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April 14, 2003

By Hand Delivery

Honorable Vernon A. Williams
Secretary
Surface Transportation Board
1925 K Street, N.W.
Washington, D.C. 20423-0001

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U.S. DEPT. OF JUSTICE

Re: **STB Docket No. 42070, Duke Energy Corporation v. CSX
Transportation, Inc.**

Dear Secretary Williams:

Enclosed for filing on behalf of Defendant CSX Transportation, Inc. in the above-referenced proceeding are two versions of the "**Brief for Defendant CSX Transportation, Inc.**" The first is a non-public version of the Brief. Please note that the non-public brief is filed under seal, and contains materials designated as **Confidential** and **Highly Confidential** under the terms of the Protective Order entered by the Board in this proceeding on March 11, 2002. These materials must be maintained under seal and not placed in the public docket.

The second, public version of the brief, may be placed in the public docket. All confidential and highly confidential materials have been redacted from this version of the brief.

This submission contains a signed original of the non-public version of the brief, a signed original of the public version of the brief, and sixteen (16) copies of each. Also enclosed are three (3) disks containing electronic copies of the non-public Brief in WordPerfect Version 10.0.

Please acknowledge receipt of this submission for filing by date-stamping the enclosed duplicate paper copy of each version of the Brief and returning it with our messenger.

SIDLEY AUSTIN BROWN & WOOD LLP

WASHINGTON, D.C.

Honorable Vernon A. Williams

April 14, 2003

Page 2

If you have any questions concerning this filing, please contact one of the undersigned. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "G. Paul Moates", followed by a horizontal line.

G. Paul Moates
Terence M. Hynes
Paul A. Hemmersbaugh

Enclosures

cc: Counsel for Complainant (w/encls.)

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**BEFORE THE
SURFACE TRANSPORTATION BOARD**

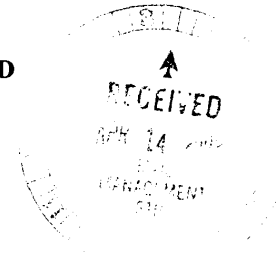
DUKE ENERGY CORPORATION,

Complainant,

v.

CSX TRANSPORTATION, INC.

Defendant.



STB Docket No. 42070

BRIEF OF DEFENDANT CSX TRANSPORTATION, INC.

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DATED: April 14, 2003

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I. INTRODUCTION AND SUMMARY

This case is not the result of a commercial dispute that the parties could not resolve through reasonable, good-faith negotiation, but rather an exercise in regulatory opportunism. Duke voluntarily terminated an advantageous contract (with favorable rates and reasonable volume commitments) a year early, refused to engage in meaningful contract negotiations, and filed this case. In so doing, Duke abandoned a successful commercial strategy pursuant to which it had, for many years, leveraged its buying power by bundling traffic to its huge dual-served Marshall plant with traffic to its much smaller Cliffside, Lee, and Riverbend plants (which are served solely by CSXT).

CSXT's rates for Duke service remain essentially the same (in nominal dollars) today as they were 20 years ago – adjusted for inflation, those rates are about half what Duke paid then. The challenged rates are not “confiscatory” or “outrageous,” but reflect responsible, commercially supported increases from the terminated contract rates.¹ CSXT has shown that the challenged rates are reasonable under the SAC test, and in comparison to negotiated rates to the Marshall plant and the Board's RSAM benchmark. Moreover, they are far below the “Ramsey Prices” that CSXT would have to charge to achieve revenue adequacy.² See Table 1, *infra* at 6.

Duke's regulatory gambit founders on an essential physical truth: the East is not the West. The far-flung coal gathering network that CSXT has built, maintained and operated in the Appalachian Mountains – all at great cost – has proven an insurmountable litigation challenge. Duke could not design a feasible network to serve the many mines from which it originated traffic in 2001. Instead, Duke resorted to a truncated version of the CSXT coal-gathering network; challenged rates only on that network (while claiming it should be allowed to extend any rate prescription to origins not served by its SARR); contrived a SARR that left to residual CSXT the burden of many branch-lines, and inefficiently re-routed traffic over circuitous routes; and created numerous operating inefficiencies and additional costs that Duke would transfer to the residual CSXT. In short, Duke proffers a fantasy SARR based

¹ The challenged rates reflect the absence of any volume commitment by Duke (whereas the terminated contract rates were based upon minimum volume requirements).

² See, e.g., CSXT Op. I-4 to 8, 20 to 34, Part IV-A; CSXT Reply I-3 to 6, 13 to 14, 47 to 51, III-G-5 to 9, Part III-I-1 to 15, App. G; CSXT Reb. I-23 to 25. To underscore the significance of this case, CSXT has demonstrated that reduction of all its coal rates to 180% of variable cost would reduce its annual earnings by \$274 million – two-thirds of CSX's 2001 net earnings.

upon distortion of SAC principles and gaming of the Board's rules, and fails to meet its burden of proof with respect to every major component of the SAC analysis.³

A. Duke Has Failed to Meet its Burden of Proof in Numerous Essential Respects

CSXT developed its SAC evidence based on a realistic assessment of what would be required to operate Duke's stand-alone railroad, the "ACW," safely and efficiently. Unlike Duke, CSXT properly took into account both the advantages and efficiencies a modern, least-cost stand-alone railroad might achieve, and the real physical, operational, and logistical constraints that any railroad would have to address to construct, operate, and maintain a rail system capable of handling the ACW's traffic in the challenging terrain of Central Appalachia. See generally CSXT Rep. Exh. III-C-1.

