminal, which is located on the lines of the Terminal Railway Alabama State Docks ("TRASD").[266] In TPI's RTC Model, those coal trains terminate at the north end of TPIRR's Mobile Yard (Milepost 664.2). However, in the real world, CSXT loaded coal trains move through and beyond Mobile Yard to a switch at Milepost 667.2, where they enter a line

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[265] *See* CSXT Reply WP "TPIRR RTC Local Train Mainline Stops.xls."

[266] *See* CSXT Reply Ex. III-C-1, Video at 12:15 (depicting CSXT coal train exiting south end of Mobile Yard and moving to the McDuffie Island Coal Terminal).

owned by TRASD and travel to McDuffie Island Coal Terminal.[267] Empty coal trains move in the opposite direction over the same TRASD trackage south of Mobile Yard. TPI's modeling error resulted in a RTC simulation that failed to recognize the impact of traffic and yard congestion at Mobile on those unit trains.[268] Witness Wheeler corrects this error in TPI's RTC Model by extending the movement of the subject coal trains beyond Mobile Yard to Milepost 667.2.[269]

TPI also made an error in modeling the movement of certain general freight trains operating in and around Mobile. Specifically, in TPI's RTC simulation, trains sometimes stop to pick up or set off cars, or to change crews, at a location north of Mobile Yard near "AKKA" (Milepost 660.6-662.9). At other times, TPI's RTC Model correctly shows those events occurring in Mobile Yard (Milepost 664.2 – 665.6). In reality, there are no customer facilities located north of CSXT's Mobile Yard at a point called "AKKA." CSXT's real world trains do not stop near Milepost 660.6, but rather proceed directly into Mobile Yard. Once again, this modeling error masks the impact of traffic and yard congestion on merchandise trains operating at Mobile. Figure III-C-26 identifies the trains affected by this modeling error.

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[267] *See* CSXT Reply WP "Mobile Yard Track Chart.pdf."

[268] Not only does TPI's RTC simulation fail to model the entire movement of those trains, but TPI's operating expense estimate also fails to account for the trackage rights fee of $45.97 dollars per car that the TPIRR would be required to pay to move approximately 40,000 annual carloads of coal over the TRASD its track to/from the McDuffie Island Coal Terminal. *See* CSXT Reply WP "Mobile TASD 2010.pdf." *See also* III-D-238.

[269] CSXT Reply workpaper "Incorrect Mobile Dwells.xls" identifies the coal trains that are incompletely modeled by TPI.

FIGURE III-C-26
Inconsistent Modeling of TPIRR Train Events At Mobile, AL

Train Symbol	Trains With Events Occurring at "AKKA"(MP 660.6-662.9)	Trains With Events Occurring At Mobile Yard (MP 664.2-665.6)	Total
Q572	1	9	10
Q579	1		1
Q602	4	2	6
Q605	5		5
Q606	3		3
Q609	3		3
Q612		1	1
Q614	4	3	7
Q617		1	1
Q619	1	4	5
Total	**22**	**20**	**42**

Witness Wheeler corrected this error in TPI's RTC Model by adjusting the location of the intermediate stops that TPI coded as occurring at "Milepost 660.57 near Mobile" to reflect the correct location at Mobile Yard.

(b) Chicago, IL

TPI's RTC Model incorrectly assumed that the TPIRR would interchange trains with Union Pacific Railroad and Canadian Pacific Railway in Chicago at the TPIRR's Barr Yard.[270] In reality, CSXT delivers trains to UP at Proviso Yard and to CP at Bensenville Yard, in each case operating over tracks owned by the Indiana Harbor Belt Railroad ("IHB"). The trains that TPI incorrectly modeled in this manner are identified in Figure III-C-27.

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[270] *See* TPI Op. WP "TPIRR Base Year Manifest Train List_Statistics.xlsx."

FIGURE III-C-27
CSXT Trains Originating and Terminating at Bensenville Yard or Proviso Yard

Originations					
BENSENVILLE	K227	K630	K634	K636	
PROVISO	K475				
Terminations					
BENSENVILLE	K631	K635	K637	K820	
PROVISO	E958	K476	L091	Q091	Q391

Witness Wheeler corrected this error in TPI's RTC Model by adjusting the routing of the train symbols set forth in Figure III-C-27 to reflect their real world movement beyond Barr Yard to Proviso Yard (for trains interchanged with UP) and Bensenville Yard (for CP interchange movements), respectively.

TPI's RTC Model likewise assumed (erroneously) that certain TPIRR expedited intermodal trains originate and/or terminate at Barr Yard. In reality, those trains originate and/or terminate at Bedford Park, and also move over the IHB. Witness Wheeler's review of TPI workpaper "TPIRR Base Year Manifest Train List_Statistics.xlsx" indicated that trains with the following symbols originate or terminate at Barr Yard in TPI's simulation, but should have moved beyond Barr Yard via the IHB to/from Bedford Park.

FIGURE III-C-28
CSXT Expedited Intermodal Trains That Originate/Terminate At Bedford Park

Origination	Q010	Q016	Q018	Q020	Q021	Q025	Q027
Termination	Q015	Q017	Q019	Q026			

Witness Wheeler corrected this error in TPI's RTC Model by adjusting the routing of the trains whose symbols are set forth in Figure III-C-28 to reflect their real world movement to/from Bedford Park.

(c) East St. Louis

TPI's RTC simulation incorrectly modeled the TPIRR's operations in the vicinity of East St. Louis, IL. Specifically, in TPI's RTC Model, the TPIRR network ends at West Rose Lake Yard (Milepost QS236.7). However, CSXT trains operate approximately 2.3 miles beyond West Rose Lake Yard to the Terminal Railroad Association's ("TRRA's") Madison Yard, where CSXT delivers empty cars to the TRRA. In order to permit the TPIRR to operate in the same manner as CSXT does today, witness Wheeler extended the TPIRR line at East St. Louis from Milepost 236.7 (West Rose Lake Yard) to Milepost 237.0 (the end of CSXT ownership at Willows), and added the 2 miles of TRRA track over which CSXT operates to reach Madison Yard at Milepost QS 239.

(d) Tampa, FL

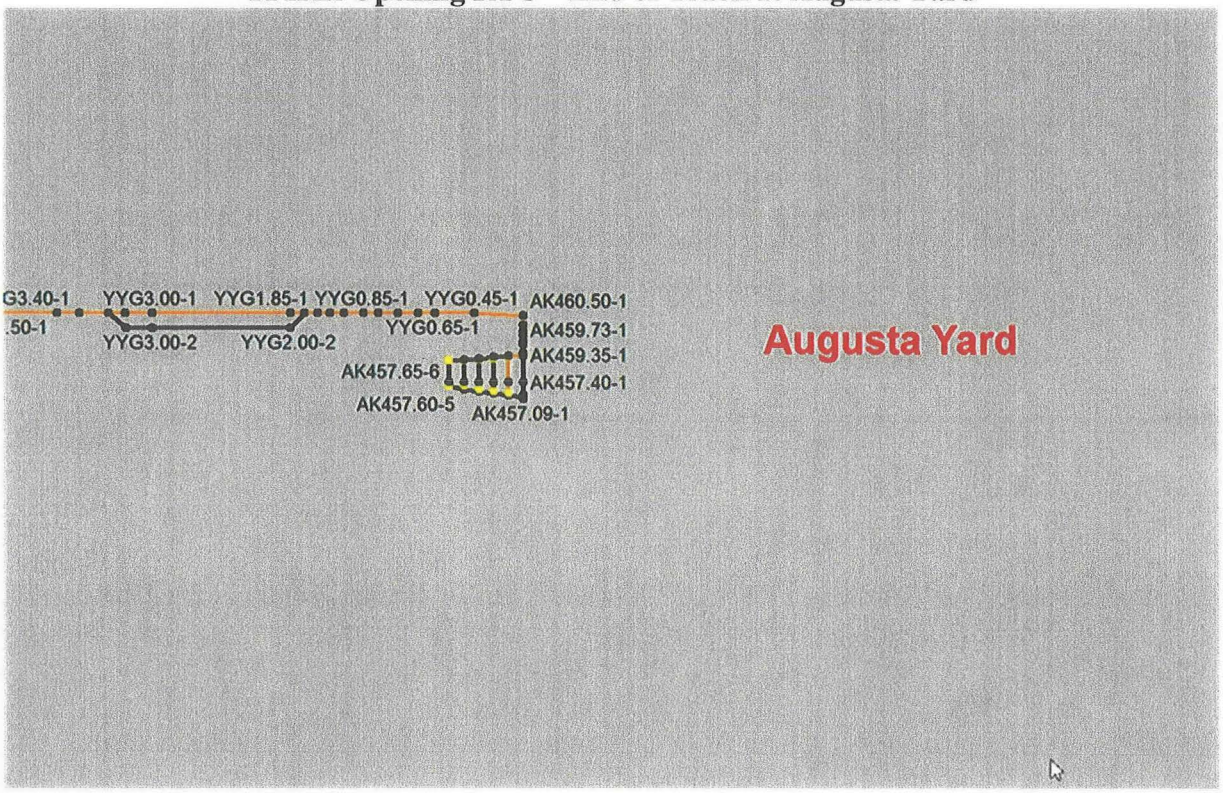
TPI's RTC simulation incorrectly modeled certain TPIRR train movements in the vicinity of Tampa, FL. CSXT Trains Q188 and Q045 originate or terminate from the Uceta Yard intermodal facility, on a portion of CSXT's "A" Line that TPI did not include in the TPIRR network. The turnout from CSXT's "S" Line (which TPI did build) to the "A" Line is at Milepost 841.6 (opposite the Yeoman Yard on the south side of the S Line). TPIRR Trains Q188 and Q045 would originate at a point 4,000 feet beyond that turnout, on a 9,500-foot tail track. In order to account for the time required for TPIRR trains to operate between the TPIRR mainline and the intermodal facility via the connection track that TPIRR must build, witness Wheeler added two hours of dwell time to those train movements, and modeled those trains as originating at Milepost 841.6, not at Milepost 839.6 as TPI assumed.

(e) Augusta, GA

TPI's operating plan contemplates that the TPIRR would interchange traffic with CSXT at Beech Island, SC. In addition, the TPIRR would be required to perform pickups and setoffs

for its selected traffic at Beech Island. However, as Figure III-C-29 (a screenshot from TPI's RTC Model) shows, while TPI constructed the Augusta-Beech Island line in its engineering evidence, TPI did not include that line in its RTC Model. Rather, in TPI's RTC Model, the TPIRR network ends at Augusta Yard.

FIGURE III-C-29
TPIRR Opening RTC – End of Track at Augusta Yard



Witness Wheeler repaired this "gap" in TPI's network by adding CSXT's line between Augusta Yard and Beech Island to CSXT's Reply RTC Model. Witness Wheeler also corrected the routing of TPIRR trains in the RTC Model to reflect their movement to/from the interchange point with CSXT at Beech Island.[271]

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[271] *See* CSXT Reply WP "CSXT RTC Train Modifications at Augusta – Beech Island.doc."

iii. Maximum Train Speeds

TPI input to its RTC Model maximum train speeds of 70 MPH for intermodal trains and 60 MPH for general freight trains operating on main line segments. TPI Op. Ex. III-C-6 at 5. According to TPI, trains carrying TIH commodities, other "Key" trains, and loaded coal and grain trains were modeled to operate at 50 MPH on main line segments, "conditions (including gradient and curvature) permitting." *Id.* TPI posits that trains on branch lines would be subject to a speed limit of 40 MPH, "except where existing CSXT speed limits are higher." TPI Opening III-C-10.

CSXT accepted the maximum train speeds posited by TPI as reasonable, and adopted the same maximum train speeds for its Reply RTC Model. However, witness Wheeler's review of TPI's RTC simulation revealed that TPI did not restrict the maximum speed of trains carrying crude oil to 50 MPH, but instead permitted those trains to operate at 60 MPH. As CSXT explained above (at III-C-166–67), in light of the rapid increase in crude oil shipments and several recent accidents involving crude oil trains (including the horrific disaster at Lac Mégantic, PQ in July 2013), the rail industry amended AAR Circular OT-55-N (CPC-1258) to include crude oil trains among the list of "key" trains for which the maximum speed is restricted to 50 MPH. TPI's RTC Model does not adopt that critical safety "best practice." In CSXT's RTC Model, witness Wheeler adjusted the TPIRR's peak week crude oil trains to operate at a maximum speed of 50 MPH.

Likewise, witness Wheeler's review of TPI's RTC simulation revealed that TPI did not restrict the maximum speed of all loaded TPIRR grain trains to 50 MPH, as contemplated by

TPI's operating plan. Witness Wheeler adjusted the maximum speed of 88 peak week grain trains to comply with TPI's sensible maximum operating speed of 50 MPH.[272]

c. Locomotives

i. Road Locomotive Consists

TPI posits that TPIRR road trains would operate with two ES44AC locomotives deployed in a 1/1 "Distributed Power" configuration. TPI Opening III-C-16. CSXT accepts TPI's specification of ES44AC model locomotives for TPIRR road train and helper service, and CSXT's Reply RTC Model incorporates those units on all TPIRR road trains. However, for the reasons explained above (at III-C-156–62), CSXT Witness Gibson rejected the operation of trains with power in DP configuration while on the lines of the residual CSXT. Accordingly, the TPIRR would be required to reconfigure locomotives on trains interchanged to CSXT by placing both units on the head end, before tendering those trains to CSXT. Witness Wheeler incorporated that assumption by adding 45 minutes of dwell time for "leapfrog" trains interchanged from the TPIRR to CSXT.

In addition, CSXT currently places three (rather than two) road locomotives on certain expedited intermodal trains, in order to ensure that those trains meet the customer's transit time requirements. *See infra* CSXT Reply III-D-14–15. The trains in TPI's RTC simulation which CSXT operates with three road locomotives are identified in Figure III-C-30.

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[272] The TPIRR trains for which witness Wheeler input adjusted train speeds are identified in CSXT Reply WP "TPI's Incorrect Speed Limit Trains.xls."

FIGURE III-C-30
CSXT Expedited Trains That Operate With Three Locomotives

L031	Q012	Q025
Q008	Q017	Q032
Q009	Q019	Q033
Q010	Q021	Q034

Witness Wheeler added one locomotive unit to the trains listed in Figure III-C-30, in order to reflect more accurately the manner in which they operate in the real world.

ii. Helper Locomotives

CSXT accepted the helper service locations posited by TPI, and CSXT's Reply RTC Model incorporated the same helper service locations as TPI's Opening RTC simulation.

d. Dwell Times

i. Dwell Time At Origins And Destinations

TPI based the dwell time for TPIRR trains serving customer origins and destinations on information set forth in the customer profiles provided by CSXT in discovery.[273] CSXT generally accepts the dwell times at origins and destinations input to TPI's Opening RTC Model, and uses the same dwell times in its Reply RTC simulation.

However, witness Wheeler's review of TPI's RTC analysis revealed that TPI applied inconsistent dwell times at the Bailey Mine and Howell Yard coal destinations. At those two locations, some TPIRR coal trains dwelled in TPI's RTC simulation for 10-13 hours (as they should) while others incurred either "0" dwell time or only one minute of dwell time. Witness Wheeler adjusted the dwell time for TPIRR coal trains that showed "0" or one minute of dwell time at Bailey Mine or Howell Yard to ensure that CSXT's Reply RTC Model reflected a consistent destination dwell time for all coal trains terminating at those locations.

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[273] *See* TPI Op. Ex. III-C-6 at 9.

ii. Dwell Times at Yards

One of the most egregious flaws in TPI's operating plan and RTC simulation is the failure of that evidence to portray accurately the amount of time that trains would occupy tracks at TPIRR yards. TPI disregarded the information set forth in the train event data produced in discovery, which included train-specific arrival and departure times for trains making intermediate stops at CSXT yards to pick up and/or set off cars. As CSXT demonstrated above, the "generic" dwell time assumption that TPI substituted for that real world information produced an RTC simulation that is inconsistent with real world railroading, and understated the amount of time that trains would occupy tracks at TPIRR's yards.

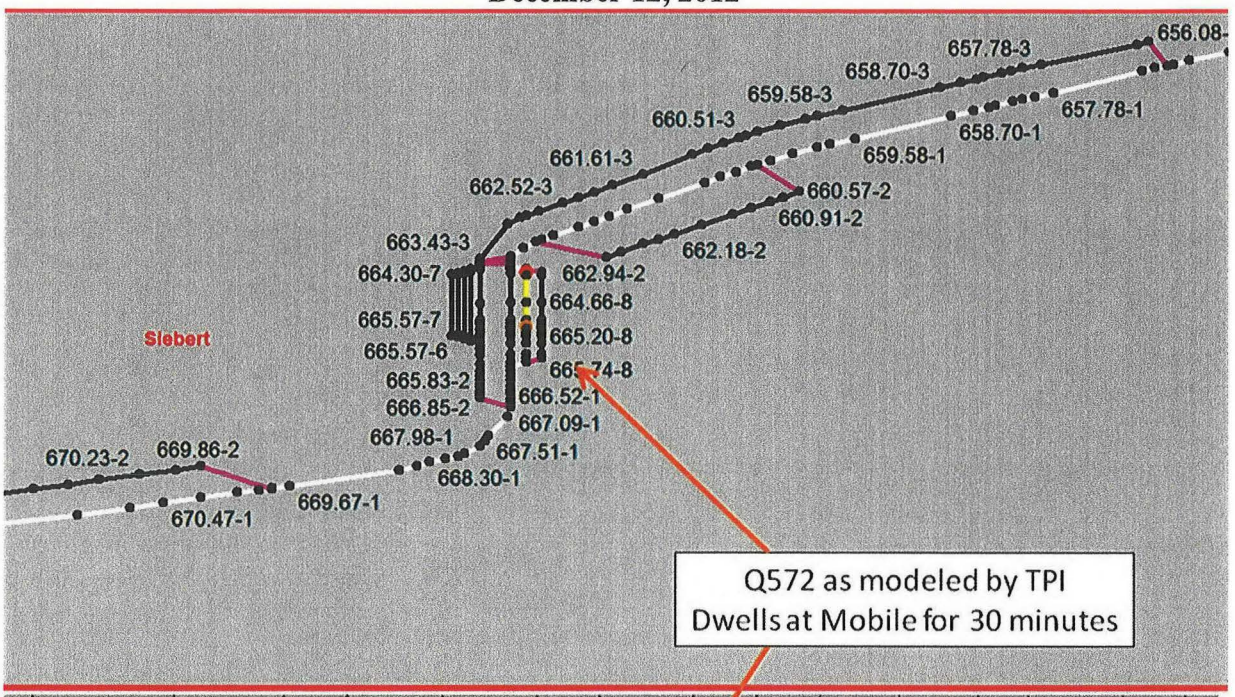
(a) Trains Changing Consist At Flat Switching Yards

TPI's Opening narrative does not mention the dwell time that TPI input to its RTC Model to reflect the time that road trains would occupy tracks while picking up or setting off cars at TPIRR flat switching yards. However, witness Wheeler's review of TPI's RTC workpapers revealed that TPI's RTC Model incorporated a "generic" assumption that every TPIRR through train making an intermediate stop at a flat switching yard to pick up or set off blocks or cars (*i.e.*, change consist) would dwell at the yard for only 30 minutes.[274] Figures III-C-31 and III-C-32 below illustrate the manner in which TPI modeled stops by TPIRR road trains that changed consist at a TPIRR flat switching yard.

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[274] *See* TPI Op. WP "TPI Open RTC Train Inputs.xls."

FIGURE III-C-31
Dwell Time and Consist Changes at Mobile, Train Q572
December 12, 2012



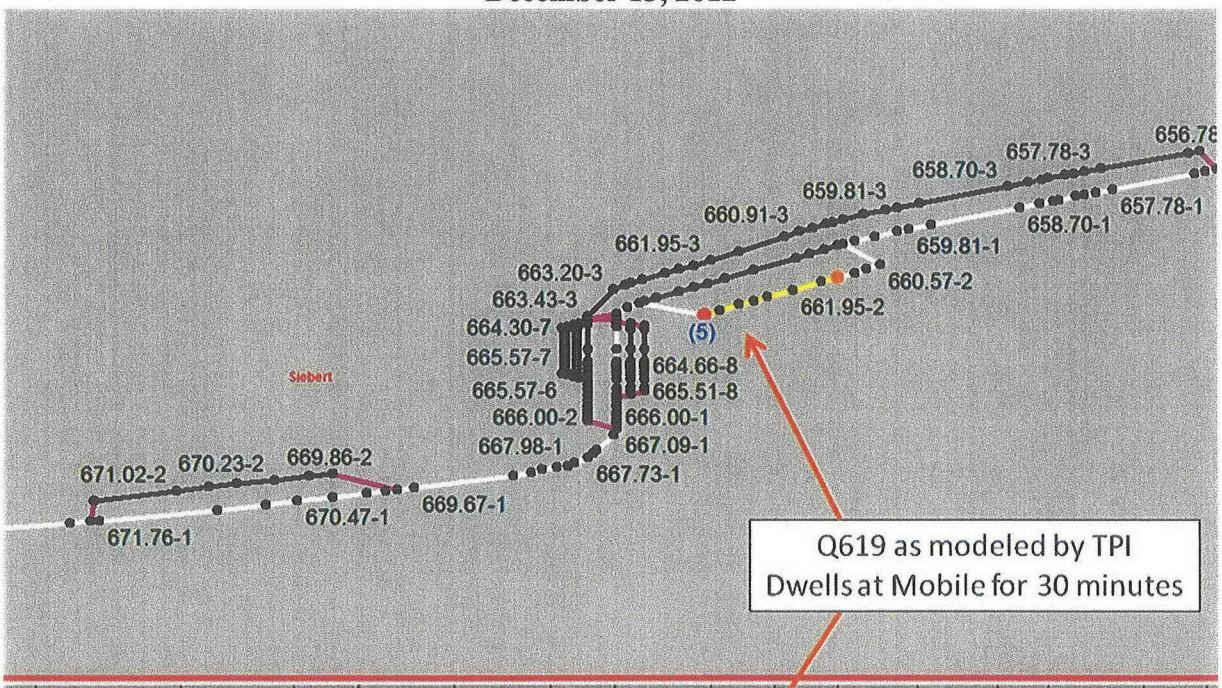
	Node	Node Location	Field Milepost	Requested Arrival DD HH MM	Requested Departure DD HH MM	Posted Depart Time ?	Minimum Dwell HH MM SS	Departing Loads	Departing Empties	Trailing Departing Tons	Trailing Departing Feet	Crew #	Departing Direction	Max Speed	A Ne O
1	798.98-3	Gentilly Yard	798.980	FLOAT	9 00	No	1 00	36	29	5874	4220	1	North	50	Ye
2	664.19-3		664.190	FLOAT	FLOAT	No	30 00	56	35	8134	5842	2	North	50	Ye
3	384.90-3	Boyles Terminal	384.900	FLOAT	FLOAT	No	30 00	0	0	0	0	2	North	50	Ye

CSXT Train Q572—one of the trains that TPI purports to "mirror" in its operating plan and RTC analysis—is a general freight road train that operates along a route from New Orleans, LA, through Mobile and Montgomery, AL, to Birmingham, AL. Train Q572 operated in TPI's RTC simulation on December 12, 2012. The train arrival and departure data provided to TPI in discovery showed that, on that date, Train Q572 picked up and set off cars at Mobile and dwelled at the yard for a total of 2.23 hours.[275] However, as Figure III-C-31 illustrates, TPI's RTC Model assigned only 30 minutes of dwell time for this intermediate stop by Train Q572.

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[275] *See supra* III-C-102, Figure III-C-12.

FIGURE III-C-32
Dwell Time and Consist Changes at Mobile, Train Q619
December 13, 2012



	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
1	S250.15-4	Hamlet Yard	250.150	FLOAT	16:45	No	1:00	21	89	5306	6684	1	South	60
2	SG427.70-3	Maxwell Yd	427.700	FLOAT	FLOAT	No	15:00	21	89	5306	6684	2	South	60
3	YYG169.90-3	Hulsey Yard	169.900	FLOAT	FLOAT	No	15:00	21	89	5306	6684	3	South	60
4	485.10-3	S&A Yard	485.100	FLOAT	FLOAT	No	45:00	21	89	5306	6684	4	Turnaround	60
5	662.94-2		662.940	FLOAT	FLOAT	No	30:00	27	112	6705	8446	5	South	60
6	800.80-3	Gentilly Yard	800.800	FLOAT	FLOAT	No	30:00	0	0	0	0	6	South	60

Likewise, CSXT Train Q619 (another train adopted by TPI for the TPIRR's train list) is a general freight road train that operates along a route from Hamlet, NC, via Greenwood, SC, Atlanta, GA, and Mobile, AL, to New Orleans, LA. As illustrated in Figure III-C-32, Train Q619 operated in TPI's RTC simulation on December 13, 2012. According to the train event data provided to TPI in discovery, Train Q619 picked up and set off cars at Mobile and dwelled at the yard for a total of 1.48 hours on that date.[276] Yet, TPI's RTC Model again disregarded that real world information and assigned a total dwell time of only 30 minutes to pick up and set off cars at Mobile on December 13, 2012 (and on every other day in the simulation period).

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[276] *See* III-C-104, Figure III-C-13.

As CSXT demonstrated above, the dwell time of 30 minutes for trains changing consist at intermediate yards assumed by TPI in performing its RTC Model simulation is simply not consistent with "the realities of real world railroading." Rather, real world CSXT trains that made intermediate stops to pick up or set off cars during the Base Year experienced an average dwell time of 2.6 hours at CSXT flat switching yards and 3.9 hours at CSXT hump yards.[277] TPI's failure to incorporate that real world dwell time information into its RTC Model resulted in a substantial understatement of train transit times in TPI's RTC simulation, and renders the Model's outputs invalid.

Witness Wheeler corrected this flaw in TPI's RTC Model by substituting a more realistic dwell time (based on CSXT's real world train event data) for TPIRR trains that made intermediate stops to pick up and/or set off cars at flat switching yards. Specifically, Witness Wheeler replaced TPI's nonsensical 30 minute dwell time assumption with a dwell time of 2.0 hours at those TPIRR flat switching yards at which the CSXT train event data indicated that real world trains changing consist experienced average dwell time of more than 2.0 hours.[278] This conservative adjustment increased the yard dwell time for 703 intermediate stops by TPIRR road trains in CSXT's Reply RTC simulation.[279]

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[277] *See* CSXT Reply Ex. III-C-7.

[278] *See* CSXT Reply WP "TPIRR Flat Yard Intermediate Dwell.xls." Witness Wheeler did not increase TPI's understated dwell time input for trains changing consist at other TPIRR yards, even though CSXT Reply Exhibit III-C-7 indicates that the time required for real world CSXT trains to change consist exceeds 30 minutes at every location. Accordingly, CSXT's correction to TPI's dwell time is conservative.

[279] CSXT Reply workpaper "TPIRR Flat Yard Intermediate Dwell.xls" identifies the affected TPIRR trains by train symbol and work location.

(b) Trains Arriving/Departing TPIRR Hump Yards

TPI relies exclusively on the results of its RTC simulation to prove that its operating plan provides adequate receiving and departure track capacity at TPIRR yards.[280] But the inputs to TPI's RTC Model failed to account for the time that inbound trains would occupy receiving tracks after arrival, or the time required to "build" an outbound train on a departure track. TPI's narrative evidence did not mention the "dwell" values that it input to its RTC Model for those activities. However, witness Wheeler's review of TPI's RTC analysis revealed that TPI's RTC Model assumed that all of the cars on inbound trains would be cleared from the receiving track within 30 minutes after the train's arrival. Indeed, in some instances, TPI's RTC Model assigned "0" time to clear receiving tracks—assuming, in essence, that inbound trains simply "disappear" upon arrival.[281] As CSXT Witness Dirnberger demonstrates (at III-C-112), the average time that a receiving track remained occupied following the arrival of a terminating train at CSXT's major hump yards during 2012 was approximately 5.65 hours.

Even more incredibly, TPI's RTC Model assigned a dwell of only one minute to account for the time that a departure track would be occupied by the process of building and inspecting an outbound train.[282] As Witness Dirnberger showed, that process—which includes the time

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[280] As CSXT explained (at III-C-99), the RTC Model is not a yard sizing tool, but rather is designed to measure train movement activity. Among the many factors that are not evaluated by the RTC Model (but may affect yard track requirements) are switching activities that take place on receiving and departure tracks; "light" movements by road engines between the receiving (or departure) area and a yard's locomotive servicing facilities; delays caused by conflicting movements in other portions of the yard (which may require locomotives or cars to hold on a receiving track or delay the departure of an outbound train); and operating delays due to yard congestion or external factors such as poor weather.

[281] *See* TPI Op. WP "TPI Open RTC Train Inputs.xls." For example, for 8 of the 115 trains that arrive at Birmingham, TPI assigned "0" dwell prior to departure.

[282] *See* TPI Op. WP "TPI Open RTC Train Inputs.xls."

required to switch multiple blocks of cars from the classification bowl to the departure track, to couple air hoses and perform an FRA-mandated inspection, to attach locomotives to the outbound cars, and to complete paperwork and prepare the train for departure—takes, on average, more than five hours, not the one minute that TPI input to its RTC Model.[283]

Witness Wheeler corrected this flaw in TPI's RTC Model by substituting a dwell time of 5.00 hours for trains arriving on receiving tracks, and for departure tracks upon which outbound trains are built and inspected, at the TPIRR's eleven hump yards. CSXT's Reply RTC simulation more accurately reflects the time that inbound and outbound trains would occupy the TPIRR's receiving and departure tracks.[284]

In order to test the impact of TPI's nonsensical dwell time inputs on the validity of its RTC simulation, witness Wheeler adjusted TPI's RTC Model to incorporate a dwell time of 2.0 hours (rather than 30 minutes) for trains that changed consist at TPIRR flat switching yards, and 5.00 hours (rather than 30 minutes and one minute, respectively) for trains originating or terminating at TPIRR hump yards. Witness Wheeler did not change any other input to TPI's Model (so that his adjustment would isolate the effect of TPI's unrealistic dwell time inputs). Running the RTC simulation in the same Version 69E that TPI submitted on Opening, this single adjustment caused TPI's RTC Model to fail only 16% of the way through the peak week

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[283] *See* CSXT Reply Ex. III-C-1 (Video) at 6:20 (depicting the process of building an outbound train at CSXT's Atlanta Yard).

[284] Due to the inherent limitations in the RTC Model's ability to evaluate yard capacity (*see* III-C-99), the receiving and departure tracks depicted in CSXT's RTC Model understate the TPIRR's actual receiving and departure track requirements. Witness Dirnberger's analysis provides a more accurate analysis of the TPIRR's yard track requirements.

simulation.[285] CSXT Reply workpaper "TPI Open with Dwell.ppt" provides graphic proof that TPI's RTC simulation fails to establish the feasibility of TPI's operating plan.

CSXT accepted, and incorporated into its Reply RTC Model, the dwell times posited by TPI for coal trains requiring a 1,500-mile inspection (5.00 hours), and for non-coal trains requiring a 1,000-mile inspection (3.00 hours).[286]

e. Time Required to Interchange Trains With Other Railroads.

TPI's RTC Model assigned 30 minutes of dwell time for the TPIRR to complete the receipt of a train in interchange from a foreign railroad. *See* TPI Op. Ex. III-C-6 at 7. In TPI's RTC Model, no time was allotted for trains forwarded in interchange to another carrier— *i.e.*, the train "disappeared" from the Model immediately upon arrival at the interchange location.

CSXT accepted, and incorporated into its Reply RTC Model, the 30-minute interchange time posited by TPI for trains received by the TPIRR in interchange from a foreign carrier. However, because CSXT would not accept trains in interchange with the power in a DP configuration, witness Wheeler allotted 45 minutes for the TPIRR train crew to reposition locomotives at locations where "leapfrog" trains were forwarded to CSXT.

f. Crew Change Locations/Times

TPI's RTC simulation assigned 15 minutes of dwell time for the TPIRR to complete crew changes. TPI Op. Ex. III-C-6 at 9. CSXT accepted this dwell time as reasonable, and incorporated a 15-minute dwell time for crew changes in its RTC Model.

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[285] *See* CSXT Reply WP "TPI Open with Dwell.ppt."

[286] TPI Op. Ex. III-C-6 at 6.

g. Time Required to Attach/Detach Helper Locomotives

TPI's RTC simulation assigned 20 minutes of dwell time for helper locomotives to be attached to TPIRR road trains, and 15 minutes to detach helper units after they have finished assisting a train. TPI Op. Ex. III-C-6 at 4. CSXT accepted those dwell time assumptions as reasonable, and incorporated them into its RTC simulation.

h. Track Inspections/Maintenance Windows

TPI's RTC simulation assigned delay time to account for track inspections and line maintenance activities, based upon the train delay data provided by CSXT in discovery. TPI Op. Ex. III-C-6 at 11.[287] CSXT accepted those delay times as reasonable, and incorporated them into its RTC simulation.

i. Time for Random Failures/Line Outages

TPI acknowledges that "[r]andom events that affect track and equipment are a part of everyday railroading. It is unrealistic to expect that no such events would occur during the TPIRR's peak traffic period used for the RTC simulation, or that such events would not affect train operations during that period." TPI Op. Ex. III-C-6 at 11. TPI input a total of 452 random failures and track outages to its RTC Model, based (according to TPI) on delays reported in the train sheet data provided by CSXT in discovery. *Id.* at 12-13.[288]

CSXT accepts generally TPI's decision to base random failures and track outages on events reported in CSXT's real world train sheet data. However, CSXT's review of that data

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[287] *See also* TPI Op. WP "Peak Period Delays (Final).xls."

[288] *See also* TPI Op. WP "Peak Period Delays (Final).xls." In constructing its RTC Model, TPI committed numerous errors in coding track numbers at locations where the TPIRR would have multiple tracks. This error caused TPI's RTC Model to disregard a number of the 452 random outages that TPI culled from the CSXT train data. Witness Wheeler corrected TPI track numbering errors in developing CSXT's Reply RTC Model.

revealed that TPI significantly undercounted the number of events associated with the trains and delay categories that TPI purported to rely upon. In particular, it appears that, in seeking to eliminate potentially "duplicative" delay events (*i.e.*, situations in which more than one CSXT train reported being delayed by the same occurrence), TPI mistakenly "consolidated" events that, in reality, were two separate incidents. Based upon its review of the train sheet data, CSXT identified (and input to its Reply RTC Model) a total of 742 valid track outages caused by random events of the types included in TPI's analysis, including 290 events that TPI did either not identify (or chose to disregard) in compiling its list of random failures.[289] In other words, TPI's RTC simulation understated by 40% the random failures and track outages that impacted the real world CSXT trains that TPI purported to "mirror." Witness Wheeler corrected this serious deficiency in TPI's evidence by inputting to CSXT's RTC Model the 742 track outages that appear in the CSXT train data upon which TPI's methodology was based.

11. TPI's Train Transit Time Analysis Is Meaningless.

TPI asserts that it has carried its burden of proving that its operating plan is feasible because "[t]he RTC Model confirms that that train cycle and transit times during the 2019 peak week are equal to or faster than the CSXT actual cycle and transit times for the comparable trains during the 2012 peak week." TPI Opening I-20.[290] Even if the outputs of TPI's RTC simulation (including train transit times) were valid —and, as CSXT has shown, clearly they are not—TPI

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[289] CSXT Reply WP "CSXT Reply RTC Random Failure Description.doc" describes the process used to identify the 742 random failures and track outages identified by CSXT in the train sheet data, and input to CSXT's Reply RTC Model.

[290] *See also* TPI Opening III-C-22 ("the train transit times during the peak period in the Peak Year [in TPI's RTC simulation] are similar to or lower than CSXT's actual transit times during the comparable period").

has not presented evidence that supports its claim that the TPIRR would provide service that is equal to or better than CSXT's real world service.

As an initial matter, service quality for general freight traffic is not (as TPI appears to assume) simply a function of "cycle times" or "train transit times." Indeed, "cycle time" is not a meaningful concept in evaluating "carload" rail service. Unlike the repetitive unit train movements at issue in Western coal rate cases, general freight trains (and the rail cars in those trains) do not "cycle" continuously between the same origins and destinations. Rather, upon completion of a loaded shipment, an empty general freight car is repositioned to the nearest location at which a customer needs that type of car for loading.

More fundamentally, the transit time of merchandise trains as they move along the network is only one factor in evaluating "service quality" for carload traffic. The process of serving merchandise shippers entails much more than simply running trains between rail terminals. Rather, general freight involves placing an empty car for loading at the origin facility, picking up the loaded car (in a local train) and bringing it to a serving yard, classification and switching of the car between trains at one or more intermediate yards, transporting the car over the network in one or more road trains, load train service to deliver the car at destination, and compliance with any special customer instructions during all phases of the movement. The "transit time" for any particular shipment consists of the elapsed time between the first and last events in that process. For a general freight shipper, "service quality" is measured by how quickly—and how reliably—the railroad responds to a request for service and completes the movement of the shipment from origin to its destination.[291] TPI's "train transit time" service

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[291] CSXT's Reply MultiRail analysis constitutes the only record evidence that documents the complete movement of the TPIRR's selected traffic from origin (or on-SARR junction) to destination (or off-SARR junction).

quality metric ignores that fundamental difference between "unit train" and "carload" railroading.

Moreover, even if train transit time were an accurate measure of service quality for carload traffic—and it is not—the transit time comparison proffered by TPI is entitled to no evidentiary weight, for several reasons.

First, the TPIRR train transit times proffered by TPI are the product of an operating plan and RTC simulation that are fatally deficient. TPI failed to account for more than half of the local trains that the TPIRR would need to operate in order to provide complete on-SARR service to its customers. Indeed, TPI did not include any local trains in its transit time analysis, ignoring entirely that a critical element of merchandise train service.) The utterly nonsensical train dwell times that TPI input to its RTC Model vastly understated the time that TPIRR trains would spend making pick ups and setoffs at intermediate yards along their route of movement. TPI's failure to account for 40% of the random failures and track outages that should have been input to the RTC Model caused the model to understate the delays that TPIRR trains would encounter while traveling between terminals. Any one of those serious methodological errors in TPI's RTC analysis is sufficient to invalidate the "transit times" generated by TPI's RTC Model—collectively, they render those transit times meaningless.

Second, the TPIRR train transit times generated by TPI's RTC Model include only the nonsensically short 30 minutes of dwell time that TPI input to the Model to account for trains stopping to pick up and set off cars at intermediate yards.[292] TPI "compares" those TPIRR train transit times with the transit times in CSXT's train data, which include the average dwells of 2.6

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[292] TPI's analysis ignores the entire time that cars spend at yards as they are classified and switched between trains.

hours at flat switching yards and 3.9 hours at hump yards incurred by CSXT's real world trains. *See* CSXT Reply Ex. III-C-7. In doing so, TPI systematically distorts the analysis in the TPIRR's favor. Such a self-serving "apples to oranges" comparison is, on its face, invalid.

Third, in compiling its transit time comparison, TPI categorically excluded all trains that "leapfrog" between the lines of the TPIRR and CSXT in TPI's RTC simulation.[293] As CSXT demonstrated (at III-C-38–39), that "leapfrog" traffic includes some of the most time-sensitive intermodal business on the railroad. But TPI's RTC simulation modeled "leapfrog" movements as two separate TPIRR trains, and did not even attempt to ascertain the total transit time for those shipments (including the portion that would be handled by the residual CSXT, or the time required to complete the extra interchanges made necessary by TPI's "leapfrog" assumption). Instead, TPI simply removed those trains from its analysis on the grounds that they were "outliers." As a result, TPI's train transit time analysis fails to demonstrate that the TPIRR could meet the requirements of its most service-sensitive customers.

Fourth, in many instances, TPI compared complete CSXT train movements with small segments of those same movements on the TPIRR. For example, TPI compared the transit time for TPIRR Train M3192COOBIR with (what TPI characterizes as) the "comparable" CSXT Train Q650 on December 10, 2012. The real world CSXT train traveled from Waycross, GA to Birmingham, AL. However, a review of TPI's RTC workpapers reveals that the origin of TPIRR Train M3192COOBIR (as modeled by TPI) is not Waycross, but rather "Coosa St. AL," which is

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[293] *See* TPI Op. WP "TPIRR Peak Week Transit Time Comparison," Caption and footnotes 3,4 (acknowledging that trains were excluded from the peak week transit time analysis "for traversing more than one TPIRR segment").

located in Montgomery, AL.[294] The distance between Waycross and Coosa Street is approximately 298 miles, while Coosa Street is located 94 miles from Birmingham. In other words, TPI's transit time analysis compared the 392-mile real world movement of Train Q650 by CSXT with a hypothesized 94-mile movement by TPIRR Train M3192COOBIR. Not surprisingly, TPIRR's train won the race! However, this transit time comparison is utterly meaningless because the trains and distances traveled are not "comparable."

Likewise, TPI compared the transit time for CSXT Train Q698, a merchandise train operating from Cincinnati, OH to Hamlet, NC, a distance of 760 miles, with a (supposedly) "comparable" TPIRR train that TPI modeled only from Clinton, SC to Hamlet (a distance of 149.16 miles).[295] TPI concludes that the TPIRR's service is superior to CSXT service because the TPIRR train completed its 149-mile journey in only 5.9 hours, while the CSXT train took 42 hours and 12 minutes to travel 760 miles between Cincinnati and Hamlet (while making multiple intermediate stops at stations in Ohio and Kentucky prior to reaching Clinton, SC).

TPI's purported comparison of TPIRR and CSXT unit train transit times is similarly flawed. For example, TPI compared CSXT Train U762 with the (supposedly) comparable TPIRR train. Based on its RTC simulation, TPI concluded that the TPIRR could complete the

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[294] *See* CSXT Reply WP "ExamplesTransitTime_Rv.xlsx," Tab "ExampleQ650" shows that the shipment reflects an on-SARR movement beginning at Waycross on 12/10/12 at 3:45AM (Row 20, Column H = 1, which reflects an on-SARR movement). However, that shipment then immediately goes off-SARR (Row 22, Column H = 0) and moves over the CSXT until Coosa Street. Row 26 reflects a 12/11/12 0:51AM arrival at Coosa Street. The train then operates over the SARR until it reaches its destination in Birmingham (Row 47). TPI's transit time comparison is rendered all the more inaccurate as TPI uses the arrival time at Mary Lee, AL (Row 46) for purposes of the transit time comparison. *See* TPI Op. WP "TPIRR Peak Week Transit Time Comparison.xlsx," Tab "Merch Times", Row 2954 indicating "LastOnSarrTimestamp" as 12/11/2012 07:09:00. In fact, the data shows that the train did not arrive in Birmingham until 12/11/2012 12:30:00 AM.

[295] *See* CSXT Reply WP "ExamplesTransitTime_Rv.xlsx" Tab "ExampleQ698."

movement in 9.8 hours—fully 33.42 hours faster than CSXT reported on December 10, 2012. CSXT Train U672 is a round-trip coal movement that originates empty at Corbin, KY and moves to Harbell, KY, where the train is loaded. The loaded coal train then moves back via Corbin to the on-SARR junction of RH Tower, OH. The real world route of CSXT Train U672 totals 226 miles. However, TPI's RTC simulation failed to model (i) the empty movement from Corbin to Harbell, (ii) the dwell time for loading at Harbell, or (iii) the return movement from Harbell to Corbin.[296] Those portions of the real world train's movement took 27:45 hours. If that 27:45 is added to the 9.8 hours for the limited portion of the movement that TPI did model, the transit time comparison reverses in favor of CSXT (33.42 hours for the CSXT train v. 37.55 hours for the TPIRR train).

As these examples illustrate, TPI's transit time comparison is an exercise in futility. TPI compares "apples" with "oranges," skews the analysis by comparing TPIRR trains with unrealistically low yard dwell times to CSXT trains that incur much longer real world dwell times, and eschews altogether any evaluation of the TPIRR's most time-sensitive traffic. TPI's claim that its facially nonsensical "analysis" demonstrates that the TPIRR could provide service that is superior to CSXT service is disingenuous, if not delusional.

As CSXT's Reply Evidence convincingly demonstrates, TPI's operating plan is not feasible because it does not provide the local train service required to meet the needs of the TPIRR's selected traffic—including 39% of the "issue" traffic; fails to present a car classification and blocking plan for general freight traffic (or to prove that the TPIRR could execute CSXT's real world blocking plan with the substantially diminished yard track capacity

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[296] *See id.*, Tab "ExampleU762." Row 20, column H identifies Corbin, KY as the on-SARR junction, however, as Column H illustrates, TPI did not begin to model the train movement until the second time the train arrived—as a loaded coal train—at Corbin (Row 36, Column H).

and staffing posited by TPI); docs not include yards and intermodal facilities would be required to handle the TPIRR's selected traffic; fails to provide a sufficient number of locomotives to accommodate the TPIRR's traffic volumes (and posits a type of yard locomotive that is ill-suited for the switching work that would be assigned to it); and fails to account for the industrial lead tracks required to reach all TPIRR-served industries. With all of those fundamental (and fatal) deficiencies, it matters little how long it might take for TPIRR road trains to move from terminal to terminal.

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III. STAND-ALONE COST

D. OPERATING EXPENSES

In Section III-D of its Opening Evidence, TPI presents its estimate of the TPIRR's annual operating expenses based on the traffic group and operating plan posited in Parts III-A and III-C, respectively. As shown in TPI's Table III-D-1, TPI estimates that the TPIRR's Base Year operating expenses would total $2.34 billion, based on 3Q 2010 cost levels.[1] As CSXT demonstrates below, TPI's estimate understates by $700 million the annual costs of providing the services and functions necessary to handle the traffic that TPI selected for the TPIRR.

To put TPI's operating expense estimate in perspective, TPI's selected traffic group includes 88% of CSXT's carload traffic. The TPIRR would handle those shipments across a network that comprises the vast majority of CSXT's real world system. Yet, TPI's operating cost estimate represents less than 40% of the costs that CSXT actually incurs in transporting the same traffic in the real world. Indeed, as shown in Table III-D-1 below, TPI contends that the TPIRR's operating expense per gross ton-mile would be over one-third less than the expense per gross ton-mile mile incurred today by CSXT and the other two Class I railroads operating in the eastern United States (Norfolk Southern and Canadian National).

[1] TPI Opening III-D-2.

Table III-D-1
TPIRR 2010 Operating Expenses Are More Than One-Third Less Than Eastern Class I Railroads[2]

	Operating Expense, excl. Depreciation ($ Billions)	Gross Ton-Miles (Billions)	**Expense per Gross Ton-Mile (mills)**	TPI TPIRR Compared to Other Class I RRs
TPI TPIRR	$2.34	230.5	**10**	---
CSXT	$6.46	415.6	**15.5**	-35%
NS	$6.18	337.9	**18.3**	-44%
CN-US	$1.51	95.1	**15.8**	-36%

The notion that any railroad, no matter how "efficient," could serve CSXT's broad mix of traffic over a network of more than 7,300 miles (including 491 miles of trackage rights) for only ten mills per ton-mile is simply not credible. While the STB has adopted operating expenses in the range of ten mills per ton-mile in certain other SAC cases, the traffic groups in those cases consisted largely—if not entirely—of coal unit trains and other "trainload" traffic moving in "bridge" service between a limited number of origins and destinations. By contrast, TPIRR's traffic group consists largely of general freight traffic moving in individual "carload" shipments between hundreds of different TPIRR-served origins (or on-SARR junctions) and destinations (or off-SARR junctions). As CSXT demonstrated in Section III-C above, the operations required to support the TPIRR's general freight traffic (including car classification and switching, and providing local service to more than 1,600 customer facilities at 686 stations) are far more complex and time consuming than "trainload" operations. TPI's traffic and network assumptions illustrate the carload nature of the TPIRR. The TPIRR claims 39% of CSXT's revenues for coal shipments, and 70% of CSXT's revenues for non-coal shipments.[3] The fact that coal unit-train

[2] *See* CSXT Reply WP "R1 Operating Expenses and Train Loco Stats.xlsx."

[3] *See* CSXT Reply WP "TPIRR_Selected _Traffic.xlsx."

traffic accounts for a much smaller percentage of TPIRR's traffic base (as compared to CSXT's real-world traffic) further underscores the implausibility of TPI's operating expense evidence.

Moreover, TPI's operating expense estimates are based directly on its ill-conceived operating plan and RTC simulation.[4] As CSXT demonstrated in Section III-C, both TPI's operating plan and its RTC simulation are fatally flawed and must be rejected. Accordingly, TPI has failed to present credible evidence to support its proposed TPIRR operating expenses, and those estimates must be rejected as well.

In this Section III-D, CSXT identifies numerous reasons why TPI understates the expenses that would actually be incurred in operating the TPIRR. The most fundamental reason is that TPI's operating plan and RTC simulation fail to account for all of the necessary trains, yard operations, local service, and facilities required to serve the TPIRR's selected traffic. *See* CSXT Reply Section III-C. TPI also assumed unit costs for equipment, personnel, and facilities that do not reflect the full costs that a railroad would incur in providing the required services to the TPIRR's customers. In the areas of Operating Managers, Maintenance of Way, and General & Administrative, TPI's Opening Evidence reflects highly skeletal staffing that would not be adequate to manage the TPIRR's operations safely and effectively, maintain its right of way and facilities, or perform the myriad administrative functions required for a railroad with $6 billion in annual revenues. By undersizing critical elements of the TPIRR's operations and omitting others entirely, TPI's operating plan and operating expense evidence fail to account for activities, equipment, facilities, and personnel (and the corresponding costs) required to operate the TPIRR.

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[4] *See* TPI Opening III-C-1 ("The operating plan and the RTC model .... provide the basis for many of the TPIRR's annual operating expenses shown in Part III-D"); *id.* III-D-1 ("The RTC Model output was used to calculate the TPIRR's transit times and locomotive requirements for the peak week . . . Mr. Burris used this information to calculate locomotive hours and car hours for all trains moving in the Base Year.").

Table III-D-2 below summarizes the parties' TPIRR annual operating expenses, at 3Q 2010 levels. The bases for CSXT's adjustments to the expense estimates posited by TPI follow.

Table III-D-2
TPIRR First Year Operating Expenses (3Q 2010 Levels)
($ in Millions)

	TPI	CSXT	Difference
Locomotive Ownership	$82.8	$113.0	$30.2
Locomotive Maintenance	113.2	181.9	68.7
Locomotive Operations	860.6	800.8	(59.7)
Railcar Lease	217.4	366.3	148.9
Material & Supply Operating	4.8	6.7	1.9
Train and Engine Personnel	394.9	457.2	62.3
Operating Managers	96.0	146.6	50.6
General & Administrative	91.6	166.6	74.9
Loss & Damage	8.8	8.2	(0.7)
Ad Valorem Tax	41.3	62.4	21.1
Maintenance-of-Way	209.8	404.3	194.5
Trackage Rights	23.6	28.2	4.6
Intermodal Lift and Ramp	67.2	104.1	37.0
Auto Handling	22.8	22.6	(0.2)
Bulk Transfer Facilities	0.0	18.8	18.8
Insurance	31.5	40.8	9.3
Startup and Training	78.0	105.5	27.4
Total Annual Costs	**$2,344.4**	**$3,034.1**	**$689.7**

1. Locomotives

TPI posits that the TPIRR would use three classes of locomotives: high-horsepower General Electric ES44AC units ("ES44s") for road and helper service; SD40-2 units for local service and work trains, and SD40-2 and EMD SW1500 units for yard switching.[5] As explained in Section III-C above, the numerous errors in TPI's operating plan and RTC Model resulted in a vast understatement of the number of locomotives required to handle the TPIRR's selected

[5] TPI Opening III-D-3.

traffic. Those errors, as well as others that led TPI to understate the TPIRR's locomotive acquisition, maintenance, and fueling costs, are discussed in detail below.

a. Locomotive Acquisition

i. TPI Understates the Number of Locomotives Required To Support TPIRR Operations.

TPI posits that the TPIRR would need only 1,057 locomotives to handle its Base Year traffic.[6] To put that estimate in perspective, CSXT had 3,533 freight locomotives in service at the end of 2010.[7] TPI proffers no explanation (much less a persuasive rationale) as to how the TPIRR could transport 88% of CSXT's real world traffic with only 30% of CSXT's real-world locomotive fleet. TPI's locomotive estimate is especially nonsensical in light of TPI's assertion that "base year TPIRR trains and cars essentially mirror the movement of the corresponding CSXT traffic for that time period."[8] In other words, TPI's operating plan contemplates that the TPIRR would operate the same trains with same length and trailing tonnage as CSXT, over the same terrain.[9] While the TPIRR would employ higher-horsepower AC units than CSXT typically uses, that assumption would account for only a corresponding seven percent reduction in the number of locomotives per train.[10] TPI also assumed that the TPIRR would experience the actual proportion of time that CSXT's units are out-of-service.[11] Given all of those assumptions—not least of which is the assumption that TPIRR's operations "mirror" those of

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[6] TPI Opening III-C-16.

[7] *See* CSXT 2010 R-1 Annual Report, Schedule 710.

[8] TPI Opening III-C-5.

[9] *See* TPI Opening WP "TPIRR Base Year Manifest Train List_Statistics.xlsx."

[10] TPI's Base-Year road and local trains average 2.16 locomotives, 7% lower than CSXT's average of 2.33 units. *See* TPI Opening Reply WP "TPIRR Base Year Manifest Train List_Statistics.xlsx" and CSXT 2010 R-1 Annual Report, Schedule 755.

[11] TPI Opening III-C-11.

CSXT—how could the TPIRR possibly handle 88% of CSXT's real world traffic with less than one-third of the locomotives that CSXT deploys in the real world?

The answer is that TPI vastly overstated the utilization that TPIRR units would be able to achieve. That overstatement is driven predominately by the significant understatement of the locomotive time that TPI derived from its faulty RTC simulation. As an illustration, TPI's "TPIRR Operating Statistics_Open.xlsx" workpaper indicates that TPI concluded that the TPIRR's road train (including helper service) requirements would be covered by 709 ES44 units. This same workpaper indicates that these ES44's would generate 119 million annual locomotive unit-miles ("LUMs"). That would represent an average utilization across all 709 units of 167,000 LUMs annually! In order to achieve such a high level of utilization, every TPIRR road locomotive would have to travel more than 450 miles every day, and be moving at an average of 20 miles per hour every minute it was not in the shop.[12] The level of utilization implied by TPI's locomotive cost estimate is more than three times the level of utilization achieved by either CSXT or NS in their real-world operations,[13] casting further doubt on the credibility of TPI's estimate.

TPI's massive understatement of the locomotive time required to serve the TPIRR's traffic group is attributable to a number of errors and omissions in TPI's operating plan and RTC simulation:

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[12] 119 million miles / 709 units = 167,000 miles per year. 167,000 miles / 365 days = 459 miles per day. 459 miles / { } out-of-service factor = approximately 20 miles per hour.

[13] CSXT's and NS's locomotives average 56,000 miles and 49,000 miles, respectively, based on dividing total running locomotive unit-miles reported in Schedule 755 by the number of diesel-freight locomotives reported in Schedule 710. *See* CSXT Reply WP "R1 Operating Expenses and Train Loco Stats.xlsx."

1. TPI's operating plan failed to include more than 44,000 CSXT Base Year trains that are necessary for the TPIRR to provide complete service between the specific origins (or on-SARR junctions) and destinations (or off-SARR junctions) of its selected traffic.

2. TPI's RTC Model failed to account properly for train and locomotive dwell at yards incurred during switching and classification operations. TPI's RTC Model improperly models train speeds, fails to account for main line blockages caused by random failures and local trains serving customer facilities, provides insufficient power for time-sensitive expedited trains, and utilizes an impermissible cross-over device which results in a failure to model the entire route for which the TPIRR would be responsible. As a result, the transit times posited by TPI should be rejected. *See* CSXT Reply III-C-197–208.

3. TPI failed to account fully for yard dwell time for locomotives on trains that originate or terminate on the TPIRR, or for the time required to add blocks of cars to (or remove blocks of cars from) TPIRR trains at intermediate yards. *See* CSXT Reply III-C-11-14.

4. TPI failed to account fully for imbalances in train flows and the need to reposition locomotives in order to have sufficient power where it is needed to sustain operations. *See infra* III-D-11–14.

5. TPI's deficient yard service plan provided for 181 antiquated SW1500 engines to handle all switching at the TPIRR's flat yards as well as bowl operations at its hump yards. *See* CSXT Reply III-C-143–149.

TPI failed to include all the trains required to handle the TPIRR traffic: As CSXT demonstrates at III-C-15–37 above, TPI improperly excluded 44,694 CSXT Base Year trains that would be required for the TPIRR to serve On-SARR customers. These local trains originate or terminate shipments for which TPI claimed the revenue, but TPI essentially abandoned the local pick-up or delivery of that traffic at on-SARR customer facilities. *See id.* Correcting those fatal deficiencies in TPI's operating plan adds thousands of additional trains to the TPIRR's operations, with a corresponding increase in the number of locomotives that the TPIRR would need to power its trains.

TPI's RTC Model does not generate accurate TPIRR train transit times: As discussed in detail in Section III-C above,[14] TPI's RTC simulation suffers from numerous omissions and errors that render its results meaningless as a credible measurement of the transit times that TPIRR trains would experience. The factors contributing to TPI's underestimation of transit time include the omission of more than half of the local trains necessary to provide complete on-SARR service to its customers; the understated yard dwell times input to TPI's RTC model; the failure to model complete train movements; and the exclusion of nearly half of the random failures and track outages that TPIRR trains would encounter (based on CSXT's real world experience). *See* CSXT Reply III-C-197–203.

TPI failed to account fully for yard dwell time for locomotives on trains that originate or terminate on the TPIRR, or for the time required to add blocks of cars to (or remove blocks of cars from) TPIRR trains at intermediate yards: The TPIRR's mix of single-car and multi-carload shipments requires handling by multiple trains between yards and terminals that are local to the TPIRR network. In most prior cases, the Complainant has posited a SARR that transports unit-train shipments that cycle continuously between mines and either destinations or interchanges, and/or SARRs that provide overhead "hook and haul" service with trains moving intact between interchanges with the residual incumbent. That is not the case for the TPIRR. The TPIRR requires extensive yard operations and facilities to classify its merchandise traffic, operates local trains that serve more than 1,600 customers at nearly 700 station locations, and serves directly more than 60 intermodal terminals, automobile ramps, and bulk transfer facilities.[15] As a result, tens of thousands of trains originate from or terminate at yards located on the SARR network.

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[14] *See* CSXT Reply III-C-197–203

[15] *See* CSXT Reply WP "OnSARR Customers 2012.xls."

Locomotives would be required at all of those terminals to originate outbound shipments, and locomotives would arrive in yards at the end of their train runs.

Review of TPI's SARR train list confirms that the TPIRR's operations are heavily reliant upon yard and terminal operations. Unit trains comprise less than 20% of the road trains that operate over the TPIRR. Conversely, more than 80% of the TPIRR's trains are general freight, intermodal, or multilevel trains, which TPI refers to collectively as "manifest" trains.[16] More than one-half of those manifest trains either originate or terminate at one of 15 TPIRR yards, including the 11 hump yards that TPI constructed (recognizing the need for the TPIRR to classify and assemble large volumes of "carload" traffic into outbound trains).[17] When that list is expanded to identify the 30 largest origins and destinations of the SARR's manifest trains, all but three are located on the TPIRR.[18] Ensuring that locomotives are available for outbound movements when (and where) trains are built, and accounting for the time required to redeploy locomotives that arrive at destination terminals where they are not required for outbound trains, are both critical aspects that must be considered in developing a SARR's locomotive requirements.

TPI's Opening Narrative and Exhibits do not adequately account for locomotive time in yards between movements on trains. TPI included three hours of dwell time for each locomotive on manifest trains.[19] TPI did not explain the basis for its three-hour assumption.[20] Analysis of

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[16] TPI Op. WP "TPIRR Base Year Unit Train List v2_Statistics.xlsx" and "TPIRR Base Year Manifest Train List_Statistics.xlsx."

[17] CSXT Reply WP "TPIRR Road Trains Summary.xlsx."

[18] *Id.*

[19] TPI Op. WP "TPIRR Base Year Manifest Train List_Statistics.xlsx," Tab "Combined Manifest Train List," Column BK.

[20] *Id.* (providing three hours for "yard dwell hours").

TPI's records for the SARR train movements indicates that locomotives at TPIRR yards would typically dwell for much longer between train assignments. The TPIRR would be responsible for ensuring that units are available at the origination point, and would also be responsible for re-assigning those units to other trains at the destination point—and for any dwell time before their subsequent departure.

Locomotives do not automatically "appear" at precisely the origins where they are needed. Rather, locomotives often must be repositioned from a destination yard to a location where the locomotives are needed for a subsequent train movement. That process takes time, and increases a railroad's overall locomotive fleet requirements. CSXT analyzed the TPIRR train arrivals and departures in TPI's Opening RTC simulation to determine the average dwell time that locomotives would incur upon arrival on inbound trains, considering both the time required to service and fuel the units and the timing of the next available outbound train.[21] TPI's dwell time analysis does not account for the time necessary to service and fuel the locomotives and for the outbound air-brake test to be safely performed. Even at large terminals, where the frequency of train arrivals and departures results in a steady supply of locomotives that reduces dwell time between train movements, there would be some time involved in switching engines between trains. Based on the inbound and outbound flows at each TPIRR hump yard from TPI's RTC simulation run, CSXT determined that the yard dwell time for TPIRR locomotives would be approximately nine hours, not the three that TPI included in its calculations.[22] In order to account for yard dwell between train assignments, CSXT includes nine hours in determining the

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[21] *See* CSXT Reply WP "Dwell-Calculation-Report Final.xlsx."

[22] CSXT Reply WP "Dwell-Calculation-Report Final.xlsx." As CSXT's analysis measures all of the time up to the actual departure event, it accounts not just for the time that the locomotive is available for assignment, but also captures the time associated with configuring and testing the outbound train.

total locomotive hour requirements for TPIRR's merchandise, intermodal, and multilevel trains.[23]

In addition to understating yard dwell between train assignments, TPI also failed to account fully for the time associated with picking up or setting off cars at intermediate yards along a train's route of movement. In Section III-C, CSXT described in detail why TPI's 30 minute dwell time for intermediate pick ups and setoffs is unrealistic, and submitted evidence regarding the actual time incurred by CSXT performing those functions in its real world operations. *See* CSXT Reply III-C-189–194. CSXT also analyzed the train sheet records for the trains selected by TPI, and identified more than 20 yard locations where general freight trains average 2 hours or more to pick-up or set-out cars in the real-world.[24] In order to correct TPI's understatement, CSXT's RTC Model applies a 2.0 hour intermediate dwell time for general freight trains that change car consists at those locations.

TPI fails to account fully for imbalances in train and locomotive flows: TPI's locomotive fleet evidence did not address the imbalance in train (and locomotive) flows that would inevitably occur across the TPIRR's 7,300-mile network. TPI selected a diverse traffic base that moves over a variety of routings between dozens of terminals, and purported to "mimic" the trains that CSXT used to move that traffic.[25] In the real world, non-unit train traffic is frequently

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[23] *See Id.* In Section III-C, CSXT describes the need to include train dwell times of 5 hours at the origin and destination of trains at TPIRR hump yards, in order to account for the tracks that would be occupied. CSXT excludes the 5-hour RTC dwells from the calculation of SARR locomotive hours, before including the 9 hours of locomotive time between assignments. CSXT Reply WP "TPIRR Reply RTC Results.xlsx," Tab "Lookups."

[24] *See* CSXT Reply WP "TPIRR Flat Yard Intermediate Dwell.xlsx" and CSXT Reply Ex. III-C-7.

[25] *See* TPI WP "TPIRR Base Year Manifest Train List_Statistics.xlsx."

characterized by directional flows that are not perfectly balanced. Indeed, analysis of the TPIRR's train list reveals significant directional imbalances throughout the TPIRR network.

For example, Rice Yard at Waycross, GA, is one of the largest hump yards on the CSXT —and TPIRR—system. Review of TPI's Base Year SARR list of manifest trains indicates that nearly { } trains originate from Waycross, but only { } terminate there.[26] This imbalance represents more than three trains per day. The TPIRR would clearly need to obtain locomotives from other locations to power the additional outbound trains. The time and expense associated with locomotive repositioning movements are not trivial, and the TPIRR would incur that expense as well. In fact, CSXT's real world imbalances are exacerbated by TPI's assumption that the TPIRR would power its trains with only the specific number of engines necessary to power them, and would not ferry or reposition any additional units on those trains.[27] By not including any "extra" locomotives in its RTC or manifest train calculations, an additional factor is necessary to account for the repositioning of locomotives from other terminals that have an excess of inbound locomotives.[28]

In order to address the imbalances in more than 120,000 train movements over a 7,300-mile network, TPI adds only one (1) locomotive to its fleet.[29] According to TPI, this sole locomotive would assure a balanced supply of locomotives across the TPIRR system. TPI's

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[26] *Id.*

[27] "A train received in interchange may have more locomotives than the TPIRR needs to move the train over its system, or may not have the locomotives arranged in a DP configuration. The inbound TPIRR road crew removes any extra locomotives and leaves them on the setout track at the interchange point during the time allotted for the interchange." *See* TPI Op. Ex. III-C-6 at 8.

[28] The time—and costs—associated with repositioning locomotives is separate from the locomotive dwell time in yards between assignments described above.

[29] TPI Op. WP "TPIRR Operating Statistics_Open.xlsx."

estimate is based upon a 0.2% repositioning adjustment.[30] Review of TPI's workpaper reveals that its calculation of 0.2% is based upon an assumption that imbalances would occur on only 8 lanes, and would average 116 miles.[31] TPI neither explained how it identified those lanes, nor did it demonstrate how repositioning moves on those few lanes would address the imbalances across the TPIRR's myriad flows. TPI's assumption that the needs of the broad TPIRR network could be met with a 0.2% repositioning adjustment is laughable. TPI's provision of only one "balancing" locomotive would quickly bring the TPIRR to a halt. Busy terminals would never get the additional engines that they need for departing trains, while locomotives would pile up at other terminals that did not need them.

On Reply, CSXT designed an operating plan that serves the traffic selected completely and efficiently. Not surprisingly, that plan generates imbalances in train and locomotive flows, just as railroads incur them in the real world. CSXT examined TPI's Opening RTC simulation and locomotive flows by direction for merchandise, intermodal, and multilevel trains, and determined that those imbalances would require a 3.1% increase in TPIRR locomotive run-times for those train types to account for the need to reposition units to sustain fluid operations.[32]

The above errors and omissions exemplify the many ways in which TPI considerably understated the amount of locomotive time that the TPIRR would incur (and, therefore, the number of locomotives that it would need). There are four other aspects of TPI's locomotive analysis that also served to understate the motive power required to handle the TPIRR's traffic:

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[30] TPI Op. WP "Train Imbalance LUM.xlsx" and TPI WP "TPIRR Operating Statistics_Open.xlsx."

[31] TPI Op. WP "Train Imbalance LUM.xlsx." Notably, none of the 8 lanes address the considerable imbalances at Waycross.

[32] *See* CSXT Reply WP "LocoImbalance from RTC-Data - Final.xlsx."

(1) intermodal trains requiring 3 units; (2) local trains; (3) yard switching assignments, and (4) spare margin.

Intermodal Trains: The TPIRR's selected traffic (and associated trains) include more than one dozen "expedited" intermodal train assignments that typically operate with three or more locomotives in order to ensure that they meet applicable service requirements and transit time commitments. These are time-sensitive trains for which it is critical to maintain schedules and make cut-off times to meet CSXT's service commitments. The additional locomotive allows the train to operate at maximum allowable track speeds on a consistent basis, to maintain speed over difficult terrain without requiring helper units, and to accelerate to maximum track speed quickly after stopping or slowing. The extra unit also ensures that the train can meet the schedule even if one of the locomotives on the train experiences a failure. The CSXT train sheet records produced to TPI in discovery indicated that more than 2,800 CSXT trains that were used to handle the TPIRR's selected traffic were powered, on average, by more than 12,000 horsepower.[33] For example, CSXT Train #Q010 is an expedited intermodal train that operates eastbound from Chicago to New York. CSXT's event records indicate that Train #Q010 is powered by three or more locomotives an average of six days a week. *Id.* Those CSXT locomotives average more than 4,275 horsepower each. TPI ignored the fact that these service-sensitive trains average three locomotives—and more than 13,000 total horsepower—in the real world, and assumed that the TPIRR would operate them with only two ES44's, or 8,800 HP. TPI does not explain how the TPIRR could operate the same trains as CSXT with the same level of service required by shippers, with 30% fewer horsepower than CSXT used to power those trains in the real world. For these specific expedited intermodal trains that operate with three or

[33] CSXT Reply WP "Intermodal Locomotive Requirements.xlsx."

more engines, CSXT adjusts the TPIRR's locomotive requirements to ensure that the total horse power for these trains is consistent with how they operate in the real world, in order for the TPIRR to provide at least the same level of service that CSXT does.[34]

Local Trains: TPI estimated the TPIRR's locomotive requirements for local trains based not on locomotive time, but on the number of local trains by yard.[35] TPI concluded that the 42,208 local trains included in the TPIRR's Base Year operating plan could be powered by 133 units (before peaking factor and spare margin). There are three flaws in TPI's calculations, which resulted in a total that fails to provide sufficient power for the SARR's local train needs.

First, to determine the locomotive requirements, TPI calculates the average number of trains per day. To perform this calculation, TPI divides the annual total by 365 (days)—thereby making the erroneous assumption that all local trains operate seven days per week.[36] Review of TPI's SARR local train list reveals that only ten percent of the Base Year local trains operated on a Saturday or Sunday.[37] The effect of this error was to understate the number of TPIRR train starts per day.

Second, in addition to attempting to improperly smooth out CSXT's actual service requirements across days, TPI grouped together local trains that work in different locations, without considering the particular service requirements at each location. For example, TPI

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[34] *Id.* CSXT operating witness Gibson determined that such a horsepower-based approach represents the absolute minimum number of locomotives, as there are many situations where a consist of fewer ES44 units will not be able to replace adequately three or more lower HP units, and the TPIRR will require as many, higher horsepower units.

[35] TPI Op. WP "Nearest Yard for Local Trains.xlsx."

[36] *Id.*

[37] TPI Op. WP "TPIRR Base Year Local Train List v2_Statistics.xlsx" indicates that only 4,405 of 42,208 reported a Train Suffix (Date) that matched to Saturday or Sunday.

associated a total of 1,917 local trains with Mobile, AL.[38] TPI divided this total by 365 days, and concluded from the result—5.25 average daily trains—that the locomotives for these trains could be handled by three assignments.[39] TPI has not demonstrated how three assignments would adequately operate 5.25 trains per day—indeed, because TPI purports to "mirror" CSXT's train operations, it would not be possible to do so. Moreover, TPI's own workpaper indicates that the 5.25 average daily trains that TPI associated with "Mobile" includes local trains that operate from three locations in addition to Mobile—{ }. The train list identifies one local train that operates from { } every day, two or more local trains that operate from { } on 75% of weekdays, and three or more local trains that operate from { } on 67% of weekdays.[40] It would be infeasible for only three locomotive assignments to cover the local trains working from these locations and from { }.[41]

Finally, TPI improperly excluded literally tens of thousands of local trains that operate between TPIRR yards and on-SARR customers to originate and terminate shipments that TPI included in the SARR traffic group. In addition, TPI failed to include other local trains that perform customer switching at yards or industries. *See* CSXT Reply III-C-15–37.

CSXT modified TPI's calculations to address the fact that most locals operate five days or fewer per week and that multiple locations could not practicably share locomotives on a daily

[38] TPI Op. WP "Nearest Yard for Local Trains.xlsx."

[39] *Id.* While TPI's workpaper does not provide a specific conversion from 5.25 per day to 3, it includes the following comment in a footnote "Locomotives were assigned in order to efficiently move the daily trains," and the assignment of a lower number of locomotives across many yards suggests sharing.

[40] CSXT Reply WP "TPI Local Trains.xlsx."

[41] Separately, TPI has included no costs for re-positioning these locomotives between locations that have been grouped together—which in the Mobile example could be 100 miles apart.

basis.[42] CSXT also accounted for local trains necessary for service to on-SARR TPIRR customers that TPI excluded.[43] This results in a requirement of 243 locomotives for TPIRR local trains (before application of a peaking factor and spare margin).

Yard switching assignments: TPI's locomotive estimate also fails to provide sufficient power to support the TPIRR's yard operations. As described in Section III-C (at III-C-75), TPI did not present a credible yard operating plan. TPI compounded the problem by specifying an antiquated locomotive type (SW1500) that cannot handle switching, even at flat yards, without being doubled. As a result, TPI failed to provide a sufficient number of yard engines to perform the necessary switching work at TPIRR yards. By contrast, CSXT witness Gibson developed an operating plan that considered the volumes that the TPIRR would classify at individual yards, and determined the switch assignments—and corresponding locomotives—that would be required.[44] He also replaced TPI's nonsensical selection of SW1500 locomotives with more powerful (and reliable) SD40 units.

Spare margin: TPI's locomotive estimates include spare margins of { } for ES44s and { } for SD40s, which TPI calculated from out-of-service time information that CSXT provided in discovery.[45] Review of TPI's workpapers indicates that TPI included shop time, but failed to account for servicing or other yard dwell time, in calculating its out-of-service factor. CSXT accepts those categories of out-of-service time, confirming that accounting separately for other categories of yard dwell time does not "double-count" the spare margin. However, CSXT makes one correction to TPI's calculations. To determine the spare margin, TPI divided its out-

[42] CSXT Reply WP "Nearest Yard for Local Trains_Reply.xlsx."

[43] *Id.*

[44] CSXT Reply WP "TPIRR Yard Operations_Reply.xlsx."

[45] TPI Opening III-D-4.

of-service time by a field identified as "On-Line Total Days."[46] TPI's estimate of total on-line days, however, includes an undefined element. Specifically, the detailed reports from which TPI calculated its factors includes a time element identified as "Unknown CSX on-line Days (cannot determine CSX time bucket)."[47] This time element, as its description indicates, identifies time that the units spend on-line, but that is all that CSXT knows. CSXT could not determine anything more about the time, whether the time was spent running on trains, available for service, in the shop, stored, or otherwise unavailable. TPI included this "unknown" time in the denominator of its spare margin calculation, without knowing whether or not the units are actually in service during that time. In order to develop a more accurate estimate of the time that locomotives spend in the shop relative to the time that are not in the shop, the spare margin calculation should be modified to remove the On-Line Unknown time included in TPI's On-Line Total denominator. CSXT makes this correction and applies spare margins of { } for TPIRR's ES44 units and { } for TPIRR's SD40s.[48]

Table III-D-3 below summarizes the parties' Base Year locomotive requirements for the TPIRR.

Table III-D-3
TPIRR Would Require Significantly More Locomotives than TPI Estimated for the Base Year

	Road & Helper Engines	Local Engines	Yard Engines	**Total**
TPI	709	167	181	**1,057**
CSXT	882	270	245	**1,397**
Difference	**173**	**103**	**64**	**340**

[46] TPI Op. WP "Loco stats Update_Spare Margin.xlsx."

[47] *Id.*, Tab "Update."

[48] CSXT Reply WP "Loco stats Update_Spare Margin_Reply.xlsx."

ii. TPI Understates the TPIRR's Locomotive Lease Costs

ES44AC: In calculating the cost of acquiring high-horsepower ES44AC locomotives for the TPIRR, TPI developed a figure based on materials from *AEPCO*, a western coal SAC case involving defendants BNSF and Union Pacific.[49] Specifically, TPI relied upon information from the STB's decision and public versions of the parties' filings in that case to posit an annual lease expense of $97,881 per unit. TPI did not explain why that number is relevant either to the TPIRR's operations or for purposes of evaluating the reasonableness of CSXT's rates, let alone present any rationale or supporting evidence for its adoption of that expense figure. Instead, TPI merely presents an estimate of UP's cost of acquiring locomotives, and seeks to validate that figure by referencing a lease-cost input from the *IPA* case, another western coal case in which UP was the defendant.[50] Even if TPI's calculations are correct, its evidence establishes only that the locomotive lease costs have been close in two western coal rates cases in which UP (not CSXT) was the carrier party. TPI has not demonstrated why those costs are an appropriate basis for estimating the TPIRR's cost to acquire locomotives.

TPI's proffer of UP's lease costs should be rejected, for at least two reasons. First, CSXT should not be bound by the litigation decisions made by other parties in other cases. The lease costs used in *AEPCO* were not adopted by the STB based on an evaluation of contested evidence and arguments—the BNSF/UP reply filing indicates that the railroad defendants simply chose to adopt the lease rate that AEPCO submitted on Opening.[51] Neither TPI nor CSXT has had access

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[49] TPI Opening III-D-3.

[50] *Id.* (Supporting TPI's lease rate with "UP's Reply evidence in *IPA* which shows that UP's 2011 annual cost to lease GS44AC locomotives equals $95,851.").

[51] *See* Joint Reply Evidence and Argument of Defendants BNSF Ry. Co. & Union Pac. R.R. Co., *AEPCO*, STB Docket No. 42113, at III-D-3 (filed May 7, 2010) ("Defendants accept the lower figure . . .").

to the UP lease to evaluate its other terms, nor can the parties in this case evaluate the calculations that applied those terms and converted UP's lease payments to figures compatible with the STB's discounted cash flow ("DCF") analysis. Simply put, the number "adopted" by TPI cannot be tested, let alone validated, based on the information available to TPI and CSXT. CSXT should not be bound by other carrier defendants' strategic decisions to challenge or not to challenge assumptions made in other cases, nor should it be foreclosed from providing a full critique of the appropriateness of an assumption that will be used as the basis for evaluating CSXT's rates.

Second, while the basis for the lease costs to which the parties agreed in the *AEPCO* case is opaque, it is clear that an adjustment would be necessary before the UP figures could be used in this case. TPI has made no showing as to how the TPIRR—which TPI assumed would step into CSXT's shoes and "mirror" CSXT's train operations—would be able to side-step CSXT's actual locomotive acquisition costs in favor of another carrier's more favorable experience. Indeed, TPI does not claim that CSXT's locomotive acquisition cost is inapplicable.[52] Review of the CSXT and UP R-1 Annual Reports indicates that when those railroads acquired ES44 locomotives at the time the TPIRR would commence operations, CSXT incurred a higher cost than UP. While neither CSXT nor UP reported purchases of ES44 units in 2010 (when the economy was still recovering from the depths of the Great Recession), each railroad reported locomotive purchases in 2011. Schedule 710S to UP's 2011 R-1 Annual Report indicated purchases of 60 "C45AC" units[53] at a cost of $134 million—an average of $2.23 million per unit. Schedule 710S to CSXT's R-1 report from the same year indicated purchases of 50 ES44AC

[52] TPI Opening III-D-3.

[53] UP refers to ES44s as C45ACs. Wikipedia, "GE Evolution Series," http://en.wikipedia.org/wiki/GE_Evolution_Series (last visited July 17, 2014).

units for $119 million—an average of $2.39 million per unit. On average, CSXT paid seven percent more per ES44 unit.

In its recent decisions in the *DuPont* and *SunBelt* rate cases, the Board rejected similar arguments from railroad defendant NS, finding that "NS had the opportunity to provide evidence of accurate lease rates during discovery and did not do so."[54] CSXT did not produce any lease information regarding 4400-HP AC units because it has not leased such units, and no leases are in its possession.[55]

Moreover, just as the cost of a new car depends, in part, on the "optional" equipment selected by the purchaser, the cost of a locomotive reflects the particular features selected by the purchasing railroad. CSXT is not privy to the specific options that UP selected when it acquired the ES44 locomotives upon which TPI bases its cost estimate. However, when acquiring locomotives, CSXT makes investments in particular equipment or components that provide the best functionality and performance for train operations on its system. CSXT's locomotive planning requires consideration of the difficult mountainous terrain in the eastern United States as well as the need to maintain tight schedules moving a variety of different types of freight at different speeds through densely populated areas on a compact network that does not afford many opportunities to make up time that is lost. In light of those operating circumstances, CSXT has made the following investments:[56]

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[54] *DuPont*, STB Docket No. 42125, at 72-73.

[55] In response to TPI's discovery request seeking locomotive lease information, CSXT provided lists identifying { } leases that were entered during the 2008-2013 period, none of which involved ES44s. CSXT includes these discovery materials as CSXT Reply WP "Locomotive Leases 2010.xls" and "Locomotive Leases Update 2013.xls."

[56] In discovery, CSXT produced to TPI lists of investments that CSXT has made in locomotive equipment and components. CSXT includes these discovery materials as CSXT Reply WP "Fuel Efficiency Capital Projects.xls."

1. {
   };[57]
2. {
   };
3. {
   }; and
4. {
   }.

CSXT does not know what specific technology was included on the UP units that provided the basis for TPI's proposed lease cost for the TPIRR. What is known is that CSXT invested nearly $120 million in the four locomotive features listed above.[58] Those investments equipped CSXT units with the functionality and components that best address the particular terrain and traffic mix that characterize CSXT's operations. CSXT's real-world experience is clearly the best evidence of the locomotive costs for a SARR that would operate over the same terrain with the same mix of traffic as CSXT—and that claims that it would "mirror" CSXT's actual train operations.

Based on the relative difference in acquisition cost as publicly reported in the R-1 reports and the numerous, significant investments that CSXT has made in locomotive power, CSXT

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[57] {
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[58] Because TPI proposes that the TPIRR would consume fuel at the same rate that CSXT does in the real world (TPI Opening III-D-6), the TPIRR would necessarily have to make the same investments as CSXT in fuel optimization technology.

increases by seven percent TPI's proffered lease cost as a better estimate of the costs that the TPIRR would be expected to incur.[59]

SD40: TPI relied upon CSXT's actual lease costs for SD40 locomotives that were provided to TPI in discovery.[60] CSXT accepts that figure.

SW1500: TPI relied upon a price quote from a June 2008 article in *Railway Age* as the basis for the TPIRR lease cost for the SW1500 locomotives that TPI proposed to use to perform the TPIRR's yard switching. As explained in Section III-C, TPI's selection of SW1500 units for yard service is nonsensical and should be rejected. As the Board has recognized, the functionality of the SW1500 is severely limited.[61] No "least cost, most efficient" Class I railroad the size of TPIRR—that would depend on efficient terminal activities to classify and switch more than 20,000 cars daily—would choose to acquire a fleet of antiquated SW1500s to perform its yard work. CSXT operating witness Gibson described SW1500s as old units that present safety hazards and require doubling-up with another locomotive to overcome their limited tractive power.[62] In any event, the availability of SW1500 units is severely limited. Those locomotives have not been manufactured for decades, and those that remain are constantly being retired. Indeed, TPI has not shown that the TPIRR would be able to obtain a sufficient number of SW1500 units for the TPIRR's yard fleet at any price, much less the price quoted in the *Railway Age* article upon which it relies.[63]

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[59] *See* CSXT Reply WP "Locomotive Lease.xlsx."

[60] TPI Opening III-D-4.

[61] *See SunBelt*, STB Docket No. 42130, at 35.

[62] *See* CSXT Reply III-C-143–149. This situation is particularly prevalent when the yard assignments require working on grades.

[63] *See id.*

CSXT witness Gibson concluded that the TPIRR's yard power needs would be better met by SD40 engines, the same model that TPI proposes to use for TPIRR local train service and switching at hump yards. As indicated above, CSXT accepts TPI's proposed lease cost for SD40 locomotives, which was based on lease information that CSXT provided to TPI discovery.

b. Locomotive Maintenance

TPI did not present a detailed plan for the locomotive maintenance functions that the TPIRR would need to perform to sustain the railroad's operations. Rather than identifying the specific activities that would need to be performed and determining the associated costs, TPI relied upon a locomotive maintenance agreement between CSXT and { } that CSXT produced to TPI in discovery.[64] Review of TPI's workpapers, that maintenance agreement, and the invoices for services under that agreement reveals that TPI failed to account for the entire maintenance expense that the TPIRR would incur.

TPI assumes that the TPIRR would be able to cover all maintenance work associated with its fleet of ES44AC locomotives at a cost of { }.[65] TPI bases this estimate on an {

}. As described below, by relying on this rate as the entirety of TPIRR's expense, TPI failed to account for other many other costs that the TPIRR will incur.

{

[64] TPI Opening III-D-5.

[65] TPI Op. WP "TPIRR Operating Expense_Open.xlsx."

} results in a dollar figure that is much lower than the amount that CSXT is actually invoiced.[66] To correct this omission, CSXT determined the portion of the monthly charge that is not covered by the Daily Rate and added it to the amount that TPI calculated.

TPI posits that the TPIRR would equip every ES44AC in its fleet to operate in a distributed power configuration. The CSXT agreement and invoices upon which TPI relied confirm that the Daily Rate upon which TPI based its calculation does not include the associated DP maintenance cost. CSXT adds this cost for all TPIRR units,[67] as TPI assumed that the entire TPIRR fleet would be equipped for DP.[68]

Under its agreement with { }, CSXT is responsible for the cost of certain repairs resulting from accidents.[69] For minor repairs, CSXT performs the work itself and incurs labor and materials costs. For major repairs, CSXT sends the locomotive to the contractor who performs the work and invoices CSXT. CSXT's Reply Evidence added an average daily cost for repairs based on the actual invoices and historical data.[70] In addition, CSXT also incurs the cost for certain overhauls, such as upgrading the ES44AC from Tier 2 to Tier 3 compliance, which are not covered by the Daily Rate that TPI used as the proxy for the TPIRR's total locomotive maintenance costs. CSXT calculates a normalized cost for performing overhauls, and discounts

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[66] CSXT Reply WP "Locomotive Maintenance.xlsx."

[67] CSXT Reply WP "Locomotive Maintenance.xlsx."

[68] *See* TPI Opening III-C-16.

[69] *See* CSXT Reply WP "Management Services Agreement (CSX-TPI-HC-22019 to 22271).pdf" (produced to TPI in response to RFP 89) at Section 2.1 and Section 3.6.3.

[70] CSXT Reply WP "CSXT Accident Repairs.xlsx."

it to the Base Year to include with the TPIRR's operating expenses.[71] For its Reply, CSXT includes the additional costs described above that TPI omitted, and estimates the TPIRR's daily maintenance cost for the ES44AC to be { }.

TPI also relied upon a daily rate from the contract agreement to estimate the cost of maintaining the TPIRR's SD40 units.[72] CSXT applied adjustments similar to those it made for TPI's proposed ES44 rate to its cost estimate for maintaining SD40s, to account for the costs that TPI omitted but for which the TPIRR would be responsible. Those adjustments increase the daily maintenance costs for SD40 locomotives cost from TPI's { }.[73]

c. Locomotive Servicing (Fuel, Sand, and Lubrication)

i. Fuel Cost

TPI estimated the TPIRR's fuel costs based on CSXT's cost of $2.17 per gallon from the third quarter 2010, the period in which the TPIRR commenced operations.[74] CSXT's fuel cost per gallon was particularly low in that quarter, and rose nearly 50% in less than one year, to $3.28 in the second quarter 2011.[75] Since then, CSXT's fuel costs have remained more than $3 per gallon in each quarter.[76] The Board in its recent decisions in *DuPont* and *SunBelt* recognized the distorting influences of fuel price volatility on SAC results. Specifically in those cases the Board focused on the differences between the Energy Information Administration ("EIA")

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[71] CSXT Reply WP "Locomotive Maintenance.xlsx."

[72] TPI Opening III-D-5.

[73] CSXT Reply WP "Locomotive Maintenance.xlsx." As described in III-C, CSXT rejects TPI's proposal to use the SW1500 model to perform the TPIRR's yard switching activities, and uses the SD40 instead. As such, CSXT applies its corrected maintenance cost for all of TPIRR's SD40 units.

[74] TPI Op. WP "CSX fuel price.xlsx."

[75] CSXT Reply WP "CSX Fuel Price_Reply.xlsx."

[76] *Id.*

forecast of West Texas Intermediate ("WTI") prices used by complaining shippers in those proceedings to estimate fuel surcharge related revenues and using the fuel index component of the Rail Coal Adjustment Factor ("RCAF") to estimate changes in fuel costs. *DuPont*, STB Docket No. 42125, at 262-6; *SunBelt*, Docket No. 42130, at 175-79. To remedy the problem, the Board proposed changing the construct of its long-standing SAC Hybrid RCAF index to substitute for the Global Insight RCAF fuel forecast the EIA's forecast of WTI prices. *DuPont*, STB Docket No. 42125, at 266; *SunBelt*, Docket No. 42130, at 179.

The issue in this proceeding differs slightly, but the remedy is generally on par with the Board's *DuPont*, STB Docket No. 42125 and *SunBelt*, Docket No. 42130 remedy and certainly no more complex. Due to the passage of time from the filing of TPI's initial complaint to the submission of its opening SAC evidence, the prices CSXT actually paid for fuel from 2010 to 2013 are known. The Board has long expressed a preference for actual data over indexed or forecast data[77] so, instead of applying the Board's Hybrid RCAF index to TPIRR 2010 fuel costs, CSXT develops fuel costs for the TPIRR using its available actual average quarterly fuel price data from the third quarter 2010 through the fourth quarter of 2013. To remain consistent with the standard SAC practice of developing operating expenses as of the SARR start date and adjusting those values for changes in prices and changes in volumes in the DCF, CSXT calculates TPIRR fuel expenses as of third quarter 2010 using CSXT actual cost of fuel for that period, same as TPI. As explained in Section III-G below, CSXT calculates TPIRR fuel costs for the fourth quarter of 2010 through the fourth quarter of 2013 by applying CSXT's actual quarterly average fuel price to TPIRR third quarter 2010 service units as adjusted for changes in TPIRR traffic levels based on changes in TPIRR gross ton miles. CSXT made a modification to

[77] *See, e.g., Duke/NS,* 7 S.T.B. at 143 ("Because actual data are clearly superior to any forecast or projection, they are used here."); *see also Duke/CSXT,* 7 S.T.B. at 446; *WP&L*, 5 S.T.B. at 991.

the Hybrid RCAF index similar to the changes ordered by the Board in *DuPont*, STB Docket No. 42125, and *SunBelt*, Docket No. 42130, but instead of substituting a different index within the RCAF, CSXT substituted the All Inclusive Index – Less Fuel (AII-LF) for the RCAF index in the DCF Hybrid index for 2010 through 2013 and applied that index to only the TPIRR non-fuel expenses.

ii. Fuel Consumption

TPI used detailed CSXT data produced in discovery to estimate the fuel consumption rate per mile for TPIRR's ES44 units, and used CSXT's system-average fuel consumption rate for TPIRR's SD40 and SW1500 units.[78] While CSXT rejects the use of SW1500s, it accepts those consumption assumptions for its Reply calculations.[79]

iii. Locomotive Servicing

TPI used figures from CSXT's 2010 R-1 Annual Report to estimate the TPIRR's locomotive servicing costs.[80] Review of the underlying calculations indicates that TPI included CSXT's operating expenses from Schedule 410. CSXT generally accepts TPI's approach for estimating the TPIRR's locomotive servicing costs, but corrects one omission. TPI included only certain maintenance expenses—including $42 million in salary and wages—but failed to include any costs for fringe benefits.[81] As TPI posits that this cost would serve as the entirety of TPIRR's servicing expense—and fringe benefits would not be added in a separate step[82]—the

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[78] TPI Opening III-D-6 to 7.

[79] CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx."

[80] TPI Op. WP "Loco Servicing Cost.xls."

[81] TPI Op. WP "Loco Servicing Cost.xls" indicates that TPIRR costs are based solely on costs reported to Lines 411 and 427 in Schedule 410 of the R-1, "Servicing locomotives."

[82] For other cost components like train and engine crews, a fringe benefit ratio is applied to the total compensation to develop the total personnel expense. *See* TPI Op. WP "TPIRR Operating

cost per unit-mile must account for fringe benefits. CSXT allocates a pro-rata share of the amounts reported to the separate Fridge Benefits account in Schedule 410 to develop a proper basis for estimating the full locomotive servicing expense that would be incurred by the TPIRR.[83]

TPI's capital investment cost estimate also failed to cover the TPIRR's locomotive fueling and servicing needs. TPI did not provide sufficient facilities in yards for working, inspecting, fueling, and servicing locomotives. In addition to the four locomotive shops that TPI proposed, CSXT determined that the TPIRR would require Servicing, Inspection and Repair facilities at the 12 other locations where TPI proposed fixed fueling platforms. *See* CSXT Reply III-C-154.

2. Railcars

a. Acquisition

TPI calculated the TPIRR's freight car acquisition expense based on a combination of car rental data from CSXT's R-1 Annual Report and publicly available lease cost information.[84] Its development of freight car acquisition costs is largely an arithmetic exercise that begins with car miles and car hours derived from its RTC simulation (which understates the TPIRR's requirements, as described in Section III-C), adds calculated dwell times for certain types of equipment, applies CSXT system-average characteristics to split ownership requirements between railroad and private cars, and applies selected full-service lease costs and system average per diem and mileage rates. CSXT accepts generally TPI's approach to determining the

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Expense_Open.xlsx." By contrast, TPI's total personnel expense for locomotive servicing consists solely of the cost per locomotive-unit mile derived from CSXT's R-1 Annual Report.

[83] *See* CSXT Reply WP "Loco Servicing Cost_Reply.xlsx."

[84] TPI Opening III-D-7 to 9.

TPIRR freight car requirements. However, unlike TPI, CSXT fully accounts for the ownership time the TPIRR would incur and for the complexities of freight car supply for a railroad providing carload service to its customers. The major flaws in TPI's methodology for estimating the TPIRR's freight car requirements and costs include:

1. TPI proposed lease rates for selected freight cars that are below the rates at which a new entrant could acquire such equipment;

2. TPI failed to calculate the proper transit times for TPIRR equipment;

3. TPI relied upon understated yard dwell times in developing freight car requirements for equipment provided by TPIRR;

4. TPI failed to account properly for the dwell time incurred on private and foreign line equipment between train assignments and between loadings;

5. TPI understated costs that the TPIRR would have to pay for foreign line equipment by miscalculating the CSXT system-average mileage and per diem rates; and

6. TPI used a simplistic, overly aggregated peaking factor that failed to account for fluctuations in the specific car supply needs of the TPIRR's customers and understated freight car acquisition costs.

Freight car supply and ownership is vastly more complicated for a railroad that operates a merchandise carload network than it is for a railroad whose traffic consists primarily of unit trains. Board precedent regarding SARR car ownership requirements is based primarily on western coal rate SAC cases and is inapplicable to the operations of the TPIRR.

Unit coal train operations are characterized by continuous cycling operations between an origin and a destination or between a select pool of origins and destinations, consisting generally of a homogeneous freight car fleet. The train cycle times between origins (which are frequently

in close proximity to one another, such as the coal mine origins of the Powder River Basin) and destinations are relatively consistent and can be measured in hours or days. The rail cars used for coal operations tend to consist of only a few distinct types, predominately high-capacity aluminum rotary-dump gondola cars. Dwells at customer origins and destinations are consistent, and are typically a function of loading or unloading time, as the trainsets cycle continuously otherwise. The size of the freight car fleet required is determined generally by the number of trainsets that are needed to satisfy the annual demand of the destination.

Further, since cycling unit trains seldom change routes, spare rail cars of the same type as those in the cycling unit trains can be positioned on tracks near the mine loading origin and/or on a track at the unloading destination to replace any cars bad-ordered and tagged as needing repair. Because of the nature of the cycling train service, including automated loading and unloading of freight cars, the routine repairs for cycling unit coal train equipment tend to be minor. In addition, because the railcar fleet is generally homogenous, shop trucks can be equipped with the parts needed to make repairs in the field, further reducing the number of spare railcars needed to maintain the hauling capacity of the cycling unit coal trains.

Merchandise carload service differs dramatically from unit coal train service. Customer service requirements are unique and railroads must have a sufficient supply of cars to accommodate seasonal changes in customer demand. Spare car requirements are much more complicated given the number of different car types utilized in carload service. Merchandise carload service is characterized by a wide variety of car types that are specifically designed for compatibility with loading and unloading products at individual origins and destinations. Car types required by particular shippers are generally not interchangeable. In most cases the loading and/or unloading facilities at customer locations are designed to utilize a specific car

type. If the wrong type of car is placed as a substitute, significant loading and unloading challenges are encountered and a "substitute" rail car spotted by the carrier will in all likelihood be rejected by the customer. Hose connections, steam line connections, dock board placements, railcar length and width, interior railcar bracing and/or bulkhead compatibility with the lading, and underframe cushioning requirements all vary by railcar type. Similarly, railcars used for specific purposes are not fungible and must be standardized to prevent cross contamination of food and non-food commodities, chemicals and/or bulk materials.

Freight cars for automotive shipments pose similar challenges. As with many types of railroad equipment capable of shipping general merchandise, bi-level and multi-level flat cars used to ship trucks, automobiles, and other equipment may appear identical to the untrained eye, but they are not interchangeable. Each bi-level and multilevel flatcar is equipped with tie-down equipment that is uniquely designed and positioned within the railcar to secure a specific automotive vehicle or piece of equipment. A railcar equipped to secure Ford F-150 pick-up trucks cannot be substituted for a railcar quipped to secure Chevrolet Suburbans, or Toyota Camrys.

A merchandise carload railroad must have the right car type in the right location at the right time to meet the specific requirements of its customers' loading and unloading infrastructure and commodity mix. The varied rail car requirements of general freight customers requires that the railroad strategically position a mixed portfolio of spare railcar equipment at locations throughout its system to avoid excessive deadhead movements of equipment and significant repositioning costs to meet customer equipment demand and seasonal or cyclical loading requirements. This in turn dictates higher peaking factors and/or spare margins.

Further, because of the unique nature of carload merchandise equipment, when mixed merchandise railcars are damaged or require mechanical repairs, the cars are sent to centralized repair facilities or off-line private railcar repair facilities where parts are ordered and shipped to the facility to make the repairs. The inventory carrying costs of the vast array of potential parts required for many different merchandise car types prohibits maintaining an inventory of parts on hand. Thus, merchandise railcars incur extended out-of-service time when parts have to be ordered to make repairs. The time that specialized equipment is required to spend in repair facilities or en route to or from repair facilities further drives spare railcar needs.

b. TPI's Proposed Lease Rates for Selected Freight Cars Are Below the Rates at Which a New Entrant Could Acquire Such Equipment

TPI based its cost for acquiring TPIRR general freight cars on an assumption that all of the TPIRR's merchandise traffic could be accommodated in 5 generic car types for box cars, covered hoppers, gondolas, open-top hoppers, and flat cars. CSXT's own freight car fleet is much more diverse, because it is tailored to the specific needs of CSXT's customers. Indeed, CSXT's Freight Car Planning Model (which was produced to TPI in discovery) incorporates planning capabilities for 43 distinct types of freight cars.[85] Nevertheless, CSXT accepts generally TPI's simplifying assumption that the costs for a handful of standard equipment types may be used as surrogates for the costs of a more diverse and specialized fleet of equipment, provided that the standard equipment types chosen for analysis, and the costs for those car types, are representative.

Based on its review of TPI's opening workpapers, CSXT determined that three of the lease rates upon which TPI based its analysis are below the rates at which a new entrant would

[85] *See* CSXT Reply WP "2010 Planning Model.xls."

be able to obtain such equipment that. That equipment includes: box cars and covered hoppers used in TPIRR general merchandise service, and open-top hoppers used in coal service.

i. Box Car

TPI selected from a 2008 issue of the *Railway Age Guide to Equipment Leasing* an advertised lease rate of $250 per month for a 50-foot, 100-ton capacity general service box car with a rigid underframe.[86] Table III-D-4 contains a breakdown of the TPIRR's Base Year box car shipments by AAR car type. As Table III-D-4 shows, less than half of the TPIRR box car shipments move in the type of box car from which TPI derived its box car lease cost.

Table III-D-4
Breakdown of TPIRR Box Car Shipments Based on AAR Car Type

AAR Car Type	2012 Total Shipments	Inside Length 49'-59'		Inside Length > 59'	
		Rigid Underframe	Cushioned Underframe	Rigid Underframe	Cushioned Underframe
A3	26,037	26,037	-	-	-
A4	14,254	-	14,254	-	-
A6	12,424	-	-	-	12,424
A8	3,829	-	-	-	3,829
B4	64	-	64	-	-
B6	63	-	-	-	63
B8	5	-	-	-	5
Total	56,676	26,037	14,318	-	16,321
% Total		46%	25%	0%	29%

TPI proffered no rationale for deriving its TPIRR box car lease rate from a single entry from the *Railway Age Guide*. In fact, the very next lease listed in the *Railway Age Guide* workpaper provided by TPI is for a larger, 60-foot, 100-ton box car with a lease rate of $550 per month.[87] TPI does not explain why it did not select the lease rate for the larger box car that

[86] TPI Op. WP "III-D-2 Car Costs.pdf."

[87] *Id.*

would be needed to handle 29% of TPIRR's box car shipments in system equipment, as shown in Table III-D-4.

Because of the vast array of box car needs for TPIRR shippers, rather than rely on one or two data points from the *Railway Age Guide*, CSXT obtained a detailed historical database of freight car information from RailSolutions, Inc., a firm that provides a broad variety of railroad equipment-related consulting, technical and advisory services to financial institutions, railroads, shippers and fleet operators for box car lease rates. RailSolutions provided a copy of its January 2014 report entitled "Railroad Equipment Historical Database – Compilation and Analysis of Historical Market Values and Lease Rental Rates, 1988 – 2013," which contains lease rental information for a variety of freight cars based on an average three to seven year term.[88] CSXT also obtained from RailSolutions average freight car maintenance costs by freight car type and vintage to allow conversion of the lease rental information to full service lease equivalents, consistent with TPI's assumption that the TPIRR would acquire cars through full service leases.[89]

The RailSolutions database for equipment lease values provides a portfolio of equipment that is available for lease in the market during each year 1988-2013 by freight car type and year. The values are stated in "net" lease terms. At the request of CSXT, RailSolutions also provided cost additives by car type and by year of manufacture to convert the net lease rates to full service terms. To determine a lease rate for TPIRR box cars, CSXT accepts TPI's assumption that lease rates available in calendar year 2008 are representative of the average lease rates for the TPIRR's

[88] CSXT Reply WP "RailSolutions Data.pdf."

[89] CSXT Reply WP "RailSolutions Conversion to Full Service Lease.pdf."

freight car needs,[90] as lease rates for 2009 and 2010 reflect the short-term effects of the economic downturn. A factor was added to the 2008 box car net lease rates provided by RailSolutions to convert them to full-service lease equivalents. CSXT also follows TPI's approach and indexes the 2008 lease rates to the 2010 SARR start date, using the same index as TPI. The RailSolutions derived lease rate for the mix of box cars required to meet the TPIRR's specialized service requirements—in the same manner that CSXT does in the real world—averages $568 per car per month.

ii. Covered Hoppers

TPI derives its lease rates for TPIRR covered hoppers from the 2010 *Railway Age Guide to Equipment Leasing*. The specific source referenced by TPI appears to be a comment from the publishers of the magazine relating to views of the overall rail freight car leasing market. Unlike the rental quotes from the *2008 Railway Age Guide* that TPI used for other types of TPIRR freight cars (which provide specific descriptions of the equipment actually available for lease), the excerpt from the *2010 Railway Age Guide to Equipment Leasing* relied upon by TPI for the lease rates for covered hoppers states:

> *Covered hoppers:* There has been an increase in calls for 4,750-cubic-foot grain cars as well as 3,000- and 3,200-cubic foot cars (the latter for sand to support the oil and gas industry). Rents for the 4,750s are in the mid $200s for full-service leases. The smaller-cube covered hoppers are renting for $300 to $350—again, full service.[91]

TPI does not explain why it selected a generic description of the covered hopper lease market from the *2010 Railway Age Guide to Equipment Leasing* for covered hoppers, when the

[90] TPI Op. WP "III-D-2 Car Costs.pdf."

[91] TPI Op. WP "III-D-2 Car Costs.pdf," at 15.

2008 edition included four separate listings for covered hoppers, ranging from $325 to $400 per month.[92]

In its Reply, CSXT rejects TPI's proposed lease rate for covered hoppers as arbitrary and unsupported and relies instead on covered hopper car lease rates provided by RailSolutions. Using the same assumptions as described above for box cars, CSXT developed average TPIRR lease rates for covered hoppers of $574 per month.

iii. Coal Service - Open-Top Hoppers

TPI applies two different lease rates for open-top hoppers: { } per month for open-top hoppers used in TPIRR coal service and $433 per month for open-top hoppers used in general merchandise service.[93] TPI derived its rate for coal service hoppers from lease information provided by CSXT in discovery. It derived its rate for merchandise service hoppers from the *Railway Age 2008 Guide to Equipment Leasing*.

The CSXT lease relied upon by TPI is actually Amendment No. 3 to a July 20, 2004 lease between {

}.[94] Amendment No. 3 is the third amendment to the original 2004 lease. CSXT produced details for five amendments to the original lease in discovery.[95] As Table III-D-5 shows, the terms covered by each amendment were relatively short, and the rates fluctuated significantly (apparently in response to changes in the market for leasing open-top hoppers). The { } rate selected by TPI is the lowest of all of the rates in any of the amendments, and applied to a period when the railroad industry (and the

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[92] TPI Op. WP "III-D-2 Car Costs.pdf," at 19.

[93] TPI Op. WP "TPIRR Car Costs Open.xlsx."

[94] *See* CSXT Reply WP "HPJX 21235 – Details.pdf."

[95] CSXT Reply WP { }

broader economy) were slowly recovering from the great recession. As the economy improved, the lease rates for those of the 30+ year-old coal cars remaining on the lease increased consistent with their demand, age, and condition.

Table III-D-5
CSXT Lease Rates for Open-Top Hoppers Assumed to be Used in TPIRR Coal Service

Amendment	From	To	Term	Cars Leased	TPI Lease Rate	% Change
{						}
{						}
{						}
{						}
{						}

As the table shows, the lease rates paid by CSXT fluctuated considerably over the 2008 to 2014 time frame. More telling, the number of cars available under the lease—even at a rate considerably higher than the one selected by TPI—decreased to { } by May of 2013. Accordingly, the self-serving { } lease rate selected by TPI for open-top hoppers used in TPIRR coal service is not representative of the cost that the TPIRR would incur to acquire such cars. To avoid introducing a third lease rate for open-top hoppers, CSXT applies TPI's $433 lease rate for open-top hoppers in general merchandise service to all TPIRR open-top hoppers. This substitution is consistent with the *Railway Age Guide to Equipment Leasing*, which identifies coal service for all three sets of open-top hoppers selected by TPI, as summarized in the following table.

Table III-D-6
TPI's Source of Lease Rates for Open-Top Hoppers Used in TPIRR Merchandise Service[96]

Car Type/Description	Lease Rate
Open Top Hopper - Steel; 1978-1982/100T/4,000 cu.ft./Coal	$400
Open Top Hopper - Alum.; 1991-1994/Rapid Dchg./110T/4,100 cu.ft./Coal	$425
Open Top Hopper - Alum.; 2003-2005/Rapid Dchg./120T/4,200 cu.ft./Coal	$475

CSXT accepts TPI's proposed lease rates for other TPIRR acquired cars.

c. TPI's Car Costs Are Based On Transit Time Estimates That Are Understated.

As described in detail in Section III-C, TPI's RTC simulation failed to simulate properly the transit times that trains would experience moving across the TPIRR lines.[97] CSXT's RTC simulation, which corrects the numerous errors and omissions in TPI's RTC Model, produces more realistic estimates of TPIRR train transit times.

d. TPI Used Unrealistic Yard Dwell Times To Develop The Cost Of TPIRR Freight Cars.

TPI understated dwell times for freight cars at TPIRR yards in two significant ways. First, TPI assumed a dwell time in yards of 15.9 hours for freight cars assumed to be acquired by the TPIRR based on the average dwell time experienced by what it describes as the most efficient Class I carriers as reported by the AAR and summarized by Oliver Wyman for each quarter from 1Q 2010 through 3Q 2013.[98] TPI's average dwell time of 15.9 hours is developed from fifteen quarters of reported average dwell times. For those fifteen quarters, Canadian National had the lowest yard dwell times of the seven Class I railroads reported by Oliver

[96] TPI Op. WP "III-D-2 Car Costs.pdf," at 17.

[97] *See* CSXT Reply III-C-197–203.

[98] *See* TPI Opening III-D-8.

Wyman, with Kansas City Southern and Canadian Pacific having the lowest average dwell times for the remaining two quarters. Over the same period, the average yard dwell time for CSXT was 24.3 hours, or 53% more than the lowest dwell times of the much smaller railroads assumed by TPI.[99]

The TPIRR would handle 88% of the carload shipments handled by CSXT today over more than 6,800 route miles of the existing CSXT network. TPI has not identified any inefficiencies in the CSXT operations that would allow the TPIRR to achieve such a substantial reduction in average yard dwell times. To the contrary, as explained in Section III-C, TPI's operating plan explicitly "incorporated" CSXT's real world car blocking plan, "adopted" both CSXT's actual car classifications, and (according to TPI) "mirror[ed]" CSXT's train operations. This means that the TPIRR would operate trains, and perform yard classifications, in the same manner as CSXT does in its real world operations. The 15.9-hour yard dwell time for TPIRR cars posited by TPI is fundamentally inconsistent with those key assumptions underlying its operating plan.

Consistent with its Reply operating plan, which corrects numerous deficiencies in TPI's opening plan, CSXT concludes that the TPIRR would experience approximately the same average yard dwell time that CSXT experienced over the 1Q 2010 through 3Q 2013 period analyzed by TPI. For purposes of developing freight car acquisition costs in its Reply, CSXT employed the conservative assumption that the average TPIRR yard dwell time would be equal to the lowest average dwell time that CSXT achieved over the 1Q 2010 through 3Q 2013 time

[99] The CSXT average of 24.3 hours from the reports included by TPI is also confirmed by CSXT's yard modeling analyses of six hump yards. In Section III-C, CSXT witness Dirnberger explains that those analyses also produced an average dwell of 24.3 hours.

period. The lowest average CSXT yard dwell time reported in TPI's source materials was 22.2 hours, or approximately 10% lower than the CSXT average for the entire period.

Second, TPI assumed that each TPIRR loaded freight car would receive the equivalent of only one intra-train or inter-train switch during each journey across the TPIRR network. This assumption understates significantly the number of switching events that a typical car would require in transiting the TPIRR. TPI provides no explanation for this assumption. The TPIRR will have more than 150 different locations in which its cars, loaded and empty, will be switched between local and through trains, between through trains, and repositioned within a local or through train. In its Reply, CSXT increases the number of switch events per car from TPI's assumption of one to four. The number of four assumes conservatively that on average, each TPIRR load will traverse the network on a combination of three different trains (a local train originating the shipment and moving it to a TPIRR yard, one road train, and a local train delivering the car at destination), and that the same would occur in the empty direction. CSXT adjusts the calculation of yard dwell times to count four switch events per car.

e. TPI's Car Costs Fail To Include Time At Customer Origins And Destinations And Yard Dwell Time Between Train Assignments For Foreign Equipment Used In TPIRR Service.

As described in Parts III-C and III-D-1 above, the time factors that TPI used to develop per diem payments for foreign railroad equipment used in TPIRR service failed to account for the significant amount of time that cars spend at customer locations and in yards.[100] The TPIRR would be responsible for compensating the owning entity for all of the time its equipment spends on the TPIRR, including customer and yard dwell times. TPI accounts for that time in developing the cost of freight cars that will be acquired by the TPIRR. TPI proffers no

[100] For costs for private cars while on the TPIRR, TPI divides total private car payments by car miles. This approach accounts for private car dwell times.

explanation of why or how the TPIRR could avoid incurring per diem charges on private or foreign owned equipment for that same dwell time.

To develop costs for foreign cars while on the TPIRR lines, TPI develops average payments per car mile and per car hour from information reported in the CSXT Annual Report R-1, combined with certain inputs from CSXT's Uniform Rail Costing System ("URCS") data. TPI divided the time-related payment made by CSXT for foreign cars on its system by the total number of car days for all railroad-provided equipment, as reported in URCS. The URCS total car days includes time spent by all cars on the CSXT system, including both freight cars owned by CSXT and those owned by foreign roads.[101]

Further, TPI's RTC transit times measure only individual train runs between terminals, and do not account for the time that cars spend in yards after the arrival of an inbound train, and before departing on an outbound train, so these times must be accounted for outside TPI's RTC process. CSXT adds time at customer locations and yards for foreign equipment used in TPIRR service consistent with the assumptions used for freight cars assumed to be acquired by the TPIRR.[102]

f. TPI Further Understates Costs That The TPIRR Would Have To Pay For Foreign Line Equipment By Miscalculating The CSXT System-Average Mileage And Per Diem Rates.

TPI explains that for non-coal traffic moving in cars owned by foreign roads, it based the car costs on time and mileage by car type developed from CSXT's 2010 R-1.[103] When calculating the rates to be applied to the TPIRR's foreign car miles and hours, however, TPI included in the denominator the miles and hours for all railroad-provided equipment, which

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[101] *See* CSXT 2010 URCS Worktable B7, Part 8 and URCS referenced source lines.

[102] CSXT Reply WP "TPIRR Car Costs CSXT Reply.xlsx."

[103] TPI Opening III-D-7.

includes CSXT and foreign cars. By including CSXT-owned car miles and car hours in the denominator, TPI incorrectly understated the average cost per car-mile and cost per car-hour that is applied to only the foreign cars used in TPIRR service.[104]

To correct TPI's error, CSXT analyzed the 2010 car event data produced to TPI in discovery to separate the operating car miles between those incurred by cars owned by CSXT and those generated by foreign cars moving over CSXT. The analysis showed that overall, foreign owned car miles represent approximately 40% of the total.[105] In its Reply, CSXT adjusts the foreign car costs to account consistently for the payments and car miles for foreign equipment that would be the TPIRR's responsibility.[106]

g. TPI's Peaking Factor Does Not Capture Properly The Fluctuations In The Needs Of The TPIRR's Customers For Specific Freight Cars And Understates Freight Car Acquisition Costs.

As explained above, the process of supplying freight cars for carload service differs substantially from the more routine process of supplying freight cars for unit coal train service. Constantly shifting customer demands, shipments to multiple and varying destinations from individual origins, the need for specially equipped cars to handle particular shipments, and fluctuating time intervals between customer loads require carload railroads to maintain larger fleets of freight cars than result from TPI's arithmetic exercise. To capture more accurately the ebb and flow of car supply requirements in a carload network, CSXT developed peaking factors for each type of TPIRR freight car.

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[104] TPI adopted the mix of system, foreign, and private equipment from CSXT's real-world experience. *See* TPI Opening III-C-20.

[105] CSXT Reply WP "140703 CSXT CarMiles 2010 CarEvents.xlsx."

[106] CSXT Reply WP "TPIRR Car Costs CSXT Reply.xlsx."

CSXT identified the number of TPIRR carloads by specific car type for each week, and determined the "peak week" for each car type that occurred throughout the year,[107] following the approach that TPI used to identify the peak week of TPIRR train movements.[108] CSXT then compared those peak week volumes to the corresponding volumes for the average week for each car type, in order to develop peaking factors that account correctly for fluctuations in demand for different types of equipment.[109] Table III-D-7 summarizes the results of that analysis.

Table III-D-7
Peaking Factors for TPIRR System Freight Cars

Car Type	Peak Week	Average Week	Peaking Factor
General Freight Shipments			
Covered Hopper	{	}	46%
Equipped Box	{	}	24%
Equipped Gondola	{	}	37%
Flat	{	}	24%
General Service Hopper	{	}	43%
Plain Gondola	{	}	146%
Multilevel	{	}	91%
Refrigerated Box	{	}	57%
Special Service Hopper	{	}	46%
Other	{	}	99%
ALL GENERAL FREIGHT	*12,765*	*8,911*	*43%*
Coal Shipments			
General Service Hopper	{	}	115%
Plain Gondola	{	}	59%
ALL COAL	*7,769*	*4,645*	*67%*

[107] CSXT Reply WP "TPIRR 2012 Rev Carloads_SystemEqpt_PeakingFactor.xlsx."

[108] As TPI's peaking factor is based on the number of trains in the peak week, it fails to consider either changes in train lengths that occur throughout the year, let alone shifts among the types of equipment that are used at different points in the year. *See* TPI Op. WP "Train List Unit V09 12162013 With Peak Calc v2.xlsx."

[109] CSXT Reply WP "TPIRR 2012 Rev Carloads_SystemEqpt_PeakingFactor.xlsx."

The TPIRR would have to accommodate the varying demand for each type of freight car, as CSXT does in the real world. As Table III-D-7 shows, in order to accommodate the ebb and flow of freight car supply requirements and have an adequate number of cars to serve TPIRR's customers, the system fleet for general merchandise traffic needs to be increased by 43%, while the hopper and gondola fleet for coal service needs to be increased by 67%.

i. Maintenance

TPI assumed that the TPIRR would perform no car maintenance functions, and would maintain no facilities for car repair activities. *See* TPI Opening III-D-9. Even accepting TPI's assumption that all of the TPIRR's system equipment would be acquired under full-service leases (and the lessor would be responsible for maintaining that equipment) the TPIRR would still handle millions of shipments in foreign and private cars owned by other railroads and entities. Because the TPIRR would have no system repair forces, its inspectors would be relatively less efficient than CSXT's. In the real-world, CSXT's inspectors and car repair personnel coordinate their activities. This enables inspectors to continue to perform their duties, leaving the task of facilitating bad-ordering and repairing to other personnel. On the TPIRR, the absence of car repair personnel would require inspectors to perform a broader set of functions—and relatively minor items that could be readily addressed by a system repair operation may require more attention, taking time away from inspecting to perform the repair and/or to coordinate with the owners or other lessors. This inefficient practice would challenge the ability of TPIRR inspectors to be as productive as CSXT's.