By contrast, Duke's SARR is not a feasible railroad; it is a fantasy railroad that relies on suspension of real world requirements and limitations (including the laws of physics). While a complainant has substantial freedom to configure its SARR, it must be feasible based on real world conditions and requirements. Ignoring this basic tenet, Duke disregards or assumes away numerous physical and economic requirements, whose inclusion in Duke's SAC analysis would increase costs and decrease revenues. Duke's presentation also lacks adequate – or, in many cases, any – evidentiary support for its assertions and conclusions concerning key elements of its case-in-chief.⁴ For example:

- Duke admits that the ACW's locomotive and car fleet requirements, crew requirements, and operating statistics all depend entirely upon the output of Duke's string diagram model. Because that model is fatally flawed, Duke has no coherent evidence whatsoever to support its operating expenses, including operating equipment and personnel expenses.

³ Duke blames "a few oversights in Duke's SAC analysis" on CSXT's allegedly tardy production of information in discovery. Duke's discovery complaints, which pertain primarily to variable costs and not to SAC evidence, are erroneous and exaggerated. See, e.g., CSXT Reply App. A. Even taking Duke's allegations at face value, however, they would provide no excuse for its deficient SAC presentation. See Duke Reb. I-7 to 9 (only claim pertaining to SAC evidence that Duke continues to assert on Rebuttal is that CSXT did not produce traffic tape "decoders" until March 15, 2002). Duke filed its SAC evidence on May 22, 2002. Even under Duke's own self-serving account, it had more than two months to incorporate CSXT's traffic data into its SAC presentation. If Duke genuinely felt it needed even more time, it could have sought an extension of the schedule. See, e.g., Order at 4, n.5, Duke v. CSXT, No. 42070 (served March 25, 2003).

⁴ Page constraints prevent CSXT from discussing each of the important points made in its three rounds of evidence. For example, although both parties filed a significant volume of evidence concerning the calculation of CSXT's variable costs, CSXT does not discuss that subject here. In the event that it becomes necessary to consider variable costs, CSXT refers the Board to its submissions in each round of evidence, particularly CSXT Rebuttal at II-A.

- Duke likewise relied upon its string diagram model to confirm the feasibility of its SARR. Because the output of the model is demonstrably unreliable (see pp. 18-22, infra), Duke cannot satisfy its threshold burden of proving that its SARR configuration, track and facilities are feasible.
- Duke assumed the ACW would use train sizes that exceed those specified by customers and CSXT, in violation of Board precedent. At the same time, the ACW yards Duke built could not hold such longer trains.
- On Rebuttal, Duke abandoned the inadequate earthwork equipment it posited in its case-in-chief, substituting massive equipment that would be equally incapable of constructing the ACW. Duke's submission of this new evidence on rebuttal improperly denied CSXT the opportunity to respond.
- Duke's road property investment presentation is riddled with assumptions and assertions that are physically impossible, infeasible, unsafe or contrary to law. See 8-18, infra.
- Duke's traffic volume assumptions for most of the DCF period (2005 through 2021) are unsupported by any witness testimony or by any other evidence. Duke's unsupported assumptions contradict EIA projections and the forecasts of several other independent experts.
- Duke's made-for-litigation assumptions regarding traffic to Duke's own plants overstate by more than 40% the actual traffic to its own plants in 2002, and contradict Duke's own course-of-business projections for later years.
- Duke claimed for the first time on Rebuttal that the ACW will garner additional traffic, and cure several other deficiencies identified by CSXT, by offering lower rates than CSXT. Yet, the ACW revenues presented by Duke are based upon the opposite assumption — that the ACW would charge rates equal to or greater than CSXT's rates.
- Duke assumes the ACW would make up for ACW-served plants' reduced demand for Central Appalachian coal by transporting coal to other plants that the ACW does not even serve.

In short, Duke failed to meet its burden of proof with respect to each of the four essential components of its SAC presentation: (1) SARR design and configuration; (2) SARR operating plan and operating expenses; (3) road property investment; and (4) SARR traffic and revenues. See generally CSXT Reply III-A, B, C; see also pp. 8-39, infra.⁵ The Board should not proceed any further in its

⁵ The Board has consistently held that "[i]n SAC cases the complaining shipper has the . . . burden of supporting the feasibility of all components of its design and cost estimates." FMC Wyoming Corp. v. Union Pacific R.R. Co., STB Doc. No. 42022, STB Ex Parte No. 346 (Sub-No. 29A) (May 10, 2000), slip op. at 25 ("FMC") (emphasis added). While a Complainant has flexibility to develop its SARR design and operating plan, that design and plan must be feasible and must satisfy the requirements of the selected traffic group. Coal Rate Guidelines at 543-44; see McCarty Farms, 2 S.T.B. 460, 468-69, 476-78 (rejecting complainant's operating plan as "infeasible, even for an optimally efficient rail carrier"). Moreover, "the party with the burden of proof on a particular issue must present its entire case-in-chief in its opening evidence," not on rebuttal. General SAC Procedures (Mar. 12, 2001) at 5; PSC Colorado v. BNSF, No. 42057 Decision at 2 (served April 4, 2003). Because Duke has failed to meet its

evaluation of this case – the wholesale failure of proof in Duke’s case-in-chief warrants dismissal of this proceeding.⁶