The TPIRR simply cannot assume away any and all responsibility for performing running repairs to foreign equipment. Rather, the TPIRR would be required to support the repair function in a number of ways, by providing facilities for conducting minor repair operations in TPIRR yards to get equipment back in service without sending cars off-line to a lessor, and

coordinating with the various lessors and owners for equipment that is bad-ordered while on the TPIRR. These functions are essential in order for the TPIRR to achieve even the same level of service that CSXT provides (much less the supposedly superior service posited by TPI). The capacity to make minor car repairs is also necessary to comply with the TPIRR's obligations under the AAR Interchange Rules and the terms of intercarrier agreements it purported to adopt, and to ensure that equipment can be utilized as efficiently as possible. As described in Section III-C, the TPIRR would need rip tracks at five locations in addition to those proposed by TPI: Atkinson, Buffalo, Evansville, East St. Louis, and New Orleans.

ii. Private Car Allowances

CSXT accepts TPI's approach to calculating the cost that the TPIRR would incur for the use of private cars.

3. Operating Personnel

a. Train/Switch Crew Personnel

TPI posits that the TPIRR would need a total of 3,108 train and engine ("T&E") crew members to handle all of the TPIRR's road, helper, and switch crews.[110] This number understates considerably the crews that the TPIRR would actually require.

There are five main sources of TPI's understated crew requirements for the TPIRR.

1. TPI failed to account for tens of thousands of local trains that would be necessary to handle the issue traffic and the other shipments selected for the TPIRR traffic group;

2. TPI failed to account for directional imbalances in train flows that occur on the TPIRR;

3. TPI failed to incorporate an appropriate level of re-crews that occur on the TPIRR, due to its misplaced reliance on the results of a flawed RTC simulation;

[110] TPI Opening III-D-11.

4. TPI understated the classification and switching requirements for yards and terminals;

5. TPI improperly assumed that more than 3,000 train-crew personnel would average 270 shifts per year—a level of utilization achieved by less than { } of train crews on the real-world CSXT, and unlikely to be achieved in light of Hours of Service regulations and rules classes, safety meetings, and training requirements.

TPI's failure to present a credible operating plan that accounts for all the trains that transport the TPIRR's traffic resulted in the omission of necessary road crews. In Section III-C, CSXT demonstrated that TPI's failure to include thousands of local trains in its operating plan constitutes a virtual abandonment of local service to the TPIRR's on-SARR customers. *See* III-C-15–37. Those trains alone would require at least 44 additional T&E crewmembers, representing more than $5 million in annual expenses, under TPI's assumptions.[111]

In addition to crews for the local trains to serve TPIRR customers that TPI excluded, TPI failed to address adequately the imbalances in road crews, as train flows differ by direction. In the locomotive discussion in Section III-D-1 above, CSXT demonstrated that TPI's selected road train flows are not balanced by direction, and that adjustments would be necessary to reposition locomotives. A similar situation exists with respect to TPIRR crews on road trains, as the shortfall of trains inbound to Waycross, GA (re-visiting the example described in III-D-1 above) would require the TPIRR to provide an average of three additional crews each day to work outbound trains at Waycross. As a result, TPIRR road crews would have to be deadheaded from terminals with an excess of inbound train crews to meet demand at yards and terminals that require more outbound crews than are available on arriving trains.

[111] 5,940 trains x 2-person crews / 270 days per year = 44 crew members. *See* TPI Op. WP "TPIRR Operating Expense_Open.xls."

TPI purported to analyze the TPIRR train flows and determine the imbalances for train crews.[112] Based on its study, TPI included a re-balancing additive for TPIRR train crews of 1.5%, much higher than the 0.2% that TPI estimated for rebalancing TPIRR's locomotives.[113] Review of TPI's workpaper indicates that it is based upon a major conceptual flaw: TPI would strand train and engine personnel away from home. Even under TPI's "fungibility" claim that allows TPIRR crews to work across multiple districts, those crews must be able to return to their home locations. For example, the first two pages of TPI's workpaper indicate that TPI would address imbalances in train flows by taxiing 249 crews from Hamlet to Pembroke, from where they would operate trains north to Richmond.[114] However, TPI fails to address the fact that those crews originated from other locations, south of Hamlet and Pembroke, with the vast majority from Clinton, SC—more than 400 miles from Richmond. As it is not clear whether those crews would ever return home under TPI's calculation. TPI's proposed 1.5% estimate likely understates the level of deadheading that would be required to meet the demands of TPIRR's mix of train flows.

TPI's understatement is confirmed by review of CSXT's 2010 payroll records for train and engine crews that were provided to TPI in discovery. Those records indicate that deadheading hours represent more than { } of the total hours that crews spend operating trains.[115] Rather than use CSXT's historical deadheading experience, however, CSXT conservatively assumes that TPIRR's road train crews would require deadheading in the same proportion as the TPIRR's locomotive imbalances. This 3.1% imbalance in train flows results in

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[112] *See* TPI Op. Ex. III-D-1 at 2; TPI Op. WP "Crew Rebalancing Diagram.pdf."

[113] TPI Op. WP "TPIRR Operating Statistics_Open.xls."

[114] TPI Op. WP "Crew Rebalancing Diagram.pdf," at 2.

[115] CSXT Reply WP "CSXT_TE_Payroll_Data_Reply.xlsx."

approximately { } of the actual expense that CSXT incurs in the real world to cover the deadheading trips that are required to reposition crews where they are needed.[116]

Third, TPI used a re-crew rate of 0.7% that is absurdly low for the varied operations that will occur across a busy, 7,300-mile network.[117] The TPIRR would transport six million revenue units in the Base Year, including two million carloads of general freight traffic, most of which the TPIRR would originate or terminate locally on its system. The TPIRR would operate a mix of trains at different speeds—such as "premium" intermodal trains, multilevel trains, "Key Trains" carrying TIH, crude oil, and other shipments that require special handling, coal unit-trains, and local trains that stop multiple times to serve customers. The TPIRR would have planned maintenance windows, random track outages, and other delays and interference that are beyond its control. This SARR—like all railroads—would be expected to have crews outlaw, on occasion.

There are two further reasons that the TPIRR would be likely to re-crew that are a function of specific TPI assumptions: First, TPI assumed that the TPIRR would achieve 15-minute crew changes by calling a crew to be on duty before the train arrives,[118] which reduces their remaining time available to work; and second, TPI's election of a DP locomotive configuration for all TPIRR road trains would require TPIRR crews to reposition locomotives at interchanges with the residual CSXT.

TPI posits that for nearly 900 TPIRR crew starts each day, only six (6) would require re-crewing.[119] This virtually perfect record simply could not be achieved throughout the year.

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[116] *See* CSXT Reply WP "TPIRR Operating Statistics_Reply.xlsx."

[117] TPI Opening III-D-11.

[118] TPI Opening III-C-10.

[119] TPI Op. WP "TPIRR Operating Statistics_Open.xlsx."

There are day-to-day vagaries of railroad operations, including challenges in coordinating with foreign railroads, train crews, or maintenance schedules.[120] There is weather. There is the "positive hand-off" law for TIH shipments, which requires crews to remain at interchange points with trains carrying TIH until the foreign carrier's crew arrives.

In addition to those unavoidable, everyday sources of delay, TPI's crew calculations reveal that it proposed a number of very long crew districts for the TPIRR. While CSXT accepts TPI's proposed crew districts for purposes of this case, it notes that many are considerably longer than those operated by CSXT's train crews on the same lines in the real world. For example, for the 550-mile trip between Cumberland, MD and Hamlet, NC, TPI assumes that only two crews would be needed. Rather than operate that route as consecutive crew districts of 265+ miles, CSXT typically changes crews at Rocky Mount, NC and at Brunswick, MD.[121] Given these circumstances, it is clear that out of 900 crew starts each day, more than six TPIRR crews are likely to outlaw.

CSXT provided its actual historical re-crew experience by division and year for 2011-2013.[122] During that period, CSXT's annual average ranged from { }.[123] Those real world data further underscore that fact that TPI's 0.7% re-crew rate is simply not realistic. Based on CSXT's recent experience and the longer crew districts posited by TPI, CSXT conservatively

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[120] TPI's "leapfrog" trains and its failure to build many of CSXT's mainlines into TPIRR's major terminals—*e.g.*, Hamlet, NC, Selkirk, NY—creates significantly more interchanges, requiring even more coordination to pick-up and deliver trains in a timely fashion.

[121] *See* CSXT Reply WP "Detail District maps update (CSX-TPI-C-13560 to 13592).pdf," produced to TPI in discovery.

[122] CSXT Reply WP "CSXT Recrews 2011-2013.xlsx."

[123] Notably, the CSXT division with the lowest re-crew rate over the period—{ }—is one that the TPIRR did not replicate large portions of.

applies the lowest annual re-crew rate it has achieved in the last three years—{ }—to TPIRR's road trains, and no re-crews to TPIRR's local trains.[124]

Next, as explained in Section III-C, TPI's assumptions regarding yard crews are unsupported, and fail to provide a workforce sufficient to meet the TPIRR's yard requirements. *See* III-C-129–133. Specifically, although TPI included in its workpapers the number of CSXT's real-world yard jobs by location, TPI reduced those figures for many yards without explanation.[125] Further, TPI ignored entirely the yard support jobs that were provided by yard in the same discovery source document from which TPI identified CSXT's actual yard job counts. Any railroad that handles significant volumes of carload traffic—including local originations and terminations—is dependent on the efficiency of its yard operations, and the TPIRR is no exception. In order to determine the TPIRR's yard personnel requirements, CSXT witness Gibson used the discovery information produced regarding CSXT's yard jobs and yard support jobs for the CSXT yards that were replicated by the TPIRR. CSXT's actual historical experience identifies the resources that were required for CSXT to perform its blocking and classification functions, to pick-up and deliver shipments from customers, and to meet its customer service requirements. Because TPI posits that the TPIRR's operating plan "incorporates" CSXT's real world car blocking and classification plan, the TPIRR could be expected to require the same level of resources necessary to meet the needs of this critical element of the TPIRR's operations. TPI has not presented any persuasive reason why the TPIRR could operate its yards with fewer crews and support personnel than CSXT employs today.[126]

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[124] *See* CSXT Reply WP "TPIRR Operating Statistics_Reply.xls."

[125] TPI Op. WP "TPIRR Yard Operations.xlsx."

[126] *See Sunbelt*, STB Docket No. 42130, at 16.

In Section III-C, CSXT explains how TPI has understated considerably the yard sizes, yard assignments, and yard dwell times that would be required to support the TPIRR's operations. *See* CSXT Reply Section III-C-6. CSXT describes the extensive activities that occur in the real-world that the TPIRR would similarly have to perform, and also includes with its reply filing video documentation of the specific switching requirements of TPIRR's yards.[127] These requirements include the use of support jobs to facilitate the yard work and to keep the cars moving to their next block and train assignment.[128]

Witness Gibson determined that the TPIRR's extensive yard blocking, classification, and pick-up and delivery work would require considerably more switch crews than TPIRR proposed. Table III-D-8 below summarizes the parties' estimates of the TPIRR's daily yard crew requirement for each hump yard (and in total) for the TPIRR's flat switching yards.[129]

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[127] CSXT Reply Ex. II-C-1.

[128] Such work includes coupling tracks, handling switches, protecting shove movements, lacing air hoses, and applying and releasing hand brakes.

[129] CSXT Reply WP "TPIRR Yard Operations_Reply.xlsx."

Table III-D-8
TPIRR Daily Yard Crew Assignments

	TPI Yard Jobs	CSXT Yard Jobs	CSXT Support Jobs	Difference
Willard	18	21	12	(15)
Selkirk	26	29	19	(22)
Indianapolis	20	21	3	(5)
Nashville	27	28	9	(10)
Atlanta	22	24	0	(2)
Cumberland	12	12	7	(7)
Cincinnati	29	28	3	(2)
Louisville	26	33	4	(11)
Birmingham	20	24	6	(10)
Hamlet	18	19	7	(9)
Waycross	24	23	15	(14)
TPIRR Hump Yards	**242**	**262**	**87**	**(107)**
TPIRR Flat Yards	**179**	**243**	**13**	**(77)**
TPIRR Total	**421**	**506**	**99**	**(184)**

Finally, TPI improperly assumed that more than 3,000 train-crew personnel would average 270 shifts per year—a level of utilization achieved by less than { }% of train crews[130] on the real-world CSXT, and unlikely to be achieved in light of Hours of Service regulations and rules classes, safety meetings, and training requirements. While TPI claims that its assumption that each crew member would work 270 shifts a year "is not affected by the hours-of-service provisions of RSIA,"[131] in fact, it is less likely that a train crew would be able to work 270 shifts today than ten years ago when the Board rejected CSXT's arguments against a similar 270-shift assumption by coal rate case Complainant Duke Energy.[132] In its 2004 decision in that case, the Board was persuaded that the incumbent's inability to achieve the Complainant's aspirational

[130] CSXT Reply WP "T&E Salary Roster Update_Reply.xlsx."

[131] TPI Op. Ex. III-D-1 at 2, n.5.

[132] *Duke/CSXT*, 7 S.T.B. 456-57.

utilization levels was a function of labor constraints to which a SARR might not be subject. In the time since that decision, however, the combined effect of Hours of Service laws that require more rest between assignments and limits on total work and increased focus and emphasis on safety and training[133] have also reduced the opportunity for train crews to work 270 shifts. In December 2013, the Federal Railroad Administration's Office of Railroad Safety published the "Hours of Service Compliance Manual for Freight Operations," which is available online.[134] The Introduction to the Manual states:

> The most significant changes to the Hours of Service Law ("HSL") resulted from the Rail Safety Improvement Act of 2008 ("RSIA"). Most of the changes were to § 21103, Limitations on duty hours of train employees, and include a monthly time limit on all service performed for a railroad and time spent waiting for or in deadhead transportation from duty to a point of final release after the 12-hour point in a consecutive service duty tour. The new provisions also restrict a train employee to six or seven consecutive days of initiating on-duty periods followed by 48 or 72 consecutive hours off duty, and also require a minimum statutory off-duty period of 10 hours. Several other important changes to the HSL that resulted from the RSIA are included and explained in this manual.[135]

Considering just one aspect of the rules highlights the difficulty in achieving 270 shifts per year. The Manual states that the new provisions require a train employee who works six

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[133] In addition to the Federal rules test that train employees must spend at least one day every two years, CSXT requires an additional two days of classroom training every year, as well as another day spent meeting other OSHA and FRA qualifications. These rules or training days are obviously work for the employees, and count towards Hours of Service regulations that invoke required rest periods.

[134] FRA, *Hours of Service Compliance Manual* (Dec. 6, 2013), *available at* http://www.fra.dot.gov/eLib/details/L04876. CSXT includes Part I regarding train employees as Reply Workpaper "HOS_Manual Duty Tour.pdf."

[135] CSXT Reply WP "HOS_Manual Duty Tour.pdf," at lP-1.

consecutive days to have two days off.[136] If a trainperson were to do that continuously throughout the year, and work every day she could on a train, and took off only the two days of rest required between train assignments, she would work 275 days.[137] That would be the maximum allowed—and that would be higher than the total achieved by a trainperson who worked seven consecutive days, followed by the required three days off, or only 257 in one year. The fact that someone who worked six days in a row, as frequently as permitted under the law, would total only 275 days leaves very little time to work 270 shifts on trains and in yards, meet current rules, safety, and training requirements, and incur the realities of illness, personal leave, vacation, or other real world interruptions.

CSXT performed two analyses that each underscore the limited possibility that thousands of TPIRR crew persons could perform in the narrow range that would permit operating trains 270 shifts a year. TPI's own workpaper summarizing the number of 2010 train starts for CSXT's conductors and engineers provided the basis for the first analysis. CSXT stratified by number of train starts for the group of conductors and engineers from which TPI identified its very small subset that meet its core assumption regarding TPIRR train crews.[138] In addition to confirming the very small proportion of conductors and engineers that TPI found could meet its utilization threshold, CSXT also identified the number of train starts reached by the top one percent of all train crews, the top five percent, the top ten percent, and the number of crew

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[136] "Consecutive day limitation—initiating on-duty periods: After initiating an on-duty period, each day, for 6 consecutive days, a train employee is required to have 48 consecutive hours off duty at his or her home terminal, unavailable for any service for any railroad, before returning to perform covered service as a train employee in freight operations. ([49 U.S.C.] § 21103(a)(4))." CSXT Reply WP "HOS_Manual Duty Tour.pdf," at 1-8 to 1-9.

[137] If one alternated between six days working and two days off for 360 days, she would have worked 270 days and rested for 90 days. One could start another cycle and work the next five days to achieve 275 days worked in a 365-day period.

[138] TPI Op. WP "T&E Salary Roster Update_Revised.xlsx."

people that TPI determined would be required.[139] Table III-D-9 below, which summarizes the results of that analysis, indicates that even the top one percent of all CSXT crews system-wide ranked by number of train starts fall short of TPI's utilization requirement, and the top five percent would fall { } below. More significantly, TPI's 270-threshold is more than { } greater than the threshold that would allow the SARR to fill the 3,108 positions that TPI concluded were necessary to staff the SARR's crew needs.

Table III-D-9
Very, Very Few CSXT Crews Achieve TPI's Proposed Utilization;
Even the Top 5% Work Less than 270 Shifts

	Total Number of People[140]	Minimum Number of Starts
TPI's Utilization Threshold	{ }	270
Top 1% of CSXT Crews	76	{ }
Top 5% of CSXT Crews	378	{ }
Top 10% of CSXT Crews	757	{ }
TPI's Number of Crews	3,108	{ }

CSXT also analyzed the detailed payroll records provided to TPI in discovery.[141] Those data contain payroll records by individual train crew person that identify the hours and pay by "Expense Types." These Expense Types differentiate among time spent operating trains or working in yards (e.g., LBR-TRAINMEN-ROAD and LBR-ENGINEMEN-YARD); safety meetings (OTH-MTGS-SAFETY-OP); and personal leave (OTH-EMP-PERSONAL LEAVE DAY-T&E) to name a few. CSXT grouped the pay hours into separate categories and

[139] CSXT Reply WP "T&E Salary Roster Update_Reply.xlsx."

[140] Although more train crews worked through the entire year, CSXT conservatively determined the top one percent, etc. based on a total headcount of 7,568, which represents the number of freight conductor employees at mid-year, as reported in CSXT's 2010 Wage Form B submitted to the Board.

[141] CSXT Reply WP "CSXT_TE_Payroll_Data_Reply.xlsx."

determined for each of three time categories other than operating trains or working in yards,[142] what proportion of train time each represented. For example, if a train crew person reported 1,400 hours operating trains or working in yards, and 50 hours of training (*e.g.*, OTH-EMP-CONDUCTOR TRAINING), the training ratio for that person was 3.6% (50/1400). CSXT sorted the employees by the total hours, thereby identifying the individuals who worked the most during the year. As Table III-D-10 below shows, Non-Train Related Time represents at least { } of time on trains and in yards for the Top one percent of crews, and remains at that level consistently throughout the Top five percent and Top ten percent, increasing only slightly to 11.5% for the number of crew persons that TPI determined the TPIRR would require. Table III-D-10 also shows that the Rules, Safety & Training percentages of approximately { } account for a figure close to the three days of training that CSXT crews receive.[143]

Table III-D-10
The Highest 1-10% of CSXT's Crews Are Paid for { } of Their Time
For Non-Train Related Activities

	Number of People	**Vacation**	**Personal Leave**	**Rules, Safety & Training**	**Non-Train Total**
TPI's Selection	{				}
Top 1% of CSXT Crews	76	{			}
Top 5% of CSXT Crews	378	{			}
Top 10% of CSXT Crews	757	{			}
TPI's Number of Crews	3,108	{			}
Top 7,568 CSXT Crews	7,568	{			}

[142] As summarized in Table III-D-10 below, the non-train categories are "Vacation," "Personal Leave," and "Rules, Safety, and Training."

[143] In the example above, a crewperson was assumed to maximize the number of shifts by working six days on followed by the mandatory two days off throughout the year, resulting in 275 total days worked. Spending { } of train and yard time in Rules, Safety & Training would equate to approximately six days.

TPI's assumption that TPIRR road crews could work 270 days per year already posits a level of utilization met by very few CSXT crew members in the real world. Nevertheless, for this Reply analysis, CSXT accepts TPI's assumption that the SARR's yard crews could average 270 shifts. However, for TPIRR road crews, CSXT uses the number of shifts achieved by the top five percent of CSXT's train crews ({ }). While lower than TPI's proposed 270, this number still represents an aggressive target to achieve—indeed, Table III-D-9 indicates that only { } CSXT crews met that threshold in 2010—and the TPIRR will need { } times that many crewpersons.

Table III-D-11 below summarizes the parties' Base Year crew requirements for the TPIRR.

Table III-D-11
TPIRR Would Require Significantly More Crewpersons Than TPI Estimated for the Base Year

	Road & Local Crews	Yard Crews	Helper Crews	**Total**
TPI	2,542	566	0	**3,108**
CSXT	2,830	818	65	**3,713**
Difference	**288**	**252**	**65**	**605**

i. Compensation

TPI determined the TPIRR's salaries for train and yard crews based on the actual salaries associated with the very small number of CSXT trainpersons who achieved TPI's lofty utilization goal. CSXT applied TPI's conceptual approach of determining the average salary associated with a group of actual CSXT conductors and engineers, albeit for a larger group that met a more realistic threshold.[144]

[144] CSXT Reply WP "T&E Salary Roster Update_Reply.xlsx."

ii. Fringe Benefits

TPI proposes to account for employee fringe benefits by using "the average ratio of fringe benefits to total wages paid in 2010 to employees of all Class I carriers." *See* TPI Opening III-D-13. By using a nationwide average, TPI incorporates the relatively lower fringe benefit ratios of Western carriers to arrive at a fringe benefit ratio for the TPIRR of 43.5%—markedly lower than the fringe benefit ratios of NS and CSXT (the carriers with whom the TPIRR would be competing for employees). TPI's approach should be rejected, and the Board should follow its established practice of using a fringe benefit ratio based on carriers operating in the same geographic territory as the SARR.

TPI says that its approach "has been approved by the Board," but that is not true. *See* TPI Opening 13, n.33 (citing *WFA I*). The Board has approved using an average of fringe benefit ratios for railroads operating over the geography over which the SARR operates. For example, *WFA I* accepted a geographic-specific fringe benefit ratio based on "all railroad employees working in Wyoming." *WFA I*, STB Docket No. 47088, at 66. In *DuPont*, the Board accepted a geographic-specific fringe benefit ratio based on an average of NS and CSXT. *DuPont*, STB Docket No. 42125, at 79-80.[145] As the Board explained in *DuPont*, the ratio of wage compensation versus benefits compensation can be different from location to location, and the

[145] The Board did use an all-Class-I average in *SunBelt*, but *SunBelt* was a unique case in which at least four Class I railroads operated in each of the three SARR states. *See* AAR, *Railroad Facts* (2012 ed.) at 68 (four Class I railroads operate in Alabama, five operate in Mississippi, and six operate in Louisiana). An all-Class-I average was reasonable in a case where the SARR could potentially hire from the labor pools of six of the seven Class I railroads. *SunBelt*, STB Docket No. 42130, at 43.

TPIRR would need to offer benefits packages comparable to "railroads in the area." *DuPont*, STB Docket No. 42125, at 79.[146]

In addition, TPI's use of a single year of fringe benefit data is less accurate than an approach that uses multiple years of data. The Board has encouraged parties to use multi-year averages rather than single-year snapshots for fringe benefits. *See DuPont,* STB Docket No. 42125, at 79. ("The Board favors use of evidence with a longer rather than a shorter period of historic data and believes that method results in better evidence here.")

CSXT follows the approach accepted in *DuPont* and calculates fringe benefits for TPIRR employees by using a multi-year average fringe benefit ratio for the two Class I railroads (CSXT and NS) that operate in the same geographic territory as the TPIRR. CSXT uses a three-year average of 2010 through 2012 to correspond to the first three years of TPIRR operations. Table III-D-12 sets forth the actual fringe benefit ratios for CSXT and NS for each year 2010 through 2012 and the simple average of those ratios.[147] The result of CSXT's calculations is a fringe benefit ratio for the TPIRR of 50.2%.[148]

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[146] *See id.* ("[T]he likely pool of employees from which the [SARR] would hire would be from railroads in the area, including particularly those employees from NS and CSXT. Thus, it is logical to assume that the [SARR's] fringe benefits ratio would correspond to the average of those two railroads.").

[147] *See* CSXT Reply WP "TPIRR Reply Fringe Benefits.xlsx."

[148] CSXT notes that in the recent *DuPont* and *SunBelt* decisions, the Board rejected application of the average fringe-benefits ratio to the higher average salaries of the SARR's crews who work more than the average number of shifts. *See, e.g.*, *DuPont*, STB Docket No. 42125, at 80; *SunBelt*, STB Docket No. 42130, at 44. In its Reply, CSXT follows the Board's approach and calculates fringe benefits associated with TPIRR's train crew employees based on CSXT's average salary. *See* CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx."

Table III-D-12
Class I Fringe Benefit Ratios
for Railroads Operating in TPIRR Territory, 2010-2012

	NS	CSXT	Average
2010	45.3%	53.8%	**49.6%**
2011	48.0%	54.3%	**51.2%**
2012	48.6%	51.2%	**49.9%**
2010-2012	**47.3%**	**53.1%**	**50.2%**

iii. Taxi and Hotel Expense

In addition to the costs of compensation and fringe benefits, TPI includes taxi and hotel expenses for train crews. CSXT accepts TPI's methodology and unit costs for those items and increases them to include the additional train crew members that the TPIRR would require.

b. Non-Train Operating Personnel

TPI proposes 874 non-train operating personnel for the TPIRR. While TPI has accurately identified most of the functions that would need to be performed by non-operating personnel, in many of these areas it has proposed staffing that is far too low. For example, while the TPIRR would handle 90% of CSXT's carloads and close to 99% of its general freight and intermodal carloads, TPI proposes that the TPIRR would have just {{ }} of CSXT's customer service staff.[149] In the same vein, TPI provides almost no managerial staffing for the TPIRR's intermodal facilities (while claiming revenues from 99% of CSXT's intermodal traffic), and it provides substantially fewer car inspectors than would be required. CSXT identifies the errors in TPI's analysis and proposes alternative staffing that is sufficient for TPIRR to perform the essential non-train operating functions for it to serve its selected traffic group.[150]

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[149] *Compare* TPI Op. Ex. III-D-1 at 3 (proposing 22 customer service staff for the TPIRR) *with* CSXT Reply WP "Customer Service Scaling.xlsx" (showing {{ }} individuals in CSXT customer service).

[150] CSXT's evidence of non-train operating personnel for the TPIRR was developed by CSXT witness Richard W. Brown. Mr. Brown, a Director with FTI Consulting, has almost 30 years of

TPI's non-train operating personnel plan is supported by an alleged benchmark to staffing levels at the Chicago North Western. *See* TPI Op. Ex. III-D-1 at 5. For the reasons discussed in more detail in the G&A section below, a comparison to the alleged staffing levels of a railroad from two decades ago (that TPI's witness claims to reconstruct from memory!) is useless to evaluate reasonable staffing levels today. *See infra* at III-D-83 through III-D-91. TPI has provided no evidence from which the Board could conclude that CNW's traffic levels and operational needs were comparable to TPIRR. Indeed, in 1994 CNW had less than one-fourth the revenues that TPI projects for TPIRR,[151] and it would handle just 37% of TPIRR's carloads.[152] In contrast to TPI's virtually worthless benchmark, CSXT has benchmarked staffing to CSXT's real-world operations while accounting for TPIRR's relative workload and conservatively assuming that TPIRR could achieve efficiencies over CSXT's current staffing.[153]

CSXT's full proposal for non-train operating personnel is set forth at CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx," Tab "Non Train – Operating."

i. Vice President – Operations

CSXT accepts TPI's proposal for a Vice President - Operations supported by an administrative assistant, and CSXT also accepts TPI's proposal for an additional four-person pool of administrative assistants to support operating functions. TPI proposes that the Vice President - Operations would supervise key department heads like the Vice President -

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experience working in the North American railroad industry for BNSF and its predecessor carriers. Mr. Brown's qualifications are further detailed in Section IV.

[151] *See infra* at III-D-61 Table III-D-18.

[152] *See* TPI Opening WP "TPIRR C&NW Traffic Comparison.xlsx" (showing 2,022,824 C&NW carloads/units in 1994); CSXT Reply Ex. III-A-1 (showing 5,467,488 TPIRR carloads/units in the Base Year). 2,022,824 is 37% of 5,467,488.

[153] *Cf. DuPont*, STB Docket No. 42125, at 84-86 (accepting similar benchmarking approach to staffing in defendant's marketing department).

Transportation, and Vice President - Mechanical; oversee other functions like Customer Service, Operations Planning and Joint Facilities, and Budgeting; and serve on the TPIRR Board of Directors. It is not reasonable to think that the Vice President-Operations could manage such a broad portfolio, particularly in light of the substantial increases to the Customer Service Department that are necessary for the TPIRR to serve its selected traffic. For this reason, CSXT proposes a Vice President Customer Service and Support who would report to the Vice President – Operations and oversee the customer service, planning, and budgeting functions that TPI proposed would directly report to the Vice President - Operations.

ii. Customer Service and Support

(a) Customer Service

TPI's proposal that 22 Customer Service staff would suffice on a railroad that would handle 90% of all the carloads handled by CSXT (including close to 99% of CSXT's general freight and intermodal traffic) is ludicrously low. CSXT today has a staff of {{ }} providing customer service in its commercial and operating organizations.[154] While CSXT produced these staffing numbers in discovery at TPI's request,[155] TPI's evidence includes no explanation at all for why its staff of 22 could manage a workload that requires hundreds of CSXT employees.[156]

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[154] *See* CSXT Reply WP "Customer Service Scaling.xlsx." CSXT's commercial organization has customer staff devoted to coal and bulk, automotive, and intermodal; its operating organization includes customer service staff devoted to general freight and stations support.

[155] *See* CSXT Reply WP "2013 Org Chart.xlsx."

[156] Perhaps TPI intended to rely on the tired trope it deploys in its G&A evidence that TPIRR would need less staffing because it carries cross-over traffic and thus could rely on other railroads to do the lion's share of the work. The Board has repeatedly rejected this claim, including in the specific context of customer service. *See, e.g.*, *AEPCO 2011*, STB Docket No. 42113, at 57 ("The fact that the [SARR] would carry a large amount of cross-over traffic does not mean that the complainant should be permitted to shield the SARR from expenses such as billing, rate setting, and customer service."); *see also DuPont*, STB Docket No. 42125, at 85; *SunBelt*, STB Docket No. 42130, at 54.

Indeed, the complicated routing structures inherent in the crossover and Leapfrog traffic on the TPIRR would likely cause it to have even greater customer service needs than CSXT does today.

In its reply, CSXT determined that TPIRR customer service be handled by three Assistant Vice Presidents supported by a staff of 152. This is an extraordinarily conservative staffing proposal, representing roughly {{ }} the current CSXT staffing. The three AVPs will be assigned to Intermodal & Automotive; General Freight & Bulk; and Stations Support. Their respective organizations are described below.

(i) Intermodal & Automotive Customer Service

This group will have three Directors responsible for Auto, Intermodal, and Premium. The Auto Director will be supported by three managers who will be responsible for proactively monitoring the service provided to TPIRR's auto customers and ensuring that TPIRR provides satisfactory performance. CSXT currently deploys a staff of {{ }} to handle this responsibility.[157] CSXT's current automotive customer service requirements are quite likely less complex than those that TPIRR will encounter. TPIRR will handle over 95% percent of the current CSXT automotive traffic volume, but will be obliged to handle a much larger percentage of that traffic in interline service that can be much more complex and generate more opportunities for delays or issues that might trigger customer service inquiries. Today, 87% percent of CSXT's automotive traffic is handled as local shipments either direct from an origin to destination, or in Rule 11 service from or to a connecting Class I carrier. In contrast, TPIRR will handle 50% percent of CSXT's automotive shipments in more complicated interline service with the residual CSXT.[158]

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[157] *See* CSXT Reply WP "Customer Service Scaling.xlsx."

[158] See CSXT Reply WP "TPIRR Traffic by billing category.xlsx."

Intermodal and premium customers will also require dedicated staff, which would be splt between regular intermodal customers such as steamship companies and intermodal carriers and premium customers such as {{ }} who demand high-quality, time-sensitive service. Currently, CSXT deploys {{ }} people to handle Intermodal Customer service.[159] CSXT proposes a staff of two Directors, four managers and 20 Customer Service Representatives for the Intermodal and Premium Groups.

(ii) Bulk & General Freight Customer Service

TPIRR's bulk unit train shipments do not require substantial customer service resources. This group is primarily responsible to ensure that trains are handled according to plan and that there is adequate power allocated to maintain schedules. While CSXT has {{ }} employees devoted to this function,[160] Mr. Brown conservatively assumes that a three-person staff of a Director and two managers could manage it on the TPIRR. This staff will interact and help coordinate customer expectations with the Unit Train operations desk in Transportation.

General Freight Customer Service will be headed by a Director who would be supported by two managers and a staff of 20 customer service representatives. This group will be primarily responsible for proactively monitoring and reporting on the service provided to TPIRR's general freight customers. The TPIRR customer list included many large steel, forest products, chemical and food products customers who have a significant need for reliable customer service to ensure timely deliveries and to manage their fleets. CSXT currently deploys a staff of {{ }} in this area,[161] but conservatively proposes staffing for TPIRR of only 23.

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[159] *See* CSXT Reply WP "Customer Service Scaling.xlsx."

[160] *See id.*

[161] *See id.*

The Assistant Vice President - Bulk and General Freight will also oversee four managers devoted to general marketing support functions. These managers will be responsible for support functions that include maintaining master files for yards, terminals, interchanges, and rules, etc.; maintaining and improving IT systems and support; monitoring and maintaining call systems; and other overall support. While CSXT currently dedicates {{ }} people to these functions,[162] Mr. Brown conservatively proposes that TPIRR have only four.

(iii) Customer Service Stations Support

The Assistant Vice President of Stations Support will oversee a team that will be responsible for the first-mile/last-mile functions that were traditionally handled by rail freight stations. These personnel will be responsible for scheduling customer set outs, placements, pickups, for reporting on car and train movements, and for interline reporting. Personnel will need to be on duty 24 hours a day and 365 days a year. CSXT currently has {{ }} employees assigned to Stations Support duties.[163]

The TPIRR would likely have to spend more time on these functions that CSXT does today, because it proposes to handle over 500,000 carloads of Leapfrog traffic. While CSXT today handles these Leapfrog moves as local with minimal reporting requirements, TPIRR's "leapfrogging" would add at least two more handoffs between TPIRR and residual CSXT. The recording and reporting of these handoffs will need to be monitored and verified, creating significantly more work. Despite what would likely be an increased workload, CSXT is conservatively proposing a staff of only 65. The group is headed by a Director, supported by five managers. Four would head 12-member shift teams to cover the responsibility 24/7/365,

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[162] *See id.*

[163] *See id.*

and an additional manager will lead another team of 12 that would accommodate the higher workload experienced during normal business hours.

TPIRR also needs personnel responsible for supporting the handheld devices used by conductors in the field. Conductors will be supported in the field by a team of 10 support managers. In addition, a team of two technical support staff at headquarters will be charged with monitoring the overall process and developing new systems for improvement.

Finally, TPIRR would need staff devoted to supporting and improving the customer service process. This function requires considerable work on master files, including EDI files for customers, EDI files for interline shipments, revenue files, transportation files, and yard and terminal files for identifying locations of customer shipments throughout the TPIRR system. CSXT currently deploys a staff of {{ }} to handle this responsibility.[164] Since TPIRR track miles, running miles and yard miles are less than those of CSXT, CSXT proposes a staff of seven for Process Improvement, which would be comprised of one Director and six managers.

(b) Planning & Support

In addition to Customer Service, the Vice President of Customer Service will oversee planning and support functions including Budgets, Joint Facilities, and Service Planning.

Budgets. CSXT accepts the one director and two analysts TPI provides for the budgeting function.

Joint Facilities. TPI proposes a Director and two managers for Joint Facilities. Today, CSXT deploys {{ }} to handle Joint Facilities.[165] Since TPI steps into CSXT's shoes for a substantial amount of joint facilities, TPI's proposed staffing is too low. CSXT proposes staffing of one Director and three managers.

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[164] *See id.*

[165] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx."

Service Planning. TPI provides two managers for Service Planning, which is far too low for a railroad with substantial intermodal and general freight traffic. As a comparison, CSXT has {{ }} personnel devoted to Service Planning.[166] TPIRR similarly must adequately staff this function. TPIRR's traffic mix will require substantial planning to meet customer expectations and respond to the "customer churn" that is inherent in areas like general freight traffic.[167] Indeed, service planning is even more important because of the complex operations and additional interchanges required by TPI's Leapfrog and other crossover traffic. But to be conservative, CSXT proposes that TPIRR could effectively handle these tasks with only two Directors and 16 managers. One Director supported by eight managers would focus on planning for intermodal and automotive traffic. The second Director, also supported by eight managers, would focus on planning for general freight.

iii. Transportation

CSXT accepts much of TPI's proposed non-train operating staffing in the Transportation Department, except that TPI posits an inadequate number of employees for its Purchasing Group and virtually ignores the need for intermodal staffing.

Specifically, CSXT accepts TPIRR's proposed non-train operating staffing for the TPIRR Transportation Center,[168] for Field Operations,[169] and for Safety, Rules and Training.[170] CSXT

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[166] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx."

[167] In short, while the TPIRR could expect overall general freight volumes to grow in general, it would be unreasonable to think that its customers (and the relative volume shipped by those customers) would remain stable and experience uniform, level growth. In real-world railroading customer volumes shift quickly and customer demands are constantly changing, and the TPIRR would need staff to respond to those changes.

[168] TPI proposes a Transportation Center of 239 employees: an Assistant VP – Transportation Center; a Director and nine Managers of Operations Control; two Chief Dispatchers, 40 Assistant Chief Dispatchers; 140 Dispatchers; a Director – Crew Management; 35 Crew Callers; a Director and four Managers of Coal Operations and a Director and four Managers of Intermodal Operations.

eliminates the two Directors-Environmental Control that TPI places in the TPIRR Transportation Department, because all environmental functions are consolidated in the TPIRR Environmental Group within the TPIRR's G&A Department. *See infra* III-D-150 through III-D-158.

TPI proposes just nine persons for the TPIRR's purchasing and materials management needs, which is inadequate for the TPIRR's needs. The TPIRR will handle the vast majority of CSXT's volume of traffic, and thus it will have significant consumption requirements for items such as fuel, track, ties, ballast, and work equipment. To operate efficiently and obtain materials at the lowest available cost to the railroad, the TPIRR requires purchasing personnel who can focus on specific groups of commodities and can become specialists in their category of procurement. Purchasing personnel must maintain relationships with thousands of vendors of different materials and services. Commodity-specific experience will also help avoid inventory shortfalls which could, if they lead to the shutdown of a TPIRR activity, be far more expensive than adding purchasing personnel. As the Board held in *WFA I*, purchasing staff is needed because "[n]ot all materials would be sent directly to the location where needed . . . supplies would sometimes need to be furnished for unplanned maintenance or emergencies. . . a detailed inventory of materials used [must be kept] so that materials would not run low and maintenance be delayed. . . [and] . . . [a] purchasing and materials department would also need to keep abreast of and seek out the best suppliers from whom to obtain materials." *WFA I*, STB Docket No. 42088, at 65.

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[169] TPI proposes 260 non-train operating personnel for Field Operations, consisting of two General Managers; 14 Directors of Field Operations; 12 Administrative Assistants; 73 Managers – Field Operations; 24 Assistant Managers – Field Operations; 15 Managers – Locomotive Operations; 79 Yardmasters; and 41 Assistant Yardmasters.

[170] TPI proposes that the Assistant Vice President – Safety & Materials would oversee a Rules, Safety, and Training staff of three Directors and 14 Managers.

To build a Purchasing and Materials Management function for the TPIRR with enough resources to fulfill the TPIRR's needs, CSXT proposes a total staff of 32—substantially less than CSXT's Purchasing staff of {{ }}[171] Four Directors would focus on specific areas: Mechanical, Engineering, Fuel, and All Other. All Other would include all hardware and software, as well as miscellaneous office supply needs. Technology will be a constant area of focus for the TPIRR, because the asset life for most computer equipment is short and best-in-class technology is constantly changing. The four Directors would be responsible for both the purchasing and materials management function in their respective area. The Directors would be supported by 12 Purchasing Managers and 10 Materials Management Managers. Another six Managers would be responsible for other support functions such as purchasing systems, process improvement, supplier relations, and material logistics.

CSXT addresses TPI's failure to include any personnel to oversee operations at the TPIRR's intermodal terminals and automotive ramps below in Section III-D-9.

iv. Mechanical Department

CSXT accepts much of TPIRR's proposed non-train operating personnel staffing in the TPIRR Mechanical Department, except that TPIRR substantially underestimates the number of Car Inspectors that the TPIRR would need.

CSXT accepts TPI's proposed organizational structure for a Mechanical Department headed by a Vice President who would be supported by an Assistant Vice President – Motive Power, an Assistant Vice President -- Equipment Maintenance and two Managers - Administration. CSXT also accepts TPI's staffing for Motive Power,[172] except that CSXT

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[171] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx."

[172] TPI proposed a 12-person group consisting of the AVP – Motive Power, a Director – Engineering & Technical Services; a Director – Operating Research; a Manager – Testing and

removes the Manager – Testing & Environmental (whose functions are performed by the G&A Environmental Group). CSXT also accepts the Assistant Vice President – Equipment Maintenance and supporting headquarters staff of a Chief Engineer; a Manager Budgets; Car Maintenance; and two car repair clerks.

TPI also proposes a Field Staff for Car Inspections of seven Superintendents and 281 Car Inspectors—24[173] of whom are roving "line-of-road" inspectors and 257 of which are based at TPIRR's yards. While seven Superintendents and 26 roving inspectors are reasonable and accepted by CSXT, TPI significantly underestimates the necessary number of yard-based Car Inspectors. TPI provides no details on how it determined the compliment of Car Inspectors required at each TPIRR yard other than to say that TPI generally bases the number of inspectors on "the number of daily trains to be inspected." TPI Opening Ex. III-D-1 at 15. But if that were true, then the number of TPIRR inspectors at each yard should be at least somewhat commensurate with the number of car inspectors that CSXT needed to inspect trains at that yard in the real world. In fact, TPI's proposed car inspector staffing is far below real-world levels, with no credible explanation.

CSXT, on the other hand, used an objective process to determine how many Car Inspectors would be needed at the TPIRR's yards. The discovery data CSXT produced to TPI included extensive details about car inspector work-hours and dollars by location.[174] That data shows that CSXT inspectors at the CSXT yards replicated by the TPIRR worked between

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Environmental; seven Superintendents – Motive Power; one Manager – Budget, and one Superintendent – Water & Fuel Services.

[173] TPI Opening Exhibit III-D-1 at 16 suggests that the TPIRR would have 26 line-of-road inspectors, but TPI's supporting workpaper lists 24. CSXT assumes that the workpaper count of 24 is the correct count and accepts that staffing.

[174] *See* CSXT Reply WP "CSX Inspection and Repair Update_CSXT Reply.xls."

{{ }} hours of straight time and {{ }} hours of overtime over the four year period from 2010-2013.[175] Assuming a 2,000-hour work-year, the average straight time hours worked by CSXT inspectors equates to roughly {{ }} people, and including overtime hours would increase the inspector equivalent headcount figure to approximately {{ }} people.[176] Thus TPI's claimed staffing of 255 yard-based staffers is effectively assuming that TPI's Car Inspectors would have to be {{ }} as productive as CSXT's staff of experienced car inspectors currently based at those yards. TPI has provided no basis for such an extraordinary productivity increase,[177] and thus its count of yard-based car inspectors is not consistent with the realities of real-world railroading.

In its reply, CSXT rejects TPI's proposed car inspector staff located at the TPIRR yards, and instead bases staffing on CSXT's real-world experience. Based on CSXT actual experience inspecting trains at the same yards replicated by the TPIRR, CSXT adjusted TPI's crew-size assumptions from four to six per shift for yards originating fifteen or more trains per day.[178] Locations originating ten to fourteen trains per day would have four inspectors per shift instead of TPI's proposed two or three. Locations originating between six and nine trains would be outfitted with two inspectors per shift instead of TPI's proposed one. In addition, CSXT increased the number of shifts for yards originating between four and five trains daily to two (up from TPI's one). CSXT also added inspectors at five locations where TPI provided none. These changes increased the number of TPIRR car inspectors assigned at yards to 417, still well below the number of car inspectors required by CSXT at these same locations.

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[175] *See* CSXT Reply WP "CSX Inspection and Repair Update_CSXT Reply.xls."

[176] *See id.*

[177] TPI's assertion that it bought ATVs to make car inspectors more efficient cannot possibly explain the gulf between its staffing and real-world CSXT staffing.

[178] *See* CSXT Reply WP "CSX Inspection and Repair Update_CSXT Reply.xls."

Table III-D-13
Comparison of Non-Train Operating Personnel

Department	TPI Opening	CSXT Reply	Difference
Executive Office	6[179]	6	0
Customer Service and Support	30	176	146
Transportation	529	624	95
Mechanical	309	468	159
Non-Train Operating Personnel	**874**	**1274**	**400**

v. Materials, Supplies, and Equipment

In general, CSXT accepts TPI's estimates of the costs of materials, supplies, and equipment for TPIRR operating personnel. CSXT scales up the overall estimate of these costs commensurate with its increased staffing, and also makes the small corrections described below.[180]

Vehicles. CSXT accepts the per unit cost for vehicles to be used by TPIRR operating employees but increases the amount of vehicles to reflect proposed staffing levels and to allow for increased efficiency of the operating managers. Specifically, CSXT proposes that each Manager Train Operations be provided with his or her own vehicle. TPI's proposal to assign a single vehicle to each position would be inefficient, for it would mean that these managers would have to return to the office to handoff the vehicle at the end of each shift. This would create inefficiencies, because managers often may be far away from the office when the next manager is scheduled to go duty. CSXT also proposes that each Manager Locomotive Operations be issued a vehicle. These managers will have large territories that they will need to cover to perform their duties. TPI provides them with neither a travel budget nor a company vehicle.

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[179] Excludes Customer Service and Support.

[180] These cost corrections are all reflected in CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx," Tab "Summary."

Office Equipment. CSXT accepts TPI's proposed unit costs for office equipment and office supplies, and CSXT adjusts that total cost based on proposed CSXT staffing levels. However, TPI does not provide for paper and toner for the printers in the field used to print train orders, train manifests and other documents as required. CSXT provides for these materials.

Utility Costs. CSXT accepts TPI's estimates of utility costs for the buildings proposed by TPI. It proposes similar estimates for the additional buildings proposed by CSXT in reply.

Safety Equipment. CSXT accepts the unit costs of safety equipment proposed by TPI, and applies that cost to CSXT's increased staffing for Train and Engine and Car Inspectors. In addition, the TPIRR field operating personnel will require basic safety equipment such as hard hats and safety glasses, which CSXT includes in its Reply.

Car Inspection Equipment. CSXT accepts the method proposed by TPI to outfit the Car Inspectors, but scales that equipment up commensurate with its additional Car Inspectors and five new yards for Car Inspections. In total, CSXT provides for carts and tools at the five new points, and adds one cart and tool set to the 7 largest TPIRR yards.

c. General & Administrative

TPI's evidence of TPIRR General & Administrative ("G&A") expenses continues TPI's pattern of significantly understating the staffing and spending necessary to serve its selected traffic group. The TPIRR would have a traffic group and revenue base much like that of a real-world Class I railroad—its revenues would rank it as the fifth-largest railroad in the United States.[181] But while the average Class I railroad spends ten percent of revenues on G&A, TPI claims that the TPIRR would spend only 1.5% its revenue on these costs. *See* Table III-D-14 below. TPI similarly claims that the TPIRR's G&A staffing and spending would be far lower on

[181] *See* TPI Opening III-A-3 ("The TPIRR is designed to transport a broad range of commodities over its system, similar to what CSXT does over many of the same rail lines today.").

a revenue-adjusted basis than that of any other SARR recently approved by the Board. *See* Table III-D-16; III-D-17.

To be sure, the TPIRR is supposed to be an optimally efficient SARR, and TPI is permitted to propose ways in which its SARR could be more efficient than CSXT or any other real-world railroad. But TPI has to support those claimed efficiencies with specific, detailed explanations of why the TPIRR could operate with far less personnel than any other comparable modern railroad. The fundamental SAC rule that a SARR must be "consistent with the underlying realities of real-world railroading" applies to G&A expenses just as much as it applies to other operating expense areas.[182] TPI's evidence contains no adequate explanations for the extraordinary efficiencies it posits. Instead, TPI clings to the discredited theory that the TPIRR would incur less G&A expenses because it could expect other railroads to perform G&A functions for its cross-over traffic, and it repeats general platitudes that are unaccompanied by any explanation of how and why the TPIRR could be drastically more efficient than both real-world railroads and other SARRs.

The single concrete benchmark that TPI includes in its G&A evidence is a reference to the alleged staffing levels of the Chicago & North Western Railway Company ("CNW") in 1994. But upon examination a comparison to CNW only shows how far removed TPI's staffing is from the real world. On a revenue-adjusted basis CNW's G&A staffing was more than eight times the staffing that TPI proposes for the TPIRR. TPI has not identified any persuasive reason why the TPIRR could be massively more efficient than CNW in 1994.

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[182] *See WFA I*, STB Docket No. 42088, at 15 ("assumptions used in the SAC analysis ... must be realistic, *i.e.*, consistent with the underlying realities of real-world railroading"); *DuPont*, STB Docket No. 42125, at 83 ("The Board has consistently required parties to document their personnel and expense estimates with comparisons to real-world railroading").

The Board has made clear that G&A evidence must be developed and supported just like any other form of operating expense evidence. In particular, the Board has emphasized the need for parties to explain why the G&A staffing proposed would be sufficient to carry out all necessary G&A functions and urged parties to benchmark G&A staffing against staffing levels of comparable real-world railroads.[183] In short, parties have to do more than simply assert that a particular staffing level is feasible; they must prove the feasibility of proposed G&A staffing and spending levels with the best evidence available. As a result, TPI was required in its Opening Evidence to either explain why its G&A expenses were consistent with real-world experience or, if the proposed expenses were lower, to explain why those spending levels are nonetheless realistic for a least-cost, most-efficient SARR. TPI did neither.

By contrast, CSXT's evidence is firmly grounded on real-world experience and industry standards, which demonstrate that a least-cost estimate of G&A expenses for the TPIRR would be $166.1 million annually for 754 G&A employees, or approximately 2.57% of the TPIRR's gross revenue. These numbers assume that the TPIRR is optimally efficient and capable of achieving high levels of economic efficiency in every area. But they also assume that the TPIRR will comply with the minimum legal, regulatory, commercial, and administrative requirements that would apply to it. Just like CSXT or any other railroad, the TPIRR must comply with applicable federal and state laws and regulations in the various jurisdictions in which it operates, and it must perform standard G&A functions like billing, collecting, and responding to customer requests. Ensuring that the TPIRR has the resources necessary to satisfy these requirements is an

[183] *See, e.g.*, *AEPCO 2011*, STB Docket No. 42113, at 58 (criticizing parties for not providing benchmark analyses or any other sufficient explanation for staffing levels chosen); *FMC*, 4 S.T.B. at 835-36 (rejecting complainant's G&A evidence because it "made no attempt to show that [its proposed G&A] staff could feasibly perform the required work, by either explaining the amount and type of G&A work that the [SARR] staff would need to perform or relating the size of the staff to operations of existing firms.").

essential element of demonstrating its feasibility. TPI's evidence fails this test because its inadequate G&A staff is not capable of performing the functions that the TPIRR would have to perform in the real-world. CSXT's evidence corrects those deficiencies by assigning the minimum G&A expenses that would be necessary for the TPIRR to operate given its network's significant size, scale, and complexity.

CSXT's evidence of G&A expense requirements for the TPIRR was developed by CSXT witness Richard W. Brown. Mr. Brown, a Director with FTI Consulting, has almost 30 years of experience working in the North American railroad industry for BNSF and its predecessor carriers. While at BNSF, Mr. Brown gained significant experience managing functional reorganizations and implementing technological solutions to streamline administrative functions. For the last fourteen years, he has managed rail carrier strategic planning and merger and acquisition studies. Mr. Brown's qualifications are further detailed in Section IV.[184]

Subsection III-D-3-c-i compares TPI's and CSXT's G&A cost evidence to real-world G&A expenses of other, comparable Class I railroads and prior SARRs. This benchmarking analysis demonstrates convincingly that CSXT's estimate is reasonable and supported and that TPI's is grossly understated. Subsection III-D-3-c-ii responds to TPI's deeply flawed comparison to the 1994 CNW. Subsection III-D-3-c-iii discusses the staffing requirements for the TPIRR. Section III-D-3-c-iv describes compensation for G&A staff. Subsection III-D-3-c-v describes materials, supplies, and equipment costs, and subsection III-D-3-c-vi discusses other TPIRR G&A costs.

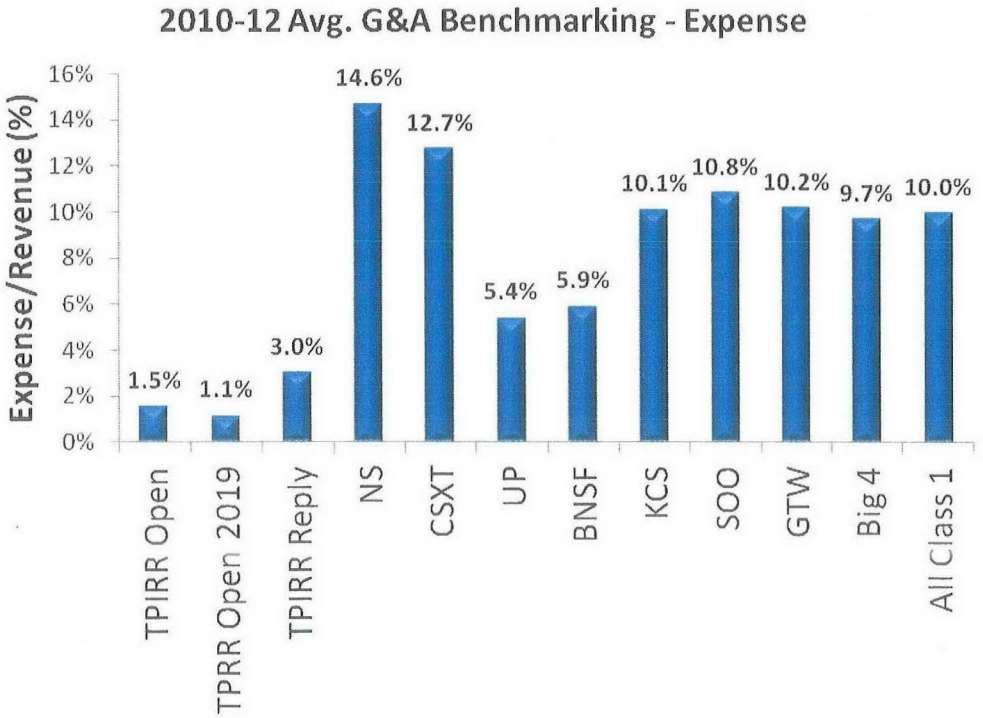
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[184] During his analysis, Mr. Brown conducted multiple interviews with CSXT G&A staff to develop an appropriate understanding of the tasks the TPIRR would need to perform and appropriate metrics for measuring how many employees would be required at a least-cost, most efficient railroad. CSXT Reply WP "G&A Interviews.pdf" lists the interviews with CSXT personnel that Mr. Brown conducted.

i. TPI's Proposed G&A Spending Is Inconsistent With Board Precedent and Real-World Benchmarks

Benchmarking TPI's overall proposed G&A staffing and spending to that of real-world railroads and previous SARRs is instructive, because it shows how far TPI's proposal departs from both reality and Board precedent. As mentioned above, the average Class I railroad spends ten percent of revenues on G&A. Yet TPI claims that the TPIRR would spend just 1.5% of its revenue on G&A costs. *See* Table III-D-14. TPI thus assumes that the TPIRR would be more than six times as efficient as the average Class I railroad—that is, that the TPIRR could function effectively with one-sixth the G&A and certain other non-train operating spending that a real-world railroad would need to perform the same functions.

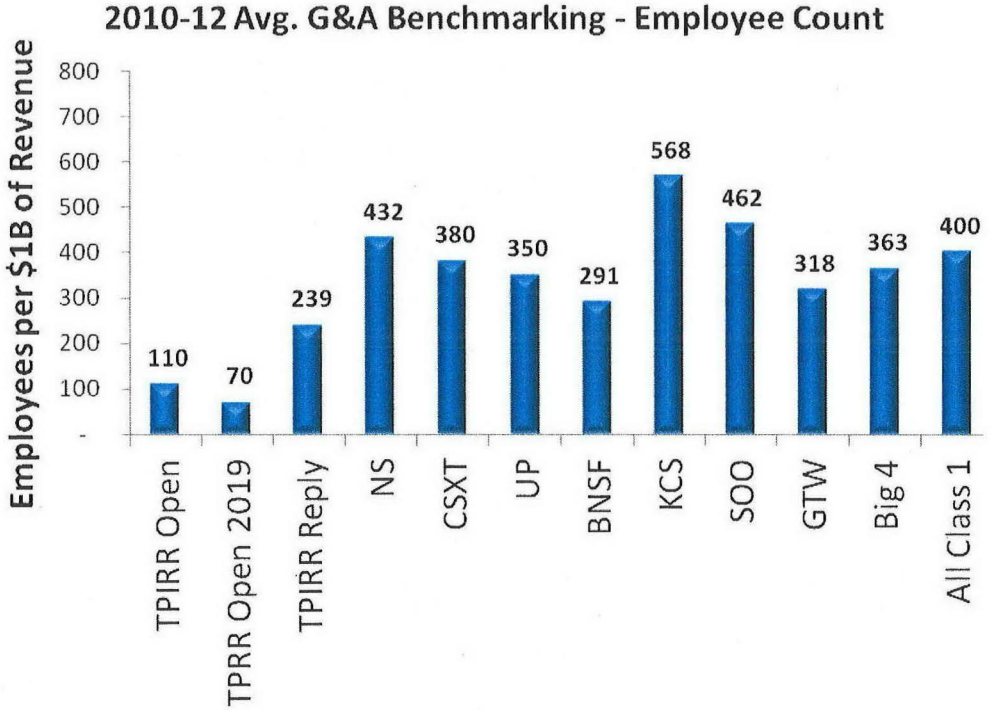
Table III-D-14
Benchmarking to Class Is – G&A Expenses[185]



[185] *See* CSXT Reply WP "Benchmarking – GA.xlsx." In order to compare the TPIRR's G&A spending to real world Class I railroads, the table compares TPI's proposed G&A spending to the G&A expenditures reported in Section 410 of the railroads' R-1 report.

The absurdly low size of TPI's proposed G&A staffing is similarly demonstrated by a comparison to the staffing levels of Class I railroads. Between 2010 and 2012, the average Class I railroad had 400 G&A and certain other non-train operating employees per $1 billion in revenue. *See* Table III-D-15 below. TPI proposed that the TPIRR would have just 110 employees per $1 billion in revenue—just more than one-quarter the staffing of comparable real-world railroads.

Table III-D-15
Benchmarking to Class Is – G&A Staffing[186]



Indeed, a comparison to G&A staffing in past cases shows that TPI's G&A staffing is far lower than that of any recent SARRs approved by the Board (when adjusting for relative revenue). For example, TPI has proposed less than one-third of the G&A staffing for the TPIRR

[186] *See* CSXT Reply WP "Benchmarking – GA.xlsx." In order to compare the TPIRR to real world Class I railroads, the table compares all STB Group 100 and 200 employees, which includes but is not limited to G&A personnel.

than the Board accepted in *DuPont*, despite the fact that the TPIRR and the *DuPont* SARR would have similar revenues, geographic scope, and traffic mix. As Table III-D-16 demonstrates, TPI's proposed staffing is far below the average G&A staffing levels approved by the Board in the past ten decided SAC cases.

Table III-D-16
Comparison of TPI G&A Staffing to Board-Approved Staffing In Past 10 SAC Cases

Case	G&A Staff[187]	Revenue (in millions)[188]	G&A Staff Per $10M Revenue
Duke/NS	63	$487.1	1.29
CP&L	63	$453.7	1.39
Duke/CSXT	59	$496.8	1.19
Xcel	51	$341.5	1.49
Otter Tail	55	$581.7	0.95
AEP Texas	66	$384.2	1.72
WFA	39	$218.4	1.78
AEPCO	225	$2,075.8	1.08
DuPont	820	$5,768.4	1.42
SunBelt	100	$362.4	2.76
Average	--	--	1.51
TPI Opening	304	$6,567.9	.46
CSXT Reply	**754**	**$6,475.2**	**1.16**

[187] TPIRR data is located in Table 1 on page 8 of TPI Op. Ex. III-D-2. Data on prior SAC cases was derived as follows: *Duke/NS: Duke/NS*, 7 S.T.B. at 156; *CP&L*: *CP&L*, 7 S.T.B. at 294; *Duke/CSXT*: *Duke/CSXT*, 7 S.T.B. at 460; *Xcel*: *Xcel*, 7 S.T.B. at 648; *Otter Tail*: *Otter Tail*, STB Docket No. 42071, at C-8; *AEP Texas*: *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 53; *Western Fuels*: *WFA I*, STB Docket No. 42088, at 43; *AEPCO*: *AEPCO 2011*, STB Docket No. 42113, at 55; *DuPont*: *DuPont*, STB Docket No. 42125, at 83-94 & DuPont Reb. Ex. III-D-1 at Table 4; *SunBelt: SunBelt,* STB Docket No. 42130, at 52.

[188] Revenue is taken from the first year of the SARR's operation. TPIRR data is located at Table III-A-6 on page III-A-13 of TPI's Opening Evidence. Data on prior SAC cases was derived as follows: *Duke/NS: Duke/NS,* 7 S.T.B. at 147; *CP&L: CP&L*, 7 S.T.B. at 287; *Duke/CSXT*: *Duke/CSXT*, 7 S.T.B. at 451; *Xcel*: *Xcel*, 7 S.T.B. at 640; *Otter Tail*: *Otter Tail*, STB Docket No. 42071, at E-6; *AEP Texas*: *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 112; *Western Fuels*: *WFA I*, STB Docket No. 42088, at 31; *AEPCO*: Rebuttal Evidence of Complainant Arizona Electric Power Cooperative, Inc., *Arizona Electric Power Cooperative, Inv. v. Burlington Northern & Santa Fe Railroad Co. & Union Pacific Railroad Co.*, STB Docket No. 42058, at III-A-113 (filed July 1, 2010); *AEPCO 2011*, STB Docket No. 42113, at 26; *DuPont*: *DuPont*, STB Docket No. 42125, at 270; *SunBelt*: *SunBelt*, STB Docket No. 42130, at 181.

A comparison to total G&A spending approved in recently decided SAC cases produces a similar result. In past SAC cases, the Board has accepted SARR G&A spending ranging between 2.5% and 5% of SARR revenues; the average percentage from the last ten decided cases is 3.3%. But TPI claims that the TPIRR would spend less than 1.4% on G&A expenses—well under half the average.

Table III-D-17
Comparison of TPI G&A Spending to Board-Approved G&A Spending In Past Cases

Case	G&A Spending (in millions)[189]	Revenue (in millions)[190]	G&A Spending as Percentage of Revenue
Duke/NS	$13.0	$487.1	2.7%
CP&L	$13.0	$453.7	2.9%
Duke/CSXT	$12.6	$496.8	2.5%
Xcel	$10.4	$341.5	3.0%
Otter Tail	$13.3	$581.7	2.3%
AEP Texas	$12.5	$384.2	3.3%
WFA	$11.0	$218.4	5.0%
AEPCO	$58.3	$2,075.8	2.8%
DuPont	$171.7	$5,768.4	3%
SunBelt	$18.9	$362.4	5.2%
Average	--	--	**3.3%**
TPI Opening	**$91.6**	**$6,567.9**	**1.4%**
CSXT Reply	**$166.5**	**$6,475.2**	**2.6%**

Whether the comparison is drawn to real-world railroads or to previous SARRs, it is apparent that TPI has vastly understated the total G&A spending necessary to serve its traffic

[189] TPIRR data located at TPI WP "TPIRR Operating Expense_Open.xlsx," cell D20. Data on prior SAC cases was derived as follows: *Duke/NS: Duke/NS*, 7 S.T.B. at 150; *Duke/CSXT*: *Duke/CSXT*, 7 S.T.B. at 452; *CP&L*: *CP&L*, 7 S.T.B. at 288; *Xcel*: *Xcel*, 7 S.T.B. at 641; *Otter Tail*: *Otter Tail*, STB Docket No. 42071, at C-1; *AEP Texas*: *AEP Texas II*, STB Docket No. 41191, at 40; *Western Fuels*: *WFA II* , STB Docket No. 42088, at 35; *AEPCO*: *AEPCO 2011*, STB Docket No. 42113, at 40; *DuPont*: *DuPont*, STB Docket No. 42125, at 69; *SunBelt: SunBelt*, STB Docket No. 42130, at 34.

[190] *See supra* sources cited in footnote 188.

group. Mr. Brown's detailed analysis below shows that this understatement is the result of systematically underestimating the G&A staff necessary to perform nearly every important SARR function.

ii. TPI's Reliance on Chicago & North Western Staffing Levels Only Proves The Unreasonableness of TPI's Proposal

The Board has made clear that parties' G&A estimates should be supported whenever possible by benchmarking to real-world railroads.[191] Not surprisingly, TPI was unable to find any real-world benchmark that could support the extraordinarily low staffing levels it proposes. Instead, TPI can only submit an "illustrative" comparison to what it alleges are the staffing levels of a now-defunct railroad in 1994. TPI Op. Ex. III-D-2 at 8-9. But TPI's reference to G&A staffing at the 1994 CNW only proves the unreasonableness of TPI's staffing proposal. An accurate count of CNW G&A employees shows that TPI provides less than one-eighth the G&A staffing as CNW did on a revenue-per-employee basis. TPI's explanations for this disparity are based on theories that the Board has repeatedly rejected and misconceptions about alleged inefficiencies at the CNW.

(a) Mr. McDonald's Purported Recollection of CNW G&A Staff Is Inconsistent With His Prior Testimony and With CNW Records.

In the first place, TPI significantly understates the CNW's G&A staffing levels. TPI submitted a detailed spreadsheet that listed 246 separate "1994 C&NW G&A" positions and a total alleged CNW staff of 533 employees.[192] But TPI's evidence failed to include an actual CNW staff roster or any other support for the numbers in its workpaper. When CSXT asked for

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[191] *See, e.g., AEPCO 2011*, STB Docket No. 42113, at 58; *FMC*, 4 S.T.B. at 835-36.

[192] *See* TPI Op. WP "TPIRR Staffing Comparison_Open.xlsx," Tab "C&NW 1994 G&A."

that support, TPI informed CSXT that its count of 1994 CNW G&A staff was "based on Mr. Richard McDonald's extensive experience and knowledge of the C&NW."[193]

In other words, TPI asserts that Mr. McDonald can recall from memory the precise G&A staffing roster of the entire CNW, as it existed 20 years ago, including the specific titles and departmental assignments of 533 individuals. For example, Mr. McDonald claims to remember that in 1994 the CNW had exactly three freight and customer accounting clerks, exactly 14 payroll clerks, and exactly eight claims analysts in the Department of Labor Relations.[194] The assertion that Mr. McDonald has the savant-like ability to reconstruct a 533-employee G&A staff from memory after two decades defies credibility.

TPI's claims about Mr. McDonald's mnemonic talents ignore his apparent inability to remember that he made completely different assertions about CNW's G&A staffing in 2013 testimony that he verified under penalty of perjury. Specifically, in the *DuPont* case he asserted that CNW had only 207 G&A employees, a claim that he supported by relying on his "significant experience" at CNW.[195] TPI does not explain how the superhuman memory that allegedly enables Mr. McDonald to recall CNW's precise G&A staffing roster in TPI's evidence did not prevent him from testifying to a wildly different number in DuPont's evidence. The details of Mr. McDonald's alleged recollections of CNW's staffing are similarly irreconcilable with his testimony in *DuPont*. For example, in *DuPont* he testified that CNW had one claims agent for each of its eight divisions[196]; in TPI he says there were only four District Claims

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[193] *See* CSXT Reply WP "February 27 Moreno Email.pdf."

[194] *See* TPI Op. WP "TPIRR Staffing Comparison_Open.xlsx," Tab "C&NW 1994 G&A."

[195] *See* Rebuttal Evidence of E.I. du Pont de Nemours & Co., *E.I. du Pont de Nemours & Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42125, Rebuttal Ex. III-D-1 at 5 (filed Apr. 15, 2013).

[196] *See id.* at 43.

Agents.[197] (Neither of Mr. McDonald's claims are accurate—a contemporaneous phone directory shows that CNW had five District Claims Agents).[198] The fact that TPI's primary witness has given such inexplicably contradictory testimony in successive Board proceedings casts a shadow over all the G&A and operating evidence that Mr. McDonald has sponsored.

CNW records from 1994 definitively disprove Mr. McDonald's alleged recollections. Specifically, CSXT workpaper "CNW Phone Directory.pdf" is a copy of a July 1994 CNW telephone directory. While it is impossible to say whether or not this directory represents a complete list of CNW's G&A employees, the directory shows no fewer than 654 unique individuals employed by CNW in G&A functions.[199] Other historical reports indicate that CNW's G&A staffing was likely even higher. C&NW's 1994 Wage Form A&B shows 543 people in the "Executives, Officials & Staff Asst." category and 811 in the "Professionals and Administrative" category, which suggests a significantly higher G&A staff figure (perhaps because not all G&A employees were listed in the phone directory).[200] In any event, CNW had a minimum of 654 G&A employees with functions that would need to be replicated by the TPIRR.

(b) TPI's Claims that the TPIRR Would Be More Efficient Than the 1994 CNW Are Exaggerated.

CSXT's definitive documentary evidence of the CNW's G&A staffing means that CNW had over eight times the staffing on a revenue-adjusted basis as TPI proposes for the TPIRR.

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[197] *See* TPI Op. WP "TPIRR Staffing Comparison_Open.xlsx," Tab "C&NW 1994 G&A," cell C227.

[198] The CNW also had numerous other claims-related positions. *See* CSXT Reply WP "CNW Phone Directory Count.xls;" CSXT Reply WP "CNW Phone Directory.pdf."

[199] This count is conservative, for it excludes 38 G&A employees whose job titles indicate they were responsible for passenger-related functions and interactions with commuter operations.

[200] *See* CSXT Reply WP "CNW 1994 Wage Form.pdf."

Table III-D-18
Benchmarking to Actual CNW Workforce[201]

	1994 CNW	TPI Opening Proposal for TPIRR
G&A Staff	654	304
Annual Revenues[202]	$1.66 billion	$6.57 billion
G&A Staff Per $10M Revenue	**3.94**	**0.46**

TPI acknowledges that the 1994-era CNW had significantly more staffing than TPI proposes for the TPIRR, but fails to acknowledge the truly massive gulf that opens between the two staffing plans when one accounts for the relative revenues of the two railroads. Moreover, TPI's claims that distinctions between the TPIRR and the CNW might justify smaller TPIRR staffing are based on generalities and misconceptions that collapse upon examination. TPI attempts to paint a picture of CNW as an inefficient creature of the 1970s burdened by a traffic base of small grain movements, inadequate technology, and excess branch lines. The truth is that by 1994 CNW was an efficient, modern railroad with an optimized network and a traffic mix near-identical to the TPIRR's. As several historical studies of the CNW have shown, in the decades before 1994 CNW shed excess branch lines, developed a substantial unit-train traffic base of PRB coal trains and intermodal trains, and became a highly efficient railroad quite comparable to the TPIRR. At the time before its merger into UP the CNW was described as a railroad "in trim, fighting shape" and a "lean and mean" railroad well adapted to the post-Staggers era. Roger H. Grant, *The North Western: a history of the Chicago & North Western*

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[201] *See* CSXT Reply WP "Corrected CNW Benchmarking.xls."

[202] CNW's Annual Revenues for 1994 are derived from CSXT Reply WP "UP Form 10Q 8_14_1995.pdf," which reported $1.13 billion in 1994 CNW revenues. CPI indexing to 2010 via http://www.bls.gov/data/inflation_calculator.htm equates to approximately $1.66 billion. *See* CSXT Reply WP "CPI Indexing 1994 to 2010."

railway system 245 (1996). Indeed, just last year TPI's expert Mr. McDonald touted the CNW as a model of efficient management, describing it as "an efficient, cost-effective Class I railroad."[203]

TPI first claims that the CNW's traffic and revenue makeup is sufficiently different from the TPIRR to justify less G&A staff for TPIRR. *See* TPI Op. Ex. III-D-2 at 9. Specifically, TPI asserts that "TPIRR's carload traffic is 44 percent intermodal and 13 percent coal as compared to C&NW's 33 percent intermodal and 18 percent coal in 1994." *Id.* Even accepting that these percentages are accurate,[204] that would give the TPIRR and CNW starkly similar percentages of unit train intermodal and coal traffic: 57% for TPIRR and 51% for CNW. TPI also claims that the TPIRR would have a marginally lower percentage of traffic originating on its system and, thus, that TPIRR could expect other railroads to bear a greater share of its G&A costs. *See* TPI Op. Ex. III-D-2 at 9. In the first place, there is little difference between the percentage of traffic that originates on each system; according to TPI's own statistics, the TPIRR would originate 35.7% as compared to 41.8% for CNW. *See id.* Indeed, according to TPI CNW had less local traffic than the TPIRR.[205] More importantly, TPI relies on a theory that has been rejected by the Board. TPI asserts that the TPIRR can have "greatly reduced personnel" because it can expect other railroads to perform marketing, billing, and customer service functions for its overhead

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[203] *See* Rebuttal Evidence of E.I. du Pont De Nemours & Co., *E.I. DuPont de Nemours & Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42125, Ex. III-D-1 at 5 (filed Apr. 15, 2013).

[204] It is not clear that they are, since TPI's only support for its claims is a hard-coded spreadsheet citing to an alleged CNW QCS report that TPI neglected to include in its evidence. A published study of the CNW indicates that at the time of the UP-CNW merger in early 1995 approximately 60% of CNW's traffic consisted of coal or intermodal traffic that it was interchanging with UP. *See* Maury Klein, *Union Pacific: The Reconfiguration: America's Greatest Railroad from 1969 to the* Present 329 (2011) (citing historical UP documents stating that 68% of CNW's business was UP interchange traffic and 88% of that traffic was coal or intermodal; 68% X 88% = 60%).

[205] *See* TPI Op. WP "TPIRR C&NW Traffic Comparison.xlsx" (showing 10% local carloads for CNW and 13.9% for TPIRR).

traffic. *See* TPI Op. Ex. III-D-2 at 9-10. In *AEPCO 2011* and *DuPont*, the Board specifically and unequivocally rejected this argument. Like TPI, the *AEPCO 2011* complainant argued that its "large amount of overhead traffic" allowed it to reduce SARR marketing staffing because the SARR supposedly would have "far fewer customer interactions" than a real-world railroad. *AEPCO 2011*, STB Docket No. 42113, at 56-57. The Board strongly disagreed:

> We reject the proposition that the [SARR] will have fewer customer service needs due to its large amount of overhead traffic. Overhead traffic still requires customer service support. Also, the [SARR] will still be required to charge rates on these movements – a complex task done by the marketing staff. The fact that the [SARR] would carry a large amount of cross-over traffic does not mean that the complainant should be permitted to shield the SARR from expenses such as billing, rate setting, and customer service.

Id. In *DuPont*, the Board found similar arguments "unconvincing." *DuPont*, STB Docket No. 42125, at 85. TPI has raised the same argument the Board has previously dismissed, but has provided no reason for the Board to revisit its decision. The Board should therefore reject this argument out of hand.[206]

TPI's second claim is related to its first: it claims that the TPIRR relies on "unit-train traffic such as coal and intermodal," while CNW had "an extensive network of branch lines making most of its traffic manifest carload traffic, with a significant amount of carload grain traffic." TPI Op. Ex. III-D-2 at 10. TPI forgets that it is making its comparison to the CNW in 1994, at a time when CNW was an efficient, modernized railroad that heavily relied on unit-train coal and intermodal traffic. While for decades CNW's primary commodity was grain traffic, the onset of Powder River Basin coal traffic in the mid-1980s transformed CNW's traffic mix. By 1988 CNW "moved more than ten thousand trains carrying 115 million tons of coal and [PRB

[206] *See SAC Procedures*, 5 S.T.B. at 446 ("[T]he parties to SAC cases are cautioned not to attempt to relitigate issues that have been resolved in prior cases. Unless new evidence or different arguments are presented, we will adhere to precedent established in prior cases.").

coal traffic] produced over half the company's pretax operating income."[207] CNW also benefited from its early embrace of intermodal traffic. Beginning in 1984 CNW and UP began running doublestack container service between the West Coast and Chicago, and intermodal traffic occupied an increasingly prominent share of CNW's traffic base.[208] Indeed, at the time of the UP-CNW merger in early 1995 approximately 60% of CNW's traffic consisted of coal or intermodal traffic that it was interchanging with UP.[209]

TPI's third alleged distinction is that the TPIRR would be a private company rather than a publicly traded one. *See* TPI Op. Ex. III-D-2 at 10. But being privately held would have a minimal impact on overall G&A staffing or functionality. The single efficiency that the TPIRR could realize from private ownership is the fact that it would not need to prepare public filings with the Securities and Exchange Commission ("SEC"). But that does not eliminate the need for the TPIRR to maintain a robust financial reporting function, as detailed below. For example, as a Class I railroad the TPIRR would be required to prepare dozens of filings each year for the STB, the Railroad Retirement Board, and Federal Railroad Administration ("FRA").[210] Many states similarly require reporting; for example, several state tax authorities require annual reports on railroad finances and assets for use in preparing ad valorem tax assessments. Moreover, private companies still need to maintain basic financial controls, particularly private companies like the TPIRR that would have to answer to the investors and lenders that provided it with the

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[207] Klein, *supra*, at 270.

[208] *Id.* at 272; Grant, *supra*, at 239 (describing CNW's "burgeoning" and "profitable" intermodal business in 1980s and early 1990s).

[209] Klein, *supra*, at 329.

[210] *See infra* III-D-3-c-iii-(d)-(ii)-(3).

tens of billions of dollars necessary to construct its infrastructure.[211] A private company the size of the TPIRR will have many investors and require funding from multiple sources. The TPIRR would need to prepare regular financial statements and maintain financial controls adequate to satisfy those investors.

TPI next argues that technology advancements would allow it to reduce its G&A staffing below C&NW's levels. *See* TPI Op. Ex. III-D-2 at 10-11. In the first place, TPI again fails to grapple with the CNW as it was in 1994. Historical studies of CNW note that it undertook significant cost-cutting measures in the last years of operation, including introducing "advanced technologies . . . [that] led to the elimination of hundreds of jobs."[212] Moreover, TPI provides no evidence that the TPIRR's IT systems would allow it to employ less G&A staff than the 1994 CNW or today's Class I railroads—all of which use technology equal or superior to that of the TPIRR. Every Class I railroad has made substantial investments in IT systems and applications that reduce manpower needs, and most railroads have customized technology that is significantly more sophisticated than the off-the-shelf products that TPI proposes for the TPIRR. But as real-world Class I railroads have experienced firsthand, having sophisticated IT systems does not eliminate the need to employ human beings to operate, maintain, correct, and use these applications and to address the many complex issues that a computer program cannot solve. Even if one generously assumes that the TPIRR's IT applications would have functionality

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[211] The need for private companies to maintain financial controls is demonstrated by the establishment of the Private Company Council, part of the Financial Accounting Foundation Board, charged with improving the process of setting accounting standards for private companies. *See* CSXT Reply WP "Private Company Council.pdf."

[212] Grant, *supra*, at 241; *id.* at 249-50 (describing buyouts to reduce workforce); *id.* at 253 (citing 1995 analyst report discussing "significant employment cuts at CNW"); *see* Klein, *supra*, at 325 (describing "policy of shrinking the CNW and slashing costs" and measures taken to eliminate unneeded operations).

equivalent to that of IT applications used by Class I railroads, that cannot be grounds for TPI to argue for less TPIRR staffing than real-world railroads that have equivalent technology.

TPI's fifth argument is that CNW was "burdened with many branch lines" and lacked the TPIRR's density. TPI Op. Ex. III-D-2 at 11. Again, this was not true of the CNW in 1994. In the years before the UP merger CNW shed thousands of miles of branch lines through abandonments and spinoffs to short lines, and by 1993 it was only 40% of its 1972 size.[213] Moreover, while low-density branch lines might affect overall operating efficiency, excessive branch lines have little impact on G&A spending, which is mostly a function of revenues and work volume.

TPI's last assertion that CNW needed more staffing because it faced more competition is unsupported and illogical. In the first place, TPI does not cite any evidence to support its assertion that today's railroads need less marketing personnel because they face less competition. As the record in this case demonstrates, railroads face significant competition not only from each other but from other forms of transportation as well. Moreover, if TPI were correct that today's railroads have less need for marketing personnel, then logically the TPIRR's marketing department should not be markedly smaller than CSXT's marketing department.[214] Vague references to a "lack of competition" in today's marketplace cannot justify a marketing staff vastly smaller than that of today's railroads.

In sum, TPI's attempts to explain why its staffing for the TPIRR is so much lower than that of the CNW lack any merit.

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[213] Klein, *supra*, at 325; Grant, *supra*, at 243-44 (describing CNW policy of eliminating "redundant trackage" through spinoffs to short lines).

[214] *Compare* TPI Op. Ex. III-D-2 at 15 (proposing 56-person marketing staff) *with* CSXT Reply WP "CSXT Organization Spreadsheet.xls", Tabs "Commercial," "Transload," "Coal Auto," and "Marketing Services" (showing CSXT marketing organization of approximately {{ }}).

iii. Staffing Requirements

(a) Executive Department

TPI proposed that the TPIRR Executive Department would perform a broad variety of business functions including Corporate Relations, Government Relations, Quality Assurance, Human Resources, and Planning. It is unusual to place Human Resources in the Executive Department, but CSXT does not object to this configuration.[215] While TPI accurately lists the functions that the Executive Department would need to perform, it spreads its employees too thin to perform those functions effectively. Indeed, if HR and the independent directors on the Board are excluded, TPI proposed an Executive Department consisting of just 12 persons for a $6 billion railroad, which is 25% smaller than the 16-person Executive Department the Board adopted in *DuPont*, which involved a SARR of similar size and complexity. *See DuPont*, STB Docket No. 42125, at 83-84.

The first problem with TPI's Executive Department staffing is that it unrealistically posited that the TPIRR President will devote part of his time to managing executive functions. TPI proposed that the Assistant Vice Presidents of Administration and Human Resources would report directly to the President. In other words, TPI would have the President do double-duty by also filling a vice president role overseeing executive and human relations functions. This is not a realistic structure for a railroad that would be a Fortune 500 company and the fifth-largest Class I railroad in the United States. At a railroad of that size, the President's time would be fully occupied in leading and managing the Vice Presidents and their departments, and it is not reasonable to think that the President could also act as a functional vice president. To address this problem, the TPIRR needs a Vice President – Executive. This Vice President would be

[215] *See, e.g., AEPCO 2011*, STB Docket No. 42113, at 61 (placing HR in the Law and Administration Department); *DuPont*, STB Docket No. 42125, at 92 (same).

responsible for all executive functions including Corporate Communications, Human Resources, Federal and State Government Relations, and Quality Assurance. A single Vice President overseeing all of these functions is consistent with how TPI organized other G&A Departments—*i.e.*, each Department has its own Vice President to report to the President.[216]

(i) Corporate Relations:

The Corporate Relations function entails both external and internal communications and public relations. Railroads like the TPIRR that interact with many different communities require a robust public relations function for advertising and messaging, including a coordinated strategy focused on all audiences and in all regions in which the TPIRR operates or solicits business. In addition, the TPIRR will need the capacity to interact with the general public and the communities in which it operates. The TPIRR needs a community relations function both to assist with responses to emergencies such as derailments or other accidents and to manage day-to-day queries from the general public or localities regarding TPIRR actions (such as grade crossing blockage, noise regulations, or hazardous materials handling). The TPIRR would also need to proactively engage communities along the TPIRR's network through training and regular communication so that they can be prepared in the event of an emergency.

TPI proposed just three employees for this function, which is insufficient for a railroad of the TPIRR's size and scope.[217] CSXT proposes an eight-person staff consisting of an Assistant Vice President, a Director–Messaging, a Director–Implementation, and five Managers. As a point of comparison, CSXT currently employs {{ }} people to handle comparable

[216] *See, e.g.*, TPI Op. Ex. III-D-2 at 15 (Sales and Marketing Department headed by the VP – Sales and Marketing); *Id.* at 24 (Finance and Accounting Department headed by the VP – Finance and Accounting).

[217] TPI Op. Ex. III-D-2 at 13-14.

functions over almost the identical geography in its corporate communications and corporate citizenship groups.[218] Mr. Brown's staffing for the TPIRR is thus quite conservative.

Director–Messaging. The Director–Messaging and two supporting Managers will manage TPIRR messaging and communications. One of the managers will coordinate messaging from the various Departments within TPIRR to constituencies such as investors, employees, customers, and local communities. CSXT accepts TPI's proposal that the TPIRR's functional areas will have primary responsibility for communications to each TPI constituency.[219] For example, the HR Department will be primarily responsible for communication with employees; the Marketing Department will handle customer communications; and the Finance Department will address communications with investors. But TPI proposed no communications staffing in any of those departments to handle those communications responsibilities. As a least-cost, most-efficient approach, CSXT proposes that the Director–Messaging and Manager–Messaging support and coordinate with functional areas for these communications.

Another Manager will be responsible for the branding and advertising of the TPIRR. TPI asserts without support that the TPIRR does not face competition. *See* TPI Op. Ex. III-D-2 at 11-12. On the contrary, TPIRR would need to compete both with other railroads and alternative modes—particularly for the intermodal and general freight traffic that constitute so much of the TPIRR's customer base. TPI assumed that the TPIRR would realize significant traffic growth in these inherently competitive traffic groups, and it cannot assume that the TPIRR could enjoy that

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[218] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx", Tab "Corp Rel & Govt Affairs." The source for this workpaper is the "2013 Org Chart.xlsx" produced in discovery to TPI on August 7, 2013.

[219] *See* TPI Op. Ex. III-D-2 at 13 ("[E]ach organization's VP has responsibility for their own departmental relations with outside parties").

growth without working for it. The TPIRR therefore must have some resources devoted to branding and advertising. Mr. Brown conservatively assumes that a single Manager could handle these duties.[220]

Director–Implementation. The second Corporate Relations Director will be responsible for executing the TPIRR communications plan with the support of two managers. Given the TPIRR's size and scope, significant effort will be required to address issues such as derailments, grade crossing accidents, disruptive maintenance programs, noise complaints, and other issues that may cause community concern. With ongoing operations in 18 states (including the District of Columbia) and hundreds of metropolitan communities, the TPIRR will have to expend considerable effort and diligence to address public relations issues. Relationships with local media must be managed and developed on an ongoing basis, because it is critical that the railroad and the community interact on a regular basis, including during emergencies or problems. That said, the TPIRR must also prepare for crisis situations such as derailments or grade crossing accidents that require immediate attention and communications management. The overall goal of the Director–Implementation will be to facilitate communications with the communities through which the TPIRR operates. That task involves working with local and community media as well as local chambers of commerce and other interested stakeholders. The Director–Implementation will work closely with the government relations staff to coordinate outreach.

One Manager will focus his or her efforts on social media. In the modern communications era, companies the size of the TPIRR must maintain a presence on multiple social media platforms. CSXT, for example, currently uses seven different social media platforms. Social media will allow the TPIRR to generate and cultivate a community of

[220] Even more conservatively, Mr. Brown assumes that the TPIRR's advertising and branding would be exclusively managed in-house.

supporters that it can then rely on to help in the event of emergencies, crisis, or just regular maintenance programs. This is an important function and one that must be managed and controlled daily. An inadvertent tweet or other social media message that does not truly reflect the position of the company or the facts may cause a public relations, investor, or even public safety crisis. In the same vein, companies need the ability to rapidly respond to social media developments. What may have seemed unnecessary just a few years ago has now become an essential communications function for businesses in the 21st century. For example, one recent study found that 41% of Congressional staffers described Twitter as a news source in 2012, up from just 14% in 2009 and representative of the increased use of social media to obtain news and gain impressions of businesses.[221]

(ii) Government Relations.

Like any Class I railroad, the TPIRR will interact regularly with federal government agencies and officials, state governments in the 18 states (including the District of Columbia) in which it operates, and the many local jurisdictions that the TPIRR traverses. It will require a robust government relations staff to deal with this function. But TPI proposed just two people to handle government relations at all levels of government for the entire railroad. *See* TPI Op. Ex. III-D-2 at 14. This is not sufficient for a Class I railroad that operates in multiple jurisdictions. In line with *DuPont* and the real world, CSXT proposes a seven-person department responsible for federal government and state government relations. Two TPIRR employees responsible for Federal Government Relations will monitor federal legislation that could impact the TPIRR, such as transportation legislation, appropriations bills, tax proposals and other public policy issues. Representatives of the TPIRR will need to track legislation and proposed amendments,

[221] *See* CSXT Reply WP "Social Media Importance.pdf."

attend hearings on relevant issues and bills, and meet with Members of Congress and their staffs to discuss these issues. The relatively small staffing that CSXT proposes for the TPIRR assumes that in many cases the TPIRR would work or coordinate with an industry or broader coalition to conserve resources. The federal government relations employees of the TPIRR will also need to interact with a number of federal agencies, including the Transportation Security Administration ("TSA"), FRA, STB, and the Environmental Protection Agency ("EPA").

As an illustration of the multiple federal government relations issues that a Class I railroad must address, CSXT's workpapers include CSXT's second quarter 2012 United States Congress Lobbying Disclosure Filing, which lists the federal legislation in which CSXT lobbyists have been involved in a recent representative period.[222] For the quarter shown in the report alone, CSXT representatives lobbied regarding legislation that included an appropriations bill which included funding for Positive Train Control ("PTC") and Amtrak; an appropriations bill that included funding for the STB; a resolution regarding EPA emissions standards; the transportation policy reauthorization which included several railroad-related policy proposals; transportation safety legislation that included provisions on rail crossings; tax reforms to promote infrastructure investments; and cyber-security legislation to ensure that business information networks are secure.[223] This list represents just one quarter in one year and demonstrates the many technical and complicated legislative issues that a Class I railroad must address.[224] Every

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[222] *See* CSXT Reply WP "2012 CSXT US Congress Lobbying Disclosure Filing.pdf." Lobbyists are required to track their work and file reports. *See* Lobbying Disclosure Act of 1995, Pub. L. No. 104-65 (*codified* at 2 U.S.C. § 1601 *et seq.*).

[223] *Id.*

[224] Publicly available disclosure forms demonstrate similar efforts by other Class I railroads. *See, e.g.,* CSXT Reply WP "2012 NS US Congress Lobbying Disclosure Filing.pdf."

Class I railroad has some type of government relations function focused on Washington, D.C. and the federal government, and the TPIRR would be no exception.

The remaining five employees would focus on state and local government relations. This function would be relatively similar to the Federal Government Relations function, but amplified by the need to cover 18 states (including the District of Columbia). The State Government Relations function will be responsible for promoting and protecting the TPIRR's position at the state, regional, and individual community level. TPIRR employees are necessary to manage meetings with the many mayors, council members, aldermen, state legislators, governors, transportation officials, and interested citizens in the communities in which the TPIRR operates and to respond to requests for information. In some situations, State Government Relations will require addressing communities' questions about, concerns with, or opposition to railroad activities and projects and require coordination with community relations. Because of the many jurisdictions through which the TPIRR operates, the function is even more resource-intensive than federal government relations. In 2013, eleven in-house CSXT personnel spent {{ }} hours on lobbying activities at the state level and five in-house personnel spent {{ }} hours at the federal level.[225]

The real-world CSXT has a Federal and State Government Relations department totaling {{ }} employees, and several contracts with state and federal lobbyists to further support government relations efforts.[226] To be conservative, Mr. Brown assumes that the TPIRR would manage the federal and state government relations function entirely with an in-house staff and would not hire any external lobbyists. This is conservative—and unrealistic—because CSXT

[225] *See* CSXT Reply WP "2013 SG Lobbying Hours.xlsx.;" CSXT Reply WP "Federal Lobbying Hours.xlsx," Tab "Federal Lobbying Hours."

[226] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Corp Rel & Govt Affairs."

spends {{ }} on outside state government relations firms and {{ }} on federal government relations firms annually.[227]

(iii) Human Resources.

As explained above, TPI took the unusual step of placing the HR function within the Executive Department. In TPI's structure, there is a six-person HR staff and a six person Labor Relations staff, all reporting to an Assistant Vice President for Human Resources.[228] *See* TPI Op. Ex. III-D-2 at 14-15. Regardless of job title, these 13 persons are insufficient to perform the many HR tasks that would be necessary at a railroad with a workforce of almost eight thousand employees. These tasks include:

- Administering the recruiting and hiring process and interfacing with any outside vendors who the TPIRR retains to assist with recruiting;
- Managing its outsourced training and orientation programs;
- Investigating and resolving employee complaints;
- Administering disciplinary procedures;
- Setting compensation and managing raises;
- Ensuring compliance with federal immigration law (which include the completion of a Form 1-9 and E-Verify screening for each worker);
- Administering benefits programs; and
- Ensuring compliance with a host of federal and state laws and regulations, including Equal Employment Opportunity ("EEO") reporting, affirmative action programs, and Family Medical Leave Act compliance.

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[227] *See* CSXT Reply WP "CSX Contract Lobbyists.xlsx." CSXT also pays {{ }} in annual dues to state railroad associations that assist with lobbying and advocacy for the industry as a whole. To be conservative, CSXT does not propose these costs for the TPIRR. *See also* CSXT Reply WP "CSXT Federal Lobbying Hours.xlsx," Tab "Ext Lobbying – Corp."

[228] Because TPI has posited that the TPIRR would be non-union, it is odd that TPI has proposed labor relations staff. *See* TPI Op. Ex. III-D-2 at 15. Because labor relations staff typically deal with unionized employees, to avoid confusion CSXT does not include labor relations staff in its HR staffing proposal.

The TPIRR cannot function without adequate resources to perform these tasks. TPI's 13 person staff is simply inadequate for the breadth of functions and workload at a Class I railroad. The Board recognized this fact in *DuPont*, where it found that a 31 person HR department was reasonable for a SARR similarly sized to the TPIRR.[229]

Mr. Brown developed a least-cost, most-efficient Human Resources group for the TPIRR consisting of 32 employees. Mr. Brown's staffing plan accepts TPI's proposal that the TPIRR would largely outsource recruiting. *See* TPI Ex. III-D-2 at 54-55. But as detailed below, HR requires much more than recruiting, and even functions that can be outsourced must be managed internally. Mr. Brown developed staffing levels for HR based on his review of CSXT staffing levels for similar functions, as well as third party benchmarks. For example, according to one third party benchmark, a properly staffed HR Department for a company the size of the TPIRR has {{ }} HR employees per 100 employees.[230] TPI's proposal is only 0.2 HR employees per 100 employees. By comparison, CSXT's proposal is 0.41 HR employees per 100 employees, {{ }}.

TPI attempts to justify its low HR staff by claiming that the TPIRR would only have a three percent attrition rate. TPI derives this absurdly low figure from a 17-year-old magazine article.[231] The Board held seven years ago that the attrition rate cited in this same article was "outdated and unrealistic," and that conclusion is even more true today. *WFA I*, STB Docket No. 42088, at 54. Indeed, the article does not even directly address attrition rates—rather, it is a one-

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[229] *See DuPont*, STB Docket No. 42125, at 93 (accepting NS's human resources proposal). *See also* Reply Evidence of Norfolk Southern Railway Co., *E.I. DuPont de Nemours & Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42125, at III-D-160 (filed Nov. 30, 2012) (NS proposal of a 31-person HR staff).

[230] *See* CSXT Reply WP "HR Benchmark.pdf" at 20.

[231] *See* TPI Op. WP "Attrition Rate.pdf."

off quote saying that CSXT expected employee impacts from the Conrail acquisition to be "in line with normal attrition rates."[232] Moreover, a permanent attrition rate of 3% for all positions is absurd, because it would mean that the average TPIRR employee would have a tenure lasting 33 years in a single position.

On Reply, CSXT uses an attrition rate based on actual CSXT employees by job type.[233] This is a conservative estimate for a start up like TPIRR, because attrition rates are often highest among employees with the least amount of years of service. New employees may begin a job without thinking through the ramifications or lifestyle changes and quickly decide to switch jobs. Experienced employees are less likely to make such a change. Using CSXT's more realistic attrition rate, the TPIRR will hire almost 800 new employees per year.[234] While CSXT accepts that recruitment and hiring would be outsourced, each of these 800 new employees will need to be processed by in-house staff for benefits choices; included in Equal Employment Opportunity and other reporting; and oriented.

The HR Group would be managed by an Assistant Vice President and six Directors. An Administrative Assistant would aid the Assistant Vice President and other members in the group with travel requirements, processing paperwork and files, and compiling and tracking reports required by federal law. In addition, the HR Group will have a Manager of Communications who will be responsible for planning and executing all periodic and ad hoc messaging to employees including all forms of electronic and print media. Each of the six HR Directors will head a specific functional area and the staffing in each area assumes equal or greater efficiency than CSX's real world staffing.

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[232] *See* TPI Op. WP "Attrition Rate.pdf" at 6.

[233] *See* CSXT Reply WP "CSXT Attrition.pdf."

[234] *See* CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx." Tab "Training."

(1) Human Resources Planning Group

The Human Resources Planning Group will be headed by a Director and staffed with three Managers. The group will be responsible for filling positions within the TPIRR, managing promotions, and coordinating the merit pay increases process. The TPIRR can expect to see many promotions, lateral development moves, and reassignments during the course of a year. Positions resulting from internal churn or attrition will need to be tracked so direction can be given to the outsourced recruitment effort. The staffing levels in this group assume that a substantial portion of outside recruiting will be outsourced. However, that outsourcing needs to be managed by in-house personnel, and in-house personnel will be required to handle tasks related to internal churn and reassignments.

(2) Diversity Group

The Diversity Group is responsible for Equal Employment Opportunity tracking and reporting. A Director and one Manager will staff this function. By law, the TPIRR must file several diversity and inclusion reports, including regular EEO-1 Reports categorizing company employment data by race, ethnicity, and gender[235] and the Functional Affirmative Action Program.[236] The Diversity Group will compile and complete these reports. They also will monitor and respond to any complaints regarding diversity issues within the TPIRR and generally work to foster a diverse and tolerant work-place.

(3) Training Group

The Training Group will be headed by a Director and have a staff of four. The staff will be responsible for developing or acquiring training programs and ensuring training is properly delivered to the TPIRR's personnel. Training would include business training for TPIRR

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[235] Civil Rights Act of 1964, Pub. L. No. 88-352, § 709(c), as amended; 29 C.F.R. § 1602.7.

[236] 41 C.F.R. § 60-2.

employees on subjects such as basic business skills, communications, technology including cybersecurity issues, workplace subjects such as harassment, ethics, and antitrust issues. The Training Group will also be responsible for a basic orientation program for new hires to become familiar with the TPIRR's functions and policies. Federal law also requires certain training and certification programs for certain railroad employees, which this Group would coordinate.

(4) Benefits and Compensation Group

The Benefits and Compensation Group will be headed by a Director and six Managers. The group will: manage and consult on compensation levels; manage, negotiate, and administer a plan for benefits; manage an employee travel program; and administer Family and Medical Leave Act ("FMLA") benefits. First, the group's compensation management would require staff to review and analyze external studies on compensation methodology and strategy, and to link those benchmarks to the needs, means, and goals of the TPIRR. Second, benefits management will require staff to negotiate and manage a strong program of benefits, which is crucial to attract the best and most capable new employees and to retain current employees. Third, TPIRR HR staff will need to negotiate the best possible agreements with airlines, car rental firms, hotel firms, and other vendors. Best-in-class limitation of travel expenses is not achievable without a dedicated effort to control travel costs, and with over 300 employees traveling, this effort is well worth the investment. Indeed, one of TPI's own workpapers states that 88% of businesses surveyed "reported encouraging use of preferred vendors...to improve future negotiation power" to control travel costs.[237] Finally, the Benefits and Compensation Group will process FMLA paperwork. FMLA allows eligible employees to take unpaid, job-protected leave of varying

[237] TPI Op. WP "III-D-3 travel.pdf."

lengths for specified family and medical reasons. FMLA requests are increasing, and such requests create numerous challenges for businesses that the HR Department must address.[238]

(5) Medical Group

A railroad the size of TPIRR will have many issues relating to the health and safety of its employees, but TPI totally ignored this function on Opening.[239] The Medical Group will have three major areas of functional activity to cover. First, it will provide overall employee assistance with rehabilitation and return-to-work processing following medical treatment. The employee assistance team will provide assistance for drug and alcohol rehabilitation—particularly important for a transportation company that must comply with many transportation-specific drug and alcohol rules; promote work life balance; and provide assistance for stress management. In addition, this team will have the responsibility for managing the fitness for duty process for employees returning to work after illness or injury. In 2011, there were 8,922 injuries on railroads reported to the FRA.[240] In any given year, the TPIRR will have hundreds of injured employees, each of whom need to be cleared to return to work following medical treatment. To be conservative and reduce costs, Mr. Brown posits that medical treatment and return to work determinations for injured TPIRR employees would be made by non-railroad medical staff. The TPIRR, however, would still be required to provide necessary oversight and ensure that return to work physicals occurred and employees are cleared for work. After

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[238] *See* CSXT Reply WP "FMLA Study.pdf" at 13, 20.

[239] The Board recognized the need for a Medical Group on a similarly-sized SARR in *DuPont*. *See DuPont*, STB Docket No. 42125, at 93 (accepting NS's human resources proposal); *see also* NS Reply Evidence, *DuPont*, STB Docket No. 42125, at III-D-157 (NS proposal of a Medical Group within HR).

[240] *See* CSXT Reply WP "2011 Casualties.pdf."

consulting with non-railroad physicians, this team will give final approval for an injured employee to return to work.

Second, the group is responsible for workplace health management. TPIRR will need to measure various health hazards present in all TPIRR areas of operation including air quality, noise, exposure to hazardous materials and other workplace hazards. This team will be responsible for compliance with all Occupational Safety and Health Administration ("OSHA") regulations and requirements, and ensure that appropriate health and safety equipment is available for all employees.

Third, the group is responsible for coordinating FRA mandatory drug testing. This team does not handle the actual testing—which can be done by non-railroad personnel or frontline operations managers—but does design and implement the programs; monitor implementation; track results; and report to necessary regulatory agencies as required. The Department of Transportation has regulations requiring drug and alcohol testing of new hires and of current employees following specific incidents, based on reasonable cause, and randomly on an ongoing basis.[241] These tests must be collected, maintained, and professionally managed. Department of Transportation regulations require that drug and alcohol abuse counseling be made available.[242] Similarly, the Federal Motor Carrier Safety Administration has drug and alcohol testing and treatment requirements for holders of commercial driver's licenses ("CDLs").[243] On a railroad, many employees operating cranes, back hoes, and other equipment are required to have CDLs.

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[241] *See* 49 C.F.R. §§ 219.1 *et seq.*

[242] *See* 49 C.F.R. § 219.401.

[243] *See id.* §§ 382.101 *et seq.*

This team will handle the required annual reports quantifying the drug and alcohol tests administered during the year.[244]

Staffing in the Medical Group will include medically trained individuals such as doctors and nurses; technically trained engineers and technicians; and administrative personnel. Current CSXT staffing for this function is 25 people. On Reply, CSXT suggests a conservative staff of one Director, six Technicians, and three Clerks/Analysts.

(6) Ethics

The Ethics Group is headed by a Director and has a Manager to assist in its functions. All modern companies the size of the TPIRR must have an aggressive program to foster ethics. The primary function of this group is to address issues generated from an employee hotline. Employees must be given the ability to call in grievances anonymously and have such issues responded to in a timely and effective manner. The major function of the Ethics Group is to manage and resolve issues as they arise. Outside of normal business hours, grievances can be logged via a voice mail system, so 24/7 staffing is unnecessary. Ethics hotlines are a corporate best practice.[245] The Ethics Group will also interact with the training group to help design and implement training programs that address these ethics issues.

TPI also includes a quality assurance function in its Executive Department. CSXT accepts TPI's proposed staffing of a Director and Manager for this purpose. In addition, TPI includes a Manager – Planning, but provides no description of what tasks or responsibilities the

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[244] *Id.* § 219.800; CSXT Reply WP "DOT Drug and Alcohol Testing Form.pdf."

[245] *See* CSXT Reply WP "Why Ethics Hotlines Are Considered A Best Practice.pdf." This best practice applies to non-public companies as well. *See, e.g., id.* at 4 ("And regardless of whether the organization is the government, a private or public company or non-for-profit entity, tips are still by far the most common method of discovering ethical misconduct."). Like most large companies, the real world CSXT has an employee hotline for reporting.

individual would perform. On Reply, CSXT assignes responsibility for control and monitoring of the planning function to the Finance and Accounting Department.

Table III-D-19
Executive Department Staff Comparison

TPI Opening	CSXT Reply	Difference
25	53[246]	27

(b) Board of Directors

TPI proposed that the TPIRR Board of Directors consist of seven people, two railroad executives and five outside directors.[247] In *DuPont*, the Board accepted a ten member Board as reasonable to oversee a railroad similar in size to the TPIRR. CSXT, therefore, proposes a ten person board, adding one outside director and two internal executives. Good governance requires a majority of board members be outside directors. For example, two-thirds of KCS's Board is made up of outside directors.[248]

CSXT disagrees with TPI's proposed compensation of $40,000 for outside board members.[249] TPI has proposed no support whatsoever for the $40,000 figure, and outside directors at comparable real-world railroads are compensated at significantly higher levels. The appropriate compensation for outside directors is discussed below at III-D-3-c-iv-(c).

(c) Marketing and Customer Service

TPI proposed that the TPIRR would have a marketing department of just 56 individuals. TPI recognized that this staffing is far less than that of real-world railroads, but claimed that the TPIRR would spend less on marketing because it could expect other railroads to perform those

[246] Including the TPIRR President.

[247] *See* TPI Op. Ex. III-D-2 at 13.

[248] *See* CSXT Reply WP "KCS Board of Directors.pdf."

[249] *See* TPI Op. Ex. III-D-2 at 38, Table 3.

functions for it. According to TPI, the TPIRR would need minimal marketing staffing because most of its traffic is cross-over traffic and it could rely on the residual CSXT and other connecting carriers to handle most of the marketing expense for that traffic. *See* TPI Op. Ex. III-D-2 at 16. TPIRR's theory has been repeatedly rejected in past cases, in which the Board rightly held that a complainant cannot assume that other carriers will market traffic for the SARR. *See AEPCO 2011*, STB Docket No. 42113, at 57; *DuPont*, STB Docket No. 42125, at 84-86; *SunBelt*, STB Docket No. 42130, at 53-54. Moreover, TPI is simply wrong to claim that the TPIRR would only need minimal marketing staff to achieve $6.5 billion in revenue from thousands of customers, many of whom are general freight or intermodal customers with multiple competitive options. In contrast, Mr. Brown has posited a marketing department that has sufficient staff to meet the TPIRR's needs, while still having best-in-class efficiency.

The premise of TPI's marketing staffing was squarely rejected in *AEPCO 2011*—a case decided before TPI filed its evidence—and likewise rejected in *DuPont* and *SunBelt*. In *AEPCO*, the Board held that "[t]he fact that the [SARR] would carry a large amount of cross-over traffic does not mean that the complainant should be permitted to shield the SARR from expenses such as billing, rate setting, and customer service." *AEPCO 2011*, STB Docket No. 42113, at 57. In *DuPont*, the Board likewise rejected the complainant's argument that "marketing needs are minimal" for traffic that "originates with connecting carriers," in part because "interline rates must still be negotiated between or among railroads; [and] the originating railroad does not unilaterally establish rates for the entire route of movement." *DuPont*, STB Docket No. 42125, at 85. And in *SunBelt*, the Board again rejected the notion that having "more overhead traffic" could justify minimal marketing staffing. *See SunBelt*, STB Docket No. 42130, at 54. TPI has

not provided any new arguments or new evidence that could justify overruling these precedents, and as a result its marketing staffing must be rejected.

CSXT's current commercial marketing department employs approximately {{ }} people to manage CSXT's diverse traffic base.[250] The TPIRR would be handling and claiming the revenues for the majority of that traffic base, including 99% of CSXT's intermodal carloads and 98% of CSXT's general freight carloads. It is not reasonable to think that the TPIRR could perform marketing functions for a traffic base amounting to 65% of CSXT's annual revenues with a marketing staff less than {{ }} the size of CSXT's. Indeed, TPI's evidence failed to identify any inefficiencies in CSXT's real world marketing staffing, nor did TPI explain how the TPIRR could handle the marketing responsibility in a less labor-intensive manner. On the contrary, TPI's staffing is predicated on the discredited notion that CSXT would perform virtually all marketing functions for cross-over traffic originating on the residual CSXT even though TPIRR would be taking most of the linehaul revenue for that traffic. The repeatedly-rejected assumption is both unreasonable (because no real-world railroad would perform marketing functions for another railroad for free) and a violation of the basic SAC principle that the SARR must account for all costs associated with its selected traffic. For these reasons, TPI's marketing staff plan must be rejected.

Mr. Brown designed a marketing staff for the TPIRR after reviewing the TPIRR's traffic base and marketing needs and the staffing and technology that CSXT currently uses to support its marketing efforts. Mr. Brown's general approach was to use CSXT's staffing as a benchmark for the staffing that the TPIRR would need, after making adjustments for TPIRR's relative revenues and the assumption that the TPIRR would be a least-cost, most-efficient carrier. *See*

[250] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xls", Tabs "Commercial," "Transload," "Coal Auto," and "Marketing Services."

DuPont, STB Docket No. 42125, at 84-86 (accepting marketing staffing based on benchmarking to defendant's marketing department).

Mr. Brown determined that the TPIRR would require a total marketing staff of 215 employees. This estimate is extremely conservative, for two reasons. First, it assumes that the TPIRR could be markedly more efficient than CSXT. While CSXT has approximately {{ }} marketing staff for revenues of approximately $10 billion, the TPIRR would have just 215 staff for revenues of over $6 billion. Second, the TPIRR would have virtually none of the technological programs and applications used by CSXT's Marketing Department,[251] which would make it almost impossible for TPIRR's marketing department to be more efficient than CSXT's.

TPI proposed eight different assistant vice presidents ("AVPs") positions for its Marketing Department, assigning six to cover individual commodity groups. This structure is unusual, and results in an uneven distribution of responsibility. (For example, TPI assigns some AVPs to manage just two employees, but would have 30 employees under the AVP–Sales and Marketing Services.) Mr. Brown's plan retains the AVP positions, but significantly alters their duties to balance responsibilities, be more responsive to customer needs, and be more consistent with real world practices. The eight AVPs will cover Coal, Automotive, Intermodal, General Freight (2), Marketing Services, Marketing Partners (Interline, Short Line, and Transload), and Equipment. The AVPs are supported by three Administrative Assistants, a Director of Communications, and a staff of 192.[252] Each of the major commodity groups will have staff to measure performance for reporting to customers.

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[251] *See* CSXT Reply WP "Maintenance Cost for Software.pdf."

[252] This organization does not include customer service. TPI proposed placing most customer service staff in the Operating Department, and CSXT accepts that proposal. TPI proposed

(1) Coal Marketing

TPI has proposed a coal marketing group headed by an AVP with a staff of two. *See* TPI Op. Ex. III-D-2 at 17. CSXT accepts this level of staffing.

(2) Intermodal Marketing

TPI proposed that all Intermodal and Automotive marketing can be handled by a single AVP with a support staff of three. *See* TPI Op. Ex. III-D-2 at 18. The real-world CSXT, by comparison, has an Intermodal and Automotive marketing staff of {{ }} non-agreement personnel.[253] TPI was aware of this fact—for CSXT produced it to TPI in response to a discovery request—but it failed to explain how the TPIRR could possibly handle this complex area with such a small fraction of CSXT's actual intermodal and automotive marketing staff. Indeed, marketing support is particularly important for intermodal traffic because intermodal customers by definition have access to transportation alternatives.[254]

Mr. Brown proposes an Intermodal Marketing staff headed by an AVP supported by seven Directors. Two Directors will handle intermodal sales and be supported by 18 Account Managers. The sales team will be responsible for maintaining and developing relationships with the current TPIRR customer base, including personal sales calls, development of business plans, tracking and expediting shipments as necessary, and reviewing customer equipment needs. The Intermodal account base for the TPIRR has more than 1,000 customers including premium

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putting two customer service managers in the Marketing Department but CSXT excludes them here to consolidate customer service in operating.

[253] *See* CSXT Reply WP "CSX Organization Spreadsheet.xlsx," Tab "Commercial."

[254] *See Improvement of TOFC/COFC Regulations*, 6 I.C.C. 2d 208. 215 (1989) ("[T]he TOFC/COFC market is highly competitive."); *see also Improvement of TOFC/COFC Regulation (Pickup and Delivery)*, 364 I.C.C. 731 (1981) *aff'd Am. Trucking Ass'n v. ICC*, 656 F.2d 1115, 1125-26 (5th Cir. 1981) ("[R]ail and rail-owned truck TOFC/COFC service is competitive with motor carrier service.").

carriers like {{ }}; major truck load carriers like {{ }}; international steamship companies like {{ }}; and a large number of third party intermodal carriers such as {{ }}.[255] Dealing with this large, high-volume and disparate customer group that has multiple modal options will require an active and well-staffed sales force. CSXT has {{ }} Directors and {{ }} Account Managers assigned to intermodal sales.[256] Mr. Brown's staffing is thus quite conservative, because the TPIRR will be handling virtually all of CSXT's intermodal traffic.

Two Directors will handle Intermodal Marketing and be assisted by five Managers. Unlike the sales staff, these Managers will be responsible for putting together price and service packages that meet the needs of a disparate customer base.

In addition, the TPIRR would need an Intermodal Yield Management and Planning group. Shippers can easily move their business between the various third-party intermodal providers with which the TPIRR interacts. The TPIRR will need to be careful that it is not providing price or service options to one third-party intermodal provider that allow the intermodal providers to capture shipper traffic, at a lower rate, than the TPIRR was already receiving through another intermodal providers for the same traffic. Such a shift would harm the TPIRR's overall yield of revenue from intermodal operations. Three Directors–Yield Management will be responsible for monitoring and controlling prices offered in different lanes, and balancing rate and service levels to maximize the TPIRR's yield. The Directors will also be responsible for development and maintenance of pricing agreements and performance measurement. The Directors will be assisted by ten Managers.

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[255] *See* CSXT Reply WP "TPIRR Customers and Rate Authorities.xlsx."

[256] *See* CSXT Reply WP "CSX Organization Spreadsheet.xlsx," Tab "Commercial."

(3) Automotive Marketing

As explained above, TPI proposed a combined intermodal and automotive marketing organization.[257] But the automotive group is extremely important to the TPIRR. It will handle over 95% of the real world CSXT's automotive traffic. Moreover, automotive customers expect high-quality and responsive service. TPIRR will not be able to rely on residual CSXT marketing staff to handle the needs of this very important group of customers, nor can it assume that intermodal marketing staff could handle automotive customers as a secondary responsibility.

Mr. Brown proposes a staff headed by an AVP who would be supported by a Marketing Director, who in turn is supported by two Market Managers. Four Directors of Sales will handle customers and a Director of Planning will be responsible for facilities planning as well as overseeing performance management and act as liaisons between TPIRR customer service and TPIRR customers. This staffing is comparable to the real world CSXT staff as CSXT has {{ }} automotive marketing staff.[258]

(4) General Freight Marketing

TPI has proposed a general freight marketing staff of four AVPs and nine Managers organized by specific commodity groups.[259] *See* TPI Op. Ex. III-D-2 at 16-18. TPI did not provide any supporting evidence or documentation to explain why it divided responsibilities along these lines, and TPI's divisions appear to have little correlation to the number of customers, number of rate authorities, or volume of business in these general freight areas. To make matters worse, TPI proposes a separate field staff of one Director, two Managers and six

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[257] *See supra* III-D-111.