B. CMP, SAC and Differential Pricing Principles

Duke claims that CSXT sought to “game” this proceeding and to “punish” Duke by setting the challenged rates at “exorbitant” and “outrageous” levels. See, e.g., Duke Complaint ¶ 14; Duke Op. I-1 to 3, III-G-20 to 26. The only “evidence” Duke points to in support of this accusation is that the challenged rates represent a significant increase over the expired contract rates, and are higher than selected rates allegedly paid by two competitively served shippers.⁷ Under the principles of differential pricing adopted by the Board, however, the rates paid by demand inelastic shippers like Duke should be higher than those of other shippers, in order to allow the carrier to recover the joint and common costs of their service.⁸ Differential pricing principles require CSXT to obtain from shipments to Duke’s solely served power plants a contribution to the fixed and common costs of CSXT service that is

fundamental burden of proof, this case should be dismissed. See, e.g., PPL Montana v. BNSF, STB Doc. No. 42054 (served Aug. 20, 2002).

⁶ Texas Municipal Power Agency v. Burlington Northern and Sante Fe Railway Co., STB Doc. No. 42045 (served Mar. 24, 2003) (“TMPA”) recognized that the complainant’s burden of proof consists not only of the burden to produce evidence sufficient to make out a prima facie case on all of the matters as to which it bears the burden of proof, but also “the ultimate burden of persuasion” that it has presented the best evidence on each of those issues. TMPA, slip. op at 13. Duke has failed to meet these fundamental requirements.

⁷ In the “Counsel’s Argument” section of its Rebuttal submission, Duke offered a table, sponsored only by its lawyers, purporting to show that CSXT contract rates to two other competitively-served utility plants are lower than the Marshall contract rates. See Duke Reb. I-12. Because Duke raised this claim for the first time on Rebuttal, CSXT did not have an opportunity to respond. Moreover, Duke’s unverified Rebuttal comparisons are invalid, and Duke’s conclusion is contradicted by its own evidence. The rates Duke cites are for transportation in private (i.e. shipper-supplied) cars, which results in a substantially lower rate than shipments using CSXT’s cars (like those to Marshall). Duke also significantly exaggerated the length of the haul for its selected comparison by “re-routing” the traffic through Lexington, KY rather than through Erwin, TN (the route the traffic actually uses), resulting in an overstatement of 202 miles, or approximately 38% of the actual length of the route. Further, one of the two plants Duke cites (Gaston) sources virtually none of its coal from Central Appalachian mines (much less mines on the SARR). Finally, Duke’s own calculations show mills-per-ton-mile for other CSXT movements that exceed its Marshall calculation by 100 to 2750 percent. See Duke Reb. Table III-A-6.

⁸ See, e.g., CSXT Reply I-61 to 62; CSXT Op. I-3 to 4, II-A, II-C; Coal Rate Guidelines, 1 I.C.C. 2d at 526-528. Congress has directed the Board to regulate rates in a manner that assists railroads’ efforts to achieve revenue adequacy. See 49 U.S.C. § 10704(C)(2). The Board, the ICC, and the courts have consistently held that, in order to make progress toward the statutorily mandated goal of revenue adequacy, railroads must price their services differentially, charging rates that vary inversely with customers’ elasticities of demand. See, e.g., CSXT Op. I-5 to 6; CSXT Reply I-61.

commensurate with the relative benefits those plants derive from that service. E.g., CSXT Reply I-14, 61 to 66; id. III-I-2 to 10; CSXT Op. I-2 to 6, IV-A-12 to 16.⁹

In addition to its cogent and well-supported SAC presentation, CSXT presented substantial additional evidence that demonstrates the reasonableness of the challenged rates, and refutes Duke's unfounded gaming allegations.¹⁰ First, CSXT's expert economists developed Ramsey prices for utility coal traffic, which fully support the rates at issue in this proceeding. CSXT Reply III-I-10 to 15, App. G-1 to 16.¹¹ Second, CSXT demonstrated that the R/VC ratios generated by the challenged rates are consistent with the Board's most recent RSAM calculations for CSXT. Third, and perhaps most telling, the contract rate that Duke agreed to for shipments to Duke's large competitively served Marshall plant in 2002 (based on 2001 volumes, the 2002 Marshall rate would [REDACTED]) confirms that the challenged rates to Duke's solely served, demand-inelastic plants are within a

⁹ Guidelines at 526-528. Duke is effectively guaranteed a 12.5% rate of return – compared to CSXT's 4.6% return in 2001 – and can readily absorb CSXT's rate increase with little or no effect on its own profitability. CSXT Op. at IV-B, C. Nor will CSXT's rate increase have any appreciable effect on Duke's customers. If Duke chooses to pass the entire CSXT rate increase along to Duke's ratepayers, the effect would be to add between [REDACTED] – per month to the electric bill of the average retail consumer. Id. IV-C-21 to 25. CSXT has far more at stake, including its ability to price its services in a manner that will allow it to cover the joint and common costs of its system, to progress toward revenue adequacy, and to make investments necessary to maintain and improve its service and its system. See id. at I, IV-A, IV-B, IV-C; CSXT Reply App. I.