[258] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Commercial."

[259] These are the AVPs and accompanying managers of Consumer, Forest and Paper Products; Aggregate, Minerals, Metal and Scrap; Chemicals and Petroleum; and Food and Grain.

Field Sales Representatives who all would report to the AVP–Sales and Marketing Services. TPI's proposal for a combined staff of just 22 employees responsible for general freight marketing is utterly insufficient for a railroad that would handle 98% of CSXT's general freight traffic and claim 71% of CSXT's general freight revenues.

General freight by nature is a dynamic business that requires significant marketing support. In part, this is because the general freight market is highly competitive. Many general freight customers have competitive options with other modes of transportation like trucks[260] and other railroads who can provide all-rail or rail-truck service. TPIRR will need to compete with other Class I railroads such as NS, and if TPIRR does not have an effective marketing and sales team it can expect to see its market share erode significantly over time. In addition, general freight consists of diverse, low-volume movements that require management of significantly more rate authorities.

CSXT currently employs {{ }} marketing personnel dedicated to these market segments, including {{ }} VPs, {{ }}, {{ }} Sales Directors, {{ }} Sales Managers, {{ }} Sales Staff, {{ }} Marketing Directors and {{ }} Marketing Managers.[261] This staff is supported by considerable technology in areas such as price capture

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[260] *See, e.g.*, *Rail General Exemption Authority – Miscellaneous Manufactured Commodities*, 6 I.C.C. 2d 186, 189 (1989) ("Out of an abundance of caution, we have exempted only those commodity groups whose movement is subject to intermodal competition in virtually all corridors and distance blocks"); *Exemption from Regulation – Boxcar Traffic*, 367 I.C.C. 425, 433 (1983) ("Virtually anything that can be transported in a boxcar can be transported in a truck. Motor carriage tends to be faster, more accessible, more convenient and sometimes less damaging to freight than rail service, meaning that boxcar transportation generally must be priced to reflect these service differences to compete successfully."), *aff'd sub nom. Brae Corp. v. United States*, 740 F.2d 1023 (D.C. Cir. 1984) *cert. den., sub nom. Interstate Commerce Commission v. Brae Corp.*, 471 U.S. 1069 (1985).

[261] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xls," Tab "Commercial."

and rate management that is specifically developed for CSXT and its customer base.[262] While TPIRR will have some basic technology provided by Oracle and RMI, without substantial modifications this technology cannot provide the kind of marketing support that CSXT personnel currently use.

Mr. Brown has reviewed the real world CSXT staffing and concluded that the most conservative approach is to scale TPIRR's general freight marketing staff to CSXT based on revenue.[263] Mr. Brown's approach assumes that the residual CSXT will function as a partner to TPIRR, and thus that the marketing workload for TPIRR/residual CSXT movements of general freight would be shared by the much smaller residual CSXT in a manner roughly commensurate to the revenue division. This method results in a general freight marketing staff consisting of four Marketing Directors, 30 Market Managers; eight Sales Directors, three Sales Managers, and 42 Sales Representatives/Account Managers.

In addition, Mr. Brown includes a Director of Planning and Support, who would be assisted by one Manager. These positions will be responsible for performance measurement and act as liaisons between the Customer Service organization and TPIRR's customers. This group also will be responsible for forecasting and capital planning issues and liaison with the people in finance with primary responsibility.

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[262] *See* CSXT Reply WP "Maintenance Cost for Software.pdf" listing several IT programs used by marketing that interface with finance and accounting.

[263] Carloads is likely a better indicator of the amount of work that needs to be done, but Mr. Brown has taken a more conservative approach and scaled to revenue.

(5) Marketing Services

To support the other marketing functions of a Class I railroad, TPI included four staff for Market Planning, three positions for Pricing Services and Contracts—sometimes referred to as rate management—and a single Manager of Information Services.

CSXT included a planning function in each commodity group, eliminating the need for the separate four Market Planning Staff proposed by TPI.

That leaves a need for marketing services staff to handle two critical functions: Rate Management and Electronic Data Interchange ("EDI"). Both are essential to permit accounting to efficiently rate and settle bills. In fact, without devoting considerable resources to these functions, neither CSXT nor TPIRR would be able to handle the revenue accounting function in an effective and efficient manner. The real world CSXT maintains a very sophisticated web based portal for shippers to access CSXT called ShipCSX. This web application and four others that support accounting and rate management cost CSXT {{ }} per year.[264] TPIRR will need to migrate into systems similar to this to have any chance of being as effective as CSXT.

CSXT employs {{ }} staff in a Market Strategies and E-Business group which handles rate management and EDI for CSXT's customers.[265] Even though the TPIRR will have approximately two-thirds of CSXT's real world revenue, Mr. Brown conservatively assumed that it could replicate these functions with just {{ }} of CSXT's real world staffing. The team dedicated to handling the TPIRR effort to facilitate customer use of EDI for all functions

[264] *See* CSXT Reply WP "Maintenance Cost for Software.pdf." Some of the other applications are Automated Waybill System ("AWS"), which is used for waybilling; Carload Management System ("CMS"), which takes car movement data and bulling information and calculates linehaul revenue; and Interline Received Data Exchange ("IRDE"). These applications also interface with marketing.

[265] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Marketing Services."

including billing, car orders, and car and shipment tracing will be headed by a Director with a staff of ten e-Commerce Analysts. In addition to facilitating customer use of EDI, the Marketing Services group will have a team to handle price authorities. This team will be responsible for managing the TPIRR's rate authorities, including gathering and maintaining concurrences; publishing and distributing documents; obtaining and maintaining signatures where required; monitoring escalation cycles and ensuring proper increases are taken; and ensuring that rates are appropriately maintained in the rate databases. This staff will be headed by a Director, supported by a staff of seven Contract Support Analysts.[266]

TPI has proposed a Manager of Information Systems in Marketing. CSXT agrees with that staffing level and includes it in this group.

TPIRR also included a customer communications function responsible for both communications and customer survey functions. In order to present a least-cost most-efficient operation, CSXT proposes only a single Communications position reporting directly to the Vice President of Marketing.

(6) Marketing Partners

TPI almost completely ignored three important aspects of marketing: Interline Management, Shortline Management, and Transloads. TPI provides a single Support Services and Interline Manager to handle all issues pertaining to interline relations, short line relations, switching carrier relations, joint facilities issues and transloads. *See* TPI Op. Ex. III-D-2 at 23. But TPI presents no evidence of how it would be possible for one person with no support staff to cover all of these functions.

[266] The rate management function could also be placed in the Finance and Accounting Department. TPI did not propose staff for this function in either department.

Mr. Brown has taken a realistic, but still conservative view of staffing for these functions. He proposes three Directors to cover Interline, Short Line, and Transload under an AVP of Marketing Partners.

Interline: The Director–Interline will be supported by one Manager. Together, they will be responsible for development of service plans with all seven Class I carriers that TPIRR will connect with. They will develop and manage interchange agreements for each carrier that will meet customer service requirements. This function will be challenged both by the Leapfrog traffic (which results in some TPI traffic having multiple connections with residual CSXT) and by the number of options that TPIRR traffic has for routing between single origins and single destinations. In addition, this team will consult on Joint Facility issues between Accounting and Operations to the extent they impact marketing.

Short Line: TPIRR will connect with 93 short line railroads at 117 interchanges.[267] Managing these relations can be complex and difficult. Operating and interchange agreements must be negotiated and maintained with current short lines and processes and procedures must be developed for new short lines. Rate agreements and other charges must be maintained and kept current. Customer relations need to be managed and new customers facilitated. CSXT proposes a Director–Short Lines to be supported by two Managers. By comparison, the real world CSXT manages relationships with a similar number of short lines with one Director and three Managers.[268]

Transloads: TPIRR has opted to build 23 transload (bulk transfer) facilities.[269] It will also be handling the traffic into these operations and therefore must replicate some part of the

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[267] *See* CSXT Reply WP "TPIRR Shortline Interchanges.xlsx."

[268] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Commercial."

[269] *See supra* III-B-3.

CSXT organization to handle this business. On Reply, CSXT proposes that TPIRR staff a transload team to include a Director–Transload supported by three Market Managers and three Operations Managers. The Market Managers will be responsible for putting together proactive plans that identify markets where transload operations can bring value to TPIRR customers. To maintain viability in the long term, transload operations must do more than undercut a competitor's rate, and they must also bring logistics value to the customers supply chain management. The Operations Managers will be responsible for managing the operational aspects at the facilities, including quality, safety, and environmental issues.

* * *

TPI includes Equipment Management and Damage Prevention within Marketing. In the real world, these functions would more likely be in the operating department of a railroad but CSXT does not object to placing them within Marketing for the present case.

Equipment Distribution. TPI proposed a Chief Car Distributor with a staff of five Managers-Car Distribution organized by specific car groupings. *See* TPI Op. Ex. III-D-2 at 22. CSXT agrees this is adequate staff to handle the specific task of car distribution. But TPI has failed to adequately address other aspects of equipment management including equipment planning. TPIRR will have control over a large fleet of cars, all of which would be leased with finite lease terms. It is essential that TPIRR have a long-term equipment acquisition function that will match equipment needs to customer demand going forward. In addition to managing equipment for the long term, TPI must also address medium term issues of cycle, seasonality and maintenance schedules. TPIRR will need to alter cars on the system to handle seasonal or cyclical peaks or troughs in demand. Cars that need major maintenance service work also need to be replaced as this is undertaken.

The real world CSXT currently handles this function with a staff of {{ }} Directors and {{ }} Managers.[270] Even though the TPIRR requirements will be comparable to what CSXT or any other Class I faces, Mr. Brown has conservatively proposed a staff of one Director–Fleet Management and five Managers that would be organized comparable to the car distribution assignments.

Freight Claims. TPI proposes that Freight Claims and Damage Prevention can be handled by a staff of one Director, one Manager and four Freight Claims Representatives. *See* TPI Op. Ex. III-D-2 at 21. By contrast, CSXT currently deploys a staff of {{ }} to handle freight claims including {{ }} to investigate freight claims, and a staff of {{ }}—over half of whom are based in the field—to work proactively to minimize damage through customer outreach and education.[271] TPIRR will handle nearly 70% of the CSXT's non-coal carloads. It certainly will need more than a staff of four to handle the claims process.

When damage occurs or a claim is filed, a railroad needs to promptly respond to the scene to inspect the damage and determine if blame can be assigned. Field staff is necessary so such a response can be as quick as possible. When a train moves in interline service and responsibility cannot be assigned to a single carrier, responsibility for the claim is apportioned on the basis of each carrier's share of the route. In order to avoid having liability improperly assessed, it is important that a carrier's representative be on the scene.

Mr. Brown conservatively proposes a TPIRR staff headed by a Director with a staff of seven dedicated to processing the claims and a staff of ten investigators and damage prevention staff, most of whom are field based.

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[270] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Car Distribution."

[271] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx", Tab "Car Distribution."

Table III-D-20
Marketing Department Staff Comparison

TPI Opening	CSXT Reply	Difference
56	215	159

(d) Finance and Accounting Department

TPI proposed a Finance and Accounting Department of 100 people who would be responsible for a wide range of functions including cash management, revenue accounting, disbursement accounting, taxation, financial reporting, budgeting, purchasing, and internal audit. This staff is far from sufficient to fulfill the accounting needs of a railroad with $6.5 billion in revenue, 5.6 million carloads, and thousands of customers and operations in 18 states (including D.C.). TPI's staff is barely a third of the accounting staff the Board held was required in *DuPont* for a SARR with less revenues than the TPIRR. *DuPont*, STB Docket No. 42125, at 86, 90 (289 accounting staff). Indeed, TPI's proposed staffing levels are significantly lower than those that the Board has approved for any other SARR, as shown by Table III-D-21.

Table III-D-21
Comparison of TPIRR Finance Staffing to Board-Approved Staffing In Past Cases

Case	G&A Finance Staff[272]	Revenue (in millions)[273]	Finance Staff Per $100M Revenue
Duke/NS	24	$487.1	4.93
CP&L	24	$453.7	5.29
Duke/CSXT	21	$496.8	4.23
Xcel	16	$341.5	4.69
Otter Tail	25	$581.7	4.30
AEP Texas	21	$384.2	5.46
WFA	15	$218.4	6.87
AEPCO	32	$2,075.8	1.54
DuPont	289	$5,768.4	5.00
SunBelt	36	$362.4	9.94
TPI Opening	**100**	**$6,657.8**	**1.50**
CSXT Reply	**242**	**$6,475.2**	**3.73**

Table III-D-21 demonstrates that TPI proposes an accounting staff three to six times smaller on an employee-to-revenue basis than in nine of the past ten cases.[274] The only

[272] TPIRR data is located at Table III-D-3 on page III-D-146 of TPI's Opening Evidence. Data on prior SAC cases was derived as follows: *Duke/NS: Duke/NS*, 7 S.T.B. at 156; *CP&L*: *CP&L*, 7 S.T.B. at 294; *Duke/CSXT*: *Duke/CSXT*, 7 S.T.B. at 460; *Xcel*: *Xcel*, 7 S.T.B. at 648; *Otter Tail*: *Otter Tail*, STB Docket No. 42071, at C-8; *AEP Texas*: *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 53; *Western Fuels*: *WFA I*, STB Docket No. 42088, at 43; *AEPCO*: *AEPCO 2011*, STB Docket No. 42113, at 55; *DuPont*: *DuPont*, STB Docket No. 42125, at 86, 90; *SunBelt*: *SunBelt*, STB Docket No. 42130, at 52.

[273] Revenue is taken from the first year of the SARR's operation. TPIRR data is located at Table III-A-6 on page III-A-13 of TPI's opening evidence. Data on prior SAC cases was derived as follows: *Duke/NS: Duke/NS,* 7 S.T.B. at 147; *CP&L*: *CP&L*, 7 S.T.B. at 287; *Duke/CSXT*: *Duke/CSXT*, 7 S.T.B. at 451; *Xcel*: *Xcel*, 7 S.T.B. at 640; *Otter Tail*: *Otter Tail*, STB Docket No. 42071, at E-6; *AEP Texas*: *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 112; *Western Fuels*: *WFA I*, STB Docket No. 42088, at 31; *AEPCO*: *AEPCO* Rebuttal Evidence at III-A-113; *AEPCO 2011*, STB Docket No. 42113, at 26; *DuPont*: *DuPont*, STB Docket No. 42125, at 270; *SunBelt*: *SunBelt*, STB Docket No. 42130, at 181.

[274] Employee-to-revenue ratios are a particularly relevant means to judge accounting staff levels, because most accounting tasks are a function of the amount of a railroad's incoming revenue and the amount of its corresponding expenses.

exception was a case in which the Board criticized the complainant for failing to provide benchmark analysis or other comparable data to support its proposed staffing levels and only adopted the complainants' proposal because the defendants' evidence was "no better." *AEPCO 2011*, STB Docket No. 42113, at 58. *DuPont* is a particularly relevant comparison because it involves a SARR with similar revenue and traffic mix (and thus similar accounting needs).

While TPI correctly identified many of the areas that a Finance and Accounting Department would have to cover, it has not provided sufficient staffing to perform all of these functions. For example, TPI grossly underestimates the revenue accounting workload for a railroad the size of the TPIRR.

In contrast, CSXT corrects the deficiencies in TPI's plan by adding sufficient personnel for a fully staffed TPIRR finance organization. CSXT accepts TPI's proposal that the Finance and Accounting Department would be headed by a Vice President. As described below, the Vice President – Finance and Accounting would oversee five Assistant Vice Presidents (or equivalents) to cover various responsibilities of a Finance and Accounting Department. The Controller will have responsibility for revenue accounting, disbursement accounting and financial reporting. The Treasurer will have responsibility for all cash management issues; short medium and long term investment including management of the relationship with commercial banks serving the TPIRR; and communications with investors. The AVP – Economics and Planning will have responsibility for coordinating, monitoring and developing the revenue forecasts in conjunction with the marketing team and the budgets in conjunction with the operations team. In addition, the AVP – Economics and Planning will have responsibility for the development and execution of the cost analysis system and Accounting Systems. The AVP–Tax

will oversee the tax function, and the AVP - Internal Audit will focus on maintaining the sound financial governance of the TPIRR.

(i) Treasury

The four person Treasury Group that TPI proposed for the TPIRR is not sufficient for a $6.5 billion railroad. *See* TPI Op. Ex. III-D-2 at 25. The Treasury Group has six major tasks to address: short term cash management; investment management; credit and collections; debt negotiation; bank management; and communications. In TPI's proposed four-person Group, the Assistant Treasurer is responsible for overseeing all the cash inflow and outflow and supporting the Treasurer generally. One Manager would manage short-term cash and investments and a second Manager is charged with risk management and insurance. This is completely inadequate for an entity with cash flows as complex as the TPIRR's. Mr. Brown has developed a more feasible 12-person Treasury staff to assist the Treasurer for the TPIRR, divided into groups responsible for cash management, bank relations, and communications.

Cash Management: The TPIRR will have an average daily cash intake of *over $15 million.*[275] That cash intake will come from thousands of different sources in an ever-fluctuating flow. Moreover, ISS will cause significant impacts on cash flow on a monthly basis in a way that will be difficult to predict. On a day-to-day basis, it is extremely unlikely that cash outflow will perfectly match cash inflow. The TPIRR will need to invest any inflow in excess of cash needs. Cash flow, therefore, needs to be forecast and managed based on season, business trends and expenditure needs. The cash management process at the TPIRR, like any major corporation, will have to be able to shift funds around various short and medium-term investment options as funds become available or are needed. The TPIRR will also be required to maintain lines of

[275] For simplicity, Mr. Brown divided total revenue by 365 to approximate daily cash intake.

credit with several banks to guard against emergency funding needs, such as repairs after a natural disaster or derailment. To manage capital programs and employee pensions, the TPIRR will also need to have funds in long-term investment options. The Treasury module the TPIRR is purchasing in Oracle will help this management process, but cannot operate without TPIRR personnel control and interaction.[276]

A four person Treasury Group—with a single Cash Manager—cannot possibly manage this enormous portfolio for a $5.6 billion railroad while also handling the other responsibilities of the Treasury Group. Mr. Brown developed a four-person cash management staff. A Director will oversee all activities and be responsible for managing lines of credit. Two Cash Managers will forecast and manage cash inflow and outflow. An Investment Manager will oversee the medium to long-term investment options of the TPIRR. Given the TPIRR's annual revenue in the billions and daily cash intake in the tens of millions, the proposed size staff is conservative and reasonable.

Customer Credit and Collections: The Treasury Group will also need to manage customer credit and collections. The TPIRR will have an average daily cash intake of over $15 million and thousands of customers, yet TPI proposed a single Manager–Risk Management and Insurance to address not only customer credit issues but also supplier credit and managing insurance policies. *See* TPI Op. Ex. III-D-2 at 25. One individual could not possibly handle this workload. In reply, Mr. Brown has proposed a staff of one Director and four Credit Analysts to manage the credit of these customers and the collections cycle.[277] The Director will have

[276] *See* TPI Op. WP "CSX-Oracle.pdf."

[277] The Revenue Accounting Group may also have a role in extending and tracking customer credit, but Treasury will handle collections.

responsibility for oversight and for providing information and support to validate TPIRR's creditworthiness to vendors and other stakeholders.

Bank Relations: The TPIRR will also need to maintain accounts with a variety of banks across its territory to facilitate collections, as well as other purposes such as emergency funding needs. This will include lockboxes, lines of credit, purchase business, and investments. CSXT maintains over 44 bank accounts at 13 different financial institutions to help spread the risk and keep a CSXT presence in a variety of local business communities.[278] The TPIRR similarly would need to manage multiple bank accounts and maintain relationships with multiple banks. TPI mentioned this function in passing, but provides no dedicated staff for it. TPI Op. Ex. III-D-2 at 25. Mr. Brown's staffing provides a Director and a Manager to oversee, manage and maintain relations with banks.

Communications: TPI has proposed that communications responsibilities will be distributed among the TPIRR's departments. *See* TPI Op. Ex. III-D-2 at 13. TPIRR will, therefore, require a Director of Communications and Investor Relations in the Treasury Group. The TPIRR would require tens of billions of dollars from lenders and investors, who would not lend that amount of money without regular assurances that their investment was being well spent. TPIRR requires staff to interact with its investors and lenders and to respond to inquiries and requests for financial reports.[279]

TPI has entirely ignored the need for investor relations. In its Reply, CSXT proposes that the Director of Communications and Investor Relations be included to set up and prepare for earnings calls; monitor the release of financial reports to investors and the media; set up and

[278] *See* CSXT Reply WP "CSXT Bank Accounts.pdf."

[279] *See* CSXT Reply WP "Chief Executive.net – 5 Advantages That Flow From Consistent Investor Communications.pdf" ("CEOs and executives of *private* companies must develop and maintain strong investor relations.") (emphasis added).

manage investor conferences; and generally be available to respond to questions and issues as they might arise from the TPIRR investor community. While the TPIRR will not be publicly traded, it will be financed with approximately $30 billion of capital, and those investors will expect regular and detailed updates on TPIRR's performance.

(ii) Controller

TPI assigned responsibility for vast accounting activities to the Controller, a Group that TPI proposed would include 94 employees and will handle billing, vendor payment processing, financial reporting, taxes, internal audit, and cost and economic analysis. Several of these functions—in particular revenue accounting—are inadequately staffed for a Class I railroad with $6.5 billion in revenue. On Reply, Mr. Brown—and as explained above—adds separate AVPs for Tax, Economics and Planning, and Internal Audit. The Controller function will retain Revenue Accounting, Disbursements, and Financial Reporting. Each function will be headed by an Assistant Controller.

(1) Revenue Accounting.

In Opening, TPI provided for a staff of 38 to handle all revenue accounting needs. It accurately recognized the need to provide for freight revenue accounting as well as some miscellaneous revenue accounting. However, TPI provided negligible staffing, and totally neglected car accounting. In Reply, CSXT will build a fully functional revenue accounting group headed by an Assistant Controller who is supported by three Directors. The Directors will handle Freight Revenue, Miscellaneous Billing, and Car Accounting.

a) Freight Revenue

TPIRR would handle 90% of CSXT's carloads, including 99% of CSXT's intermodal carloads and 98% of its General Freight carloads. TPIRR handles only 62% of CSXT's coal carloads. As a result, TPIRR's revenue accounting workload will be comparable to the CSXT

workload. Indeed, TPIRR's revenue accounting function will be more complex than CSXT's for several reasons:

1. TPIRR has a lower percentage of direct billed traffic, which is the simplest traffic to handle in 21st century rail accounting. CSXT handles 81% of Intermodal traffic and 71% of general freight traffic selected by the TPIRR as direct billed. Because TPIRR relies so heavily on Interline Settlement System ("ISS") billing, it will only have 17% of intermodal and 14% of general freight as direct bill.[280]

2. TPIRR has a relatively smaller portion of CSXT's coal traffic—just 62%, as compared to virtually all of CSXT's intermodal and general freight traffic. Because CSXT's coal traffic primarily moves in unit trains, on a carload basis it is the easiest part of the CSXT traffic mix to handle in the revenue accounting process.

3. TPIRR's thousands of "leapfrog" cars will be extremely difficult for TPIRR accounting to properly identify and hence properly rate. Because this traffic would moves from Residual CSXT to TPIRR back to CSXT and then back again to TPIRR, the ISS resolution process for such shipments between CSXT and TPIRR will be unusually complex.

4. Because TPI selected traffic by selecting historical CSXT trains, its traffic will have two, three or four possible routes available. Therefore, in some cases traffic from a single Origin to a single Destination might be handled as a local TPIRR shipment one day, and interline on another day. As with the leapfrog traffic, these multiple options will be difficult to accurately identify and rate, and will create a large opportunity for errors and resultant disputes in the ISS process.

Not only will TPIRR's revenue accounting workload be more challenging than for the real world CSXT, but TPIRR does not have the same technology tools to allow the work to be performed efficiently. TPIRR will use RMI's revenue system, which will give it the basic technology to participate in the ISS process. However, to approach CSXT's effectiveness, TPIRR will need systems to capture and maintain rates; systems to allow for automatic rating; and systems to facilitate customer use of EDI (electronic data interchange). CSXT has all these systems, which have been developed over time to be specific to CSXT customer base and shipping needs. These sophisticated technology pieces allow for CSXT to handle the revenue

[280] *See* CSXT Reply WP "TPIRR Traffic by billing category.xlsx."

accounting functionally with great efficiency. TPI's choice to use an off-the-shelf RMI program instead of investing in more sophisticated technology means that it will likely need additional personnel to handle revenue accounting issues.

For these reasons, the TPIRR realistically could not expect to handle all of CSXT's most accounting-intensive traffic without a freight revenue accounting staff comparable to CSXT's staff. CSXT has a total of 131 freight revenue accounting staff (including 8 directors). TPI's proposal that TPIRR would have a quarter of that number of revenue accounting employees is ludicrous, and unsupported by any credible benchmarking. And TPIRR's staff would be working without the modern technology tools that CSXT staff have to improve their efficiency. Mr. Brown has scaled the TPIRR's revenue accounting staff to the real world CSXT on the basis of carloads.[281] To be conservative, Mr. Brown has assumed that notwithstanding TPIRR's lack of comparable revenue accounting technology, it would function with a single Director of Revenue, supported by a staff of 30 Managers (about {{ }} of CSXT managerial staff) and 86 Clerks (about {{ }} of CSXT clerical staff).

b) Miscellaneous Billing

TPI proposed a staff of one Director, one manager and four accountants. However, TPIRR ignored some critical areas including Expenditure Recovery and Joint facilities. TPIRR adopts 21 joint facility agreements. While TPI provides operating staff to manage and monitor the agreements, most of these agreements also require regular financial transactions, which must be handled in revenue accounting. Expenditure recovery, sometimes referred to as Government Billing, is the process by which a railroad gets reimbursed for performing projects that benefit a

[281] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Revenue Acct." CSXT's scaling includes the contributions of its union employees. In its discovery request, TPI did not request information about these employees but even if the TPIRR is non-union, it would still have to account for the workload of union employees at a real world railroad.

city, county or state. Grade crossing improvements and accommodating public projects like widening highways are good examples. For these projects the government agency is responsible for funding the project, but the project must be done and accounted for by the railroad. This represents sophisticated and time-consuming accounting for the railroad to be certain to charge back to the government agency only those costs that are specifically related to the government requested project.

To consider staffing for miscellaneous billing, Mr. Brown reviewed both the current CSXT staffing in this area and KCS staffing for this area. CSXT has a total of {{ }} and KCS has a total of {{ }}.[282] Because CSXT's staffing is lower on a route-mile basis, Mr. Brown used the CSXT staffing and scaled that number based on relative route miles.[283] Using a scaling factor of 43% (TPIRR percent of CSXT route miles), suggests a staffing level of one Director, three Managers and eight Accountants.[284]

c) Car Accounting

TPI has overlooked the need to have a staff to handle car accounting issues. TPI asserted that TPIRR will use the RMI car accounting module. But having access to technology does not describe who uses the software program how the work gets done. Indeed, CSXT uses RMI to handle car accounting. But it still needs staffing to operate the model. Mr. Brown analyzed Car Accounting staffing at CSXT, NS, and KCS to develop a best-in-class staffing for TPIRR.[285] On a carload-by-employee basis, staffing ranged from a high of 503,000 cars per employee at CSXT to 270,600 cars per employee at KCS. The average of the three railroads was 401,806. To be as

[282] *See* CSXT Reply WP "Miscellaneous Billing Scaling and Comparison.xlsx."

[283] Route miles are a reasonable way to scale staffing for joint facilities and government billing, since each of these needs is roughly a function of the geographic footprint of a railroad.

[284] *See* CSXT Reply WP "Miscellaneous Billing Scaling and Comparison.xlsx."

[285] *See* CSXT Reply WP "TPIRR Car Accounting Staffing Proposal.xlsx."

conservative as possible, Mr. Brown selected CSXT's staffing levels as the most efficient metric and applied that to the carloads handled by TPIRR to arrive at a staff of 11. Thus, CSXT proposes a staff of one Director and ten car accountants.

(2) Disbursements.

CSXT accepts TPI's proposal for a disbursements staff of an Assistant Controller supported by 5 Managers and 15 Clerk/Analysts (or their equivalents) to cover accounts payable and payroll.

(3) Financial Reporting.

TPI proposes a four person Financial Reporting Group. *See* TPI Op. Ex. III-D-2 at 28. This is too small a staff to cover the varied financial reporting needs of a Class I railroad the size of the TPIRR. TPI's proposed Financial Reporting Group is made up of an Assistant Controlller, two Analysts/Clerks and two Staff Accountants who support this function. Thc vital functions of financial reporting cannot be accomplished with such a small group. The finacial reporting obligations of a railroad the size of the TPIRR include the following:

- **Monthly closing of books**. The SARR claims that the responsibility for closing the monthly books would be entirely completed within the various assistant controller organizations (Payroll/Revenue/Accounts Payable). However, even the most efficient SARR would have an additional level of close related involvement, including:
    - Preparation and review of manual journal entries related to non routine transactions such as legal and regulatory matters, employee compensation (long-term or short term incentive plans), environmental accruals and revenue recognition matters.
    - Managing the close calendar and consolidation of financial results in the reporting system.
    - Monthly reporting to upper management, as well as a robust overall analytical review process.
- **Surface Transportation Board (STB) reporting.** Because TPIRR anticipates its annual revenues to be far greater than $250 million, it would be subject to all the

STB reporting requirements of a Class I railroad. These include at least 36 reports to the STB each year, as detailed below:

Principal Financial And Statistical Documents Required Of Railroads By The Surface Transportation Board

	Report/Submission	Frequency
1	Annual Reports R-1	Annual (1)
2	Ex Parte No. 460 - Certification of Railroad Annual Report By Independent Accountant	Annual (1)
3	Revenue, Expense and Income (RE&I)	Quarterly (4)
4	Condensed Balance Sheet (CBS)	Quarterly (4)
5	Report of Rail Fuel Surcharges	Quarterly (4)
6	Quarterly Wage Form A & B	Quarterly (4)
7	Employment Data - Monthly Report of Employees	Monthly (12)
8	Annual and Quarterly Freight Commodity Statistics (QCS)	Quarterly (4)
9	Form STB-54 - Annual Report of Cars Loaded and Cars Terminated	Annual (1)
10	Peak Season Letters	Annual (1)

- **Financial statement audit.** TPIRR will have an annual financial statement audit prepared by Certified Public Accountants. The completion of an annual audit is not a task that can be completely outsourced to a CPA firm. In order to complete the audit, the financial reporting staff will be required to prepare schedules and analyses requested by the auditors, as well as answer questions, provide documentation for transactions, and draft the financial statements and footnotes.

- **Benefit plan reporting.** IRS regulations require Form 5500 and audited plan financial statements to be filed for all Pension Benefit plans (including 401(k) plans) covered by ERISA even if benefits no longer accrue, contributions were not made during the plan year or contributions to the plan will no longer be made. Because SARR anticipates an employee count in excess of 1,100, it will need to provide a 401 (k) plan to employees to remain competitive in the labor market. The financial reporting staff will be required to maintain records, prepare analyses and draft financial statements and footnotes in support of the Form 5500 filing and audited plan financial statements.

- **SEC or External Financial reporting.** TPI suggests that the TPIRR would not be publicly traded, a highly questionable assumption given its proposed size. But even if the SARR were a private company, it could still be subject to SEC regulations if it chose to issue public debt. A least-cost most-efficient SARR would seek out the most cost-effective source of financing, which would be

public debt. According to Section 13 of the Securities Exchange Act of 1934, if a non-public company issues public debt, the non-public company is required to register with an exchange and file quarterly and annual financial statements with the SEC. Even if the TPIRR made the inefficient choice to issue private debt, the bondholders on $30 billion of privately raised capital would almost certainly require the TPIRR to provide them with the effective equivalent of SEC filings in the form of annual and quarterly audited financial statements. Thus, a private company the size of the TPIRR would still have considerable reporting needs.

- **SOX compliance.** An organization of this size (public or private) would be expected by its investors to comply with basic SOX requirements on matters like internal controls. This includes the preparation and maintenance of financial process documentation, development of key internal controls and monitoring compliance with key internal controls for the entire Controller's group. Given the size of the Internal Audit department (5 persons total), the Controller's group would need a devoted headcount to ensure adequate oversight.

- **Accounting and Technical research.** Periodically new accounting standards are issued by various accounting standard setters. The Financial Reporting group will be responsible for monitoring new pronouncements and developing accounting policies and procedures to comply with new standards. Moreover, any specific technical accounting matters related to the operations of the railroad (derailments, environmental and legal reserves, asset retirement obligations, other reserves) would need to be researched on a regular basis to ensure proper accounting treatment.[286]

Because TPIRR will be a private company and will have a relatively simple corporate structure, Mr. Brown concluded that TPIRR's financial reporting staff could be far smaller than CSXT's staff of 30. But the many functions detailed above are far too much for TPI's proposed staff of five. Mr. Brown modestly increased TPI's proposed staff to consist of an Assistant Controller supported by four managers and five accountants. One Manager supported by an Accountant will be responsibile for all external and regulatory filings. A second Manager supported by two Accountants will be responsible for closings and journal entries. A third Manager supported by two Accountants will be responsible for accounting research and analysis.

[286] *See* CSXT Reply WP "Financial Reporting.pdf."

The fourth Manager will oversee any and all issues relating to SOX compliance, which as explained above is important even for private companies.

(iii) Internal Audit

TPI proposed an Internal Audit staff which includes a Director supported by a staff of six. *See* TPI Op. Ex. III-D-2 at 29. CSXT accepts this level of staffing as adequate. In addition, TPI proposed outsourcing Internal Audit at a cost of .03% of Revenue. *Id.* at 53. The source document used for this percentage is a piece from the Journal of Accountancy that suggests a range between .03% and .2%.[287] But that same article explains that companies "that pay at the top of the range typically are highly regulated."[288] A regulated entity like the TPIRR could not expect to pay the lowest percentage projected by the benchmark. CSXT conservatively proposes that the TPIRR's internal audit costs would be .04% of its revenues.

(iv) Tax

TPI proposed a combined tax and property accounting function with 11 employees. *See* TPI Op. Ex. III-D-2 at 28-29. The staff is headed by an AVP and includes a Director of Tax with a staff of four and a Director of Property Accounting, also supported by a staff of four. CSXT accepts the proposed property accounting staff, but TPI's proposed tax staff is not robust enough to handle the required tasks. Taxation for railroads is significantly more complex than for most other businesses. In part this is because the nature of a rail network is to traverse multiple jurisdictions, which subjects railroads to many different tax regimes, and in part it is because of the unique and resource-intensive ways in which most states assess railroad ad valorem taxes.

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[287] *See* TPI Op. WP "TPI Internal Audit.pdf."

[288] *Id.*

The TPIRR will be responsible for preparing federal income taxes, state income taxes, and state property taxes. State property taxation is perhaps the most complex area, because the TPIRR will operate in 18 states, each of which have differing approaches to assessing ad valorem taxes. Fourteen of the states through which the TPIRR operates use a unit valuation methodology, which requires particularly intensive work from a railroad's in-house staff. The unit valuation process typically requires significant information exchange and negotiation over appropriate methodologies. The negotiation process requires the involvement of an officer of the railroad who must build, nurture, and maintain relationships with state tax assessment offices to achieve the best possible valuation outcome for the railroad. And unit valuation is just the beginning of the process. Valuation is typically done centrally by a state office, but tax billing is usually done at the local level, and the billing cycle differs from jurisdiction to jurisdiction. Paying the TPIRR's property taxes in each of the numerous county jurisdictions in which the TPIRR will operate requires year-round efforts to review and verify each tax bill and to follow up on mistakes and requested corrections.

Income taxation is also complex for a Class I railroad with $6.5 billion a year in revenue. In part this is because in a capital intensive industry like the rail industry, converting book income to tax income in accordance with federal accounting standards is a major undertaking.[289] This is an ongoing process requiring constant communication and consultation with Property Accounting. Furthermore, the TPIRR can expect focused treatment from the IRS that will require near-constant attention by in-house personnel. The IRS audits CSXT and maintains a presence at CSXT's Jacksonville offices year-round, requiring the attention of CSXT personnel. The TPIRR, as a Class I railroad, can expect similar focused IRS attention from the IRS and will

[289] *See* Financial Accounting Standards Board, "Statement of Financial Accounting Standards No. 109," (Feb. 1992).

need personnel available to answer questions and provide information for IRS officials at any time.

CSXT's current tax staffing includes {{ }} high level executives and {{ }} managers and accountants.[290] It is unlikely that the TPIRR could achieve many efficiencies from this staffing, since it will be required to pay taxes in most of the jurisdictions in which CSXT pays taxes. However, to be conservative, Mr. Brown proposes only 24 total tax employees for the TPIRR. One Director–Property Tax supported by two managers and two accountants would cover property tax issues. A second Director–Income Tax supported by three managers and six accountants would be responsible for income tax. A third Director–Sales Tax supported by a Manager would be responsible for sales tax. And a fourth Director–State Tax supported by two Managers and three Accountants would address tax issues specific to individual states and local jurisdictions.

(v) Economics and Planning

The final Finance and Accounting functional areas is Economics and Planning. TPI included small functional groups for Accounting Systems and Cost Analysis. TPI's proposed Accounting Systems Group has a Director, three Managers, and two Programmers to handle all TPIRR Finance and Accounting computer and technology systems. *See* TPI Op. Ex. III-D-2 at 27-28. TPI's proposed Cost and Economic Analysis Group has a Director, two Managers, a Senior Analyst and an Analyst to help develop and maintain corporate budgets, perform economic analysis, and other related functions. *Id.* at 29.

CSXT largely accepts TPI's staffing in these areas as adequate, and indeed Mr. Brown removes two managers from the Cost Analysis Group as unnecessary. But the Economics and

[290] *See* CSXT Reply WP "CSXT Organizational Spreadsheet.xlsx," Tab "Sheet1."

Planning Group also needs to devote resources to Financial Planning. This group would be responsible for creating and managing financial plans that can support budgeting in the other TPIRR departments. For example, while the Operations Group will have primary responsibility for developing operating budgets and while the Marketing Group will have primary responsibility for revenue forecasts, Financial Planning staff in Finance and Accounting need to coordinate budgets and plans to ensure that adequate resources are available for the railroad's needs. Budgets and forecasts are input to the overall financial plan, which drives the management and control of the business. For example, the Cash Management Group will need to know what maintenance of way project work is scheduled in which month and when materials need to be purchased. Capital projects will need to be funded. Business forecast levels will drive crew and equipment requirements. Train operations will be an input to planning fuel purchases. An initial budget and forecast will be prepared in advance, but during the year there will be many significant changes. New customers, lost business, emergency maintenance work, and other variables will all factor into the overall financial plan.

As a point of comparison, CSXT currently employs {{ }} people in commercial finance and {{ }} in operations finance.[291] In addition, CSXT has an additional {{ }} people in corporate finance to help coordinate these functions and support investor relations.[292] While TPI proposed that the TPIRR would have a simpler corporate structure than CSXT, that structure does not allow TPIRR to avoid the need to coordinate both inflows and outflows at a railroad with billions of dollars in revenue and expenditures.

On Reply, CSXT conservatively assumes that the TPIRR would not have a corporate finance group, but the TPIRR would need an operations and commercial finance planning group.

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[291] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Financial Analysis."

[292] *Id.*

Each group is headed by a Director. The operations group has three Managers and two Analysts, while the Commercial Group has one Manager and two Analysts. CSXT also adds an AVP - Economics and Planning to oversee all of TPIRR's planning functions.

* * *

Table III-D-22
Finance and Accounting Department Staff Comparison

TPI Opening	CSXT Reply	Difference
100	242	142

(e) Law and Asset Protection

On Opening, TPI proposed that the TPIRR have a Legal and Administrative Department headed by a Vice President who would manage 45 employees responsible for the TPIRR's legal function, its Claims Group, its Real Estate Group, and its Police Group.[293] As detailed below, TPI understaffed several of these functions, and it neglects the need for a well-organized Environmental Group.

The Vice President-Legal and Administrative cannot simultaneously supervise all these diverse functions without managerial assistance. To correct this defect, Mr. Brown's TPIRR staffing adds an Assistant Vice President for Law and Claims and an Assistant Vice President for Asset Protection to better manage the broad functional areas of the Department. Mr. Brown also adds an Administrative Assistant to assist with the administrative tasks of the Department as a whole.

[293] *See* TPI Op. Ex. III-D-2 at 7.

(i) Legal

TPI proposed a TPIRR law staff of just six lawyers, an administrative assistant, and a paralegal.[294] TPI assumed that much of the "railroad's legal work is handled by outside counsel."[295] TPI used a percent of revenue calculation to determine its total legal cost, and then subtracts the cost of internal staff to determine its outside counsel cost.[296] CSXT accepts this basic approach, and accepts the proposed staffing level. But CSXT rejects the notion that TPI can expect to pay the lowest percent of revenue benchmark available. As a company in a regulated industry, the TPIRR cannot realistically expect to pay the lowest percentage projected by a benchmark.

TPI entered multiple benchmarks into evidence and selected the lowest one.[297] TPI provides no evidence as to why it chose the lowest or why any of the benchmarks cited might be specifically relevant to TPIRR. The other benchmarks for companies the size of the TPIRR entered into evidence by TPI are 0.2%[298] and 0.19%[299] CSXT also has a benchmarking study that demonstrates companies the size of the TPIRR can expect to pay {{ }} of revenue.[300]

On the basis of all of the benchmarks in the record, CSXT proposes that the TPIRR spend 0.24% of revenue on inside and outside legal expenses, recognizing that the TPIRR is in a

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[294] *See* TPI Op. Ex. III-D-2 at 29-30.

[295] *Id.* at 29.

[296] *Id.* at 30. TPI's suggestion that claims staffing should be considered part of the legal staff is not reasonable, however. The personnel in the Claims Sub-Department are not attorneys and are not practicing law, and TPI has not provided any evidence that claims functions were included in the legal spending benchmarks it proffered on Opening.

[297] *See* TPI Op. WP "TPIRR Legal Benchmarks.pdf."

[298] *Id.*, at 3, 6.

[299] *Id.*, at 8.

[300] *See* CSXT Reply WP "CSXT Legal Benchmarking Survey.pdf" at 5.

regulated industry and cannot expect to pay the bare minimum in legal costs.[301] The 0.24% represents a simple average of all the benchmarks put into evidence. This is a conservative proposal since only the CSXT supplied benchmark, which is the highest, was designed to be relevant to a railroad the size of TPIRR.

(ii) Claims

TPI included a Claims Sub-Department within the Law Department staffed by a Director, Manager, four Claims Agents, and an Administrative Assistant. *See* TPI Op. Ex. III-D-2 at 30-31. This staffing is not adequate to handle the volume of claims that a railroad the size of the TPIRR can expect. Railroads typically deal with two types of claims: (1) freight claims for physical damage to a freight car or a shipment; and (2) casualty claims for injuries to employees or injuries or property damage to those outside the railroad and its shippers. Freight claims usually involve shippers seeking reimbursement for freight lost or damaged and is described and staffed in the Marketing Department.[302]

Casualty claims will be handled by the TPIRR G&A Department. Casualty claims for railroad employees are compensated in a unique fashion not typical of other industries. Instead of no-fault workers' compensation, railroad employees are subject to the Federal Employees Liability Act ("FELA"), 45 U.S.C. § 51 *et seq*. FELA requires substantial internal investigations following any type of injury to establish fault. The investigations necessitate substantial knowledge of not only the railroad industry as a whole, but the individual railroad's operations in particular. When incidents occur, it is important to have a representative at the scene as quickly as possible. CSXT organizes its own claims group geographically to make sure that any incident

[301] *See* CSXT Reply WP "TPIRR G&A Outsourcing Reply.xlsx."

[302] *See supra* III-D-120.

is within a few hours of an agent. Getting to the site of an incident is important in order to collect the most relevant information and protect the railroad's position.

TPI's proposal of four Claims Agents is insufficient for two reasons. *First,* the amount of claims will simply be too voluminous for four people to efficiently handle. CSXT handled {{ }} casualty events in 2012 and {{ }} events in 2013, for an average of {{ }}.[303] CSXT currently has {{ }}Claims Agents,[304] meaning each handles approximately {{ }} events per year. To determine the number of events that would occur on the TPIRR necessitating an investigation, Mr. Brown benchmarked the TPIRR to the real-world CSXT on the basis of the number of route miles.[305] TPIRR will have 43% of the route miles of CSXT and, therefore, can be presumed to have 43% of the events, or approximately {{ }} events per year. Because each Claims Agent can handle approximately {{ }} events, CSXT proposes 15 Claims Agents to be evenly distributed geographically into three regions to improve response time.[306] Each region will be headed by a Regional Manager. The Claims Sub-Department as a whole would be headed by a Director and supported by an Administrative Assistant.

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[303] *See* CSXT Reply WP "Casualty Events 2012 to 2013.xls." Not all casualty events result in a claim, but almost all result in some type of investigation or activity by a member of the claims department, making occurrences the most significant driver of workload.

[304] CSXT refers to these as Managers of Field Investigations. *See* CSXT Reply WP "CSXT Organization Spreadsheet," Tab "Casualty Claims."

[305] This approach is quite conservative, because the relative number of trains operated is arguably a better metric of claims volume. TPIRR operates approximately 67% of the number of trains as the real-world CSXT—a much higher percentage than its relative number of route miles.

[306] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Casualty Claims." Scaling would also require six Directors and Managers, but CSXT limits it to four to be conservative.

TABLE III-D-23
Casualty Claims Function Staff Comparison

TPI Opening	CSXT Reply	Difference
7	20	16

(iii) Asset Protection

In its Opening Evidence, TPI provided for a real estate group, a small police force, and a few environmental and/or hazardous materials positions spread thorughout the organiztion. This dispersed approach to necessary railroad functions is insufficient. Environmental issues are far too important to be relegated to a few, multi-tasked individuals spread throughout the organization. TPI also significantly underestimated the police needs of a Class I railroad operating in 18 states including Washington, D.C. In Reply, CSXT proposes a fully functioning Asset Protection Group which includes Real Estate, Police, and Environmental.

(1) Real Estate

TPI proposed a Real Estate function headed by a Director and staffed by a Manager and a Real Estate Counsel. *See* TPI Op. Ex. III-D-2 at 30. There is little desciption of what functions TPI intended these employees to carry out. Real-world real estate functions that would need to be addressed by the TPIRR include the following:

- Issues generated by adjoining owners concerning—or challenging—property lines;[307]
- Utility requests, including issues including right of entry for purposes of safety inspections;[308]

[307] *See, e.g.,* CSX Transportation, Inc.'s Reply to Petition for Declaratory Order, *14500 Limited LLC v. CSX Transp., Inc.*, STB FD No. 35788, at Ex. 1 (filed Jan. 8, 2014) (declaration of CSXT Title Specialist relating to property dispute with a neighboring owner asserting adverse possession).

[308] *See* CSXT Reply WP "Permitting Utility Installations and Rights of Entry" (description of CSXT process for utilities and others to access CSXT process); CSXT Reply WP

- Requests for new or improved grade crossings that would include some engineering work; and
- Shipper requests for new or improved facilities that require acquisition, permitting, and engineering.

TPI's three-person staff appears adequate to cover administrative issues relating to real estate, and CSXT accepts it. However, TPI has not provided sufficient engineering capability to support the TPIRR's real estate function. The TPIRR must have staffing sufficient to handle basic property development activities such as design and engineering, permitting, and scheduling of construction. On Reply, CSXT proposes two Development Managers to fulfill this purpose. This staffing is quite conservative when compared to CSXT's{{ }}-person Real Estate Group.[309]

TABLE III-D-24
Real Estate Function Staff Comparison

TPI Opening	CSXT Reply	Difference
3	5	2

(2) Police

TPI recognized the need for a railroad the size and complexity of the TPIRR to have a police force and proposed a force with 25 personnel including a Police Chief, two Assistant Directors, two Sergaents and 20 Special Agents. *See* TPI Op. Ex. III-D-2 at 31. What TPI proposed is insufficient to cover even the narrow set of duties explained by TPI and certainly inadequate to cover the broader range of responsibilities that a real-world railroad must address as required by industry practice and government regulation. Because of the significant security, regulatory, and asset protection requirements of all Class I railroads, sufficient police personnel

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"COS_APPLICATIONS_2011_2013.xlsx" (table showing 6,181 requests for utility installations and rights of entry, each involving real estate personnel).

[309] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx", Tab "Real Estate."

are necessary to cover the geographically spread out, 6,911 route mile, 18-state territory over which the TPIRR's network travels.

Some real-world CSXT numbers illustrate the types of issues that a railroad's police force must be prepared to handle. Over the two year period of 2012-2013, {{ }} events were reported by CSXT police.[310] These events ranged in severity from {{ }} abandoned vehicles to {{ }} bomb threats and {{ }} assaults.[311] These are illustrative of the many types of activities to which a railroad police force must respond to. TPI recognized that TPIRR's police force would be responsible for investigating crimes, coordinating facility security, security checks on employees and contractors, and ensuring the protection of freight. *See* TPI Op. Ex. III-D-2 at 31. But TPI provided no evidence to justify the level of staffing.

Mr. Brown has reviewed the security requirements for railroads with CSXT police personnel and determined that TPI failed to account for several functions. All railroads the size of the TPIRR maintain a 24/7 call center. The call center responds to emergency and safety calls; monitors live video feeds from key locations throughout the system; coordinates and helps control responses to emergencies; and maintains, monitors and follows up on police reports. The real-world CSXT Public Safety Coordination Center has a {{ }} person team. In 2012, they dealt with {{ }} incoming calls and placed {{ }} outbound calls. In 2013 those numbers were {{ }} and {{ }} respectfully.[312]

There is also a necessary building security function that goes beyond TPI's passing reference to "ensur[ing] proper security is in place at each facility." TPI Op. Ex. III-D-2 at 31. TPIRR will have a headquarters building in Atlanta with 24/7 access for employees. There will

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[310] *See* CSXT Reply WP "Police Activity Report 2012-2013.pdf."

[311] *Id.*

[312] *See* CSXT Reply WP "PSCC Stats.pdf."

be hundreds of employees at headquarters, of whom approximately 75 to 80 will be working shifts on 24/7 schedules, and almost any other employee might be required to come into the office to handle or assist in emergencies at any time. Building security personnel is the proper way to handle controlled access. Keys or key cards are subject to failure, and employees might not have them in emergencies.

There are also functions that police need to address that cannot be adequately supported by Special Agents in the field. For example, the investigation of special crimes against the railroad or shippers' goods that impact or affect more than one special agent district cannot be simply undertaken in the field but will require headquarters involvement. It is more efficient and effective to devote dedicated resources to these larger problems. There is also a need for outreach to local law enforcement in the communities through which the TPIRR operates. Helping communities understand how railroads function; where there are areas for law enforcement cooperation; and explaining what resources CSXT has that can assist community law enforcement are all important endeavors. When emergencies occur, real-world railroad police forces must work closely with local law enforcement, and laying the groundwork for such cooperation ahead of time is crucial. Finally, there is a significant need for administrative support. The majority of police department employees will have numerous law enforcement credentials from different jurisdictions that all need to be maintained and monitored. There are also considerable paperwork requirements that are necessary to comply with various state laws and regulations.

In reply, CSXT proposes a police force headed by an Assistant Vice President and supported by a staff of 90. The staff is divided into four groups: Special Agents; Communications Center; Security; and Technical. There are also two administrative personnel.

Special Agents: CSXT proposes a staff of 50 special agents, managed by 12 Sergeants with two Superintendents and organized geographically into two regions. Special agents are required to respond to criminal events and other calls, as well as perform investigations. Some of the functions of Special Agents include:

- Security Infrastructure and Asset Protection and Incident Investigation: Railroad police forces must have monitoring and surveillance capabilities to proactively protect the TPIRR's infrastructure, right of way, trains, and customer shipments. Some TPIRR facilities will require 24/7 police coverage. In some cases, Special Agents will need to accompany trains with special needs such as certain hazmat trains or trains with government cargo. In addition, the police force must respond to incidents of burglary, trespassing and other threats to normal rail operations. The railroad's police must also comply with the Customs-Trade Partnership Against Terrorism and TSA rules regarding High Threat Urban Areas ("HTUAs"). There are 10 HTUAs in the TPIRR's network.[313]

- Emergency Response: The police will help with the frontline response to emergency incidents, such as derailments or hazmat spills, including applying special training and specialized assets to assist swiftly in any emergency or security incident on the TPIRR. This can require considerable interaction with local communities to help with traffic control, control of the scene, and evacuations when necessary.

- Police Relations: The railroad's police must maintain regular contact and joint training with all law enforcement agencies in the jurisdictions through which the TPIRR operates.

The size of the TPIRR's Special Agent force was calculated by scaling the CSXT force based on total route miles. CSXT current staffing includes {{ }} supervisory personnel and {{ }} agents.[314]

Communications Center: As explained above, a railroad the size of the TPIRR needs a communications center. CSXT proposes two Managers and a staff of nine for the TPIRR's

[313] The HTUAs in the TPIRR's network are Baltimore, MD; New Orleans, LA; Indianapolis, IN; Buffalo, NY; Jacksonville, FL; Orlando, FL; Chicago, IL; Cincinnati, OH; Washington, DC; and Louisville, KY. 49 C.F.R. Appendix A to Part 1580 (identifying HTUAs including ten in the TPIRR's network).

[314] *See* CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Police."

center. This allows for at least two individuals to manage the call center 24/7. The center does not require a manager on duty 24/7, however CSXT suggests that when not on duty, a manager will be on call.

Call center personnel can also assist with other necessary police communications responsibilities. Government regulations require railroads to maintain certain security and asset protection functions, including having the infrastructure and trained personnel necessary to locate a specific car in response to a security related request within as few as five minutes. 49 C.F.R. § 1580.103(d)(1). The Communications Group also documents all railroad emergencies, road crossing incidents, trespasser violations, potential security threats, and compliance with regulatory reporting rules. The Group will be responsible for maintaining the required toll-free telephone number for the public to report emergencies or other unsafe conditions at highway-rail and pathway grade crossings and helping to direct any necessary response.[315] The Communications Group will also serve as the required point of contact for surveillance and notification for all events on the TPIRR's network related to: (1) Department of Homeland Security, TSA and the Joint Terrorism Task Force; (2) AAR Communications Group; (3) Department of Defense shipments; and (4) Department of Energy radioactive shipments.

Security: CSXT proposes a security staff of five headed by a manager. The staff will be primarily responsible for providing 24/7 security at the TPIRR headquarters building in Atlanta. Four persons would provde most of the 24/7 staffing. The fifth person would cover vacation, illness, training, and other necessary absences of the primary four, and also support the Manager

[315] *See* Systems for Telephonic Notification of Unsafe Conditions at Highway-Rail and Pathway Grade Crossings, 77 Fed. Reg. 35164 (June 12, 2012).

with required research and analysis on security issues system-wide. As a point of comparison, CSXT maintains {{ }} individuals assigned to its headquarters security function.[316]

Technical: The technical staff including Special Crime Unit and Community outreach is scaled to CSXT's staff based on route miles. CSXT proposes a Director supported by a staff of six. In addition to assisting with special investigations and community outreach, this function will support training and administration functions. Railroad police officers are required to be commissioned police officers in the states through which their railroad operates.[317] State requirements vary but require training in various laws and state procedures, annual in-service training, and firearms training and qualification.[318] Federal and state regulations also require police personnel to undergo training on record keeping and reporting requirements.[319] For business purposes, police must also maintain records of all security and asset protection incidents and training undertaken by the police force. The railroad's police force must also maintain employee identification and security requirements and conduct appropriate identity and background checks on contractors and new hires.

CSXT also proposes the purchase of radios for all TPIRR police officers. As a functioning police force, the TPIRR's police officers need radios that provide secure,

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[316] *See* CSXT Reply WP "CSXT Police Department.pdf."

[317] *See, e.g.*, 49 U.S.C. § 28101(a) ("[A] rail police officer who is employed by a rail carrier and certified or commissioned as a police officer under the laws of a State may enforce the laws of any jurisdiction in which the rail carrier owns property.").

[318] *See, e.g.*, 22 PA. CONS. STAT. § 3303 ("Every railroad and street railway police officer shall successfully complete the same course of instruction required for municipal police officers."); N.Y. R.R. LAW § 88(7) ("No person shall be granted an appointment as a police officer … unless and until the [railroad] making application shall certify to the superintendent of state police that the proposed appointee has had adequate firearms training … or … he will receive such training.").

[319] *See, e.g.*, N.Y. CRIM. PROC. LAW § 1.20(p) (including railroad police in the definition of "police officer").

interoperable communications consistent with federal laws and Federal Communications Commission rules ("FCC"). For example, the FCC has shifted from allowing radio licensees to operate on 25kHz channels to requiring they meet a new narrowbanding requirement of operating on a 12.5kHz channel—necessitating special equipment.[320] The FCC has also been working to increase interoperability among radios, particularly for emergency responders and law enforcement. Significant public attention was brought to this issue by the 9/11 Commission[321] and subsequent laws.[322] The FCC has adopted technical standards that all radio users must follow to improve interoperability.[323] CSXT proposes that all TPIRR police officers be issued a Harris Unity XG-100P Full-Spectrum multiband portable radio, which is the same equipment used by real-world Class I railroads such as CSXT.[324] This equipment complies with all legal and FCC regulatory standards and allows TPIRR police officers to stay in touch with one another, coordinate in emergency situations, and communicate directly by radio with outside first responders during emergency situations.

The proposed 91-person police force is extremely conservative compared to real-world railroads of comparable size. The TPIRR has 43% of the route miles of CSXT but CSXT is

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[320] Federal Communications Commission, "VHF/UHF Narrowbanding FAQs," http://transition.fcc.gov/pshs/public-safety-spectrum/narrowbanding-faq.html (last visited July 11, 2014).

[321] Thomas H. Kean, et al., *The 9/11 Commission Report*, *available at* http://www.9-11commission.gov/report/911Report.pdf (last visited July 11, 2014).

[322] *See, e.g.,* Implementing Recommendations of the 9/11 Commission Act of 2007, Pub. L. No. 110-53, § 2201.

[323] Federal Communications Commission, "Interoperability," http://transition.fcc.gov/pshs/emergency-information/interoperability.html (last visited July 11, 2014).

[324] *See* CSXT Reply WPs "Harris Unity Radio.pptx"; "Invoice showing price of radios.pdf"; and "Radio programming fees.pdf."

proposing a police force less than 43% the size of CSXT's real-world {{ }} person staff (which includes sworn police officers, building security, and communications specialists).[325]

TABLE III-D-25
Police Staffing Comparison

TPI Opening	CSXT Reply	Difference
25	91	66

(3) Environmental

The TPIRR will transport 333,875 carloads of hazardous materials ("hazmat") traffic. But TPI claimed TPIRR revenues for this hazmat traffic without accounting for the full costs the TPIRR would incur to transport it. In particular, TPI's proposed staffing for the TPIRR does not include sufficient personnel to either (1) manage compliance with the host of regulations governing the transportation of hazmat and TIH/PIH traffic; or (2) respond to hazardous materials safety and security issues that might occur during the transportation of these materials. These functions are an essential service need for TIH/PIH and hazmat traffic, and the TPIRR must perform them if it is to serve that traffic. TPI's TPIRR staffing also lacks sufficient personnel to ensure the railroad's compliance with other environmental regulations like the Clean Water Act and the Resource Conservation and Recovery Act.

TPI's TPIRR staffing includes three environmental staff people in three different areas of the railroad:

- One Manager – Testing & Environmental, who is "responsible for testing of materials and environmental compliance, including investigation of any problems involving cars containing hazardous commodities while on the TPIRR (and related federal reporting requirements)."[326]

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[325] *See* CSXT Reply WP "CSXT Police Department.pdf"; CSXT Reply WP "CSXT Organization Spreadsheet.xlsx," Tab "Police."

[326] TPI Op. Ex. III-D-1 at 14.

- Two Directors – Environmental Control, who are "responsible for monitoring practices and activity in the field as well as testing where applicable on TPIRR to insure compliance with all State and Federal environmental regulations."[327]

- One Manager – Environmental Services, who is responsible for working "with all areas of the railroad to keep the railroad compliant with water treatment and hazardous materials regulations."[328]

TPI has not adequately explained the responsibilities of these individuals, and four people is not sufficient to address the issues a Class I railroad the size of the TPIRR would face. Environmental functions of a Class I railroad include, but are not limited to:

1) EPA, FRA, Pipeline and Hazardous Safety Administration ("PHMSA"), TSA and other federal regulatory compliance and reporting;

2) Response to spills, non-accident releases, or other incidents;

3) Management and testing of waste water treatment;

4) Community outreach and training of first responders;

5) Railroad Infrastructure Security and Risk Assessment; and

6) Maintenance and enforcement of all rules and procedures to ensure the proper and safe handling of hazmat materials moving along the TPIRR.

TPI has no plan for the TPIRR to handle these multiple requirements. CSXT's expert developed environmental staffing for the TPIRR in light of real-world legal and practical requirements, and in line with reasonable industry benchmarks.

The federal government has long had specific hazmat transportation rules in place for railroads, such as minimum training requirements for those transporting hazmat shipments[329] and a 48-hour rule to keep shipments of hazmat from remaining on a rail line for extended periods.[330] But following the September 11, 2001 terrorist attacks, many agencies have sharply increased

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[327] *Id.* at 10.

[328] TPI Op. Ex. III-D-2 at 31.

[329] 49 C.F.R. §§ 172.700 *et seq.*

[330] 49 C.F.R. § 174.14.

their focus on the safety and security of the transportation of TIH shipments by rail. Both TSA and PHMSA have released significant guidance and rulemakings that all railroads transporting TIH, including the TPIRR, are obligated to follow. These requirements include:

- TSA's Recommended Security Action Items.[331] TSA has issued three sets of Action Items for the rail transportation of TIH. The action items require the railroads to:
  - Designate a railroad employee with overall responsibility for hazmat transportation security planning;
  - Conduct audits to verify that security plans are being effectively implemented;
  - Restrict access to information about hazmat shipments and security measures;
  - Establish procedures for performing background checks on contractor employees;
  - Develop site-specific security plans to address the risk posed by transportation of bulk TIH products in HTUAs;
  - Reduce the number of hours TIH cars are held in yards, terminals and on railroad-controlled leased track in HTUAs; and
  - Minimize the occurrence of unattended TIH rail cars in HTUAs.
- Rail Transportation Security Rule.[332] On November 26, 2008, TSA finalized this rule requiring railroads to, among other things:
  - Develop a system that allows them to provide location and shipping information for TIH rail cars under their physical custody within five minutes of a request by TSA[333]; and

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[331] *See* Rail Transportation Security, 73 Fed. Reg. 72130, 72154 n.50 (Nov. 26, 2008); *See* U.S. Dep't of Homeland Security and U.S. Dep't of Transp., *Recommended Security Action Items for the Rail Transportation of Toxic Inhalation Hazard Materials, Supplement No. 2* (Feb. 12, 2007) *available at* http://www.tsa.gov/sites/default/files/publications/pdf/stakeholders_PDF/supplemental_no2_tihsai.pdf.

[332] Rail Transportation Security, 73 Fed. Reg. at 72154 n.50.

[333] 49 C.F.R. § 1580.103(d).

- Enact strict "chain of custody and control requirements" when transferring TIH cars to or from shippers or other carriers.[334]

- PHMSA Hazardous Materials Regulations I.[335] PHMSA enacted new rules on November 26, 2008 that require railroads to:
  - Compile data concerning hazmat shipments transported[336];
  - Analyze the safety and security of the rail transportation route used as well as potential alternative routes[337];
  - Use the rail transportation route analysis to determine the safest and most secure practicable route available[338];
  - Retain the rail transportation route analysis for potential review by DOT or DHS officials[339]; and
  - Coordinate with shippers to minimize the time a rail car containing hazmat is stored and prevent unauthorized access to the materials during storage or delays in transit, to mitigate risk to population centers associated with in-transit storage.[340]

- The FRA promulgated a related rule for the review of determinations that a railroad carrier's route selection, analysis and documentation was deficient.[341]

- PHMSA Hazardous Materials Regulations II.[342] PHMSA enacted additional rules in January of 2009, which require railroads to:
  - Enact commodity-specific improvements in safety features and design standards for new rail cars[343]; and

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[334] *Id.* at § 1580.107.

[335] Hazardous Materials: Enhancing Rail Transportation Safety and Security for Hazardous Materials Shipments, 73 Fed. Reg. 72182 (Nov. 26, 2008).

[336] 49 C.F.R. § 172.820(b).

[337] *Id.* at § 172.820(c).

[338] *Id.* at § 172.820(j).

[339] *Id.* at § 172.820(i).

[340] *Id.* at § 172.820(h).

[341] *Id.* at § 209.501.

[342] Hazardous Materials: Improving the Safety of Railroad Tank Car Transportation of Hazardous Materials, 74 Fed. Reg. 1770 (Jan. 13, 2009).

[343] 49 C.F.R. Pt. 179.

- Set a 50 mile-per-hour speed limit on all trains transporting loaded TIH products.[344]

This complex and ever-changing regulatory landscape requires TIH rail carriers to maintain trained staff who are capable of monitoring regulatory changes and making certain that other TPIRR personnel are properly complying with the rules. Real-world railroads incur substantial costs to comply with this series of government measures. Violating any of these rules is not only a safety and security risk, but could also lead to the imposition of civil penalties or other enforcement action.[345] The TPIRR will be no different than any other real-world railroad in having to comply with these rules. Yet TPI has proposed almost no personnel to monitor and coordinate the TPIRR's activities in this area of intense regulatory scrutiny and public concern.

The TPIRR will also need to comply with multiple environmental laws, regulations, and industry practices. For example, through its authority under the Clean Air Act,[346] the EPA has promulgated regulations to reduce emissions from locomotives.[347] The TPIRR will require wastewater treatment facilities at any yard or site where fuel is stored and waste disposed of, necessitating compliance with the Clean Water Act[348] and its accompanying regulations.[349] The Resource Conservation and Recovery Act[350] specifically applies to rail transportation of hazardous materials, mandating certain procedures when transporting hazardous waste including obtaining EPA identification numbers to track waste, specific detailed manifest documentation

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[344] *Id.* at § 174.86.

[345] *See id.* at § 1503.

[346] 42 U.S.C. §§ 7401 *et seq.*

[347] 40 C.F.R. Pt. 92.

[348] 33 U.S.C. §§ 1251 *et seq.*

[349] 40 C.F.R. Pt. 122.

[350] 42 U.S.C. § 6901.

requirements, and requirements for cleaning up any materials discharge.[351] The Emergency Planning & Community Right-to-Know Act[352] provides for the notification of emergency releases of chemicals. Its regulations specifically apply the emergency release notification requirements to the rolling stock of railroads.[353] The rules for these and many other environmental statutes are complicated and subject to change. Only a properly staffed Environmental Group can follow developing rules and ensure the TPIRR is meeting its legal obligations under the environmental statutes.

TPI attempted to justify its failure to provide adequate staff with the assumption that the TPIRR would only require "infrequent" cleanups because "[d]erailments are less likely to occur on the TPIRR than on a Class I railroad such as CSXT because the TPIRR begins operations July 1, 2010 with a brand-new track structure that includes [continuous welded rail] on all of its main tracks."[354] In the first place, TPI ignores the enormous amounts of compliance and training work that the TPIRR would be required to undertake regardless of derailments. Moreover, TPI's statement betrays a fundamental misunderstanding of the causes of derailments and hazardous materials releases. In 2011 less than 41% of derailments were track-related.[355] And TPI wrongly assumes derailments are the cause of all incidents involving the release of hazardous

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[351] 40 C.F.R. Pt. 263; *See also* CSXT Reply WP "RCRA In Focus Motor Freight & Railroad Transportation.pdf."

[352] 42 U.S.C. § 11001 *et seq.*

[353] 40 C.F.R. § 355.61.

[354] TPI Op. Ex. III-D-3 at 52.

[355] *See* CSXT Reply WP "Derailment Report.pdf." Other significant causes of derailments are human error (30%), equipment issues (12.4%) and signal problems (1%).

materials—completely ignoring non-accident releases ("NARS") caused by leaks, splashes, improperly secured or defective tank car valves, or other reasons.[356]

On Reply, CSXT proposes a fully staffed Environmental Group headed by a Director and divided into three major groups: Field Services; Remediation & Technology; and Hazardous Materials. Each group will be headed by a Manager, and CSXT also provides a Manager of Project Administration. The level of staffing is based on real-world CSXT staffing scaled to the TPIRR on the basis of route miles.

Field Services: The Manager of Field Services will oversee a staff of fifteen Engineers placed throughout the TPIRR . The Group will perform environmental monitoring and inspections in the field, ensuring compliance with environmental laws. Required monitoring and inspections includes testing for the Clean Water Act (to make certain water pollutant discharge limits are not exceeded) and testing for the Clean Air Act (to guarantee the TPIRR activity does not violate National Ambient Air Quality Standards). The Field Services Group will also be responsible for waste water treatment facilities, facilities the TPIRR will require at its locomotive servicing shops, as well as any yard facilities where fuel is stored and waste disposed.[357] The Group is also responsible for community outreach including training and working with first responders in the communities the TPIRR serves. The environmental operations staff would also work with shippers to educate and train them on proper, safe and secure loading techniques to minimize the number of NARS occurring on the TPIRR network.

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[356] NARS means "the unintentional release of a hazardous material while in transportation, including loading and unloading while in railroad possession, that is not caused by a derailment, collision or other rail related accident." *See* Ass'n of Am. Railroads, "NAR Reduction Program," http://nar.aar.com (last visited July 12, 2014).

[357] *See supra* III-B-3-b.

Remediation & Technology: The Manager of Remediation & Technology will have a staff of three engineers. The function requires both proactive and reactive activities. Proactively, this team will make sure the TPIRR's operations are being undertaken in an environmentally responsible matter. Reactively, this team will be in charge of any necessary incident response when and if any type of environmental clean-up is necessary. The Remediation & Technology Group will assure compliance with the Emergency Planning and Community Right to Know Act in case a release occurs and make sure that any ensuing clean-up complies with all environmental laws.

Hazardous Materials: The Manager of Hazardous Materials Compliance will work with the TPIRR's police force to make certain all TPIRR hazardous materials are being properly and securely handled. The Manager will be the individual with overall responsibility for hazmat transportation security planning, as TSA has requested in its Recommended Security Action Items. The Manager will have frontline responsibility for implementing TSA and PHMSA hazardous materials regulations at the TPIRR, including establishing the chain of custody and control requirements; undertaking rail transportation route analysis; and coordinating procedures to minimize hazmat rail cars' dwell time while in transit. The Manager also will be responsible for developing and refining the TPIRR's security plan, performing in-depth security training, and ensuring compliance. The Manager will be assisted by seven Compliance Officers.

Projects Administration: The Projects Administration Manager will work with the other environmental managers to ensure that all special projects undertaken by the TPIRR comply with environmental, safety, and security issues. For example, to limit water pollutant discharge, the Projects Administration Group can advise on appropriate stormwater management around any project the TPIRR is working on.

The resulting thirty-person environmental staff will allow a least-cost, most-efficient Class I railroad to meet the minimum requirements in this area. It will be able to operate in an environmentally and security responsible fashion and minimize corporate and personal liability. It is also significantly smaller than the environmental personnel employed on other Class I carriers today. For instance, CSXT has an environmental staff of {{ }}.[358] CSXT's proposed staffing levels thus would give the TPIRR best-in-class environmental staffing for a major railroad, while ensuring that the TPIRR could perform all the functions required of a Class I railroad carrying significant amounts of hazmats and TIHs.

TABLE III-D-26
Environmental Group Staffing Comparison

TPI Opening	CSXT Reply	Difference
4	30	26

(f) Information Technology

TPI's proposed information technology ("IT") plan is one that has no precedent among existing major railroads: complete outsourcing of TPIRR's rail operating system to RMI. No Class I railroad—and in fact no regional or short line anywhere near the size of the TPIRR—has elected to completely outsource its rail operating system as TPI proposes the TPIRR would do. Further, the TPIRR would rely on a simple Internet connection to handle all data communications for railroad operations, car accounting, and revenue accounting.[359] TPI also claimed that the TPIRR would operate as a server-based system rather than a mainframe.[360]

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[358] *See* CSXT Reply WP "CSXT Environmental Org. Chart.pdf."

[359] *See, e.g.*, TPI Op. Ex. III-D-2 at 51.

[360] Not having a mainframe is not unprecedented in SAC cases. But the Board has previously found that a SARR's IT staff cannot be reduced because the SARR is not operating in a mainframe environment. *See AEPCO 2011*, STB Docket No. 42113, at 60-61.

Because TPI's proposed IT plan is unprecedented, CSXT cannot say with certainty whether or not this is a feasible solution.

For the limited purpose of this case, Mr. Brown accepts that TPI's basic plan for an RMI-outsourcing-based IT framework for the TPIRR would be feasible. But if the IT staff of 73 TPI has posited could work for TPI's proposed 5,427 employee railroad, it needs to be increased to meet the needs of the corrected number of TPIRR employees identified by CSXT. IT staffing needs correlate significantly to the size of the workforce served by the IT staff, because workforce size both drives the amount of hardware and software that must be maintained and the number of users who require support. Mr. Brown therefore increases TPI's proposed IT staffing to meet the reasonable staffing level that CSXT has demonstrated is actually needed to operate the TPIRR safely and effectively.[361] The Board has previously accepted a similar scaling methodology for IT staffing. *See DuPont*, STB Docket No. 42125, at 93-94.

The reasonableness of CSXT's proposal is confirmed by a review of third party benchmarks. According to Gartner, a technology research company, IT employees represent an average of { } of full time employees in transportation industry companies the size of TPIRR.[362] TPI proposed just 73 full time TPIRR employees for the IT Department, which amounts to 1.3% of its proposed total workforce, or { } the average.

TPI proposed 73 employees for a 5,427 employee railroad. Scaling the IT staff up proportionally to match the 7,721 employees that CSXT is proposing for the TPIRR yields an IT

[361] An alternative method of scaling TPI's proposal would be to base it on the size of the IT network including the amount of devices (computers, servers, etc.) an IT Department would manage. That option would lead to a larger increase and—to be conservative—CSXT scaled to headcount.

[362] CSXT Reply WP "Gartner IT Key Metrics.pdf" at 19.

staff of 89 employees.[363] That amounts to a conservative 1.2% of the total workforce, less than TPI's proposal and still significantly lower than benchmarks suggest is appropriate.

TABLE III-D-27
IT Staffing Comparison

TPI Opening	CSXT Reply	Difference
73	89	16

iv. Compensation

(a) Salaries for Non-Executives

CSXT accepts TPI's proposed approach to use data from CSXT's Wage Forms A and B to calculate salaries for the TPIRR's non-executive personnel. Where CSXT's G&A expert corrected TPI's staffing by adding positions, CSXT set salaries for those positions at a level consistent with salaries for other positions at that level. CSXT's salary calculations are set forth in CSXT Reply WP "TPIRR Salaries 2010.xlsx." CSXT uses its fringe benefit ratio of 50.2%. *See supra* III-D-3-a-ii.

(b) Executive Compensation

TPI has significantly understated compensation for the TPIRR's President and Vice Presidents. CSXT accepts TPI's proposal that compensation for executives at KCS is a reasonable surrogate for compensation for TPIRR executives. *See* TPI Op. Ex. III-D-2 at 36-37. CSXT's acceptance of this proposal is conservative, because the hypothetical TPIRR would be a larger, higher-revenue railroad than KCS. But TPI's estimate of TPIRR executive compensation

[363] *See* CSXT Reply WP "IT Staff Scaling.xlsx." Total staff increased by 42%, but to be conservative Mr. Brown scaled by 40% and limited the scaling to only the areas where end user support is likely to be a major driver of staff needs (*e.g.,* Help Desk Technicians, Security Technicians). Moreover, this is extremely conservative because the IT group does not serve all employees and the pool of people it does serve increased by 74%. Further, an alternative method of scaling would be to base it on the size of the IT network including the amount of devices and IT Department would manage which would have yielded a larger staffing increase.

is flawed in two ways. *First*, TPI completely ignored the stock-based compensation that is the primary element of KCS's executive compensation structure. As a result, TPI proposed that TPIRR executives would receive compensation less than half of that received by their counterparts at KCS. Because these stock awards are an essential element of KCS's compensation package and because they are accounted for as a cost by KCS, the cost of those awards must be included in the TPIRR's executive compensation. *Second*, TPI artificially lowered the cost of executive compensation by using a short two-year average that includes the recession year of 2009—the year before the TPIRR begins operation. CSXT corrects each of these errors on Reply.

Like many corporations, KCS has established compensation packages for its senior executives that are comprised of several elements, including (1) base salary; (2) bonuses and other incentives; (3) long-term incentives including performance share awards, restricted stock and stock options; and (4) fringe benefits. KCS's compensation approach is detailed in its annual proxy statements.[364] Proxy statements reveal that KCS carefully manages its "pay mix" for each senior executive such that long-term incentive compensation in the form of stock awards and stock compensation is the primary factor. In 2012, long-term incentive compensation comprised 42% to 54% of total executive compensation.[365] Furthermore, Board precedent requires that TPI count this type of compensation as an expense. *See DuPont*, STB Docket No. 42125, at 82; *SunBelt*, STB Docket No. 42130, at 61. In *DuPont* the Board reasoned that the Federal Accounting Standards Board now requires "'entities to recognize the cost of employee services received in exchange for awards of equity instruments based on the grant-date fair value of those awards.'" *DuPont*, STB Docket No. 42125, at 82 (citing FASB Accounting Standard

[364] *See* CSXT Reply WP "KCS Proxy Statement 2011.pdf" at 33-34.

[365] *Id.* at 42.

No. 123). Therefore, just as in *DuPont* and *SunBelt*, "stock options and other deferred compensation would be required to be expensed during the [SARR's] operations." *Id.*[366]

In addition, TPI underestimated TPIRR executive compensation by basing executive compensation on an average of only two years that included 2009—the low point of the economic recession and a year before the TPIRR would begin operations. Because KCS's executive compensation is primarily incentive-based, its executives' compensation in the difficult economic year of 2009 was substantially lower than compensation in other years. KCS compensation for 2010 through 2013 is a far better measure of typical executive compensation on the TPIRR—particularly because of the robust growth and profitability assumptions that TPI makes for the TPIRR. And a four-year average is a better estimate of typical values than TPI's two-year average.[367]

CSXT therefore corrects the errors in TPI's analysis by developing executive compensation that is based on KCS executive compensation but that accounts for compensation elements ignored by TPI. And CSXT uses an average for all executive compensation for 2010-2013 including salary, bonus, stock awards, stock options, and non-equity incentive plan compensation, and all other compensation, all of which KCS counts as an expense.[368]

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[366] The Board has held that if stock compensation is not counted as an expense by the railroad, it need not be included as a SARR expense. *See, e.g., Otter Tail*, STB Docket No. 42071, at C-12. *DuPont* explicitly found that stock compensation is now counted as an expense and should therefore be includes as a SARR cost. *DuPont*, STB Docket No. 42125, at 82.

[367] *See, e.g., West Texas*, 1 S.T.B. at 713 ("Using data for a single year increases the risk that the single period is aberrational.") (calculating cost of equity); *WFA I*, STB Docket No. 42088, at 55 ("[U]se of a multi-year average is superior to using just a single year of data") (calculating Loss and Damage); *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 107 ("[U]sing data for a single year increases the risk that the single year is an aberration.") (calculating cost of equity).

[368] CSXT removes KCS executive José Guillermo Zozaya Delano from its calculation of vice president compensation. Mr. Delano is the President and Executive Representative of Kansas City Southern de México, S.A. de C.V., the Mexican portion of KCS. Mr. Zozaya's compensation is not a useful benchmark for hypothetical TPIRR executive compensation

CSXT does not propose that a fringe benefit ratio be applied to the TPIRR's executives. While TPI applied a fringe benefit ratio to all employees, including executives, to determine the cost of benefits, using the same percentage for senior executives may overstate the cost of benefits for executives. Instead of using the ratio, a more tailored method of determining benefits is to use the "All Other Compensation" category of executive pay as reported in KCS's annual proxy statement. The category includes 401(k) contributions, life insurance premiums, accidental death and dismemberment premiums, long-term disability premiums, matching charitable gifts, and financial planning reimbursement.[369]

Table III-D-28 below presents a complete accounting of KCS's executive compensation for its president and CEO, including all categories of compensation which TPI must recognize. The total average of $4,271,030 is a reasonable approximation of executive compensation for the TPIRR's president. Indeed, that estimate is quite conservative given the significantly larger size of the TPIRR.

TABLE III-D-28 - Average KCS President and CEO Compensation 2010-2013

Executive	Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	Other Compensation	Total
President and CEO	2013	$850,000		$2,019,104	$523,373	$1,496,000	$43,610	$4,932,087
	2012	$800,000		$1,885,490	$484,384	$1,600,000	$ 42,049	$4,811,923
	2011	$721,000		$750,203	$598,527	$1,247,330	$30,254	$3,347,314
	2010	$612,012		$1,953,467	$328,735	$1,069,556	$29,026	$3,992,796
							Average CEO 2010-2013	**$4,271,030.00**

because several elements of his compensation are governed by special provisions of Mexican law. *See* CSXT Reply WP "KCS Proxy Statement 2011.pdf" at 40-41 (explaining Mexican legal requirements applying to compensation).

[369] *See* CSXT Reply WP "KCS Proxy Statement 2011.pdf" at 24-25.

Table III-D-29 lists all of the compensation elements for all other executives. The total average of $1,511,774.78 is a reasonable approximation of executive compensation for the TPIRR vice presidents.

TABLE III-D-29 - Average KCS Executive Compensation 2010-2013

Executive	Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	Other Compensation	Total
Executive Vice President and CFO	2013	$420,116		$579,632	$146,823	$ 443,643	$23,448	$1,613,662.00
	2012	$407,880		$547,496	$138,121	$489,456	$26,927	$1,609,880.00
	2011	$370,800		$245,893	$189,944	$384,890	$33,776	$1,225,303.00
	2010	$354,400		$259,201	$218,624	$432,000	$27,968	$1,292,193.00
Executive Vice President, Sales and Marketing	2013	$434,730		$598,013	$146,823	$459,075	$14,448	$1,653,089.00
	2012	$422,068		$569,871	$138,121	$506,482	$19,336	$1,655,878.00
	2011	$ 409,775		$268,678	$189,944	$425,346	$16,226	$1,309,969.00
	2010							
Executive Vice President and Chief Operating	2013	$415,778		$544,214	$146,823	$439,061	$25,335	$1,571,211.00
	2012	$362,667		$759,358	$90,011	$456,721	$6,031	$1,674,788.00
						Average Executives 2010-2013		**$1,511,774.78**

(c) Outside Director Compensation

TPI also underestimated the cost of compensation for outside directors, assuming they could be paid only $40,000 per year. *See* TPI Op. Ex. III-D-2 at 37. TPI provides no support for this number,[370] which is unreasonably low in light of typical industry costs for compensating outside directors and the significant responsibilities of the TPIRR's outside directors. Outside Directors are necessary to "provide sufficient independent oversight from outside the [SARR] management." *Xcel*, 7 S.T.B. at 649. Indeed, boards of directors "have[] responsibility to supervise and, if necessary, replace the managers" as well as "the power and responsibility to

[370] Having failed to adequately support its evidence on Opening, TPI is precluded from doing so in this case. *See, e.g.*, *SAC Procedures*, 5 S.T.B. at 445-46; *Xcel,* STB Docket No. 42057, at 2 (served Apr. 4, 2003).

approve major corporate actions . . . [and] . . . through the supervisory powers, boards frequently require the managers to obtain board approval for events that are not fundamental to the business, but are nevertheless sensitive or material."[371]

As with executives and operating personnel, directors must be compensated consistent with the marketplace. Just as KCS presents a reasonable model for senior executive compensation, it provides a reasonable proxy of the current market for compensating outside directors at a Class I railroad. CSXT proposes to use the same 2010-2013 average as it has proposed for executive compensation. Table III-D-30 presents KCS's average Outside Director compensation for 2010-2013. To remain competitive, the TPIRR must pay each of its outside directors at least $198,887 a year.[372]

TABLE III-D-30
Average KCS Independent Director Compensation 2010-2013

Director	2010	2011	2012	2013	Average
Director 1	$173,940	$ 176,821	$182,642	$180,667	$178,518
Director 2	$188,645	$ 172,226	$178,459	$172,250	$177,895
Director 3	$221,145	$ 223,693	$227,542	$228,771	$225,288
Director 4	$225,645	$ 209,321	$215,542	$212,300	$215,702
Director 5	$163,573	$ 161,321	$169,042	$182,300	$169,059
Director 6	$249,145	$ 228,266	$237,994	$238,771	$238,544
Director 7	$201,645	$ 179,321	$185,542	$182,300	$187,202
Average	$203,391	$ 192,996	$199,538	$199,623	**$198,887**

[371] *See* CSXT Reply WP "Fiduciary Duties and Other Responsibilities of Corporate Directors and Officers.pdf" at 1.

[372] CSXT accepts TPI's proposed cost for Director & Officer Insurance.

v. Materials, Supplies, and Equipment

CSXT generally accepts TPI's proposed unit costs for the various materials, supplies, and equipment necessary for TPIRR employees. The additional employees in CSXT's proposed TPIRR staffing will require a corresponding increase in the total TPIRR expenditure for materials, supplies, and equipment. Utilities and copier maintenance contract costs, similarly, are increased proportional to the increase in staffing. These increases and the supporting calculations are set forth in CSXT Reply WP "TPIRR Operating Expense _Reply.xlsx," Tab "Summary."[373]

vi. Other

(a) IT Systems

TPI proposed a number of software and hardware solutions to be used by the TPIRR. Mr. Brown has reviewed these solutions and believes they are generally appropriate. CSXT accepts the IT systems that TPI has proposed, but makes several adjustments necessary for a functioning railroad and to correct apparent errors in TPI's submission.

First, the total amount of computer equipment TPI proposed must be increased to provide equipment for the additional staff that the TPIRR would need. CSXT increases the numbers of servers and related network equipment, desktop computers, laptop computers, and printers proposed by TPI by approximately 40% to provide equipment for the larger workforce it proposes. Because the larger workforce will mean more end users, the amount of hardware must increase accordingly.[374]

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[373] CSXT also adds an additional cost for police radios. *See supra* III-D-3-c-iii-(e)-(iii).

[374] *See* CSXT Reply WP "Operating Expense_Reply.xlsx," Tab "IT"; *see also* CSXT Reply WP "IT Staff Scaling.xlsx." Because any increase in server requirements will not be linear, CSXT conservatively uses a 40% factor to increase servers and when implementing that factor rounds down to be even more conservative.

Second, CSXT adds routers and firewall security at each TPIRR facility including its headquarters, transportation field offices, and all crew on duty points. Routers and firewalls are necessary at all of these locations because devices at these locations will need to be able to access the TPIRR's network, and the RMI system.[375]

Third, CSXT provides a desktop computer, desktop printer, and line printers at each location where TPIRR crews would go on duty. Additional computers and printers are necessary at on-duty points because train crews going on duty at these points need the ability to print paperwork such as work orders, slow orders or train manifests. All locations where TPIRR personnel go on duty need at least two printers to ensure that personnel can receive their paperwork without delay. Any delay could cause a train to be held up, which would have a far greater cost effect on the TPIRR than the minimal capital expense of an extra printer.[376]

Fourth, CSXT accepts TPI's proposed mobile crew devices—handheld devices for conductors to input information that can be populated into RMI in real time—but increases the number of devices so that each conductor may have his or her own. TPIRR's operating plan requires conductors and engineers to be able to work on any train at any time. Absent some method of organizing and distributing devices as needed, conductors will need personal devices so they can be assigned to any train at any time. This will increase the total number of devices from the 1,389 devices proposed by TPI to 2,101, an increase of 712.[377] Moreover, TPI overestimates the asset life of these devices. When TPI estimated the annual cost of these devices, it included them with application software that has a ten-year asset life. This is far too

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[375] *See* CSXT Reply WP "IT Requirements for Field Ops Offices.xlsx."

[376] *Id.*

[377] *See* CSXT Reply WP "Operating Expense_Reply.xlsx."

optimistic for these handheld devices, which are hardware roughly equivalent to laptop devices that have an asset life of four years.[378]

Fifth, CSXT agrees that the TPIRR will require Telecom T1 back-up lines so the TPIRR major yards can always access the TPIRR's network. CSXT accepts TPI's proposed $269 per month expense, but disagrees with TPI's accounting for this expense as a one-time capital cost. (This may be an unintentional error on TPI's part, for TPI's own supporting workpaper describes the T1 charges as a monthly operating cost.)[379] CSXT shifts the T1 expense from capital to operating.

Sixth, while TPI stated in its evidence that it would provide email service for employees using Microsoft Cloud,[380] TPI appears not to have accounted for this expense in its spreadsheets documenting IT costs. CSXT, therefore, proposes using Google as an email cloud solution at a cost of $50 per employee per year.[381]

(b) Other Outsourced Functions

TPI proposed to outsource numerous functions. In general, TPI cannot rely on outsourcing as a justification for the TPIRR's low staffing levels. CSXT has addressed in individual functional areas its Reply position on TPIRR's outsourcing proposals.[382]

(c) Start-Up and Training Costs

CSXT generally accepts TPI's proposed training and recruitment costs but corrects a few methodological errors. First, CSXT adjusts total training costs to incorporate the additional

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[378] *See* TPI Op. WP "TPIRR – Capital Budget.xls", Tabs "Sheet1" and "Capital Expense."

[379] *See* TPI Op. WP "Exhibit III-D-2 Information Technology Support.pdf" at 165.

[380] *See* TPI Op. Ex. III-D-2 at 49.

[381] *See* CSXT Reply WP "Google Email Pricing.pdf."

[382] *See, e.g.,* III-D-3-c-iii-(e)-(ii) (discussion of legal outsourcing); III-D-3-c-iii-(d)-(iii) (discussion of internal audit outsourcing); III-D-3-c-vi-(c) (discussion of recruitment outsourcing). *See also* CSXT Reply WP "TPIRR G&A Outsourcing Reply.xlsx."

TPIRR staff positions identified by CSXT in its Reply Evidence. Second, where training salaries include benefits, CSXT uses its corrected fringe benefit ratio of 50.2%. Third, CSXT uses the supported attrition rates detailed above.[383]

(d) Travel Expense

TPI understated travel expenses for the TPIRR in three ways. *First*, TPI proposed that only the most senior TPIRR personnel would travel and ignores the fact that many more TPIRR personnel would need to travel as part of their job functions on a 7,000 mile railroad. *Second*, TPI understated the amount that travel would cost per traveling employee. *Third*, TPI ignored the need for entertainment expenses.

First, TPI proposed that only 98 TPIRR G&A individuals would travel. TPI generally assumed that only Director-level and higher employees would travel, including the outside members of the Board of Directors but excluding Assistant Controllers. *See* TPI Op. Ex. III-D-2 at 55; TPI Op. WP "TPIRR Operating Expense_Open.xlsx." TPI's claim that only the most senior TPIRR employees would travel as part of their duties is not a realistic assumption for a Class I railroad that will operate over a wide geographic territory. Indeed, the Board has rejected near-identical claims from other complainants that a SARR could limit employee travel to only the most senior executives.[384] TPI does not provide any argument or explanation for its position

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[383] *See supra* III-D-3-c-(a)-(iii). *See also* CSXT Reply WP "CSXT Operating Expense_Reply.xlsx," Tab "Training."

[384] In *AEPCO 2011*, the Board specifically rejected a similar proposal to limit travel to SARR "employees at the Manager level and higher." *AEPCO 2011*, STB Docket No. 42113, at 55 (rejecting complainant's proposal for the number of personnel that would travel because defendants "provide for a more realistic number of employees that would travel"); *see* Opening Evidence of Complainant AEPCO, *AEPCO 2011*, STB Docket No. 42113, at III-D-57 (Jan. 25, 2010) (proposing to limit travel to SARR "employees at the Manager level and higher . . . except for Customer Service Managers and the Assistant Controllers"); *DuPont*, STB Docket No. 42125, at 99 (same).

that could justify departing from the Board's precedent, and thus TPI's unrealistic travel expenses should be rejected.

Mr. Brown corrected TPI's understatement by conducting a rigorous review of the positions within G&A to determine whether or not the employees would be expected to travel. After this review, Mr. Brown agreed with TPI that all Assistant Vice Presidents and Vice Presidents would travel.[385] But Mr. Brown concluded that many other TPIRR employees would also need to travel. CSXT Reply WP "Proposed TPIRR Travelers.xlsx" shows that the total number of travelers needs to be increased from 98 to 332. The increase of 234 travelers includes 89 individuals that CSXT adds in its Reply Evidence and who would be allotted travel expenses following TPI's own methodology (*i.e.*, because they are in director-level positions). It also includes 145 individuals below Director-level whom Mr. Brown determined would need to travel, including:

- HR medical staff who need to travel to assess employee physical conditions;
- Marketing Managers who need to travel to meet with customers;
- Sales Managers who travel to meet with customers;
- Freight Claims Agents who need to travel to meet with customers to discuss and review claims and review loading practices;
- Short Line and Interline Managers who need to travel to meet with interline and short line partners at their locations or at interchange points.
- Casualty Claims Agents who need to travel to the location of the claim to review and assess the circumstances; and

[385] *See* TPI Op. Ex. III-D-2 at 55 (proposing travel for all TPIRR employees at the Director level and higher, such as Vice Presidents and Assistant Vice Presidents, excluding Assistant Controllers).

- Environmental Managers and technical staff who need to travel into the field to investigate spills, releases, or other contamination problems.[386]

Mr. Brown's approach was quite conservative, because virtually every position at a Class I railroad requires some type of travel. Indeed, many of the positions require a substantial number of travel days per month, meaning the average travel cost calculated below is almost certainly lower than the real-world expense for a Class I railroad.[387]

Second, TPI understated annual costs-per-traveler by selecting a single year as the source for average travel costs. Specifically, TPI used a 2010 Runzheimer International survey of corporate business travel to derive an annual average of travel costs of $10,475. But a cherry-picked survey from one year is not representative of the travel costs the TPIRR could expect to incur over the SAC analysis period. Pursuant to the Board's decision in *DuPont*—and its general preference for using multi-year averages rather than single-year snapshots[388]—CSXT proposes a multi-year average of travel expenses based on three years of Runzheimer International surveys,

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[386] *See* CSXT Reply WP "Proposed TPIRR Travelers.xlsx," Tab "G&A Travelers" for a complete list of positions requiring travel.

[387] TPI has provided a large number of company cars for use by TPIRR employees in G&A. This is certainly a workable approach, although no longer common in the real world. These company vehicles will result in lower travel costs for TPIRR employees since they will not have to use personal vehicles and submit mileage or use rental cars. The annual cost for the Ford Taurus proposed by TPI is $9,427 which includes all ownership, maintenance and fuel. This is a reasonable cost that will probably result in less travel cost for those G&A employees in the field that need to travel to do their work. In keeping with that overall TPI approach, CSXT in reply adds vehicles for employees that need to travel to do their jobs such as claims agents and police.

[388] *See DuPont*, STB Docket No. 42125, at 100 (accepting multi-year average of travel expenses rather than single-year snapshot because "the Board favors use of an average of multiple years over using data from a single year"); *see also West Texas*, 1 S.T.B. at 713 ("Using data for a single year increases the risk that the single period is aberrational.") (calculating cost of equity); *WFA I*, STB Docket No. 42088, at 55 ("[U]se of a multi-year average is superior to using just a single year of data"); *AEP Texas II*, STB Docket No. 41191, (Sub-No. 1), at 107 ("[U]sing data for a single year increases the risk that the single year is an aberration.") (calculating cost of equity).

from 2010 to 2012. Table III-D-31 shows the result of the averaging—an average cost of $10,573 per traveler.[389]

TABLE III-D-31
Runzheimer International Survey Average of Travel Costs Per Employee[390]

Year	Average Annual Travel Costs Per Employee
2010	$10,475
2011	$10,248
2012	$10,997
Average	**$10,573**

Third, TPI's evidence ignored the cost of entertainment expenses. The Board has previously held that a SARR must account for entertainment expenses.[391] These expenses would be, for example, the cost of a Marketing Manager taking a potential customer to lunch or dinner. But the Runzheimer International survey used by TPI does not include the cost of entertainment. This is shown by the fact that a 2009 Runzheimer study that did incorporate entertainment expenses raised the average cost per employee in 2009 to $10,039, demonstrating that these costs are not included in the TPI figure because the Runzheimer 2009 average cited in TPI's workpaper is only $9,751.[392] At CSXT, entertainment costs are approximately 5.4% of total

[389] As explained above, given the frequency with which some employees will travel, this likely is an underestimate of the railroad's travel costs.

[390] *See* CSXT Reply WP "Survey Growth Companies Invest More On Business Travelers.pdf."

[391] *See DuPont*, STB Docket No. 42125, at 100; *Xcel*, 7 S.T.B. at 656 (listing travel *and* entertainment expenses); *Duke /NS*, 7 S.T.B. at 160 (same).

[392] Other Runzheimer studies that specifically incorporate entertainment expenses estimate higher costs than the travel-only study TPI uses. *See* CSXT Reply WP "Runzheimer White Paper.pdf" at 2 (identifying average annual travel and entertainment costs per traveler as $10,039 for 2009).

travel costs.[393] CSXT proposes the same number be applied to the TPIRR, amounting to $571 additional dollars per traveler. This approach is identical to the one accepted by the Board in *DuPont*. *See DuPont*, STB Docket No. 42125, at 100.

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After making these three adjustments, Mr. Brown adopted an extremely conservative budget for travel and entertainment of $3.7 million. In 2009, Runzheimer found that the average organization spends 1.6% of revenue on travel and entertainment.[394] In the case of the TPIRR, that would be over $100 million of the CSXT-projected TPIRR $6.5 billion revenue figure, which equates to over 25 times the travel expenses proposed in CSXT's evidence. As a point of comparison, CSXT spent {{ }} on G&A travel and entertainment costs in 2012.[395]

TABLE III-D-32
Travel Costs Comparison

	TPI Opening	CSXT Reply	Difference
Number of Travelers	98	332	234
Cost Per Traveler	$10,475	$10,573	$98
Cost Per Traveler for Entertainment	0	$571	$571
Total Cost for Travel	$1,026,550	$3,699,808	$2,673,258

(e) Bad Debt

The Board has recognized that bad debt is "a legitimate business expense," because neither a SARR nor a real-world railroad can expect to collect 100% of its billings. *AEPCO 2011*, STB Docket No. 42113, at 64; *see also DuPont*, STB Docket No. 42125, at 100

[393] *See* CSXT Reply WP "Proposed TPIRR Traveersl.xlsx," Tab "CSXT Actual Travel & Entertain."

[394] *See* CSXT Reply WP "Runzheimer White Paper.pdf" at 4.

[395] *See* CSXT Reply WP "Proposed TPIRR Traveersl.xlsx," Tab "CSXT Actual Travel & Entertain."

(recognizing bad debt expense); *SunBelt*, STB Docket No. 42130, at 66 (same). TPI attempted to wiggle out of this requirement by using a one-time CSXT writedown of its bad debt expenses to claim that "the TPIRR will not have expense for bad debt resulting from the write down of doubtful accounts" at any point in the SAC analysis period. TPI Op. Ex. III-D-2 at 55. TPI' s approach is pure cherry-picking, and its assumption that the TPIRR would never have a customer that failed to pay its full bill is not consistent with "the realities of real-world railroading."

TPI's claim that CSXT's "actual experience" is grounds to find that the TPIRR would not incur any bad debt expense is disingenuous at best. As Table III-D-33 illustrates, CSXT's "actual experience" over the last ten years shows an average bad debt expense of 0.13%.

Table III-D-33
CSXT Historical Bad Debt Expense

Year	Bad Debt from R-1	Revenue from R-1	Bad Debt as a Percentage of Revenue
2013	$4,466.00	11,705,640	0.04%
2012	$13,214.00	11,477,699	0.12%
2011	$10,341.00	11,728,142	0.09%
2010	$4,088.00	10,181,605	0.04%
2009	($12,019.00)	8,170,380	-0.15%
2008	$11,828.00	10,219,153	0.12%
2007	$9,173.00	9,039,079	0.10%
2006	$3,259.00	8,601,641	0.04%
2005	$41,735.00	7,688,738	0.54%
2004	$28,869.00	7,114,226	0.41%
Average	**$11,495.40**	--	**0.13%**

In only one year—2009—did CSXT report negative bad debt expense. As CSXT explained in its 2009 10-K, this negative expense was due to a one-time adjustment to CSXT's allowance for doubtful accounts that CSXT made because of "improved collections and a

stabilizing economic environment."[396] This accounting adjustment does not change the fact that over time CSXT—like every railroad and like every business—does not recover 100% of the revenue it bills.

TPIRR's use of the anomalous 2009 adjustment to claim that CSXT's bad debt expense is effectively zero is not reasonable and should be rejected. Indeed, the SARR would not be operating in 2009, so there is little justification for including that year (other than TPI's desire to manipulate the results). It is more reasonable to estimate the TPIRR's bad debt by averaging CSXT's allowances for doubtful accounts in each of the first three years of the TPIRR's operations. The three-year average for 2010-2012 was approximately 0.08% of CSXT's revenue. This figure is quite conservative, for it is substantially lower than the ten-year running average of CSXT's bad debt expenses—even when including the accounting adjustment of 2009.

4. Maintenance of Way

TPI's Opening Evidence of the TPIRR's maintenance-of-way ("MOW") staffing and expenses falls far short of its burden to present evidence of likely TPIRR MOW costs that is "consistent with the underlying realities of real-world railroading." *WFA I*, STB Docket No. 42088, at 15. TPI's proposed staffing is not nearly sufficient to properly maintain the TPIRR's network. This fact is illustrated by a comparison of TPI's staffing levels to the MOW staffing that the Board has found to be reasonable in recent SAC cases. On a track-mile basis, TPI's MOW staffing is far below the level of MOW staffing in the last seven decided SAC cases. *See infra* III-D-177, Table III-D-34. TPI presents no credible evidence that would explain how the TPIRR could operate with such a ludicrously small staff, and the Board should reject its unsupported and patently unrealistic evidence.

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[396] *See* CSXT Reply WP "2009 CSXT 10-K.pdf" at 74.

The Board has repeatedly affirmed that a complainant is not permitted to depress SARR operating costs by scrimping on maintenance.[397] On the contrary, adequately maintaining the SARR network is essential for the SARR to replicate the full costs of serving its selected traffic. For this reason, the Board repeatedly has rejected claims that a SARR can defer maintenance during the SAC analysis period,[398] and it has refused to credit allegations that a SARR's infrastructure would require significantly less maintenance than real-world infrastructure.[399] The "realities of real-world railroading" require an adequately staffed maintenance function if a SARR is to provide safe and reliable service.

The Board's application of these principles has led it to consistently approve MOW staff levels within the range of 3.3 to 5.9 track miles per MOW employee.[400] For example, the recent *DuPont* decision held that a staff of 2,163 MOW employees was necessary to maintain a network of 10,722.59 track miles, a ratio of 4.96 track miles per MOW employee.

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[397] *See DuPont,* STB Docket No. 42125, at 100-34; SunBelt, STB Docket No. 42130, at 71-95.

[398] *See, e.g.*, *AEPCO 2011*, STB Docket No. 42113, at 66 (recognizing that "substantial welding work would be required from the outset" of a newly-built SARR); *AEP Texas II*, STB Docket No. 41191 (Sub-No. 1), at 71 ("We cannot simply assume . . . that only minimal repairs would be required throughout the entire SAC analysis period").

[399] *See, e.g.*, DuPont, STB Docket No. 42125, at 106, 127-29 (rejecting various claims that SARR's new infrastructure would require substantially less maintenance than incumbent); *SunBelt*, STB Docket No. 42130 at 73, 75 (same); *Otter Tail*, STB Docket No. 42071, at C-20-21 (rejecting argument that SARR "could get by with a smaller MOW force because it would be a newer system and would therefore experience fewer maintenance problems").

[400] The Board has recognized that track miles per employee is a reasonable metric for measuring the relative workload of each MOW employee. *See WFA I*, STB Docket No. 42088, at 57.

TABLE III-D-34
MOW Staffing in Recent SAC Cases[401]

	DuPont	*SunBelt*	*AEPCO 2011*	*WFA*	*AEP Texas*	*Otter Tail*	*Xcel*	TPI Opening	CSXT Reply
MOW Staff	2,163	**185**	559	97	488	437	179	1,146	1,966
Track Miles[402]	10,723	**714**	3,326	391	1,664	1,485	553	10,219	10,283
Track Miles to MOW Staff	**4.96**	**3.9**	**5.9**	**4.0**	**3.4**	**3.4**	**3.1**	**8.92**	**5.23**

TPI, in contrast, proposes dramatically lower levels of MOW staffing that would result in a far higher ratio of 8.92 track miles per employee. That ratio suggests that TPI's MOW workers would be almost twice as efficient as the MOW workers on the *DuPont* SARR, which had a similar size, geography, and traffic mix. TPI does not explain what is different about its SARR that would allow such remarkable efficiency improvements. It simply repeats the same generalized claims made by complainants in *DuPont* and prior cases about the supposed lower maintenance needs of newly constructed SARR infrastructure.[403] Of course, these assertions do not explain how the TPIRR's MOW workforce could be markedly more efficient than the

[401] *See AEPCO 2011*, STB Docket No. 42113, at 32, 65; *WFA I*, STB Docket No. 42088, at 57; *AEP Texas II*, STB Docket No. 41191, (Sub-No. 1), at 27, 67; BNSF Reply, *AEP Texas*, STB Docket No. 41191, (Sub-No. 1), at III-D-167; *Otter Tail*, STB Docket No. 42071, at A-1, C-20; BNSF Supp. Reply in *Otter Tail* at III-D-28; *Xcel*, 7 S.T.B. at 633, 662, 79; *DuPont*, STB Docket No. 42125, at 46, 109, 114, 117, 122., *SunBelt*, STB Docket No. 42130, at 20, 77, 82, 85, 88; TPI Opening III-B-5 & Ex. III-D-3 at 8; CSXT Reply at III-B-15.

[402] The track mile calculations exclude yards, set-outs and helper tracks, as the Board did in *WFA I*. *WFA I*, STB Docket No. 42088, at 57. Track miles are rounded to the nearest whole number.

[403] Much of TPI's rhetoric on this point is lifted almost word-for-word from DuPont's evidence. *Compare* TPI Op. Ex. III-D-3 at 6, Table 1 *with* Rebuttal Ex. III-D-2 at 8, Table 1, *DuPont*, STB Docket No. 42125 (filed Apr. 15, 2013).

workforces of other SARRs that were also presumed to be maximally efficient and to be maintaining newly built infrastructure.[404]

As demonstrated below, TPI's maintenance of way plan is based on empty assertions of the sort that the Board has repeatedly rejected. In contrast, CSXT expert witness David J. Hughes has developed a realistic and well-supported plan for the TPIRR's MOW staffing and expenses. Mr. Hughes has extensive real-world experience in overseeing railroad maintenance and planning for MOW needs. Mr. Hughes began his railroad career as a first line maintenance supervisor and rose to become the Chief Engineering officer of the National Railroad Passenger Corporation ("Amtrak") from 2002 through 2005 and the Acting President and Chief Executive Officer of Amtrak from 2005 through 2006. His three decades of railroad infrastructure maintenance and construction experience give him bottom to top perspective on railroad maintenance practices, costs, and strategy. *See infra* Section IV.

Much of Mr. Hughes' experience is particularly well suited to maintaining a newly constructed SARR. He has good insight into the latest infrastructure maintenance practices of railroads with few or no work rules restrictions from his experience as co-founder of Regional Railroads of America (now in the American Short Line and Regional Railroad Association) and as a consultant performing numerous due diligence projects on regional and short line railroads He also has personal experience with constructing and maintaining new railroad infrastructure and the maintenance challenges presented in the early years of newly constructed railroad operation. Specifically, he was a field construction inspector during the construction of the Southern Pacific's ("SP's") 78-mile long Palmdale-Colton Cutoff bypassing Los Angeles, and he

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[404] The Board has recognized that consistency with recent SARR decisions is a relevant factor when assessing the reasonableness of a complainant's MOW staffing assumptions. *See, e.g.*, *SunBelt*, STB Docket No. 42130, at 79.

was a General Track Foreman for SP immediately following the Cutoff's construction. Likewise, as Chief Engineer of Amtrak, he had hands-on experience with the commissioning problems that often result from new movable bridges and other new infrastructure assets.

Mr. Hughes's testimony is based both on his own experience and on extensive discussions about Engineering maintenance practices with CSXT personnel responsible for maintaining the track, signals, bridges, and facilities replicated by the TPIRR. Mr. Hughes draws on those conversations when explaining normal practice on CSXT below.

In Section III-D-4-a Mr. Hughes disproves each of the two primary justifications TPI presents for its extraordinarily thin MOW staffing: (1) that the TPIRR needs substantially less MOW staff because it will be newly built; and (2) that the TPIRR's proposed staffing is comparable to CSXT's real-world staffing. TPI's claims about the allegedly lower maintenance needs of a SARR have been rejected in multiple prior SAC cases, and Mr. Hughes shows once again that the difference between the expense of maintaining a newly constructed, high-density SARR over the 10-year SAC analysis period is not substantially lower than the expense of maintaining a mature railroad. Mr. Hughes also shows that TPI's purported comparison to CSXT staffing levels rests upon multiple errors, and that correcting those errors shows that TPI is proposing that the TPIRR would maintain the CSXT lines it is replicating with a fraction of CSXT's real-world staff. Section III-D-4-b discusses staffing for each MOW area; Section III-D-4-c addresses work performed by contractors; and Section III-D-4-d addresses equipment.

a. TPI's Two Major Justifications for Its MOW Staffing Are Meritless.

TPI's MOW evidence is littered with claims that, because the TPIRR would be newly constructed, it requires little maintenance and therefore needs much less staffing to maintain the

TPIRR lines than CSXT uses to maintain those lines in the real world.[405] TPI's expert Mr. Crouch has made similar claims in multiple prior cases, and the Board has rightly rejected them. *See supra* III-D 176, n.399 (citing examples from *DuPont* and *SunBelt*). The fact that a SARR is newly built does not eliminate maintenance needs. Indeed, newly built infrastructure often requires more maintenance.[406] CSXT reply workpaper "Reply Exhibit III-D-3 PI MOW.xlsx" addresses TPI's claims in detail and shows why there is no reason to assume that TPIRR could avoid maintenance costs simply because its track was new. Moreover, the TPIRR would be a high-density railroad that would need to maintain its infrastructure to a high level to efficiently transport its selected traffic group over its network.

Perhaps recognizing the futility of relying on this discredited "new railroad" argument, TPI attempts a new tactic. TPI claims that its analysis of CSXT's MOW workforce shows that CSXT's real-world workforce maintains 9.71[407] track miles per capita—a ratio more efficient than the one that TPI is proposing for the TPIRR and nearly double the ratio in *DuPont*. Remarkably, this assertion would mean that every MOW workforce approved by the Board in recent years was far less efficient than the real-world CSXT. And it would mean that every complainant in those cases had somehow failed to notice that the Board was adopting MOW staffing levels for SARRs far in excess of the levels employed by real-world railroads.

TPI's implausible assertion is utterly false. TPI has both overstated the number of main track miles maintained by CSXT and understated the number of CSXT MOW employees. As a

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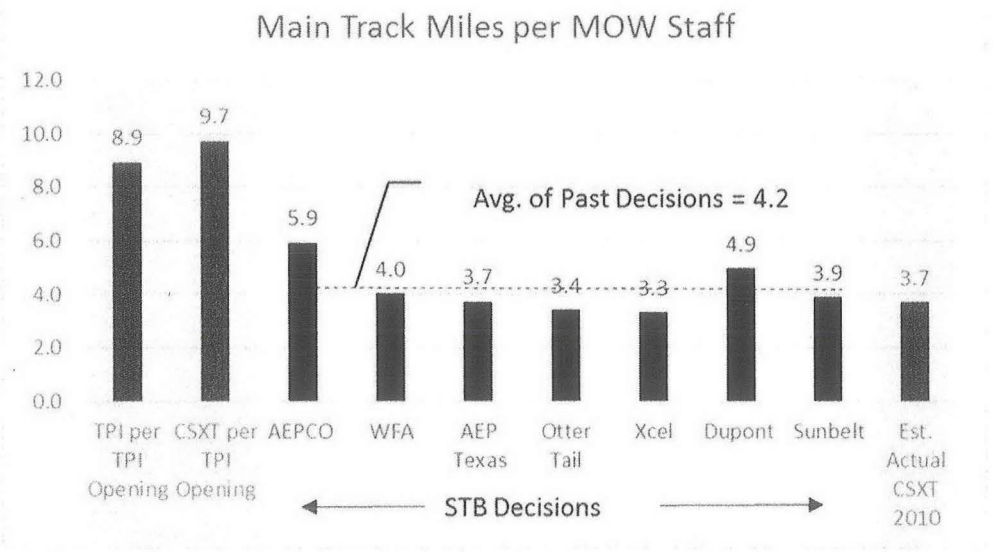
[405] *See, e.g.*, TPI Op. Ex. III-D-3 at 4, 17, 25; TPI Op. WPs "TPI-CSXT Differences in New and Existing Infrastructure.docx" and "TPI MOW Plan Methodology.docx."

[406] For example, new track can settle differently as it passes over different areas like bridge abutments, fill, or culverts, and this settling process can increase maintenance needs.

[407] While TPI designates this ratio as highly confidential, CSXT does not. There is nothing confidential about a fictional number that bears no relationship to CSXT's actual track miles per MOW employee.

result, TPI's claimed 9.71 ratio for CSXT is significantly inflated. CSXT's actual track-mile-to-MOW-employee ratio is approximately 3.7. That real-world ratio is significantly lower than the ratios that the Board has approved for optimally efficient SARRs, as demonstrated in Figure III-D-1.

Figure III-D-1



The first mistake in TPI's alleged CSXT ratio is that TPI uses the wrong number of track miles. TPI says that CSXT has 31,674 track miles.[408] While it is not clear how TPI arrived at this number, it is clear that it is wrong. The relevant number of track miles for a comparison of MOW efficiency is the number of track miles that CSXT actually maintains, which can be easily derived from CSXT's R-1. As Table III-D-35 shows, CSXT maintained 17,248 route miles and 21,684 miles of main line track at the end of 2010. TPI's count of CSXT track miles is therefore overstated by almost 10,000, and correcting mileage alone would reduce its claimed CSXT ratio from 9.04 to 6.65.

[408] TPI Op. Ex. III-D-3 at 8, Table 2.

Table III-D-35
Mileage Operated by CSXT at Close of 2010[409]

	Miles of Road	Miles of Second Main Track	Miles of All Other Main Tracks	Miles of passing tracks, cross-overs and turnouts	Miles of Main Track Maintained by CSXT
Total Operated	21,063	4,835	722	928	
Class 5 (not maintained by CSXT)	(3,815)	(1,179)	(622)	(248)	
Miles Maintained by CSXT	**17,248**	3,656	100	680	**21,684**

TPI's other mistake is to significantly understate the number of CSXT MOW employees. TPI's claim that CSXT has 3,261 maintenance employees is incorrect and relies upon arbitrary and incorrect adjustments to the workforce data provided by CSXT in discovery. Indeed, the wage forms CSXT produced in discovery reported 6,126 maintenance field workers (not including MOW executives)—nearly twice the number claimed by TPI for its entire MOW department.[410] TPI can only derive its count by refusing to include thousands of CSXT MOW employees that TPI claims are "not needed." As demonstrated below, TPI's exclusions are overbroad and not justified. While it is appropriate to exclude CSXT MOW personnel engaged in capital work in order to make an apples-to-apples comparison of operating maintenance employees, making those exclusions produces a count of 5,887 CSXT MOW employees engaged in operating maintenance for 2010. The correct ratio of CSXT track miles to CSXT MOW employees is thus 3.7 (21,684/5,887).

CSXT estimated its 2010 workforce devoted to operating maintenance by following TPI's basic approach. Like TPI did, CSXT began with a 2010 MOW workforce file it produced

[409] Source: CSXT R-1 for 2010, Schedule 700.

[410] *See* CSXT Reply WP "2010_Annual_Form_AB.pdf." Specifically, CSXT reported 6,126 Class 300 employees. This count does not include executives, officials, and staff assistants in CSXT's MOW Department, who are reported as Class 100 employees. *See* 49 C.F.R. § 1245.5.

in discovery and supplemented that file with another file containing a count of CSXT's Communications and Signals ("C&S") workforce. CSXT then removed the C&S workforce devoted to construction[411] and other subdivisions not engaged in maintenance[412] from the count of maintenance employees. The resulting total was 5,887 employees. *See* CSXT Reply WP "Calculation of 2010 MOW Workforce.doc."