¹⁰ Duke's gaming allegations stand in stark contrast to its approach to electric power markets. See CSXT Op. I-1 to 2. Responding to charges that Duke and other power marketers gouged their customers by charging electricity prices far in excess of the cost of providing that power, Duke adamantly resisted calls for regulatory intervention, invoking the virtues of the free market, and the determination of prices based on supply and demand. Accused of "gaming" the system by engaging in a variety of sharp practices, including withholding supply in order to drive up electricity prices, Duke's CEO urged regulators to "get out of the way and let market forces act." See id. In light of the ongoing federal investigations of these and other serious allegations that Duke engaged in fraud and other unlawful conduct, related litigation brought by the State of California and others, and Duke's recent payment of tens of millions of dollars to settle claims that it had manipulated the regulatory system to overcharge its customers in the Carolinas, it is ironic that Duke accuses CSXT of "gaming" the regulatory system. See California Energy Refunds Climb: FERC Finds Frequent Price Manipulation, WASHINGTON POST, Mar. 27, 2003, at E1 (reporting FERC findings that Duke and other energy companies apparently engaged in price gouging, market manipulation); Duke Energy Reaches Pact with States Over Accounting, WALL STREET JOURNAL, Oct. 23, 2002, at A13; CSXT Reb. I-26 to I-28.

¹¹ Because the Board's CMP regime is designed to approximate Ramsey prices, the fact that the challenged rates are supported by Ramsey pricing analysis buttresses CSXT's SAC presentation and its conclusion that the challenged rates are reasonable. See, e.g., Coal Rate Guidelines, 1 I.C.C. 2d at 534 ("our purpose in CMP is to approximate Ramsey pricing"); id. at 527-34.

reasonable range.¹² CSXT Reply I-3 to 6, 49 to 51; CSXT Reb. I-11. As Table 1 below further illustrates, each of these benchmarks provides further proof that the challenged rates are neither “abusive” nor the product of attempted “gaming” by CSXT. See CSXT Reply I-1 to 6, Table I-1.

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¹² In 2002, Duke voluntarily agreed to a contract with CSXT for service to its competitively served Marshall plant (Duke’s second largest plant), which provided for

[REDACTED]

The graph illustrates that the challenged common carrier rates fall comfortably within – and closer to the bottom of – the range of reasonable, economically justified, rates for the issue traffic under SAC.¹³ This comparison also illustrates two important points about Duke’s position in this case. First, Duke’s claim, in contract negotiations and in the first two rounds of evidence, that it is entitled to a significant rate decrease below the volume-based terminated contract rate is absurd – even Duke’s error-riddled, lowball SAC presentation supports a rate at essentially the same level as the contract that Duke unilaterally cancelled. Second, Duke’s final SAC rate remains outside any reasonable range of rates for the issue plants. Duke seeks prescription for its solely-served facilities that is a dollar below the volume-based contract rate to which it agreed for the competitively-served Marshall plant. Duke’s proposal, which falls far below the rate resulting from proper application of Ramsey pricing or the Board’s SAC guidelines, is therefore demonstrably irreconcilable with sound economic theory and governing law.

C. Duke’s Meritless Requests to Change Governing Law and Methodology

Duke’s Reply asked the Board to abandon its well-established requirement that a Complainant build its SARR to serve each origin-destination (“O-D”) pair for which it seeks a rate prescription. Nine months after it filed this case, six months after the close of discovery, and two-thirds of the way through the parties’ evidentiary presentations, Duke sought to change the parameters of the case and governing law by challenging rates for numerous O-D pairs to which it did not build its SARR and for which it did not submit origin-specific cost evidence. See Duke Reply II-A-4. This untimely proposal contravenes clear Board precedent and cannot be reconciled with basic SAC principles. See CSXT Reb. I-1 to 11.

¹³ The rate under the contract that Duke cancelled – which included the competitively served Marshall plant – [REDACTED]. The unbundled contract rate Duke voluntarily negotiated in 2002 for its competitively served Marshall plant [REDACTED]. The RSAM rate, which the Board uses as a proxy for the CMP methodology in non-coal rate cases, [REDACTED]. Under the challenged common carrier rates, the highest rate Duke would pay if it conforms to operational requirements, [REDACTED], or slightly above the RSAM rate (if Duke shipped [REDACTED], substantially below the RSAM rate). That highest common carrier rate, in turn, is substantially below CSXT’s properly calculated average SAC rate of [REDACTED]. CSXT’s estimate of the Ramsey price for this traffic is [REDACTED]. In stark contrast, Duke’s final SAC rate for the three solely-served plants of [REDACTED], is lower than the average rate it paid under the terminated contract, which included the high-volume, competitively served Marshall plant.

Duke seeks to extend the results of its SAC presentation, which necessarily apply only to the routes and traffic selected for its SARR, to a large universe of additional O-D pairs, without presenting any evidence regarding the revenues and costs associated with service to those locations. This would render the entire SAC exercise meaningless and should be rejected as a matter of law.¹⁴ See id.

Duke also asks the Board to change its percentage reduction methodology (implied only if the Board finds SAC revenues exceed costs) by using as the starting point for any reduction calculation some arbitrary figure other than the challenged rate (which is the starting point the Board has used in all previous SAC cases in which it found a rate unreasonable). Duke asserts that this radical departure from established SAC methodology is justified by its unsubstantiated claim that CSXT has engaged in “gaming.” Duke Op. I to 3, III-G-20 to 22. However, the evidence shows that CSXT developed the challenged rates through good-faith application of regulatory and economic principles to relevant business conditions and requirements, and its well-supported SAC presentation confirms that the resulting rates are reasonable. See, e.g., CSXT Op. I-3 to 4, 21 to 34; CSXT Reply I-58 to 66, App. G; CSXT Reb. I-11 to 13. Even if the Board were to adopt some new methodology for calculating rate reductions, there is no reasoned basis to use any of the arbitrary starting points proffered by Duke. See CSXT Reply I-52 to 55.¹⁵