TPI's exclusion of thousands of these workers as "not needed" is unreasonable and unsupported. TPI's evidence does not clearly explain how it developed its alleged CSXT MOW workforce count of 3,261, leaving CSXT to piece together what it could to understand the process. What is clear is that major errors were made that caused TPI to fail to count 2,626 of the 5,887 MOW workers in CSXT's workforce. For example, TPI failed to count 481 contract foremen, with no explanation for why they were not included.[413] TPI also chose not to include 1,488 CSXT employees because of an incorrect assumption that any employee in "Floating positions and catch all locations" must be "associated with system crews and program capital maintenance."[414] On the contrary, floating crews and catch-all positions are often associated with ordinary maintenance. The term "floating" means only that the position does not have an assigned headquarters location. The data available to TPI showed 2,502 floating or catch all locations, of which only 1,014 are associated with capital and program work. The remaining

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[411] Construction forces are led by C&S Gang Foremen and include Signalmen, Assistant Signalmen and associated management positions designated as construction-related in the data. However, dedicated C&S gangs are also used in hump yards for hump retarder maintenance.

[412] Specifically, CSXT excluded Design, Construction & Capacity, Fixed Plant Engineering, MOW Capital Projects and Program Construction.

[413] The title "contract foreman" refers to a foreman who is covered by a labor agreement contract and is no different than a "Gang Foreman." *See* TPI Op. WP "Exhibit III-D-3 CSX TPI MOW.xls," Tab "Table 8 TPIRR CSXT Comparison," Line 28.

[414] *See* TPI Op. WP "CSXT Employee Data from 2010 Sorted.xls," Tab "CSXT Staff wo Floating Pos," Line 2578.

1,488 are maintenance positions that must be included in any count of CSXT's MOW workforce.[415] While it is not possible to entirely reconstruct how TPI arrived at its alleged count of CSXT's workforce, these two errors alone[416] explain 1,969 of the 2,626-person difference between the actual 2010 CSXT MOW maintenance workforce of 5,887 and TPI's claimed workforce of 3,261.[417]

TPI attempts to make several granular comparisons at a job-by-job level using the individual job description codes in CSXT's MOW workforce data. However, many of the job description codes for individual employees and worker counts in that data are incorrect. For example, the data show 224 communications and signals gang foremen but only 33 Assistant Signal Workers and no Signal Workers. CSXT plainly does not have hundreds of C&S gang foremen who have no signal workers to supervise. It is apparent that the translation tables used to populate the job description data in the workforce data files produced in discovery misclassified many signal workers.

CSXT did not discover these coding errors until it reviewed TPI's Opening Evidence. In part this was because the top-line totals of the maintenance of way workforce files are accurate. Errors only become apparent when one sorts the data to group employees by job description. CSXT regrets that it produced this data without noticing the job description errors. CSXT notes, however, that TPI did not ask CSXT any questions about the discrepancies in the file, many of which are obvious when performing the sort of job-by-job sorting that TPI performed. TPI failed

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[415] *See* CSXT Reply WP "Reply CSXT Employee Data from 2010 Sorted.xlsm," Tab "Floating."

[416] 1,488 wrongly omitted floating and catch all workers plus 481 wrongly omitted contract MOW foremen amounts to 1,969 of the 2,626 workers that TPI erroneously eliminated from its count of the CSXT 2010 maintenance workforce.

[417] *See* CSXT Reply WP "Note on Correction of TPI Estimates of CSXT MOW Workforce per Main Track Mile.docx" for a more detailed examination of the errors in TPI's analysis.

to do so despite posing hundreds of follow-up questions about other data produced by CSXT. Regardless, the fact that CSXT produced a file containing some coding errors cannot justify TPI's attempt to propose maintenance staffing vastly lower on a track-mile basis than that approved in any recent case.

To be clear, the total count of CSXT MOW employees in the MOW workforce files are believed by CSXT to be accurate for the Engineering department as a whole, and the allocations between maintenance and non-maintenance activities appear to be reasonably accurate. The errors occur at the job description level. As a result, it is impossible to perform reliable job-by-job comparisons between CSXT's and TPI's proposed MOW workforce plans based on the MOW workforce data files that CSXT produced in discovery.[418] But it is possible to show how far TPI's claims diverge from CSXT's staffing on a department-wide level. Table III-D-36 below shows the substantial differences between CSXT's actual staffing and TPI's proposed staffing on a track-mile-per-employee basis.

TABLE III-D-36
Comparison of MOW Personnel on a Route Mile and Track Mile Basis

	Item	TPIRR	CSXT
	(1)	(2)	(3)
1.	MOW Staff	1,146	5,887
2.	Total Route Miles	6,866	17,248
3.	Total Track Miles	10,356	21,684
4.	Route Miles per MOW Employee	6.0	2.9
5.	Track Miles per MOW Employee	9.0	3.7

[418] In Tables 2-8 of TPI Opening Exhibit III-D-3, TPI presents alleged TPIRR staffing comparisons to CSXT's workforce on a job-level basis. The combination of TPI's mileage errors, its exclusion of thousands of workers as "not needed," and data inaccuracies at the job description level combine to make these granular comparisons worthless. *See* CSXT Reply WPs "Note on CSXT Workforce Data Produced.docx" and "Note on Correction of TPI Estimates of CSXT MOW Workforce per Route Mile.docx" for a more detailed explanation.

b. TPIRR Operating Staff

The MOW workforce designed by Mr. Hughes is modern, lean, and designed to be consistent with the SAC concept of a least-cost, most-efficient railroad. Indeed, Mr. Hughes proposes a MOW workforce that would maintain 5.23 track miles per MOW workforce, a ratio that means the TPIRR's MOW workforce would be more efficient than the MOW workforce the Board accepted in *DuPont* for a similarly-sized SARR and substantially more efficient than the MOW workforces accepted in other cases like *SunBelt*, *WFA I*, *Otter Tail*, *Xcel*, and *AEP Texas*.[419] A detailed position count and salary breakdown is set forth in CSXT Reply WP "Exhibit III-D-3 CSX TPI MOW.xls."

i. Headquarters Staffing

One of the most striking disconnects between TPI's MOW plan for the TPIRR and the MOW staffing at real-world railroads is the near-complete absence of engineering staff at headquarters to administer and support the MOW field staff. CSXT had {{ }} headquarters employees in 2010; TPI proposes just 20 for a SARR that would replicate many of CSXT's densest, most maintenance-intensive lines. And TPI offers no benchmarking support for its minimal staffing, and no explanation of precisely why TPI's staffing would be so much more efficient than any real-world railroad. TPI's only support is the say-so of a witness who does not appear to have any experience designing headquarters staffing at a Class I railroad.

In past cases the Board has accepted complainant proposals for minimal headquarters staffing where railroads have not provided sufficient explanation for why more headquarters

[419] The track-mile-to-staff ratio for *AEPCO 2011* was slightly higher than what CSXT proposes for the TPIRR here (5.9 vs. 5.23), primarily because the TPIRR would face more complex maintenance challenges due to the geography of its territory. *See infra* III-D-216; CSXT Reply WP "TPIRR Environmental Factors.pdf."

staffing is required.[420] But in this case, CSXT has provided new, detailed evidence documenting the need for additional headquarters staffing and using a real-world benchmark to inform the creation of a MOW headquarters staff optimally sized to the SARR. This data-based approach is significantly superior to TPI's ad hoc approach, which lacks any objective support and which does not provide sufficient personnel to carry out the headquarters functions required on the TPIRR.

TPI alleges that its headquarters staffing is comparable to that of the real-world CSXT, but nothing could be further from the truth. *See* TPI Op. Ex. III-D-3 at 30, Table 7. TPI's list of alleged CSXT headquarters positions erroneously eliminates many needed headquarters positions and bizarrely includes positions that appear nowhere in the workforce data files produced in discovery. The actual number of CSXT headquarters employees in 2010 was {{ }}—16 times higher than TPI's paltry staffing.[421]

Mr. Hughes based his headquarters staffing on both his extensive experience managing Class I engineering departments[422] and a detailed benchmarking study designed to construct a headquarters staff optimally sized for the TPIRR. CSXT Reply Workpaper "Note on TPIRR Engineering Management Functions and Structure.docx," at 9-19, discusses the rationale and methodology employed by Mr. Hughes to develop an Engineering headquarters workforce for TPIRR. Mr. Hughes' methodology was to begin with the CSXT Engineering department

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[420] *See, e.g.*, *DuPont*, STB Docket No. 42125, at 119-20 (holding that railroad had failed to show that complainant's staffing proposal for certain administrative positions was infeasible and therefore accepting complainant's proposal).

[421] *See* CSXT Reply WP "Reply CSXT MOW HQ and Regional Management Detail.xlsx", Tab "Business Model Reductions," Column H for a list of Engineering HQ positions in 2010.

[422] Mr. Hughes was Chief Engineer of Amtrak until 2005 and oversaw an engineering department of comparable scale to CSXT. He also served as Chief Engineer of the Boston & Maine railroad.

organization of {{ }} individuals and then adjust that total staffing in light of the business model and size of the SARR. Mr. Hughes reduced the {{ }} staff to eliminate {{ }} employees devoted to functions that the TPIRR would contract out, and then conservatively reduced the remaining staff by one-third to reflect the fact that the TPIRR would be newly constructed.[423] Those adjustments resulted in a core of {{ }} headquarters staff, which when adjusted for the TPIRR's track miles equates to a suggested optimal headquarters structure for the TPIRR of {{ }}.

In light of his personal experience as a chief engineer of a Class I railroad and this benchmark, Mr. Hughes crafted a headquarters workforce for the TPIRR of 90 employees. Mr. Hughes adopted as much as possible from TPI's planned organization and staffing, but in many areas TPI simply did not provide sufficient numbers of personnel to perform necessary headquarters functions.[424] Table III-D-37 provides an overview of CSXT's headquarters staffing plan and how it compares to TPI's.

[423] As explained above, the fact that the TPIRR would be newly constructed would have relatively little impact on its maintenance needs. Mr. Hughes nevertheless made a substantial adjustment to headquarters staff in order to be conservative.

[424] *See* CSXT Reply WP "Note on TPIRR Engineering Management Functions and Structure.docx" for further details on how the proposed organization and responsibilities of the TPIRR Engineering headquarters workforce were determined.

TABLE III-D-37
Engineering Headquarters Staffing Summary

Functional Area	TPI HQ Workforce Plan	CSXT HQ Workforce Plan	Diff.
Executive	8	11	3
Track Maintenance	4	38	34
Bridge Maintenance	1	5	4
Communications & Signals Maintenance	5	31	26
Public Projects	0	5	5
Environmental	2	0	-2
Total	**20**	**90**	**70**
Adjustments for Comparability			
Move Engineering Environmental Positions to G&A	-2		2
Move Public Projects to HQ	4		-4
Total Adjusted for Equal Comparison	**22**	**90**	**68**

Below CSXT describes the functions of each segment of its proposed Headquarters staffing and provides comparison tables to TPI's proposed staffing in each segment.

(a) Office of VP Engineering

CSXT accepts TPI's proposal that the TPIRR's MOW Department will be headed by a Vice President of Engineering, and CSXT accepts TPI's proposal for a Manager Safety /Training. CSXT adds one Manager of Administration and Budgets and two administrative assistants to TPI's proposed staffing, for the reasons detailed below.

TPI provided one Manager of Administration and Budgets as the sole headquarters support for "the budget process," "the MOW payroll," and "monitoring/payment of contractor invoices." TPI Op. Ex. III-D-3 at 32. This minimal staffing is not sufficient for an Engineering department that will be maintaining 6,866 route miles and have a maintenance budget of hundreds of millions of dollars. CSXT conservatively plans for two Managers of Administration

and Budgets to handle budgeting and administration for the TPIRR. One will manage the maintenance budget of over $400 million per year, and the other will be responsible for the MOW capital budget of approximately $535 million per year.[425] As detailed below, the monitoring of contractor invoices is a critical function for a railroad that will outsource so much of its maintenance needs, and other individuals in the TPIRR headquarters department must be responsible for providing contractor oversight.

TPI includes five Administrative/Support positions in its Headquarters organization to support fifteen professionals, a ratio of three professionals to one administrative position. Because CSXT proposes a significantly larger headquarters staff of 83 professionals, the TPIRR requires more administrative support. CSXT adds two more administrative assistants to the five TPI proposed. This total of seven administrative assistants for 83 professionals results in a more conservative ratio of 12 professionals to one administrative assistant.

TABLE III-D-38
Staffing for Office of VP Engineering

TPIRR HQ Position	TPI HQ Staff	CSXT HQ Position	CSXT HQ Staff	Diff.
Vice President – Eng'g	1	Vice President - Engineering	1	0
Mgr. Admin. & Budgets	1	Mgr. Admin. & Budgets	2	1
Mgr. Safety/Training	1	Mgr. Oper. Practices. & Trng.	1	0
Admin. Assistants/Clerks	5	Admin. Assistants	7	2
Total Executive	**8**		**11**	**3**

[425] The TPIRR would have over $20 billion investment in track, tunnels, bridges and signals and communications. *See infra* at III-F-1, Table III-F-1. If the average life of those assets is 30 years, the average annual replacement rate would be $667 million per year.

(b) Track Maintenance

CSXT accepts TPI's proposal for a Chief Engineer-Track, a Manager of Welding and Grinding, a Manager of Work Equipment, and an Engineer of Programs and Contracts. However, these four positions are not nearly sufficient to manage track maintenance for a Class I railroad. CSXT employs a staff of {{ }} engaged in the business of day-to-day operation and maintenance of the track.[426] This includes planning, contracting and oversight of the contracted maintenance work; oversight of maintenance on the divisions; provision of welding management; and management of the work equipment function. For TPIRR, CSXT provides a much more streamlined staff of 38.

As shown in Table III-D39, track maintenance can be broken down into five distinct functions: MOW Maintenance and Operations; MOW Inspection Process Engineering; MOW Capital Projects; Work Equipment; and Welding. The staffing for each of these areas is explained below.

[426] This count excludes the 26 headquarters employees who are engaged in the actual execution of program maintenance.

TABLE III-D-39
Headquarters Track Maintenance Staffing

TPIRR HQ Position	TPI HQ Staff	CSXT HQ Position	CSXT HQ Staff	Diff.
Chief Engr. - Track	1	Chief Engr. - Track	1	0
MOW Maintenance and Operations				
-	0	Dir. Operations Support	1	1
-	0	Gen. Engineering Inspector	2	2
-	0	Mgr. Systems Engineering	2	2
-	0	MOW Trainee	13	13
MOW Inspection Process Engineering				
-	0	ACE Inspection Process Eng.	1	1
-	0	Director of Track Testing	1	1
-	0	Engr. Track Analysis and Sched.	2	2
-	0	Mgr. Inspection & Records	2	2
Engr. of Programs and Contracts	1	Mgr. Contract Services	1	0
MOW Capital Projects				
-		ACE Capital Projects	1	1
-		Capital Project Managers	4	4
Work Equipment				
Mgr. of Work Equipment	1	Director of Work Equipment	1	0
-	0	Mgr. of Work Equipment	4	4
Welding				
Mgr. of Welding & Grinding	1	Welding Mgr.	2	1
Total Track Maintenance	**4**		**38**	**34**

MOW Maintenance and Operations. The maintenance and operations function is directly supervised by the Chief Engineer – Track. The Maintenance and Operations staff reporting to the Chief Engineer – Track include the Director Operations Support and four division Engineers

of Track.[427] Also included are thirteen management trainees for all MOW functions. A trainee program is a standard way to efficiently develop employees who can fill entry-level technical and supervisory positions. A trainee program provides TPIRR with a ready pool of replacement managers as inevitable attrition occurs, and is ultimately a cheaper solution than having to externally recruit higher-level employees every time a position opens. Trainee programs are common practice on CSXT and other real world railroads,[428] and therefore CSXT has included trainees in the CSXT MOW workforce.

Inspection Process Engineering. The inspection process engineering function is responsible for asset condition monitoring and asset condition assessment, including collecting, organizing and interpreting asset condition and track strength data collected by track geometry cars, rail flaw detector cars, and visual inspections. Based on the observed asset conditions, the group recommends capital replacement programs and important maintenance expenditures. This group is also responsible for ensuring compliance with FRA inspection and record retention policies. It is not enough for a railroad to simply employ on-the-ground track inspection forces. A Class I railroad also needs headquarters support to analyze and interpret inspection data to inform the railroad's maintenance and capital efforts.

TPI provides no headquarters employees to carry out this function. In contrast, CSXT employs {{ }} headquarters staff in this area, excluding nine that operate the track geometry

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[427] The Chief Engineer–Track also oversees the other track maintenance functions, and thus his other direct reports are the Assistant Chief Engineer–Inspection Process Engineering, the Assistant Chief Engineer–Capital Projects, two Managers of Welding, and the Director of Work Equipment.

[428] *See* CSXT Reply WP "Reply CSXT MOW HQ and Divisional Management Detail.xlsx."

car.[429] TPIRR replicates many of CSXT's highest-density lines that require frequent inspections both to ensure compliance with FRA regulations and for the critical business purpose of keeping traffic moving safely and smoothly. Mr. Hughes includes seven staff for this function, including an Assistant Chief Engineer–Inspection Process Engineering who reports to the Chief Engineer–Track. The inspection and condition assessment function is the critical starting place for understanding asset condition and the steps that need to be taken to maintain assets in good working order. TPIRR will need a full staff to analyze the many information sources on track condition and identify the best way for TPIRR to obtain the asset performance results it needs with the smallest possible expenditure and no earlier than necessary.

MOW Capital Projects. TPI provides no staff to oversee the program maintenance that TPIRR plans to contract out, which is a wholly unrealistic assumption. TPIRR will spend $667 million for program track maintenance in the Base Year. Like any other outsourced function, this requires in-house employees to plan, manage, and coordinate the contract work. Based on information provided by the Inspection Process–Engineering group, the MOW Capital Projects Group would define individual maintenance projects to be carried out and define the special conditions applying to each contract. The group would also establish the project locations, duration, and daily track occupancy commitment in conjunction with the Transportation Department. Once work begins, the group would oversee contracts, approve invoices, and coordinate project closeout and acceptance.[430]

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[429] TPI includes the cost of geometry car operation as a unit cost per mile, including the operators. CSXT accepts this proposal, and therefore the 9 geometry car operators were excluded from CSXT's headquarters workforce analysis.

[430] The staffing proposed for MOW Capital projects assumes that actual field supervision of the projects would be charged to capital accounts, so that workforce is not included in the maintenance workforce.

CSXT provides an Assistant Chief Engineer - Capital Projects and four Capital Project Managers for planning, acquiring track time, scheduling, monitoring and closing out capital projects for the $667 million annual MOW capital program.

Work Equipment. CSXT has 25 employees in its headquarters staff for work equipment. These employees are responsible for both the fleet of maintenance equipment and the equipment engaged in program capital. Since TPIRR contracts out program maintenance and will have no welding plant or MOW equipment shop, the TPIRR can have a much smaller workforce. But TPI's proposal of only one Manager of Work Equipment is insufficient. One person cannot possibly attend to the administrative duties associated with supervising the 36 roadway equipment mechanics required by TPIRR; managing work equipment over 6,866 route miles; and traveling over 6,866 miles to perform those duties. CSXT provides one Director of Work Equipment for headquarters administrative duties and supervision and one Manager of Work Equipment for each division, each of whom would be responsible for a more realistic territory of one division and 9 mechanics spread over a territory of 1,716 route miles.

Welding. TPI has proposed one Manager of Welding and Grinding for the entire TPIRR system, which is inadequate. Welding is not only an essential maintenance activity, it is a critical safety activity. Improperly performed welding can lead to weld failures, buckled track, and train accidents. The headquarters welding function oversees all in-track welding on the TPIRR system, including a workforce of 72 two-man welding/grinding crews spread over 6,866 miles. As in work equipment, a single manager simply would be unable to take care of both the office responsibilities and oversee welders in the field. CSXT proposes two managers, each of

whom would be responsible for two of the TPIRR's divisions. The Welding Managers are responsible for training, quality control, and welding record keeping.[431]

(c) Bridge Maintenance

TPI proposes a Chief Engineer–Bridges for the headquarters staff to manage all of the bridges and buildings on TPIRR, including supervision of eight Managers of Bridges. Again, TPI overestimates the amount of work that can be done by a single individual and underestimates the functions that would need to be performed at the headquarters level.

CSXT accepts the Chief Engineer–Bridges. However, to meet the needs of the TPIRR, four additional staff are required. First, CSXT provides a Director of Bridges to supervise the eight Managers of Bridges over the TPIRR system.

Second, the TPIRR needs one Engineer of Bridges & Structures to serve as the single structural design resource for assessing bridge inspection reports and approving structural plans for third party structures over, under and near the track. Actual review of the plans would be contracted out to structural engineering companies, but headquarters staff must solicit those reviews, instruct the contractor, and receive, review and approve the reports of the engineering companies.

Third, the TPIRR would need a Manager of Facilities Maintenance to provide oversight and manage contracts for facility maintenance, which at two percent of building cost amounts to $27,405,825. Local staff have neither the skills nor interest to manage facilities management contracts such as HVAC maintenance. To ensure a least-cost, most-efficient structure, CSXT agrees that the local Managers of Bridge Maintenance will assist with inspection and

[431] *See* CSXT Reply WP "Continuous Welded Rail Enforcement Guidance Manual, Federal Railroad Administration, September, 2011.pdf."

maintenance of buildings, but there needs to be some centralized oversight at headquarters for this function.

Fourth, a Facilities Design engineer is required to handle design and specifications for modifications and expansions to facilities that will be required as the TPIRR's traffic mix and customer base evolves over the 10–year discounted cash flow ("DCF") period.[432] The TPIRR would need this forward looking capability, because the TPIRR's traffic base and customer mix will change over time (as TPI's own traffic growth projections predict). Even the optimally designed TPIRR will need some resources responsible for managing infrastructure changes necessary to accommodate new customers and operating practices.

TABLE III-D-40
Headquarters Bridge & Building Maintenance Staffing

TPIRR HQ Position	TPI HQ Staff	CSXT HQ Position	CSXT HQ Staff	Diff.
Chief Engr. – Bridges	1	Chief Engr. Bridges	1	0
Bridge Inspection and Maintenance				
-	0	Director of Bridges	1	1
-	0	Engr. of Bridge Inspection	1	1
Facilities Maintenance and Design				
Facilities Design	0	Mgr. Facilities Design	1	1
Facilities Maintenance	0	Mgr. Facilities Maintenance	1	1
Total Bridge Maintenance	**1**		**5**	**4**

(d) Communications & Signals Maintenance

TPI provides a minimal staff of one Chief Engineer Communications and Signals and four call desk employees. CSXT accepts these positions, but many more positions are required.

[432] The actual design of facilities would be contracted out by the Facilities Design Engineer.

First, CSXT provides one Specialist Test Engineering and two Engineer Service Testing positions in headquarters. One of the most operationally critical, safety sensitive, and highly regulated functions of the signal department is the need for periodic testing. In addition, complicated ad hoc testing is often required to determine the cause of intermittent but repeating signal failures which result in repeated train delays. In some cases a Signal Maintainer will respond to an intermittent failure only to find no apparent equipment failure needing repair. These failures are normally recorded as "no trouble found" ("NTF") by the Signal Maintainer. If NTF failures repeat intermittently, additional ad hoc testing and troubleshooting is required to diagnose and correct the problem. Signal Maintainers do not have the specialized skills to perform these ad hoc tests. The Specialist Test Engineering and two Engineers–Service Testing support both routine testing and this needed ad hoc testing.

Second, the TPIRR needs a Director of Hump Yard Engineering to be a specialized, central resource to the divisions for matters regarding the reliable operation and maintenance of the hump yard electronic equipment. TPIRR has eleven sophisticated hump yards, and it needs a headquarters resource with knowledge and expertise to manage the technology deployed in those yards.

Third, CSXT includes a Manager Signal Design as the sole forward-looking position in the C&S department. TPI assumes that since TPIRR is newly constructed it will need no design planning for the entire 10–year DCF period. But TPI's own proposal anticipates that TPIRR's traffic base will grow and change over time. As soon as TPIRR begins operations, there would be discussions of new connections for customers and revisions to the track layout to

accommodate change in operating practices. These and other issues require that TPIRR have some limited capability to manage revisions to the signal system.[433]

Fourth, the TPIRR needs headquarters staff to manage technical issues with positive train control ("PTC"). TPI is installing PTC at the same time it installs its signal system. The PTC system will be based on new, cutting edge equipment that will require modification or replacement to create a system that is interoperable with other railroads by 2015. Operation of a new PTC system requires additional testing, record keeping and configuration management. In addition, like any new technology, there will inevitably be a difficult start-up period requiring additional maintenance. These issues will be exacerbated for the TPIRR, whose decision to embark on an early implementation of PTC will create the further challenges of maintaining its evolving its system as the national PTC standards are finalized. To provide resources for PTC maintenance, CSXT includes one Director PTC and two Engineers PTC to manage technical issues with the new technology, critical configuration control, and PTC inventory record keeping. This is a minimal maintenance organization for a system that is critical to the safety of TPIRR operations and that will undergo significant change during the SAC analysis period.

Fifth, CSXT remedies TPI's failure to provide any real plan for managing communications. At the headquarters level TPI provides no dedicated communication staff and assumes the Chief Engineer C&S will handle communications and the rest of the C&S functions virtually singlehandedly. (TPI does provide a single Assistant Communications Engineer at the division level, who apparently is expected to cover all four divisions.) It is impossible to imagine a 6,866 mile Class I railroad with no communications management other than the Chief Engineer C&S and one divisional Assistant Communications Engineer.

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[433] Actual detailed design would be contracted out.

As detailed below, the TPIRR would require a minimum headquarters staff of 17 individuals focusing on communications: a Director of Communications, four communications engineers, a director of network operations, two managers of network operations, and nine communications specialists.

The Director of Communications will be responsible for contracted maintenance of the communications system and other communications maintenance tasks. While CSXT accepts TPI's proposal that the TPIRR would contract out maintenance of the microwave system and associated equipment, outsourcing this maintenance does not eliminate the need to supervise and manage the outsourced work. The maintenance contractor must be supervised, and communications reliability must be ensured. TPI provides no one to perform this function.

CSXT also provides one Director of Network Operations and two Managers of Network Operations reporting to the Director of Communications. TPIRR will have critical interfaces between its communications network, IT department, and centralized traffic control ("CTC") system. This cross-functional activity is critical to the reliable operation of the train control systems on CSXT. In the real world railroads carefully monitor their communications networks, establish route redundancy, and failsafe systems to ensure that critical operational communications are not interrupted even if there is an interruption on the principal communications links. The Director of Network Operations and two Managers of Network Operations will be responsible for this function on the TPIRR. TPI failed to provide any staff for this function, possibly assuming that the TPIRR could simply contract out communications maintenance. However, no Class I railroad would rely entirely on a communications maintenance supplier to ensure that critical operational communications went on uninterrupted.

The Communications and Signals department also has responsibility for maintaining mobile two–way radio communications equipment in vehicles and locomotives. TPI provides one Assistant Communications Engineer and four Signal Maintainers to manage the 41 Communications Technicians they deploy in the field. In the real world, C&S supervisors never supervise Communications Technicians because two-way radio technology is nothing like signal technology. Two–way radio maintenance is the province of communications. Consequently, the plan proposed by TPI is not feasible.

To replace TPI's infeasible plan for maintaining mobile radio repair, CSXT provides four Communications Managers who will report to the Director of Communications as part of the headquarters organization, but be physically located in the divisions. CSXT also provides for nine Communications Specialists strategically located in radio shops on the TPIRR system, who are capable of mobile radio repair at the component level,[434] along with 32 Communications Technicians who swap out defective radios in equipment and make simple repairs to radios. The total staff of nine Communications Specialists and 32 Communications Technicians is equal to the 41 Communications Technicians proposed by TPI, but better reflects the need for some more expert radio specialists in the field.

Finally, TPI's call desk staff is insufficient. All major railroads have a call desk at which incidents are logged and categorized and personnel dispatched to respond to the incidents. TPI provides four MOW coordinator/dispatcher positions for this purpose, but does not provide any overall supervision or relief. CSXT also provides four Supervisor Call Desk positions and adds

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[434] CSXT actually has {{ }} such positions positioned in the field. *See* CSXT Reply WP "CSXT MOW HQ and Divisional Management Detail.xlsx." The Communications Specialists are non-contract technicians skilled in two radio maintenance at the component level. They work with and supervise contract communications technicians who do radio installations and removal and simple radio repairs.

one Manager Call Desk position to provide vacation relief and to be responsible for the overall operation of the call desk.

Table III-D-41
HQ Communications and Signals Maintenance Staffing

TPIRR HQ Position	TPI HQ Staff	CSXT HQ Position	CSXT HQ Staff	Diff.
Chief Engr. - Comms. & Signal	1	Cf. Engr. Communications & Signals	1	0
Maintenance, Inspection, Testing and Design - Signal & Electronic Systems				
-	0	Specialist Test Engineering	1	1
-	0	Engr. Service Testing	2	2
-	0	Director Hump Yard Engineering	1	1
-	0	Manager Signal Design	1	1
-	0	Director PTC	1	1
-	0	Engr. PTC	2	2
Communications				
-	0	Director of Communications	1	1
-	0	Communications Manager	4	4
-	0	Dir. Of Network Operations	1	1
-	0	Mgr. of Network Operations	2	2
-	0	Communications Specialists	9	9
Call Desk Staff				
-		Mgr. Call Desk	1	1
Call Desk C&S MOW Coord. Disp.	4	Supervisor Call Desk	4	0
Total C&S Maintenance & Operations	**5**		**31**	**26**

(e) Public Projects

CSXT and TPI agree on the total number of staff for public projects, but disagree about the principal function and proper organization of the public projects staff. TPI sees the principal function as relating to bridge structures and therefore places it in the bridge department on the divisions. But in CSXT's and Mr. Hughes's experience, public projects is principally a

commercial and operational function, because it involves dealing with public agencies, negotiating public project contract terms, protecting the operations of the railroad, and preparing contracts for force account work.[435] While it is true that many public projects involve new bridges over the railroad, bridge integrity is just one minor part of a much larger area that is more commercial and operational than structural in nature.

CSXT establishes the position of Chief Engineer – Public Projects with a staff of three Principal Engineer Public Projects positions. The Chief Engineer position is necessary both to take overall organizational responsibility for the public projects function and to present a high–level position for negotiating and dealing with public agencies. The public projects function is moved from the divisions to headquarters, as is standard practice on real world railroads.

TABLE III-D-42
Public Projects Staffing

TPIRR HQ Position	TPI HQ Staff	CSXT HQ Position	CSXT HQ Staff	Diff.
See adjustments to TPI HQ staff below		Chief Engr. Public Projects	1	1
See adjustments to TPI HQ staff below		Principal Engr. Public Projects	4	4
Total Public Projects	**0**		**5**	**5**

(f) Environmental

TPI places the environmental function within the Engineering department. While this was common practice in the 1970s and 1980s, the expansion of environmental regulation and enforcement has caused virtually every railroad to create a separate Environmental group to interface with environmental regulatory agencies and manage Environmental compliance for the railroad.

[435] Force account work is that public project work performed by the railroad, including flagging for train protection and any relocation of railroad tracks and facilities required for the project.

CSXT has followed this now common practice, eliminating the two environmental positions in the Engineering department in favor of a separate Environmental group, whose staffing and functions are discussed *supra* III-D-150-58.

ii. Track Department

CSXT's adjustments to TPI's proposed MOW track workforce for the TPIRR are summarized in Table III-D-43.

TABLE III-D-43
TPIRR MOW Staffing: Track Department

Position	TPIRR[436]	CSXT[437]	Difference
General Staff			
Division Engineer/Track Engineer	4	4	0
Asst. Div. Eng./Asst. Track Eng.	4	16	12
Admin. Asst./Clerk/Staff Engineer	8	4	-4
Field Staff			0
Roadmaster	51	72	21
Asst. Roadmaster	51	84	33
Track Crew Foremen	102	156	54
Track Crew	306	468	162
Rail Lubricator Maintainers	14	36	22
Roadway Machine Operators (Backhoes)	51	72	21
Roadway Machine Operators (Dozers)	4	4	0
Roadway Machine Operators (Speedswings)	0	12	12
Welders & Helpers	52	144	92
Roadway Equipment Mechanic	4	36	32
Ditching Crews	32	70	38
Smoothing Crews	51	129	78
Total Track Department	734	1,307	573

[436] *See* TPI Op. WP "Exhibit III-D-3 CSX TPI MOW.xls."

[437] *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xls."

(a) General Office Staff[438]

CSXT accepts TPI's proposal for one Track Engineer per division. However, TPI's proposal of only one Assistant Track Engineer (Asst. Division Engineer – "ADE") for each of the TPIRR's four divisions is insufficient. ADEs are the backbone of the division management.[439] The actual CSXT practice is to staff a division with five Asst. Division Engineers (Asst. Track Engineers).[440] TPI provides only one per division. This is not feasible. One individual could not possibly manage 13 Roadmasters[441] and all of the contract work on a 1,716 mile long division. CSXT provides four Assistant Division Engineers (ADEs–Track)[442] to manage all track maintenance activity on the division, including supervision of contracted maintenance services and an average of four Roadmasters in a 429-route mile territory.[443]

TPI proposes eight Administrative Assistant/clerk positions (or two per division). Actual practice on CSXT is to have a smaller support staff of one support person per division.

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[438] For detailed discussion, *see* Reply Workpaper "Note on TPIRR Engineering Management Functions and Structure.docx," at 3-9.

[439] On modern railroads, ADEs and divisional forces are almost exclusively devoted to maintenance activities. This is because MOW Capital production gangs are self-contained and typically operate substantially independent from the divisional maintenance forces. In the 1980s and earlier, maintenance forces were much larger and production gangs much smaller than they are today, and it was common for the divisional forces to assist production gangs with material distribution and cleanup. By 2010, divisional maintenance forces were tiny and production gangs were huge, which means that divisional forces did not have the capacity to materially assist production gangs.

[440] *See* CSXT Reply WP "Reply CSXT MOW HQ and Divisional Management Detail.xlsx", Tab "Divisions."

[441] TPI proposes 51 Roadmasters spread over the TPIRR's four divisions, which means that under its plan each Assistant Track Engineer would have to manage 13 Roadmasters.

[442] The fifth ADE is an ADE-Bridges & Buildings and is placed in the bridge & building department.

[443] Contracting includes such services as vegetation control, rail grinding, ultrasonic rail flaw inspection, track strength testing, track geometry car, contract ditching work, road crossing paving and similar contract services.

Accordingly CSXT has proposed four Staff Engineers (a reduction from TPI's proposal for eight Administrative Assistant/Clerk positions).

(b) Field Staff

(i) Roadmasters and Assistant Roadmasters

TPI understates the necessary track maintenance staffing for the TPIRR by assigning each Roadmaster an unrealistically large territory to maintain. TPI proposes 51 TPIRR Roadmasters with territories that average 200 main track miles and 135 route miles. As the Board has recognized and as demonstrated below, these territories exceed the feasible length for a Roadmaster territory.

TPI offers virtually no evidence to support its proposal for 51 Roadmasters. TPI offers maps showing the Roadmaster territories and territory mileage,[444] but there is no analysis showing how the territories were derived. There is no discussion about how the territories were drawn, how the territory lengths were established, or what resources are assigned to each territory. Nor did TPI provide evidence of analysis of the workload or traffic conditions on the designated Roadmaster territories. Without clear explanation of how they were derived, the maps are of no value and do nothing to support TPI's manpower plan.

The average length of Roadmaster territories on CSXT is 142 main track miles[445] and 113 route miles.[446] Table III-D-44 below compares the TPI proposal with the most recent three STB

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[444] *See* TPI Op. WPs "TPI Roadmaster Territories Breakdown.pdf" and "TPI Roadmaster Territories Map.pdf."

[445] 21,684.0 track miles divided by153 Roadmasters averages to 142 track miles per Roadmaster.

[446] *See* CSXT Reply WP "Reply CSXT MOW HQ and Regional Management Detail.xlsx," Tab "Roadmasters." Track miles per Roadmaster are a more important metric than route miles, because Roadmaster forces are devoted almost entirely to maintaining track. Only ditching forces are driven by route miles; track maintenance, welding and smoothing crews are driven by track miles.

decisions and with the actual miles per Roadmaster on CSXT in 2010, and shows that the TPI ratio of track miles per Roadmaster is out of line with both the past three STB decisions and with the real world as represented by CSXT.[447]

TABLE III-D-44
Roadmaster District Sizes[448]

	DuPont	*SunBelt*	*AEPCO 2011*	Real-World CSXT	TPI Opening
Roadmasters	69	5	20	153	51
Track Miles	10,723	714	3,326	21,684	10,219
Average Roadmaster District Size	**155**	**143**	**166**	**142**	**200**

To establish Roadmaster Territories Mr. Hughes first placed Roadmasters at the 12 major yards in recognition of their operational importance. He then grouped main line track maintenance crews into Roadmaster territories. Each Roadmaster who is responsible for a major yard as well as a main line territory has three track maintenance crews. Roadmasters who are not responsible for a major yard each have two track crews.

Roadmasters who do not maintain a major yard are assisted by one Assistant Roadmaster. All Roadmasters who maintain a major yard are assigned two Assistant Roadmasters to assist with inspection and maintenance of the yard track.[449]

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[447] *See SunBelt*, STB Docket No. 42130, at 73 (holding that complainant had burden to explain a break with staffing levels approved in past SAC case).

[448] *See AEPCO 2011*, STB Docket No. 42113, at 32, 66; *DuPont*, STB Docket No. 42125, at 46, 102, *SunBelt*, STB Docket No. 42130, at 20, 73; TPI Opening III-B-5 & Ex. III-D-3 at 13.

[449] Terminal areas and major yards are particularly time consuming to inspect and maintain, since there are many switching movements in addition to terminating, originating and through train movements. Moreover, yard tracks require inspection on foot because tracks are typically occupied by cars or being used for classification or switching.

Each Assistant Roadmaster has an assigned territory sized to allow the inspector to complete required FRA inspections according to the required frequency for the class of track.[450] The Assistant Roadmasters conduct track inspections in accordance with all applicable FRA regulations and are trained and certified by the TPIRR. Track inspections occupy the majority of their time. The extensive FRA inspections that would be required and the high number of train and switching movements around a major yard means that Assistant Roadmasters could spend four to five days per week inspecting main, yard, and other tracks, depending on the length of the inspection territory and the amount of interference from passing trains.

(ii) Track Crews

TPI provides just 102 field track crews, which would require each track crew to maintain an average of over 104 track miles. This significantly exceeds industry standards and spreads the TPIRR's track crews too thin to effectively maintain its network. TPI's proposed staffing is far out of line with recent Board decisions such as *DuPont*, *SunBelt*, *WFA I*, and *AEPCO 2011*, and TPI has not provided any reason why the Board should depart from its findings in those decisions.[451]

To determine the required number of TPIRR track maintenance crews, CSXT followed a two-step process. Mr. Hughes first defined the factors that determine the amount of work a crew must perform and the conditions under which it must be performed. The major factors that determine workload for a mile of track are traffic density per track in million gross tons

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[450] The frequency of track inspections is dictated by the FRA track class and tonnage of the line. The TPIRR's network mostly consists of FRA Class IV track or Class III track carrying more than 10MGT/year, both of which require inspection twice per week. *See* 49 C.F.R. § 213.233.

[451] *See DuPont*, STB Docket No. 42125, at 103 (59 track miles per crew); *SunBelt*, STB Docket No. 42130, at 73 (54 track miles per crew); *AEPCO 2011*, STB Docket No. 42113, at 68 (65 track miles per crew); *WFA I*, STB Docket No. 42088, at 24, 58 (55 track miles per crew).

("MGT"),[452] the amount and severity of curvature, and the number of switches, crossings and lubricators per mile that must be maintained. Second, CSXT recognized that the efficiency of a track maintenance crew in performing this work is heavily dependent on the time between trains per track. For each line segment, Mr. Hughes estimated the length of territory that a maintenance crew could maintain based on his assessment of the workload factors and the degree of train traffic interference with maintenance (as measured by minutes between trains).

CSXT assigned 136 track maintenance crews to main lines and 8 track maintenance crews to branch lines. For each major yard, one maintenance crew was added. The final result was 156 track crews—each made up of a Foreman and three Crew Members (or track laborers)—organized under 72 Roadmasters.

Each of the 136 main line crews is responsible for day-to-day maintenance of the track in a territory averaging 72 track miles and 51 route miles.[453] The eight branch line crews are each responsible for 100 track miles. The 12 major yard crews generally work in the yard, but they are not restricted to the yard and may work anywhere they are required. The crews perform various tasks in connection with routine track maintenance, such as repairing detected rail defects; adjusting switches; replacing worn or broken switch parts; replacing missing/broken joint bars and bolts; replacing failed tie plates/insulators/clips; replacing occasional defective ties at critical locations such as joints, switch points, and frogs; removing snow/ice from switches; replacing/repairing damaged signs; correcting minor drainage problems; removing fallen rock and trees; repairing minor high water damage to track; and maintenance of yard and other tracks in the area.

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[452] For example, on a line with one track with traffic density of 30 MGT over the route, the density per track would be 30 MGT. On a line with two tracks, the density per track would be 15 MGT.

[453] *See* CSXT Reply WP "TPIRR System MOW Workload.xlsx."

The ratio of 72 track miles per track maintenance crew is more conservative than the 65 track miles per crew found reasonable by the Board in the *AEPCO 2011* case[454] and the 55 track miles per crew found reasonable in the *WFA I* case,[455] which means that CSXT's plan for track maintenance crews is on the conservative side of the range that the Board has found to be realistic for a least-cost most-efficient SARR.

Indeed, the CSXT estimate should be recognized as even more conservative, because the TPIRR faces the following additional environmental challenges that increase the workload and decrease the feasible length of the maintenance territory for a track crew:

First, the TPIRR is situated in an area with four times the rainfall of the area in which the *AEPCO 2011* SARR was situated.[456] This factor aggravates almost every element of track maintenance. More track smoothing is required due to the higher moisture content and resultant lower strength of the track and subgrade. Rail welding cannot be performed in the rain. Muddy roads and slippery rail slow movement of crews. More minor drainage incidents occur regularly and generalized high water is an annual spring event. Moreover, the wetter climate of the east has resulted in more vegetation and development of soils that are weaker and more sensitive to moisture than in the west.[457]

Second, the TPIRR is located in a more populated area than either the *AEPCO 2011* or the *WFA I* SARRs, which also increases the workload. Populated areas have many more road crossings and yard tracks. Traffic can slow movement of crews. Also, there are many more nuisance events like trash dumping, right-of-way encroachments, incidents at road crossings, and

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[454] *See AEPCO 2011*, STB Docket No. 42113, at 68.

[455] *See WFA I*, STB Docket No. 42088, at 24, 58.

[456] *See* CSXT Reply WP "TPIRR Environmental Factors.pdf."

[457] *Id.*

developments off the right-of-way that change drainage patterns and can cause local flooding. Drainage through populated areas is generally poorer and more difficult to maintain.

In short, the wetter and more populated territory in which TPIRR is situated both adds significant workload and creates additional impediments to crew performance. CSXT's track crew staffing is thus quite conservative.

(iii) Roadway Machine Operators

TPI's narrative about roadway machine operators is inconsistent. Its summary table says that it proposes 105 roadway machine operators including smoothing and ditching crews[458] but its narrative ultimately adds up to 138 roadway machine operators. Fifty-one backhoe operators plus four dozer operators, plus 51 smoothing crew members, and 32 ditching crew members totals 138. *See* TPI Op. Ex. III-D-3 at 16, 19, 20.[459]

CSXT agrees with TPI's proposal that each Roadmaster should have one backhoe and operator. Because the TPIRR needs more Roadmasters than TPI proposed, it also needs more backhoes and operators. *See SunBelt*, STB Docket No. 42130, at 74 ("[t]he number of roadway machine operators must complement the number of roadmaster districts"); *AEPCO 2011*, STB Docket No. 42113, at 68 (same). CSXT also agrees that one dozer per division should be adequate when combined with other ditching equipment as described in the CSXT plan below. Roadway machine operators for smoothing and ditching are discussed below.

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[458] *See* TPI Op. Ex. III-D-3 at 10, Table 4, Line f.

[459] TPI's workpaper asserts that CSXT has 314 roadway machine operators, but that is incorrect. The workforce data shows 793 maintenance roadway machine operators in 2007, 491 of whom were in MOW Capital and 105 of whom were in Program Construction. In 2010 the data shows 841 roadway machine operators in maintenance and 448 in MOW Capital. *See* CSXT Reply WPs "Reply 2007 Engineering Dept. Employees.xls," Tab "Engineering Pivot - Oct 07," Line 32 and "Reply CSXT Employee Data from 2010 Sorted.xlsm," Tab "Reply Pivot 2010 Sorted for TPI," Lines 36 and 79.

In addition, CSXT includes one Speedswing and operator for general maintenance in hump yards. *See SunBelt*, STB Docket No. 42130, at 74 ("A speedswing is important for . . . efficient operations in the SBRR's hump yard, and it cannot be replaced by a crew truck or backhoe."). The Speedswing would support both the maintenance gang with general lifting of switch and other track material and the signal maintenance gang in maintaining retarders. Unlike a gang truck, the Speedswing can travel down yard tracks to get to the work location.

The 72 backhoe operators, four dozer operators, and 12 Speedswing operators total to 88 roadway machine operators, or 287 when ditching and smoothing crews are included.

(iv) Welder/Helper/Grinders

Mr. Crouch proposes a workforce of just 26 welding gangs (52 men) to support 51 Roadmasters. In real world railroad practice, the expectation is one welding gang per Roadmaster for main line territories. This is CSXT's general practice,[460] and the Board has recognized one welding crew per Roadmaster to be an appropriate benchmark for staffing.[461]

TPI attempts to justify its welding workforce by arguing that the TPIRR is new and will need less welding. However, in short order the TPIRR will experience all of the welding requirements of a mature railroad—or more. Indeed, TPI has chosen to construct the track using bolted Poly joints that require more frequent maintenance than the welded standard plug rail that CSXT uses for new construction.[462] The Poly joint TPI chooses is cheaper, but it is a bolted joint

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[460] CSXT generally maintains a number of maintenance welding crews roughly equivalent to the number of Roadmasters. Some of CSXT's maintenance welders are floating positions not assigned specifically to one Roadmaster, giving flexibility to assign them where most needed. Whether assigned or not, the number of maintenance welding crews closely follows the number of Roadmasters.

[461] *See DuPont*, STB Docket No. 42125, at 103; *SunBelt*, STB Docket No. 42130, at 75.

[462] TPI chose Poly joints as its insulated joints for track construction because they are cheaper; it budgeted just $219/pair for Poly joints. The CSXT standard for insulated joints main track is factory manufactured plug rails containing bonded insulated joint assemblies consisting of a

that requires frequent welding, particularly in heavy duty main line service. Moreover, welding for bolted Poly joints is more time consuming than welding for bonded joints. To weld up the rail ends when they become battered by heavy traffic, the bolted Poly joint must be disassembled and the plastic end post and Poly coated joint bars removed to prevent damage from welding heat. The rail end is then built up and ground and the insulated joint reassembled. While TPI saves on capital costs by using the cheaper Poly joints, the cost of this choice is that the TPIRR will have more maintenance requirements. That is, by choosing a "least cost" approach, TPIRR's expert forgoes the railroad being "most efficient." Nevertheless, to be conservative Mr. Hughes assumes that TPIRR will have welding needs similar to those of railroads like CSXT that use higher-quality joints.

TPI also claims that its staffing is more conservative than that of the real-world CSXT, but this claim is based on a data error that should have been apparent to TPI. TPI claims in different parts of its evidence that each 2010 CSXT welding crew maintained either 295 route miles[463] or 954 route miles.[464] Both numbers are far out of line with common maintenance practices, and were a clear signal that the job description codes were incorrect. Indeed, TPI's claim that each CSXT welding crew covers 954 route miles would mean that the TPIRR would only have one welding crew for every seven Roadmasters.[465] This absurd claim is a sharp

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precision made bonded joint at a cost of $1,709.66 per 40' insulated joint plug rail. *See* Reply WP "LB Foster Insulated Joints Catalog.pdf", p. 5 and 7.

[463] *See* TPI Op. Ex. III-D-3 at 17.

[464] *See id.* at 10, Table 4, Line g. TPI's alleged 477 route miles per employee equates to 954 route miles per crew.

[465] As discussed in CSXT Reply Workpaper "Note on CSXT Workforce Data Produced.docx," the job descriptions and the associated worker counts are glaringly unreliable and not a basis to allow TPI to understaff the TPIRR.

departure from both Board precedent and Mr. Crouch's testimony in past cases that one welding crew is needed for each Roadmaster district,[466] and it should be rejected.

Consistent with past Board precedent, CSXT proposes 72 welding gangs of two men to cover 72 Roadmaster territories, including 12 major yards.

(v) Rail Lubricator Repairmen

CSXT accepts the TPI estimate of the number of rail lubricators on TPIRR at 1,795. But TPI's claim that only "14 Rail Lubricator Repairmen, each covering roughly 490 route miles" [467] could maintain this number of rail lubricators is unrealistic. TPI would have each TPIRR repairman maintain 128 lubricators, far more than can be maintained by one person.

As in the case of insulated joints, TPI's decision to cut capital costs by installing cheaper equipment is irreconcilable with its desire to also short-staff the maintenance of that equipment. Here, TPI chose to install small capacity rail lubricators that require frequent refilling. The Mech Tank MC4 lubricator chosen by TPI[468] holds only 42 gallons or about 320[469] pounds of grease. These lubricators require frequent servicing simply to keep the tanks full. In contrast, more expensive lubricators like the Portec 761 Hydraulube[470] have larger tanks with up to 650 or 800 pounds of capacity. TPI's choice to save on capital expenses by using cheaper, smaller capacity lubricators means that it needs the operating personnel to keep those lubricator tanks full.

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[466] *See* Opening Evidence of E.I. du Pont de Nemours & Co., *DuPont*, STB Docket No. 42125, at Ex. III-D-3 at 8 (filed Apr. 30, 2012).

[467] TPI Op. Ex. III-D-3 at 18.

[468] See TPI Op. WP "LB Foster – Lubricator Price Quote.pdf."

[469] Grease density 7.5 pounds per gallon.

[470] Portec Rail Products, Inc., "Hydraulic Wayside Lubrication System: Portec-M&S 761 Hydraulube," *available at* http://www.lbfoster-railtechnologies.com/pdf/brochures/761Hydraulube.pdf.

In *DuPont*, the Board found that 38 lubricator repairmen were required on a railroad similarly sized to TPIRR.[471] Using *DuPont* as a benchmark, Mr. Hughes concludes that 36 lubricator repairmen are required for the TPIRR.

(vi) Roadway Equipment Mechanics

TPI proposes four roadway equipment mechanics ("REM") for TPIRR, or one per 1,716 route mile division. This is patently infeasible. At a traveling speed of 60 mph, it would take the mechanic over 3.5 working days just to drive the 1,716 miles from end to end. To have the mechanic spread so thin would result in a high amount of equipment downtime and wasted resources.

Moreover, the Board has accepted the industry standard of one REM for every two Roadmaster districts. In fact, in past cases TPI's expert agreed to the established standard of one REM for every two Roadmasters[472] Mr. Crouch provides no explanation for his about-face, and nowhere explains how one REM per 1,716 route miles could possibly serve the TPIRR's needs. TPI's only justification for this trifling number of REMs is to point to plainly erroneous job code data suggesting only 11 REMs for the entire CSXT system. Anyone familiar with MOW maintenance would immediately recognize that many of CSXT's REMs must have been assigned incorrect job codes.

CSXT proposes one REM for each two Roadmasters, or a total of 36 REMs. This total is consistent with real world practice and past Board decisions, including *DuPont* and *SunBelt*. *See DuPont*, STB Docket No. 42125, at 109 (accepting 35 REMs); *SunBelt*, STB Docket No. 42130, at 76 (three REMs for a railroad of just 578 route miles).

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[471] *See DuPont*, STB Docket No. 42125, at 105 (noting parties' agreement on number of Rail Lubricator Repairmen).

[472] *See DuPont*, STB Docket No. 42125, at 106 ("The parties agree that the DRR should have one Roadway Equipment Mechanic for every two Roadmaster Districts").

(vii) Ditching Crews

TPI proposes 16 ditching crews made up of a foreman and a crew member for four divisions and 51 Roadmaster districts, or 429 route miles (up to 858 ditch miles) per ditching crew. The proposed ditching equipment consists of four track hoes and 12 Gradalls and 16 rotary dump trucks.

CSXT and TPI agree on the proposed crew size and equipment per crew, but disagree about the number of ditching crews required.

Ditch cleaning is performed to keep railway ditches defined and clear so that water runoff will be effectively drained away from the subgrade. Maintaining the subgrade strength by moving water quickly away from the track is of the utmost importance, particularly on track with high tonnages, and subgrade stability depends on good drainage. As shown in CSXT Reply Workpaper "TPIRR Environmental Factors.docx," soils in the east are often typified by red clay, which swells when wet and shrinks when dry. Therefore, a yearly ditching program is particularly critical to avoid blocked drainage and pockets of water that soften and erode the subgrade—especially in cuts and culvert locations. Ditches tend to fill up with silt, weeds, vegetation, rocks, and other debris, and ditches can clog due to sloughing of cut slopes. The absence of regular, frequent ditch cleaning results in saturated embankments, clogged ditches, and clogged culverts, which leads to softened subgrade and resultant restrictions on train speeds, higher maintenance expense for increased surfacing or undercutting of track, and higher potential for derailments due to unstable subgrade.

An inadequate ditch cross section will have inadequate capacity to contain soil erosion or rock fallout from the excavated back slope, let alone to carry water runoff through a long cut section. Side wash and silt quickly would contaminate the ballast section. In addition, in those areas in which grades are one percent or less, water flowing in an unlined ditch will have very

low velocity, resulting in a small throughput capacity. Any obstruction will cause the water to stand, creating soft subgrade and reducing the roadbed's ability to withstand the heavy axle loadings. These conditions eventually will lead to a track pumping action where subgrade soils intrude up into the ballast resulting in a weak ballast section and irregular track surface, which will in turn require imposing slow orders on train operations until corrective action is taken to restore the track surface and ballast section.

The rainfall and soil conditions in the eastern United States aggravate the job of ditch maintenance and keeping the roadbed dry.[473] Based on more than three decades of experience in the industry in the eastern United States, Mr. Hughes estimates that a two-person ditching crew equipped with a hi-rail Gradall, a hi-rail rotary dump truck, and a conventional ¾ ton extended cab pickup with 100 gallon fuel cell could, at best, adequately maintain parallel drainage ditches along about 200 route miles of main and branch main track on the TPIRR. Therefore, Mr. Hughes provides for 35 two-person ditching crews on the TPIRR, who would have the capacity to clean 6,900 miles of ditches on about 6,900 route miles[474] of the TPIRR system. This capacity added to the capacity provided by dozers and excavators will be adequate to clean ditches and perform miscellaneous other maintenance earth moving on TPIRR's 6,900 mile system, including yards.

In this case, each ditching crew would have responsibility for an average of 200 route miles, which is roughly equivalent to 200 miles of ditch. This is consistent with the approach the

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[473] *See* CSXT Reply WP "TPIRR Environmental Factors.pdf."

[474] Economical railroad design depends on balancing cut and fill quantities, striving to avoid either offsite borrowing of material for embankment or spoiling excess material from cuts. Therefore there should be a rough balance between the miles of cut and the miles of fill on a railroad. As a result, 200 route miles typically will have about 2x200/2 = 200 miles of ditch. While a significant portion of every line is neither pure cut nor fill (but rather side hill cut with ditch on one side), such lines also have a typical proportion of 1 mile of ditch per 1 mile of road.

Board accepted in *DuPont* for a SARR that covered much of the same territory and was subject to the same soil and rainfall conditions as TPIRR. *See DuPont*, STB Docket No. 42125 at 106.

(viii) Smoothing Crews

TPI proposes 17 smoothing crews, which equates to about 400 route miles (or 601 main track miles) per smoothing crew. The only support cited for this unprecedented high number of track miles per smoothing crew in SAC cases is "TPI witness Crouch's experience,"[475] but TPI does not explain what experience Mr. Crouch had that led him to this conclusion. Nor does TPI explain why Mr. Crouch's alleged experience is at odds with Board findings in past SAC cases.

The amount of smoothing required and the capacity of smoothing crews depends on many factors, not least of which is tonnage over the line and the track occupancy time available for the smoothing crew to work. For a smoothing crew to accomplish anything, at least a one hour window between trains is required.[476] Here, TPIRR is a high density railroad with an average of 51 minutes between trains on main lines and 6,809 miles (72% of main line track miles) have average train frequencies less than the critical minimum of 45 minutes necessary to accomplish many key tasks. Under these circumstances, Mr. Hughes believes that a smoothing crew can maintain 250 main line track miles, and thus that 41 smoothing gangs are required for TPIRR's 10,226.52 main track miles. This amounts to one smoothing gang for each 1.8 Roadmasters. This ratio is consistent with the numbers of smoothing gangs required in *DuPont*,

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[475] *See* TPI Op. Ex. III-D-3 at 20.

[476] In heavy traffic territory, they may wait for several trains to pass before a gap of an hour occurs. Then, the equipment must get permission to occupy the main track; run from the siding to work point; set up tamper and tamp previous runoff; smooth track as long as possible; make a runoff to make track safe for traffic; run back to a clearing track; and be in the clear at least 10 minutes prior to train arrival. These steps combined mean that a smoothing crew needs to find a gap of more than an hour between trains to accomplish anything. 7,447 track miles or seventy nine percent of TPIRR's main track miles have average intervals between trains of less than 55 minutes. Therefore a smoothing crew on a busy line may be able to smooth only a few hundred feet of track per day.

SunBelt, STB Docket No. 42130, and *AEPCO 2011*, STB Docket No. 42113. *See DuPont* at 107; *SunBelt*, STB Docket No. 42125, at 76; *AEPCO 2011* at 70.

In addition, Mr. Hughes adds two smoothing crews to support the needs of TPIRR's 2,099 miles of yard track and 4,438 switches.

(c) Communications and Signals Department

CSXT's adjustments to TPI's proposed communications and signals workforce for the TPIRR are summarized in Table III-D-45.

TABLE III-D-45
TPIRR MOW Staffing: Signal Department

Position	TPIRR[477]	CSXT[478]	Difference
General Staff			
Asst. Signal Engineer / Signal Engineer	4	4	0
Asst. Communications Engineer[479]	1	0	-1
Field Staff			0
Mgr. Electronics Engineering	22	30	8
Electronic Technician	0	11	11
CTC Control Center Technicians	0	5	5
Signalmen	0	66	66
Communications Supervisors	4	4	0
Signal Maintainers	264	361	97
Communications Technicians[4804]	41	32	-9
Total Signal Department	336	513	177

[477] *See* TPI Op. WP "Exhibit III-D-3 CSX TPI MOW.xls."

[478] *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xls."

[479] CSXT moves the Assistant Communications Engineer to the TPIRR Headquarters staff. *See infra* III-D-220.

[480] CSXT moves nine Communications Specialists to the TPIRR Headquarters staff. *See supra* III-D-201.

(i) General Office Staff

TPI proposes a staff of five Assistant Engineers (four Signal, one Communications) to head communications and signals field activities. It is unclear why TPI calls them assistants or who they assist. CSXT adopts four engineers for signals giving them a more appropriate title of Signal Engineers. The Signal Engineers are effectively Assistant Division Engineers for the signal maintenance function.

TPI proposes one Assistant Communications Engineer at the divisional level, but without any explanation or support for why a single engineer could cover four divisions. CSXT proposes one Director of Communications in headquarters in lieu of the ill-conceived Assistant Communications Engineer to supervise four divisional Communications Supervisors. This is effectively the same management and supervisory workforce proposed by TPI, but with proper titles and proper reporting structure to headquarters.

(ii) Field Staff

(1) Signal Maintainers, Inspectors and Technicians

TPIRR provides for 22[481] Signal Supervisors with territory lengths averaging 312 miles, supervising a staff of 264 Signal Maintainers—an average of 12 Signal Maintainers per Supervisor. The ratio of 12 maintainers per supervisor is not unreasonable, but the number of maintainers is inadequate. The 264 Signal Maintainers proposed by TPI are inadequate because the assumption that an average maintainer can maintain 1,750 American Railway Engineering and Maintenance-of-Way Association ("AREMA") signal units is inconsistent with common practice and with Board precedent.

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[481] TPI shows 26 C&S Supervisors in Exhibit III-D-3, Table 5. However, in the narrative it designates four of those 26 as communications supervisors, leaving 22 signal supervisors.

The Board has recognized that 1,100 AREMA units per maintainer is a reasonable estimate of signal maintainer capacity. *See DuPont*, STB Docket No. 42125,at 111; *SunBelt*, STB Docket No. 42130, at 79. The Board reached this conclusion based on a detailed special study regarding the number of AREMA units in several real-world signal maintainer territories.[482] Mr. Hughes accepts the Board's *DuPont* and *SunBelt* holdings and assumes that each TPIRR signal maintainer could maintain an average of 1,100 AREMA units. With 378,677[483] AREMA units on the TPIRR system, the ratio of 1,100 AREMA units per signal territory results in a need for 344 full–time Signal Maintainers.

CSXT's use of a 1,100 AREMA unit standard is conservative, because it does not include the incremental workload imposed by the need to maintain novel and complex PTC equipment. Installation of PTC will increase the recordkeeping, testing, troubleshooting and maintenace workload on maintainers. Thus, the assumption that a Signal Maintainer can maintain an average of 1,100 AREMA signal units must be viewed as particularly conservative. Because the NS study used in *DuPont* and *SunBelt* was based on NS's current system, it did not include any allowance for maintenance of a PTC system.

In addition to staffing each Signal Maintainer territory with a Signal Maintainer, the TPIRR would need relief Signal Maintainers to replace regular Signal Maintainers who are on leave, vacation, or absent for other reasons for more than a day or two. The primary duty of a Signal Maintainer is the task of making required Federal Railroad Administration ("FRA") tests in a timely manner. Proper maintenance and testing is vital in ensuring the equipment is in compliance with FRA regulations. The testing and maintaining required to meet the FRA

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[482] *See* Reply Evidence of Norfolk Southern at III-D-227 through III-D-228, *DuPont*, STB Docket No. 42125 (filed Nov. 30, 2012).

[483] *See* CSXT Reply WP "TPI Signals & Communications.xlsx," Tab "AREMA-AAR."

regulations must be completed on "not to exceed" frequencies; some of which are every 30 days,[484] some of which are every 90 days, some of which are every two years and some of which every four years.[485] Failure to make and record the tests results in fines.[486] A history of failure to comply with testing requirements not only results in fines, but creates a permanent record that could imply insensitivity to safety on the part of the railroad, so it is important to keep a Signal Maintainer territory manned to keep the tests and inspections up to date. Beyond the regulatory imperative to comply with testing schedules, there is an operational imperative to ensure quick responses to failures of train control signals or grade crossing protection systems to avoid train delays and delays to the traveling public.

Because of the stringency of regulatory requirements and the importance of rapid response to train control signal failures or grade crossing signal failures, signal maintenance territories must be covered for any vacancy lasting over a day or two. Mr. Hughes provides a modest 5% of the signal maintenance force[487] for this purpose. For all other MOW positions, vacation and other absences are covered by other regular employees. Consequently, Mr. Hughes provides regular maintainers for 344[488] territories, and 17 relief maintainers, or a total of 361 Signal Maintainers.[489]

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[484] Thirty days does not mean once a month it means every 30 calendar days, or less.

[485] *See, e.g.*49 C.F.R. §§ 236.101 to 236.110, 236.376 to 236.387; and CSXT Reply WP "FRA Signal Test Schedule.pdf" showing the testing frequency for each test, based on the FRA signal testing regulations.

[486] *See* 49 C.F.R. § 234.6.

[487] Two weeks' vacation per year is equal to 3.8%; the remaining 1.2% is for illness and other unexpected extended absences.

[488] 378,677AREMA units / 1,100 units per territory = 344.

[489] Relief maintainers are not included in the comparison of AREMA units per maintainer since, mistakenly, there were no relief maintainers provided in *AEPCO 2011* or *WFA I.*

CSXT adopts TPI's proposal for 12 Signal Maintainers per Signal Supervisor, but adds supervisors to supervise the additional maintainers that are required. CSXT also designates Signal Supervisors as Managers of Electronic Engineering. CSXT has two classifications of supervisors for signal maintenance.[490] One is the traditional Signal Supervisor. The second is designated Mgr. Electronics Engineering ("MEE"). The MEEs are responsible for territories that include a hump yard or other concentration (e.g., super sites) of electronics equipment as well as traditional signal equipment. CSXT has designated all signal supervisors as MEEs for convenience and because TPI includes 11 hump yards on its four divisions and several super sites.

CSXT has the MEEs report to a Signal Engineer at the divisional level. There is one Signal Engineer per division with territories averaging an ambitious 1,717 miles, each responsible for about 7 C&S supervisors.

(2) Hump Yards

TPIRR has eleven hump yards, each of which requires a dedicated signal maintenance workforce. Each yard requires a one electronics technician who maintains the processor-based control system and related interfaces for the hump yard. This includes monitoring the system to determine whether adjustments need to be made because of weather or other changing conditions. The technician will also troubleshoot and repair electronic equipment such as track circuit loops, the distance to couple unit, and radar systems. The position is on call when not working the normal first shift.

Six signalmen are also required at each hump yard; four on first shift and two on second shift. The first shift maintains the master, group and skate retarders to ensure proper operation.

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[490] *See* CSXT Reply WP "Reply 2007 Engineering Dept. Employees.xls," Tab "Engineering Pivot – Oct 07."

These retarders must be checked to ensure they are in proper adjustment to ensure that they can properly control the speed of the cars being humped. Releasing a car at too fast a speed results in either a derailment or damage, but releasing at too slow a speed results in a stalled car and humping delays. Testing and adjusting these retarders is time-consuming and also very physical if retarder brake shoes have to be replaced. Since work is generally taking place in more than one location, a minimum of two men must be assigned to every "on track" project to meet FRA Roadway worker safety regulations when a track cannot be made inaccessible. The two signal employees that work second shift primarily do testing and small repairs as well as troubleshoot trouble if necessary. Again, two employees are needed to meet FRA roadway worker requirements on the second shift.

(3) Dispatch Center

TPI fails to provide sufficient C&S manning of the Dispatch Center. TPI only includes a single communications technician who apparently also is supposed to do two way radio repairs. This is insufficient, for the dispatch center requires 24/7 coverage by specialized maintenance technicians in the dispatch center to keep signal, communications and computer equipment critical to the control of trains in operation without interruption. Mr. Hughes provides for five technicians for the dispatch center to ensure round-the-clock coverage.

(4) Communications Technicians

TPI provides for 41 communications technicians supervised by a single Assistant Communications Engineer at the division level. The Assistant has no one to report to at either the divisional or HQ level other than the Chief Engineer C&S.

While CSXT accepts TPI's total staffing of 41 radio maintenance employees, it organizes them more effectively. First, a Director of Communications is established at HQ level to manage the overall two way radio function. Then CSXT adopts four supervisory positions but titled

Communications Engineer to manage two way radio functions at the divisional level. Finally, CSXT provides nine non-contract communications specialists and 32 contract communications technicians headquartered in radio shops at major yards. The nine non-contract positions mirror similar positions on CSXT and provide a much higher level of skill than contract communications technicians.

(d) Bridge & Building Department

CSXT's adjustments to TPI's proposed bridge and building department for the TPIRR are summarized in Table III-D-46.

TABLE III-D-46
TPIRR MOW Staffing: Bridge and Building Department

Position	TPIRR[491]	CSXT[492]	Difference
General Staff			
Public Projects Engineer	4	0	-4
Asst. Division Engineer - Bridges	0	4	4
Field Staff			
Manager Bridges & Buildings	8	8	0
B&B Inspector	8	8	0
B&B Foremen	8	8	0
B&B Repairmen	24	24	0
B&B Machine Operators	4	4	0
Total Bridge and Building Dept	**56**	**56**	**0**

(i) General Office Staff

TPI provides no management for the eight Managers of Bridges it proposes. Eight supervisors cannot be managed from headquarters. It is too many people spread over too large a

[491] *See* TPI Op. WP "Exhibit III-D-3 CSX TPI MOW.xls."

[492] *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xls."

distance for anyone to supervise and the Chief Engineer-Bridges has additional management functions as well.

To remedy this deficiency in the TPI organization, CSXT provides one Assistant Division Engineer – Bridges on each division to manage the bridge function and to support the ADEs-Track with contracting oversight.

CSXT agrees that a staff of four should be adequate to handle public projects, but organizes them differently. TPI mistakenly places responsibility for public projects under the Chief Engineer – Bridges. CSXT establishes a Chief Engineer – Public Projects with a staff of three engineers, all in headquarters. *See supra* III-F-203.

(ii) Field Staff

CSXT accepts TPI's proposed B&B field staff of eight B&B Supervisors, eight bridge inspectors, four B&B machine operators, and eight bridge maintenance gangs of four men each.

(e) Allocation of MOW Personnel Between Operating Expense and Capital Expense

TPI claims that one-third of the time of all the TPIRR's MOW administrative and support staff would be spent evaluating, planning, and helping to execute capital MOW projects and thus that one-third of these employees salaries should be accounted for as capital expense. *See* TPI Op. Ex. III-D-3 at 53. This claim is impossible to reconcile with TPI's simultaneous assertion that all MOW work other than routine maintenance will be performed by outside contractors. *See id.* at 7. If the TPIRR's MOW field staff are exclusively performing operating maintenance, then what is the basis for assuming that every single headquarters employee would only spend 2/3 of his or her time on operating maintenance? Rather than arbitrarily allocating 1/3 of every employee's time to capital expense, it is more appropriate to focus on the functions of each individual headquarters employee to determine where that employee spends his or her time.

CSXT has taken this approach and identified (1) employees devoted solely to capital projects; (2) employees devoted solely to maintenance projects; and (3) employees responsible for both capital and maintenance projects. CSXT also proposes an objective methodology to determine how to allocate the time of those employees who split their time between capital projects and maintenance projects.

Employees devoted to capital projects. The Assistant Chief Engineer of Capital Projects and four Capital Project Managers are entirely devoted to capital projects, and their time should be 100% allocated to capital. Similarly, the Manager-Budgets who handles the capital project budget should be 100% allocated to capital.

Employees devoted to operating expenses. Under TPI's proposal 100% of the TPIRR's field workers are devoted to ordinary operating maintenance. Therefore the divisional and headquarters management overseeing those field workforces should similarly be allocated 100% to operating expense. Any program work would be supervised by contractor management, not division management.

Employees with split allocations. The VP Engineering and the seven administrative assistants' time would be split between maintenance functions and capital functions. A reasonably objective way to determine this allocation is to refer to the overall number of headquarters employees engaged in ordinary maintenance and capital activities. It is reasonable to assume that the VP-Engineering would divide his time supervising his department in a manner proportional to the overall number of employees he oversees, and it is similarly reasonable to assume that administrative support will be divided that way. Thus, the ratio of headquarters employees devoted solely to operating activities (76) and those devoted solely to capital programs (6) suggests that the VP-Engineering and administrative assistants would split their

time 92% to operating and eight percent to capital. Mr. Hughes conservatively rounds that result up to an 90%-10% split. Accordingly, CSXT charges the costs of the VP Engineering and seven administrative assistants 10% to capital and 90% to maintenance.

c. MOW Work Performed by Contractors

TPI proposes that the TPIRR would use outside contractors for some MOW work. CSXT generally accepts this approach, but corrects TPI's proposed costs in several areas.

Table III-D-47
TPIRR Base Year Contract Maintenance Expense

Contract Service	TPIRR[493]	CSXT[494]	Difference
(1)	(2)	(3)	
1. Planned Contract Maintenance			
a. Track Geometry Testing	{{ }}	{{ }}	0
b. Ultrasonic Rail Testing	{{ }}	{{ }}	0
c. Rail Grinding	6,009,055[495]	6,009,055	0
d. Yard Cleaning	{{ }}	{{ }}	{{ }}
e. Vegetation Control	{{ }}	{{ }}	{{ }}
f. Crossing Repaving	4,117,423	4,117,423	0
g. Equipment	33,391,904	69,028,924	35,637,020
h. Comm. Sys. Inspect & Repair	5,652,677	7,922,664	2,269,987
i. Major Bridge Inspections & Maintenance	128,923	128,923	0
j. Building Maintenance	2,945,267	24,460,558	21,515,291
2. Unplanned Contract Maintenance			
a. Snow Removal	0	750,000	750,000
b. Storm Debris Removal	100,000	100,000	0
3. Large Magnitude Unplanned Maintenance			
a. Derailments and Clearing Wrecks	14,429,225	14,429,225	0
b. Washouts	100,000	100,000	0
c. Environmental Cleanups	100,000	100,000	0
Total	$76,705,980	$137,127,759	$60,421,779

[493] *See* TPI Op. WP "Exhibit III-D-3 CSX TPI MOW.xlsx."

[494] *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xlsx."

[495] TPI's summary table at Opening Ex. III-D-3 at 40 lists a rail grinding cost that is different from the cost used in TPI's workpapers. CSXT uses the workpaper estimate for this comparison.

i. Planned Contract Maintenance

(a) Track Geometry Testing

CSXT accepts TPI's proposed geometry testing cost of {{ }}.

(b) Ultrasonic Rail Testing

CSXT accepts TPI's proposed rail testing cost of {{ }}.

(c) Rail Grinding

CSXT accepts TPI's proposed rail grinding cost of $6,009,055. But CSXT rejects TPI's proposal to capitalize rail grinding costs. "Board precedent dictates that rail grinding should be included as an annual operating expense." *SunBelt*, STB Docket No. 42130, at 90.[496] TPI acknowledges this precedent, but says that "because CSXT capitalizes [rail grinding] expense the TPIRR will as well." TPI Op. Ex. III-D-3 at 43. But that is not true. TPI cites a 2007 document to support its claim that "CSXT capitalizes [rail grinding] expense," but CSXT changed its accounting policy for rail grinding costs in 2010. As CSXT explained in its 2010 R-1: "Effective in 2010, the Respondent changed the accounting policy for rail grinding costs from a capitalization method, under which rail grinding costs were capitalized and then depreciated, to a direct expense method, under which rail grinding costs are expensed as incurred." CSXT 2010 R-1 at 10A. CSXT explained that treatment of grinding costs as an operating expense was a "preferable method" and that its change in accounting policy was "consistent with recent changes in industry practice." *Id.* TPI has no justification for not following Board precedent on

[496] *See also DuPont*, STB Docket No. 42125, at 124 ("it is more sensible to calculate grinding as an annual expense"); *WFA I*, STB Docket No. 42088, at 71 ("it is more appropriate to consider [rail grinding] an annual expense").

the accounting treatment of rail grinding costs, and these costs should be treated as operating expenses.[497]

(d) Yard Cleaning

CSXT accepts TPI's basic methodology for the cost of yard cleaning: *i.e.*, calculating that TPIRR would incur yard cleaning costs equal to CSXT's costs prorated by route miles. CSXT also accepts TPI's estimate of {{ }} in annual CSXT yard cleaning costs. But TPI uses the wrong route mile figure to prorate this number. TPI uses 21,000 CSXT miles in its calculation (because it counts Class 5 tracks over which CSXT operates via trackage rights and does not maintain), and then prorates that number by the number of TPIRR constructed route miles (not counting miles over which TPIRR operates by trackage rights). To correct this mismatch and arrive at a fairer estimate of TPIRR's yard cleaning costs, the route miles in the proration should be the 17,248 route miles that CSXT maintained in 2010. *See supra* Table III-D-35. As a result of the mileage change, the cost of yard track cleaning for the TPIRR is {{ }}. *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xlsx," Tab "Yard Cleaning (2)."

(e) Vegetation Control

CSXT accepts TPI's basic approach to vegetation control costs, which like for yard cleaning is to prorate CSXT total expenses by the relative route miles of TPIRR and CSXT. But TPI again uses a count of CSXT route miles that includes trackage rights segments, which is inappropriate for the reasons discussed in the yard cleaning section above. Correcting the route

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[497] *See SAC Procedures*, 5 S.T.B. at 446 ("the parties to SAC cases are cautioned not to attempt to relitigate issues that have been resolved in prior cases. Unless new evidence or different arguments are presented, we will adhere to precedent established in prior cases.").

mileage results in a cost of {{ }}. *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xlsx," Tab "Vegetation Control (2)."

(f) Crossing Repaving

CSXT accepts TPI's estimated costs of $4,128,642 for crossing repaving, but CSXT does not accepts TPI's suggestion that crossing repaving should be capitalized. TPI admits that crossing repaving only involves the replacement of "asphalt pavement"—not the replacement of the entire crossing. When only crossing paving is done, the crossing timbers, track ties and ballast are left undisturbed by crossing paving. The Board has recognized that this is a routine maintenance function that is not properly charged to capital. *See, e.g.*, *SunBelt*, STB Docket No. 42130, at 92; *DuPont*, STB Docket No. 42125, at 126. TPI has not provided any reason to depart from this precedent, and crossing repaving should be treated as an operating expense.

(g) Shoulder Ballast Cleaning

TPI omitted the essential maintenance function of shoulder ballast cleaning. While TPIRR will need no such work in the first three years, it will require shoulder ballast cleaning thereafter routinely.[498] Shoulder ballast cleaning removes ballast from the ends of the ties and from under the first six inches from the end of tie and cleans that ballast to ensure that water that accumulates in the ballast section has a free path to escape from the track. Shoulder ballast cleaning is a cost effective way to protect the subgrade from saturation, which is particularly important given the subgrade soils in TPIRR's territory.[499] Shoulder ballast cleaning historically has been widely practiced by eastern railroads, but seldom done by western railroads, probably

[498] *See* CSXT Reply WP "Exhibit III-D-3 CSX TPI MOW.xls", Tab "Ballast Cleaning (2)" for required cleaning on TPIRR lines."

[499] *See* CSXT Reply WP "TPIRR Environmental Factors.pdf."

because of the difference in subgrade soils and the fact that coal has always been a major eastern commodity.

Coal dust removal is a significant ballast maintenance need. Coal dust accumulates in ballast as follows. Coal is loaded in open top cars, which are loaded to capacity. The coal extends above the top of the cars, and some of it spills out in transit. This spillage falls onto the shoulders of the ballast section. The spillage is worse on the low side of curves due to the super elevation in the curves. As a result there is a large amount of coal in the ballast where the water should drain from the track structure. This coal and other spillage from rail cars (including airborne dirt) must be removed from the ballast to keep it from becoming clogged, thereby restricting drainage of the track structure, and resulting in muddy track conditions which affect the surface and stability of the track structure.

Mr. Hughes has learned, through many years of experience, that the most economical method to clean the ballast is with the shoulder ballast cleaner. These are large machines with 30" wide ditching wheels on each side of the track. These wheels pick up all of the ballast from the ends of the ties to the toe of the ballast section. The ballast is then placed on conveyors and moved to a large screen, where it is shaken and particles less than 1" are separated from the ballast. The debris is deposited on the right of way, and the cleaned ballast is returned to the track by a conveyor system. The ballast cleaners either have a ballast regulator built into the machine or there is a ballast regulator operated as an independent machine. Most of the ballast can be salvaged in this operation. Where there is a large amount of fine material removed, it is necessary to unload additional ballast behind the operation. If the shoulder ballast cleaner is not operated on a regular cycle, the track will become contaminated with mud, which causes

geometry defects, increased maintenance costs, and potential for derailments. Once the ballast gets in this condition, the track must be undercut and all the ballast replaced with new ballast.

TPI completely misjudged the need for shoulder ballast cleaning on the TPIRR, alleging that shoulder ballast cleaning was not applicable for new construction.[500] On the contrary, for the reasons described above a Class 1 railroad carrying coal over TPIRR's terrain and soils would require an annual program for shoulder ballast cleaning to adequately maintain the track structure of the 10,219 miles of main and branch main track.

To establish reasonable annualized shoulder ballast cleaning program requirements and associated costs for the TPIRR, CSXT first determined what TPIRR lines would require ballast cleaning, and how often cleaning would be required. In Mr. Hughes experience, ballast should be cleaned about every 250 MGT. The result of his analysis was a conservative estimate that the TPIRR would require shoulder ballast cleaning on an average of 1,377 track miles of main and passing siding miles annually.[501]

In Mr. Hughes' experience, the cost is about $900 per mile, or $1,239,607. Mr. Hughes estimated the unit cost of ballast cleaning on both the costs accepted in recent cases like *DuPont* and his experience as a purchaser of ballast cleaning services in his capacity as chief engineer of Amtrak and the Boston & Maine. Mr. Hughes was also a vendor of rail grinding services when he was president of Speno Rail Services, a railroad maintenance contracting company that provided ballast cleaning services.

(h) Equipment Maintenance

Heavy maintenance of company leased equipment will be contracted out, although the TPIRR will have in-house Roadway Equipment Maintainers who provide preventative

[500] *See* TPI Op. Ex. III-D-3 at 46.

[501] *See* CSXT Reply WP "Reply III-D-3 CSXT TPI MOW.xlsx," Tab "Ballast Cleaning (2)."

maintenance and straightforward repairs to TPIRR equipment. CSXT accepts TPI's proposal that the cost of contract maintenance would be five percent of the equipment purchase price.[502]

(i) Communications System Inspection and Repair

CSXT accepts TPI's proposal that the annual cost of maintenance for the Communications System would be two percent of the original purchase cost. CSXT adjusts this maintenance cost to account for the different cost of the communications system set forth *infra* in III-F.

(j) Bridge Inspections

CSXT accepts TPI's proposed cost for major bridge inspections.

(k) Building Maintenance

CSXT accepts TPI's assumption that the cost of building maintenance would be two percent of total building costs. CSXT adjusts this maintenance cost to account for the different building values set forth *infra* in Section III-F.

ii. Unplanned Contract Maintenance

(a) Snow Removal

TPI's claim that TPIRR will not incur any cost for contract snow removal is not reasonable for a railroad that operates in regions that experience severe winter weather, such as Buffalo, NY, Syracuse, NY, and Chicago, IL. TPI's assertion that snow removal could be handled by TPIRR field maintenance personnel ignores the fact that TPIRR's field maintenance personnel do not have the essential equipment for snow removal from roadways, parking lots and yards. TPI's equipment list includes no snow plows for trucks or ballast regulators, no salt/sand spreaders, and no rubber tired bucket loaders. Without these essential snow removal tools, the TPIRR workforce is incapable of removing snow.

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[502] *See* CSXT Reply WP "Reply Exhibit III-D-3 CSX TPI MOW.xlsx."

CSXT estimates the TPIRR's snow removal costs to be $750,000 annually. This amount is the same that was found reasonable in *DuPont* for a slightly larger SARR operating in similar territory to the TPIRR. *See DuPont*, STB Docket No. 42125, at 128.

(b) Storm Debris Removal

CSXT accepts TPI's estimate of $100,000 for storm debris removal.

(c) Building Repairs

CSXT accepts TPI's assumption that building repairs would be subsumed within the building maintenance costs discussed above.

iii. Large Magnitude Unplanned Maintenance

(a) Derailments and Clearing Wrecks

CSXT accepts TPI's estimate of $14,429,225 as the cost of derailments and clearing wrecks.

(b) Washouts

CSXT accepts TPI's estimate of $100,000 for washouts.

(c) Environmental Cleanups

CSXT accepts TPI's estimate of $100,000 for environmental cleanups.

iv. Program Maintenance

(a) Surfacing

CSXT agrees with the distinction between smoothing crews which are expensed and surfacing crews that are capitalized. However, CSXT disagrees with the number of smoothing crews required by TPIRR.

(b) Rail Grinding

As discussed above, rail grinding is a required function that is charged to operating expense and is not capitalized.

(c) Crossing Repaving

As discussed above, crossing repaving is a routine maintenance function that is charged to operating expense. When crossing paving is performed in connection with program work, that cost is capitalized and included in the DCF model.

(d) Bridge Substructure and Superstructure Repair

CSXT accepts TPI's cost of $4,000 per major bridge per year for major bridge superstructure and substructure repairs and accepts that these costs would be capitalized.

d. Equipment

CSXT accepts TPI's proposals with respect to the types of equipment proposed for rail drills, impact wrenches, tamping tools, tampers and ballast regulators, grinders, welders, Gradalls, track hoes, backhoes and dump trucks, with the quantities adjusted to suit the CSXT proposed workforce. CSXT makes several adjustments to TPI's proposed trucks, which are detailed below.

Hi-Rail Vehicles. CSXT agrees that each track crew, each B&B crew, and each signal maintenance crew at hump yards should be equipped with a heavy duty hi-rail vehicle with utility body, crane, and hydraulic power system for hydraulic tools. But TPI's unit cost for this vehicle is only {{ }}, because it reflects only the cost for the raw chassis and not the fully fitted out truck. In Mr. Hughes's experience, the cost for a complete fully-fitted out heavy trucks is typically over $200,000. This is supported by {{

}} Mr. Hughes used that cost for heavy-duty hi-rail vehicles.

TPI also calls for hi-rail swivel dump trucks for use with the ditching crews. Mr. Hughes concurs. However, TPI apparently priced a non-swiveling dump truck, since a rotary dump truck should cost around $180,000, not the $90,000 per unit provided by TPI. To correct this oversight, Mr. Hughes has used CSXT's price for a medium duty truck of {{ }}[504]

Trucks for REMs. TPI supplied an ordinary pickup truck to Roadway Equipment Mechanics, contrary to universal practice on Class I railroads. REMs must carry a wide assortment of hydraulic hoses, fittings and other widely used parts. They also need an electric generator for power tools, an air compressor for tires, hydraulic fluid tanks and motor oil tanks to top up reservoirs. To perform those functions, they are equipped with medium duty trucks fitted with special bodies and jib cranes to accommodate the equipment, supplies and parts they must carry. Accordingly, Mr. Hughes has supplied REMs with medium duty trucks at a unit price of {{ }}.[505]

Like REMs, welding gangs require at least a medium duty truck fitted with a custom utility body and jib crane for unloading welding supplies. The truck must carry thermite welding kits which must be kept dry as well as electric arc welding equipment with welding media that must be kept dry and gas welding equipment with tanks and hoses that must be properly stored.

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[503] *See* CSXT Reply WP "Reply Ex. III-D-3 CSX TPI MOW.xlsx," Tab "Vehicle Costs;" CSXT Reply WP "CEA Vehicle Gating.docx" at embedded "2012 Vehicle Capital Presentation Final 09.ppt."

[504] *See id.*

[505] *See id.*

Accordingly welding gangs require a specially equipped medium duty truck at a unit price of {{ }}.[506]

5. Leased Facilities

TPI claims that its TPIRR operating expense analysis includes 21 joint-facility and trackage-rights agreements that are necessary for TPIRR operations.[507] CSXT accepts the approach that TPI followed for 20 of the 21 agreements. For one of the joint facilities that TPI identified, CSXT corrects a calculation error in TPI's workpaper and also extends the distance covered for certain shipments that would be delivered to TPIRR's interline partners as CSXT does in the real world. In addition, CSXT adds to the TPIRR's expense the costs associated with four other joint facilities on which TPI's SARR would be dependent to operate trains and serve its customers.

First, TPI included certain costs associated with operating over the Indiana Harbor Belt ("IHB") in the Chicago area. Specifically, TPI multiplied the total number of TPIRR car-miles that move to/from Bedford Park by a charge per car-mile. TPI's formula, however, included only the locomotives, and does not include any payment for the { } cars that traverse the segment, resulting in a { } million understatement of the TPIRR's expense for using this joint facility.[508] In addition to correcting TPI's erroneous calculation, CSXT also adds the costs for

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[506] *See id.*

[507] TPI Opening III-D-26. TPI's discussion of this operating expense item comprises only two sentences, one of which refers to "the development of the annual payments to CSXT." Review of the workpaper to which TPI cites revealed no analysis of payments to CSXT, but rather trackage rights arrangements where CSXT is paying other entities for use of their facilities.

[508] TPI Op. WP "Open TPI Joint facility charges 2010.xlsx," Tab "IHB," Cell E18.

trains that TPIRR must operate on the portion of the IHB beyond Bedford Park to connections with UP and CN at Proviso and Bensenville, respectively, which represents { }.[509]

Second, TPI omitted the costs associated with four joint facilities over which the TPIRR would be required to operate: the Terminal Railway Alabama State Docks ("TRASD") in Mobile, the Belt Railway of Chicago ("BRC"), and two additional ones for the IHB. In discovery, CSXT produced to TPI agreements and invoices associated with CSXT's delivery of loaded coal trains to the McDuffie Island Coal Terminal in Mobile, AL. In 2010, CSXT paid TRASD { } per carload.[510] The TPIRR's traffic group includes virtually all of CSXT's coal shipments that are terminated at Mobile, and the TPIRR will incur the same per-carload cost that CSXT does in delivering that coal to McDuffie Island in the real world.[511] Based on 2010 volumes, this represents { } million.[512]

TPI included CSXT's payments for one BRC joint facility, but neglected to include another associated with puller service that BRC provides to CSXT to/from BRC's Clearing Yard. TPI has not proposed to include more TPIRR puller jobs in Chicago than CSXT operates,[513] nor has it proposed that the TPIRR redesign CSXT's operations.[514] Review of the CSXT traffic files indicates that TPI selected for the SARR traffic group more than 98% of CSXT's shipments that report an origination or termination at Clearing Yard. Accordingly, the TPIRR will be as

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[509] CSXT Reply WP "TPI Joint facility charges 2010_Reply.xlsx," Tab "IHB."

[510] CSXT Reply WP "Mobile TASD 2010.pdf."

[511] As described in Section III-C, TPI failed to model these movements all the way to their destination in the RTC simulation.

[512] CSXT Reply WP "TPI Joint facility charges 2010_Reply.xlsx," Tab "TASD."

[513] TPI Op. WP "TPIRR Yard Operations.xlsx."

[514] *See, e.g.*, TPI Opening III-C-3.

dependent on BRC as CSXT is in the real world, and thus will be responsible for the same level of payments as CSXT makes.[515]

As discussed above, TPI accounted for payments that TPIRR would make to IHB for operating to Bedford Park. There are two other joint facilities involving IHB for which TPIRR would also be responsible: maintenance and operation of the Dolton interlocker (agreement IHB201X, joint facility JB7306) and dispatching the BOCT/IHB line between Blue Island and McCook (IHB203X - JB7402). Because TPIRR's operations would involve both of those joint facilities, CSXT includes its actual payments under those agreements as TPIRR's expense.[516]

6. Loss & Damage

TPI estimated TPIRR's loss and damage costs based on CSXT's actual 2010 loss and damage costs by commodity.[517] CSXT accepts TPI's methodology. However, TPI mis-assigned SARR miles used to allocate revenues between the TPIRR and the residual CSXT. *See* CSXT Reply III-A. As loss and damage are also allocated on the basis of miles, CSXT corrects TPI's inputs to recalculate annual loss and damage costs for the TPIRR.[518]

7. Insurance

TPI proposed an insurance ratio of 1.35 percent of operating expenses, calculated from CSXT's average insurance costs over three years. *See* TPI Opening III-D-26. CSXT accepts this proposal and applies it to the operating expenses in its Reply Evidence.

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[515] CSXT Reply WP "TPI Joint facility charges 2010_Reply.xlsx," Tab "BRC."

[516] CSXT Reply WP "TPI Joint facility charges 2010_Reply.xlsx," Tab "IHB."

[517] TPI Opening III-D-26.

[518] CSXT Reply WP "TPIRR FCD1 by STCC - 2010_Reply.xlsx."

8. Ad Valorem Taxes

TPI substantially understates the amount of ad valorem taxes that the TPIRR would be required to pay. TPI does so by using a methodology that ignores the fact that most of the states through which the TPIRR operates calculate ad valorem taxes for railroads based on a railroad's profitability. In these "unit method" states, an optimally efficient SARR like the TPIRR would pay relatively higher taxes than a less-efficient real-world railroad like CSXT. The Board has recognized in recent cases that the SAC analysis should reflect this reality. *See DuPont*, STB Docket No. 42125, at 136-37; *SunBelt*, STB Docket No. 42130, at 66-67. This case is no different, and the Board should use the same kind of unit value modifier that it used in *DuPont* and *SunBelt* when calculating ad valorem taxes for the TPIRR. [519]

TPI's method—like the methods rejected in *DuPont* and *SunBelt*—uses CSXT's 2009 taxes and route-miles to calculate a "per-route-mile" ad valorem tax expense for CSXT that it extrapolates to the TPIRR. *See* TPI Opening III-D-27. TPI thus assumes that the TPIRR will be taxed at the same level as CSXT (on a pro rata mileage basis). That assumption is incorrect for 14 TPIRR states. These states tax railroad property as a function of a railroad's overall profitability as an enterprise—its "unit value"—and a SARR that is more profitable than the incumbent railroad will pay more taxes as a result.

Subsection a describes how unit valuation works and demonstrates that fourteen of the TPIRR States use a unit valuation method for assessing ad valorem taxes against railroads. Subsection b shows that each of the TPIRR States that uses unit valuation primarily relies on railroad income valuations to determine a unit value. Subsection c describes the distortions that

[519] CSXT's Reply Evidence on ad valorem taxation is sponsored by CSXT witness Rick Brown. Mr. Brown's statement of qualifications is located in Section IV.

would occur from using TPI's unadjusted method and describes a simple and conservative adjustment to TPI's ad valorem tax calculations that accounts for this unit valuation issue.

a. Unit Valuation Is the Basis for Ad Valorem Taxation In Fourteen of the TPIRR States.

States generally determine the market value of railroad property for tax assessment in one of two ways. The "summation method" individually values each tract of property in a state and then adds the values to derive a total value for the taxing jurisdiction. The "unit method," on the other hand, seeks to derive a single system-wide value for the railroad and then to assign a portion of that system-wide value to the particular state. *See, e.g., Norfolk & W. Ry. Co. v. Mo. State Tax Comm'n*, 390 U.S. 317, 324 (1968). The allocation of value generally is proportional to the percentage of a railroad's property located within a state, often measured by track mileage. In unit value states, railroad property typically is centrally assessed and valued for taxation by an office of the state government, which (1) determines a unit value for the system as a whole, (2) allocates a portion of that value to the state, and (3) transmits tax assessments to the local taxing jurisdiction.

The unit method is the most common method for states to determine the market value of railroad property for tax assessment. *See Rail Abandonments – Avoidability of Property Tax Expense Under the Unit Method of Assessment*, ICC Ex Parte No. 274 (Sub-No. 20), 1989 WL 238764, at *8 n.5 (served June 5, 1989) ("at least 36 States use some form of unit assessment").[520] Most importantly here, fourteen of the eighteen states (including Washington, DC) in which the TPIRR operates use a unit valuation methodology to determine railroads' ad

[520] *See* N.Y. State Office of Real Prop. Servs., "Survey of Railroad and Utility Taxation Practices Among the States: 2005 Update," http://www.tax.ny.gov/research/property/reports/rr/index.htm (last visited July 12, 2014) (demonstrating that majority of states use unit method to assess railroad property).

valorem taxes. Specifically, Alabama, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Ohio, South Carolina, Tennessee, and West Virginia are all "unit value" states.[521] Collectively, these states are referred to herein as the "TPIRR Unit Value States."[522]

In general, States applying the unit method use one or more of three approaches to estimate a railroad's unit value: the income approach, the cost approach, and the stock-and-debt approach. *See* Appraisal Institute, *The Appraisal of Real Estate* at 140-143 (12th ed. 2001); National Conference of Unit Value States, *Unit Valuation Standards* § I.A. (available in CSXT Reply workpapers) (hereafter "Unit Valuation Standards").

Income approach. The income approach assumes that a property's value is equivalent to its earnings potential. An income value for a railroad is therefore the present value of the railroad's future earnings. Appraisers using this approach typically use discounted cash flow models to estimate the current value of an income stream. *See* Unit Valuation Standards § III. Nearly every unit value state considers some version of going-concern value when determining a railroad's unit value.[523] As discussed below, each of the TPIRR Unit Value States uses the income approach. Indeed, most of the TPIRR Unit Value States place far more weight on income valuations than on other value indicators.

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[521] *See id.*; *see also* CSXT Reply WP Folder "III-D-8" (tax workpapers demonstrating unit value assessment for each SARR state using unit value for appraisals).

[522] The remaining TPIRR states—D.C., New York, Pennsylvania, and Virginia—all use variations of a summation methodology in which tax assessments are driven by the across-the-fence value of the railroad's real property and not the railroad's value as a whole. For these states, TPI's methodology reasonably approximates the TPIRR's ad valorem tax liability, and CSXT accepts TPI's ad valorem taxation calculations for these states.

[523] *See* CSXT Reply WP "Survey of Railroad and Utility Taxation Practices Among the States" ("The income approach is a primary approach to valuing railroads in much of the nation").

Cost approach. The cost approach is premised on the assumption that a property's value is related to its cost. Under a typical cost approach, the estimated value of the land is added to the estimated cost of reproducing all buildings and improvements on the land, minus depreciation and obsolescence. *See* Unit Valuation Standards § II. The cost approach is considered by most of the TPIRR Unit Value States, although as demonstrated below states typically give more weight to the income approach in determining a railroad's unit value.

Stock-and-debt approach. Ordinary non-railroad property is often appraised using a sales comparison approach, in which the appraiser identifies similar properties that were sold in the subject property's market and uses those sales to derive a value for the subject property. *See* Appraisal Institute, *The Appraisal of Real Estate* at 297-314 (13th ed. 2008). Because the sales comparison approach is predicated on actual transactions in the marketplace, it is a persuasive indicator of value where sufficient sales data exists. But the sales comparison approach is only useful for properties that are regularly sold on the open market, and thus cannot be applied to estimate a railroad's value. A variant of the sales comparison approach, known as the stock-and-debt approach, has emerged for publicly traded corporations like railroads or utilities. Because there is "seldom available objective market evidence as to the price that railroads or public utilities would command if offered for sale, the next best alternative is the market price of the stocks and bonds of the enterprise owning the property."[524] States that use the stock-and-debt approach use the total value of a railroad's outstanding stock and debt as a means to estimate a market value. *See* Unit Valuation Standards § IV. The stock-and-debt approach has come under

[524] *See* CSXT Reply WP "Alfred A. Ring & James H. Boykin, The Valuation of Real Estate.pdf" at 3.

significant criticism,[525] and several of the TPIRR Unit Value States do not consider this approach at all. Those that do tend to give it significantly less weight than the income approach, as demonstrated below.

b. Railroad Income Value Is the Primary Factor Considered By the TPIRR Unit Value States.

The tax workpapers that CSXT provided to TPI in discovery show that the primary factor influencing unit valuations is the state's determination of a railroad's income value. While each TPIRR Unit Value State uses a combination of more than one approach to assess a railroad's unit value, far more emphasis is placed on the income approach.[526] For example, several states assign formal percentage weights to the competing approaches in a way that puts substantially more weight on income value. One such state is {{

}} While the weighting in most states is not so dramatically skewed toward the income approach, the income approach is typically given substantially more weight than other approaches—95% in {{ }} and 60% in {{ }}

[525] *See, e.g., id.* (noting that stock-and-debt approach often yields "dubious and unreliable evidence" of value, for "[t]here is no reliable relationship between the constantly fluctuating market of stocks and bonds and tangible and intangible assets reflected by such securities.").

[526] CSXT produced to TPI all ad valorem tax workpapers in its possession for the TPIRR states for tax years 2008 through 2013. These tax workpapers—which TPI requested in discovery but ignored when compiling its opening evidence—are included in CSXT Reply WP Folder "Ad Valorem Workpapers."

TABLE III-D-48
Relative Weights To Valuation Approaches From States That Formally Weigh Approaches

	Income	Cost	Stock and Debt
{{ }}[527]	99%	1%	Not considered
{{ }}[528]	95%	1%	4%
{{ }}[529]	60%	40%	Not considered

In addition, some states that do not formally assign percentage weights to the values of the approaches give disproportionate consideration to the income value. {{

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Moreover, it should be noted that as a general rule the income approach produces an approximation of value that is less than the results shown by other approaches. Because values derived from the income approach typically are lower than values derived from other approaches, a unit value approximation that solely relies on income value tends to understate the final unit value determination (and thus understate total tax liability).

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[527] {{ }}
[528] {{ }}
[529] {{ }}
[530] {{ }}
[531] *See id.*

c. A NROI Adjustment Should Be Made to Account for the TPIRR's Relative Income Value.

Because railroad ad valorem taxation in the unit value states is based on the state's assessment of a railroad's unit value, and because those unit value assessments are primarily driven by the state's income valuations of the railroad, there is no merit to TPI's assumption that the TPIRR would be more profitable than CSXT and yet pay ad valorem taxes at a similar level. On the contrary, a hypothetical least-cost, most-efficient SARR operating in one of these unit value states would be required to pay ad valorem taxes at a level commensurate with its income stream.

In this case, the TPIRR as posited in TPI's opening evidence has substantially higher net railway operating income on a route-mile basis than CSXT does. This higher income would translate into a higher income valuation and higher ad valorem taxes on a route-mile basis in the TPIRR Unit Value States. By assuming that the TPIRR would pay taxes at the same level as CSXT (prorated for the TPIRR's relative mileage in each state), TPI effectively assumes that the TPIRR could operate more profitably than CSXT without having a higher tax burden on those increased profits. That assumption is plainly not consistent with "real-world railroading." *AEPCO 2011*, STB Docket No. 42113, at 16 ("all assumptions used in the SAC analysis must be realistic, *i.e.*, consistent with the underlying realities of real-world railroading"). In real-world railroading, as in other commercial pursuits, part of the price one pays for higher profits is the need to pay taxes on those profits.

To account for the higher taxes the TPIRR would pay as a result of its increased profitability, Mr. Brown calculated a "Unit Value Modifier" that measures the relative profitability of TPIRR vis-à-vis CSXT. This "Unit Value Modifier" is calculated by comparing the relative net railway operating income ("NROI") per route mile of CSXT with the NROI of

the TPIRR per route mile. The Unit Value Modifier thus measures the extent to which the income value of the TPIRR would exceed the income value of CSXT on a per-route-mile basis. This approach is both reasonable—for income valuation is the primary driver of unit values—and conservative—for the income approach tends to produce the lowest value of the three approaches.

Using this Unit Value Modifier to adjust actual taxes paid by CSXT is also conservative because it ensures that the TPIRR is able to take advantage of all the tax exemptions and benefits that CSXT enjoys. Railroad ad valorem taxation is a complex field that requires substantial time from expert railroad staff who work with the various state assessors to ensure that CSXT receives fair treatment and that it only pays the tax owed—no more and no less. *See supra* III-D-3-C-(ii)-(d)-(6). CSXT's approach ensures that the TPIRR receives the benefit of both all applicable exemptions and tax benefits and of all the negotiations and efforts of CSXT's ad valorem taxation professionals, while properly incorporating the effect of the TPIRR's higher profitability.

CSXT's workpapers contain an income valuation spreadsheet that the Board may use as a model to apply the unit valuation methodology to the TPIRR after the Board resolves all the parties' disputes as to TPIRR revenue and operating expenses.

With these corrections, total ad valorem taxes for the TPIRR are $62.4 million.

9. Other

a. Intermodal Lift and Ramp Cost

TPI's operating expense estimate included $67 million in lift and ramp costs for handling TPIRR intermodal shipments.[532] TPI posited that the TPIRR would handle virtually all of the

[532] *See* TPI Opening III-D-28.

intermodal shipments on the CSXT system, yet its lift and ramp costs represent less than 40% of CSXT's system-wide expense of $180 million for loading and unloading at intermodal terminals.[533] The reason for that discrepancy is that TPI erroneously assumed that the TPIRR would not be responsible for many of the costs at these terminals that CSXT incurs in the real world. Specially, as discussed in more detail below, TPI excluded the costs of clerical staff and utilities and failed to include any costs for management or supervisory functions that are necessary to ensure successful operation of intermodal facilities and coordination with the broader transportation network.

TPI improperly excluded the costs of clerical support and utilities. As indicated above, TPI estimated the TPIRR's intermodal lift & ramp cost based on detailed CSXT's reports by expense type and location that were provided to TPI in discovery.[534] Although TPI's workpaper indicates that CSXT incurred { } million in clerical costs at intermodal facilities replicated by the TPIRR, TPI assumed without explanation that the TPIRR would not be responsible for any portion of that expense.[535] By excluding the cost of clerks, and not accounting elsewhere for the services that they provide, TPI has failed to account for functions that are essential to support the TPIRR's intermodal operations. The exclusion of those activities would not only jeopardize the TPIRR's ability to maintain the high level of service that CSXT does today, but their absence would also place the TPIRR in violation of FRA and TSA safety and reporting rules because the clerks are responsible, among other things, for the reporting of hazardous materials and customs information. In addition to excluding the cost for the clerks that CSXT has at these locations,

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[533] *See* CSXT 2010 R-1 Annual Report, Schedule 417.

[534] TPI Op. WP "Intermodal Terminal Cost and Volume Update lift 2010.xlsx."

[535] TPI Opening Workpaper "Intermodal Terminal Cost and Volume Update lift 2010.xlsx" indicates that TPI excluded from the SARR allocation all costs for CSXT expense types { }.

TPI also inexplicably excluded cost codes associated with utilities for which CSXT is responsible.[536] To correct those errors, CSXT adjusts the unit cost per lift at each TPIRR intermodal terminal to include these clerical and utility costs.[537]

TPI did not include any management or supervisory positions to oversee the operations and railroad employees and contractors. TPI included an estimate of the payments that CSXT makes to intermodal facility contractors, but failed to recognize that the TPIRR would also be required to provide management personnel to supervise the work of those contractors. CSXT produced materials to TPI in discovery that identified the management positions that CSXT maintains at intermodal terminals along the TPIRR network.[538] These identified that CSXT has managers at 16 of the intermodal facilities replicated by the TPIRR, including the facility at North Baltimore, OH that TPI improperly omitted from its construction cost analysis, and CSXT included for this Reply. For example, CSXT has one Operations Supervisor and one Terminal Manager at each of Cincinnati, Nashville, and Tampa. Larger intermodal facilities—such as Atlanta, Chicago, Jacksonville, and North Baltimore Ohio—have four or more Supervisors and Managers. In total, the discovery materials identified four Terminal Superintendents, 22 Operations Supervisors, and 50 Manager-level positions that CSXT provides at intermodal terminals and yards selected for the TPIRR. These managers provide on-site supervision of the contracted terminal and lift operations and ensure that CSXT policies and procedures are followed. In addition, they serve as a liaison between contract terminal operators and railroad transportation personnel, ensuring that the operating plan is followed and customer service

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[536] TPI Opening Workpaper "Intermodal Terminal Cost and Volume Update lift 2010.xlsx" indicates that TPI also excluded from its SARR category the { } million in CSXT expense reported to expense type "Utilities."

[537] CSXT Reply WP "TPIRR Reply Intermodal Lift and Ramp.xlsx."

[538] *See* CSXT Reply WP "2013 Org Chart.xlsx" (provided to TPI in discovery).

commitments are met. These positions are particularly critical at intermodal terminals that have high volumes and service requirements, such as those in the Chicago area, which the TPIRR replicates. TPI does not explain how those supervisory functions would be covered. It neither included TPIRR personnel to perform them nor increased the payment to contractors (which would be required if TPIRR did not perform those functions itself). CSXT's Reply includes 73 Supervisor/Manager positions at TPIRR terminals in the TPIRR's Transportation Department.[539]

Next, CSXT corrects costs for two facilities that TPI's mis-calculated. Bedford Park is a large intermodal facility in Chicago. The TPIRR traffic group included 99.9% of the CSXT intermodal traffic originating or terminating at Bedford Park.[540] When identifying the SARR's share of operating expenses of the facility, however, TPI applied a number of lifts that resulted in an allocation of only 60% of CSXT's actual facility expense at Bedford Park to the TPIRR.[541] TPI has provided no explanation for how the TPIRR—which is essentially replacing CSXT's intermodal operations in Chicago—would incur less than two-thirds of CSXT's costs of operating Bedford Park. CSXT adjusts TPI's expense estimate to ensure that the SARR is properly allocated the full operating expenses for Bedford Park.

CSXT also corrects TPI's miscalculation of operating expenses for the North Baltimore, OH facility. The source document from which TPI developed TPIRR's intermodal lift and ramp costs indicates that CSXT's expenses at North Baltimore increased significantly from { } million in 2010 to { } million in 2011, and to { } million in 2013, as annual lifts rose to

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[539] Witness Gibson determined that, given the smaller TPIRR volumes at three of the facilities, the management responsibilities would not require a dedicated manager at those locations.

[540] CSXT Reply WP "TPIRR_selected_Traffic.xlsx".xlsx."

[541] *Compare* TPI Op. WP "Intermodal Terminal Cost and Volume Update lift 2010.xlsx" (where TPI determines the total costs) to TPI Op. WP "SARRContainers OrigTerm Locations V42 07 03 02082014.xlsx" (where TPI calculates the TPIRR's share).

600,000 over the three-year period.[542] TPI's calculations assumed that the TPIRR would be responsible for only { } lifts at North Baltimore in the first year,[543] and would apply an overall growth index to estimate the facilities' costs in later years. TPI's approach both understates the SARR's share of the facility's total expense (in the same manner it did for Bedford Park, described above) and does not account for the significant increase in activity—and costs—after 2010. CSXT refines TPI's calculation to ensure that the SARR is properly allocated the full operating expenses for North Baltimore Ohio, and that the 2011-2013 expenses account for the much higher volumes.[544]

Finally, TPI's intermodal facilities cost calculations failed to include the cost of intermodal lift equipment and hostlers.[545] Lift equipment is comprised of the variety of cranes that are used to pick up and transfer containers between the flat-beds of railcars and trucks. Hostlers include truck tractors and large forklifts that move containers around the yard, including from unloading to storage areas. Both are indispensable for facilitating intermodal yard operations.[546]

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[542] CSXT Reply WP "Intermodal Terminal Cost and Volume Update.xlsx" (provided to TPI in discovery).

[543] TPI Op. WP "SARRContainers OrigTerm Locations V42 07 03 02082014.xlsx."

[544] CSXT Reply WP "TPIRR Operating Expense_Reply.xlsx."

[545] TPI neither purchases this equipment as part of its Road Property investment nor accounts for it as part of its development of intermodal facility costs. Specifically, to develop its costs for intermodal facilities from materials provided by CSXT in discovery, TPI excludes from its calculations fixed depreciation costs, which includes among other things depreciation expense for CSXT owned equipment. *See* TPI Op. WP "Intermodal Terminal Cost and Volume Update lift 2010.xlsx," Tab "Expense list," Line 9.

[546] CSXT notes that at some TPIRR intermodal yards (for example, Memphis) another railroad or vendor owns the equipment. CSXT does not require the TPIRR to acquire intermodal equipment at these locations since costs for this equipment is included in TPI's development of per unit operating costs as a lease or contractor expense. However, at those intermodal yards where CSXT currently owns the equipment, there is no corresponding lease or contractor

In response to TPI's discovery request (RFP 109), CSXT produced inventories of lift equipment and hostlers that it owns at each intermodal yard as part of a list of owned intermodal assets.[547] CSXT used this information to develop intermodal equipment costs for each of TPIRR's twenty-two (22) intermodal facilities. To estimate those costs, CSXT identified the model numbers of all owned hostlers and lift equipment at each of TPIRR's intermodal yards, and then estimated an acquisition cost based on the historical average that CSXT paid for each model. CSXT then adjusted the average acquisition cost to 3Q2010 price levels.[548] Using the estimated acquisition cost at 3Q2010 levels and the projected equipment service life of each asset, CSXT calculated average annual payments for each equipment component using the same approach that TPI used to estimate TPIRR annual vehicle costs.[549] Table III-D-13 summarizes TPIRR's annual payment for intermodal equipment at each TPIRR intermodal facility.[550] CSXT adds these annual payments to the total cost of each intermodal facility. [551]

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payment that TPI included in its development of per unit operating costs that accounts for equipment.

[547] *See* CSXT Reply WPs "Intermodal Equipment 2013.xlsx" and "Intermodal Assets 2013.xls."

[548] CSXT uses the Means Historical Cost Index to adjust costs, which is consistent with TPI's method for adjusting various facilities costs in its opening evidence.

[549] TPI Op. WP "TPIRR Materials and Supplies.xls," Tab "Automobiles."

[550] CSXT Reply WP "TPIRR Intermodal Equipment Payments.xlsx."

[551] CSXT Reply WP "TPIRR Reply Intermodal Lift and Ramp.xlsx," Tab "UnitCosts," Line 70.

Table III-D-49
Summary Of TPIRR Annual Cost Of Intermodal Facility Equipment

Location	Hostlers	Lifts	Total
Chicago - 59th Street		$746,986	$746,986
Chicago - Bedford Park		$2,334,257	$2,334,257
Cleveland		$190,005	$190,005
Buffalo		$184,755	$184,755
Syracuse		$355,983	$355,983
E. St. Louis		$291,945	$291,945
Indianapolis		$70,722	$70,722
Evansville	$35,814	$68,839	$104,653
Nashville	$128,003	$298,023	$426,026
Mobile	$35,201	$2,279	$37,479
New Orleans	$54,499	$97,183	$151,682
Atlanta - Fairburn	$528,567	$765,810	$1,294,377
Atlanta - Hulsey	$326,517	$380,923	$707,440
Jacksonville	$404,264	$814,399	$1,218,663
Orlando	$125,791	$272,396	$398,186
Tampa	$90,131	$243,558	$333,689
Baltimore		$267,789	$267,789
Louisville	$36,473	$289,465	$325,938
NW Baltimore	$127,402	$3,222,986	$3,350,389
Total	**$1,892,662**	**$10,898,304**	**$12,790,966**

Source: CSXT Reply WP "TPIRR Intermodal Equipment Payments.xlsx"

In summary, CSXT corrects TPI's omissions and errors by recalculating the TPIRR's total intermodal lift and ramp cost,[552] and adding 73 additional management and supervisory positions are included in the TPIRR's Transportation Department.

b. Automotive Handling Cost

Following an approach similar to the one it applied for intermodal terminals, TPI calculated costs of { } million for loading and unloading at TPIRR's automotive facilities.[553] CSXT accepts TPI's use of the CSXT discovery data for the loading and unloading costs, and

[552] CSXT Reply WP "TPIRR Reply Intermodal Lift and Ramp.xlsx."

[553] TPI Opening III-D-28.

makes one of the same corrections that it made to TPI's analysis of the SARR's intermodal terminals. TPI inexplicably excluded from the TPIRR's costs the cost of utilities at the facilities, which total { } million.[554] CSXT corrects this omission for its reply.[555]

c. Bulk Transfer Terminals

Although TPI included the cost of constructing 23 bulk transfer (transload) terminals,[556] it assumed that the TPIRR would be responsible for none of operating costs of those facilities. TPI offered no explanation for why it treated those TPIRR terminals differently from the intermodal and automotive ramps, where it acknowledged the TPIRR would incur $90 million in operating expenses. When it analyzed the revenue for shipments originating or terminating at these terminals, TPI included in its ATC division calculations any amounts that corresponded to the bulk transfer function.[557]

As it did for the intermodal and automotive ramps, CSXT produced expense information by facility for CSXT bulk transfer terminals. CSXT identified { } in operating expenses for the terminals that TPIRR replicated. CSXT's Reply included that as part of the TPIRR's costs.[558] In addition, CSXT identified six management and supervisory personnel associated with the bulk transfer function, and included them in the TPIRR's staff.

d. Calculation of Annual Operating Expenses

CSXT followed a similar process as TPI to calculate the operating statistics for the TPIRR. CSXT notes that TPI incorporated data from different time periods for various analyses.

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[554] TPI Op. WP "Automobile full year 2010 TPI.xlsx."

[555] CSXT Reply WP "TPIRR Reply Automotive Handling.xlsx."

[556] TPI Op. WP "TPIRR Yard Matrix Opening Grading.xlsx."

[557] In its III-A revenue workpapers, TPI includes the amounts in the "SumOfTransfloRevenue" field in its calculation of "CSXT_NET_REVENUE." *See, e.g.*, TPI Op. WP "TPIRR_TRAFFIC_HISTORICAL_CARLOAD_2012.xlsx."

[558] CSXT Reply WP "TPIRR Reply Bulk Transfer.xlsx."

TPI's detailed analyses of the shipments selected for the SARR traffic group, and its determination of ATC revenue allocations, relied upon the calendar year 2012 waybill file. But TPI's analyses of car event data and its development of the TPIRR's train list and operating statistics were based on the July 2012-June 2013 period.

As explained in Section III-C, CSXT's MultiRail analyses were based on the calendar year 2012 traffic files. As traffic and shipment records are input to MultiRail with waybill-level detail to develop trip plans and blocking and classification requirements, CSXT selected calendar year 2012 in order to match the period for which TPI performed its traffic group analysis. In order to incorporate the results in the STB's standard operating expense format in the DCF model workpapers, CSXT then backcasted its 2012 MultiRail results to the SARR's First Year (*i.e.*, July 2010-June 2011) based on the TPIRR's car-miles, consistent with TPI's approach to calculating TPIRR's First-Year operating statistics.[559]

[559] *See* CSXT Reply WP "TPIRR Operating Statistics_Reply.xlsx." In addition to its MultiRail analysis of the road and local train operations and yard classifications required to handle TPIRR's shipments, CSXT also submits in its workpapers the results of correcting TPI's train lists and operating assumptions for certain shortcomings that can be addressed without generating a new operating plan.