II. ROAD PROPERTY INVESTMENT

The largest difference between the parties’ SAC presentations concerns the investment required to construct the ACW. CSXT demonstrated that the approximately 1,197-mile ACW would cost nearly

¹⁴ Duke’s own pleadings and representations to the Board estop it from expanding the scope of this proceeding in midstream. Duke’s Opening unequivocally conceded that it could not obtain rate prescriptions to origins to which it did not build its SARR and for which it did not submit variable cost evidence. See Duke Op. at I-15 to 16. Citing controlling Board precedent, Duke expressly amended its complaint to cover only those O-D pairs for which Duke submitted specific cost evidence – i.e., those O-D pairs between which it built its SARR. See id.; CSXT Reb. I-1 to 11, 18 to 20.

¹⁵ Duke also asks the Board to replace the regulatory rate of interest with a higher rate that would be more remunerative to Duke. As a matter of law, it is not appropriate to amend a regulation adopted through rulemaking (like the reparations interest rate) in a single specific adjudicatory proceeding. See CSXT Reply I-56 to 58. Duke’s request for reimbursement of its filing fee is contrary to the longstanding practice of the ICC, STB, and virtually every federal court and agency. See CSXT Answer at 6 (denying that Duke is entitled to any of the relief it requests).

\$5.1 billion (\$4.1 million per route mile) to construct in the rugged mountains of Central Appalachia. Duke claims in its Rebuttal evidence that the ACW could be built for less than \$2.3 billion (\$1.9 million per route mile).¹⁶ Duke derives its grossly understated construction cost estimate by relying upon untenable assumptions to avoid the costly requirements of real-world construction in the Appalachian Mountains. See CSXT Reply Exh. III-C-1 at 1:09:10 to 1:09:48 and 1:22:57 to 1:23:20 (video illustrating extremely difficult conditions and remote locations in which ACW would be built).

A. Earthwork Costs

Duke's most significant construction cost errors are in its development of earthwork costs. On Rebuttal, Duke asserted the ACW would need only \$559.1 million to construct its entire roadbed, compared with CSXT's estimate of \$1.721 billion. Duke Reb. III-F-20. The bulk of the \$1.162 billion difference between the parties' estimates relates to the equipment Duke selected to perform earthmoving tasks. CSXT has shown that the equipment Duke posited on Opening was infeasible (CSXT Reply III-F-9 to 33), and the Board should disregard the entirely different (but equally infeasible) equipment array Duke attempted to introduce on Rebuttal.

1. Unit Costs

On Opening, Duke posited earthmoving equipment that, while similar to that accepted by the Board for the flat plains and prairies at issue in certain Western SAC cases, is entirely inadequate for the earthmoving tasks that would be required to construct the ACW. See generally CSXT Reply III-F-22 to 33 (and supporting exhibits and workpapers). The difference between the parties' earthmoving equipment is fundamental – Duke's equipment package would not be capable of constructing the stand-alone railroad Duke has hypothesized.¹⁷ For example, Duke assumes the use of a "paddle-pan"

¹⁶ The mileage used to calculate average road property investment per mile excludes approximately 43 miles of road over which the ACW would have trackage rights, and thus would not build.

¹⁷ Duke simplistically asserts that the type of equipment selected is inconsequential and that comparable unit costs per cubic yard can be developed regardless of the earth moving equipment selected. See, e.g., Duke Reb. III-F-42 ("earthwork equipment all accomplishes the same chore, albeit in slightly different ways"). Under Duke's logic, a garden rake would be just as suitable for large-scale excavation and earthmoving as a D9 bulldozer. Here, as in so many other instances, when confronted with costly real-world requirements and limitations, Duke simply assumes that they do not exist (or do not matter). This

elevating scraper to excavate and haul common material. A paddle pan is designed to collect loose common material after it is excavated by a bulldozer – it cannot be used for primary excavation of common material in mountainous terrain. See CSXT Reply III-F-22 to 23. Duke also assumes the use of a paddle pan to excavate and haul ripped loose rock. Because the dimensions of loose rock are larger than the slot openings in the paddle pan, it is physically impossible for the paddle pan to perform the excavation and hauling task Duke assigns to it. Id. III-F-26.¹⁸

Even assuming, arguendo, that the ACW might somehow eventually force the equipment selected by Duke to perform the required earthwork tasks, that equipment could never achieve the production rates Duke assumes. See generally CSXT Reply III-F-22 to 29 (and supporting exhibits and workpapers). Those daily production rates are based upon use of equipment for the purposes, loads, and conditions for which they were designed, not for the unintended and extreme uses Duke proposes. Likewise, the Means costs per cubic yard are based upon production rates for the equipment in their normal, intended uses – the uses Duke proposes would result in lower production rates, and higher costs per cubic yard. Id. Duke makes no allowance whatsoever for the increased unit costs that would result from using equipment for purposes for which it is ill-suited. Instead, Duke tacitly assumes that the inappropriate equipment it selected would achieve the same production rates that it might attain, under optimal conditions, in performing tasks for which it was designed. Id. Duke exacerbates its understatement of earthwork unit costs by assuming, without any support whatsoever, that fully 50% of the material the ICC valuation teams classified as “solid rock” removable only by blasting would today be “loose rock,” rippable by more powerful equipment. See CSXT Reply III-F-28.¹⁹

is not, as Duke suggests, merely a matter of choosing between two equally capable sets of equipment. Rather, as CSXT has demonstrated, Duke’s equipment simply could not get the job done; the ACW could not be built using that equipment.

¹⁸ Duke’s solid rock excavation assumptions also contain several errors, including the use of “bulk drilling and blasting” unit costs, which represent costs for centralized drilling and blasting at a single-site quarry operation, not for a railroad bed spanning hundreds of miles; use of rubber-tired front-end loaders that are designed for loading graded stone at quarries and concrete plants, but would be unsuitable for extracting and loading large blasted rocks; and using haulers designed for hauling loose borrow material rather than the far more severe conditions and stresses involved in the hauling of large blasted rocks and boulders over rugged terrain. See id. III-F-26 to 28.

¹⁹ Duke offers no factual or analytical support for this arbitrary reclassification. Id. CSXT’s evidence concerning the geology of the area shows that the vast majority of what was solid rock in the early 20th

On Rebuttal, Duke did not defend its case-in-chief, but instead introduced entirely new and radically different construction equipment and methods. Duke's Rebuttal proposes equipment that is far too large and too heavy to be deployed in constructing a railroad roadbed. See Duke Reb. III-F-46 to 48, Duke Reb. WP Duke/CSXT 152 to 155.²⁰ This fundamental change in Duke's SAC presentation is improper rebuttal, which the Board has made clear it will not tolerate. See, e.g., TMPA at 107-08 (rejecting a very similar tactic by complainant and adopting defendant's evidence); id. at 145 (rejecting complainant's submission of new and different equipment on rebuttal). The timing of this significant change in Duke's case-in-chief deprived CSXT of any opportunity to present evidence to demonstrate the infeasibility of Duke's rebuttal "fix." If CSXT had been afforded a fair opportunity to file an evidentiary response, CSXT would have shown that Duke has essentially shifted from equipment suitable for driveway and parking lot construction to equipment designed for vast mining and quarrying operations. This latter type of equipment is just as unsuitable as was the undersized and mismatched equipment in Duke's Opening submission.²¹

Another cause of the difference in the parties' earthwork unit costs is Duke's failure to apply the Means adjustment for adverse conditions to earthmoving hauling activities in the rugged terrain north of

century remains solid rock today. Id. III-F-28 to 29. CSXT's construction and engineering experts have determined that a small portion of material classified as solid rock may now be rippable by the most powerful modern equipment (which Duke did not select for use in constructing of the SARR). CSXT's experts conservatively assumed that 10 percent of materials the ICC reports classified as solid rock could today be removed by ripping, and CSXT adjusted its unit cost estimates accordingly. The remaining 90% of the material could be removed only by blasting. See id.

²⁰ By proposing an entirely new array of earthmoving equipment on Rebuttal, Duke acknowledged that its Opening evidence was deficient. See TMPA at 74.

²¹ For example, the oversized haulers Duke substituted on Rebuttal have a turning radius more than three times the width of Duke's proposed ACW roadbed, while the new power shovel it selected is so heavy that it would sink into the roadbed. Duke's new-found equipment could not be used at all at numerous locations because of the steep and narrow terrain, and could be used elsewhere only with massive additional investment (which Duke did not include in its construction cost estimate) for the widening of the roadbed; for frequently moving the inflexible, low-mobility equipment; and for extensive additional roadbed preparation (including much flatter sideslopes) just to handle the weight of the machinery. There is good reason that equipment of this type has never been proposed for use in any prior stand-alone case: it is quarrying equipment designed for excavating and moving millions of cubic yards per mile, not the lower orders of magnitude (75,000 cubic yards per mile) that Duke claims would be excavated in building the ACW.

Bostic.²² The territory traversed by the ACW includes some of the most difficult terrain through which a railroad has ever been constructed. If the adverse conditions additive did not apply here, it would not apply anywhere. The Board should apply the Means adverse conditions adjustment.

2. Earthwork Quantities

The difference between the parties' earthwork quantities is attributable primarily to three factors. The first – how much track the ACW would require to serve its traffic – is largely a function of the parties' disagreements regarding SARR configuration, design and operating plan. See 18-28, infra. The other two factors are earthwork quantities for new yards and quantities for daylighting tunnels.

The difference between the parties' earthwork quantities for new yards is attributable largely to Duke's blanket assumption that new yards would require only one foot of fill (regardless of location). CSXT determined the amount of excavation and other earthwork that would be needed for new yards on a location-specific basis, using topographic maps and standard industry construction and engineering practices.²³ See, e.g., CSXT Reply III-F-18 to 19. Because Duke sited one of its new yards (the Fayette yard) at the bottom of the 800-foot New River Gorge, the earthwork quantities required to construct that yard alone are enormous. See id.²⁴ Rather than accounting for the significant costs required to build the new Fayette yard, Duke applied the unrealistic one-foot fill assumption for existing yards at Fayette. The logic supporting such a default assumption for existing yards (which are assumed to have been incorporated in the Engineering Reports valuations) simply does not apply to an entirely new yard in a

²² Duke's claim that CSXT failed to provide Means documentation supporting the adverse condition additive (Duke Reb. III-F-47) is incorrect. See CSXT Reply WP-III-F-116. Duke further asserts that an additive for adverse conditions is unnecessary because "Duke will be establishing a fairly level roadbed that would be used as a haul road." Duke Reb. III-F-47. This is a non sequitur. While a level roadbed may be the intended end product of the ACW roadbed construction, steep grades and rutted passages will be the norm during the construction of that roadbed through mountain wilderness.

²³ For yards that exist today, CSXT accepted Duke's approach of assuming one foot of fill. This is consistent with the Board's finding in other cases that such an assumption is appropriate for existing yards in order to make adjustments for the way the ICC Engineering Reports calculated earthwork quantities per mile.

²⁴ Duke itself admitted that it would be required to "shear off the side of a mountain" and "undertake additional grading costs of the magnitude of \$200 million-plus" in building Fayette yard. Duke Reb. III-B-7. On Rebuttal, Duke sought to move the yard to Gauley, WV, and to eliminate 8.3 ACW line miles. The Board granted CSXT's motion to strike that new configuration as improper rebuttal. See Order, STB Doc. No. 42070 (served Mar. 25, 2003).

new location.²⁵ Having chosen to site ACW yards at extremely difficult locations where no yard previously existed, Duke must accept the earthwork requirements of the new location. The Board should reject the use of the inapplicable existing yard default assumption, and adopt CSXT's location-specific actual earthwork quantity estimates, for all new ACW yards and tracks proposed by Duke.

Duke also proposes to open-cut 20 CSXT tunnels, using side-slopes that are too steep for the geology of the region – so steep that the slopes would fail.²⁶ Duke simplistically claims that because BNSF's Guernsey tunnel (1,000 miles to the west, in entirely different terrain) was open cut with a steeper side slope than Duke posits, all of the open cut tunnels on the ACW could be constructed using the same slope. Duke fails to account for, or even to acknowledge, the significant geological differences between the two regions (which is confirmed by the necessity of lining most of CSXT's tunnels with concrete). See CSXT Reply III-F-27 to 29. Moreover, Duke's own workpapers show that the steep-slope walls of the Guernsey open cut required extraordinary stabilization measures, including reinforced shotcrete, 15-foot long soil nails, and rock bolts. See Duke Reb. WP Duke/CSXT 0143. Duke does not include any costs for such reinforcement and stabilization in its tunnel daylighting evidence.²⁷

²⁵ See CSXT Reply III-F-17 to 18. On Rebuttal, Duke raised the argument that the adjustment to the Engineering Reports to remove earthwork quantities associated with yards means that earthwork quantities for all ACW yards should use the same default fill assumption, even when the yard did not exist at the time the Engineering Reports were prepared. Duke Reb. III-F-36 to 38. In support of this new rebuttal argument, Duke suggests that to the extent the parameters used to remove from the Engineering Reports earthwork quantities attributable to yard and other tracks may have understated those quantities, the residual main track quantities may be correspondingly overstated. Id. Duke provides no evidence, however, that the assumptions used to remove yard and other track earthwork quantities from the Engineering Reports – one foot of fill and a 15-foot roadbed – understate the quantities for the yards and other tracks in place at the time the ICC prepared the Reports.

²⁶ CSXT's experts demonstrated that, given the geology of the mountains in which the tunnels would be built, and the structural stability and complexity of the materials such an effort would encounter, the minimum average side slope for the twenty open cut tunnels of the ACW could be no steeper than 1:1. See CSXT Reply III-F-21 to 22, WP III-F-168 to 170, 183 to 190. Duke offered no location-specific support for its infeasible ½ : 1 side slope proposal, citing only the inapposite Guernsey tunnel and asserting (without any support) that 50% rippable rock "certainly should stand at a ½ to 1 slope." Duke Reb. III-F-38.

²⁷ Duke also modified its open cut quantity calculations on Rebuttal by changing the 28 foot open cut tunnel roadbed to 24 feet. Duke incorrectly asserts that CSXT agrees with this change. CSXT's experts did not contest the 28-foot roadbed assumption Duke used for open-cut tunnels in its Opening, because CSXT's experts believe that 28 feet is the minimum roadbed required in open cuts. See CSXT Reply WP "III F Construction Total CSX.xls" at worksheet Daylighted Tunnel. Duke's revision of open-cut tunnel quantities is improper rebuttal, and should be rejected by the Board. See TMPA at 125 ("It is improper rebuttal to alter opening evidence that has not been challenged.").

B. Track

Duke understates rail costs by relying on a single quote from a small vendor (Southeast Rail Supply). Duke does not even attempt to show that this vendor is capable of supplying the huge quantities of rail needed to construct the ACW. CSXT explained that smaller vendors like Southeast Railroad Supply often obtain from rail manufacturers limited quantities of rail left over from large rail productions for Class I railroads. CSXT Reply III-F-66 to 67. Because manufacturers are anxious to sell these remnant stocks, small vendors can sometimes obtain them at significant discounts from the price at which larger rail volumes are offered. Id. Tellingly, the unusually low price quote upon which Duke relies — which is significantly lower than quotes Duke itself obtained from larger, higher volume rail suppliers (whose prices presumably reflect economies of scale and volume discounts) — did not specify what quantity of rail was available at the quoted price. See Duke Op. WP Duke/CSXT 05887-88. Because Duke has not shown that, in the real world, the ACW could obtain the large quantities of rail it would need at the unrealistically low price it assumes, Duke has not satisfied its burden of proving that its rail prices are feasible. The Board should reject Duke's rail prices, and adopt the realistic prices used in CSXT's presentation.

C. Tunnels and Bridges

Duke understates tunnel unit costs by using a Means index to escalate tunnel costs from levels approved in Coal Trading to current levels. See CSXT Reply III-F-73. CSXT accepted the use of the tunnel costs adopted in Coal Trading in 1980, but used the more appropriate AAR index — which the Board uses to index tunnel investment in its DCF model — to index those costs to 2001 levels.²⁸ See TMPA at 123 (using rail-industry specific AAR cost index and rejecting complainant's alternative index).²⁹

²⁸ On Rebuttal, Duke substituted a new tunnel along a different alignment near Smiley/Hagans VA. The Board recently granted CSXT's motion to strike that improper rebuttal evidence. See Order, STB Doc. No. 42070 (served Mar. 25, 2003). Because Duke's Opening did not include any track facilities that would allow the ACW to negotiate the grade separation at Hagans, Duke has failed to articulate a feasible operation in the vicinity of Hagans. Therefore, the Board must adopt CSXT's SARR configuration and operating plan for the Hagans switchback.

²⁹ Duke correctly notes that CSXT inadvertently used 1978 rather than 1980 as the base year. The corrected tunnel unit cost per mile should therefore be \$5967/foot. See Duke Reb. III-F-101.

Duke substantially understates both quantities and unit cost for ACW bridges. Duke inappropriately removed 5 bridges from the CSXT bridge inventory without providing any explanation or rationale whatsoever.³⁰ Duke also removed 10 bridges over highways, asserting that the costs of such bridges would constitute a barrier to entry. Duke Reb. III-F-103. Duke's argument is wrong as a matter of both law and fact, and the Board should adopt CSXT's bridge inventory. Duke's exclusion of highway bridges is contrary to the Board's longstanding practice of including the costs of such bridges in the calculation of SARR road property investment costs. See, e.g., WP&L, STB Doc. No. 42051, slip op. at 93 (rejecting complainant's attempt to reduce bridge inventory).³¹ The Board has never held that bridges over highways or other "non-natural barriers" must be excluded from SAC costs, and it has included the costs of such bridges in the road property investment component of its SAC decisions. Thus, without even acknowledging that it is doing so, Duke is asking the Board to overrule its longstanding practice and precedent.

Two factors account for much of the difference in the parties' unit costs for bridges. First, in instances in which Means cost data is unavailable or inapplicable, CSXT's analysis used "Bidtabs.com," and detailed quotes from actual bridge materials manufacturers and distributors to develop accurate, condition-specific unit costs. See CSXT Reply III-F-85 to 86. Duke, in contrast, relied primarily on Means estimates, even where they were not applicable to the type of heavy construction in remote and difficult mountain terrain and conditions that would be encountered in building the ACW. See id.³²

³⁰ The five bridges excluded by Duke are located at Goals to Jarrolds Valley Jct. (prefix CLQ) at MP 3.8, 7.4, 0.1; Pat Wye to Cheyenne (prefix OVG) at MP 281.3; and Pineville to Harbell (0CV).

³¹ The Board's recent TMPA decision does not change the appropriate result under the facts of this case. In TMPA, the Board excluded the costs of certain bridges whose costs BNSF clearly did not incur. See TMPA, slip op. at 140. Here, the complainant has not offered any evidence to show that CSXT (or its predecessors) did not incur the costs of the bridges at issue. Indeed, the only evidence on this point is CSXT's evidence showing that, in the East, many "non-natural" barriers predated the railroads. See, e.g., CSXT Reply III-F-113 to 117. Thus, even if a complainant were allowed to exclude bridges from SAC costs where it showed the railroad predated the road it crosses, Duke has not made such a showing. Moreover, even if the Board were to excuse Duke's failure of proof and conclude that the original cost of constructing certain bridges should be excluded, TMPA would require the Board to include as "maintenance" expenses the costs to replicate the existing bridges, because CSXT has repaired or replaced most of those bridges in the last 30 years. See TMPA at 140 (cost of repairing/replacing bridges "is more properly considered a maintenance expense").

³² On Rebuttal, Duke adopted those bridge construction changes proposed by CSXT that would reduce construction costs, but excluded changes that would increase costs. See Duke Reb. III-F-113. Duke offers no justification for this self-serving, cherry-picking approach. Nor has it attempted to show that its Rebuttal approach of adopting some of the CSXT bridge unit costs, but not others, would be feasible.

Second, Duke proposed to use a type of foundation pile that is no longer used in bridge construction due to problems with its structural integrity (and whose former manufacturer is no longer in business). See id. at III-F-83 to 84. CSXT used the standard pile in use today for railroad bridges. Id.³³

D. Communications System Costs

CSXT's Reply demonstrated that the satellite system Duke posited on Opening could not meet the ACW's communication needs, and that Duke had, in any event, grossly underestimated the cost of an effective satellite communications system. See CSXT Reply at III-F-93 to 102. CSXT also presented costs for a safe and effective microwave communications system. Id. III-F-94 to 102. Once again, Duke improperly submitted entirely new evidence for the first time on Rebuttal. Specifically, Duke abandoned its satellite communications system, substituted a new microwave system, and claimed that its new system could serve the ACW at a substantially lower cost than the microwave system posited by CSXT. See Duke Reb. III-F-115 to 117.³⁴ The Board should reject Duke's untimely rebuttal submission, and adopt CSXT's well-supported communications system. See, e.g., TMPA at 142-43 (finding complainant had not met burden of proof and adopting defendant's communications system evidence).

E. Engineering Costs

CSXT developed a detailed and well-supported engineering cost additive of 13%, which takes into account the difficulties associated with constructing a predominately mountain railroad. See CSXT Reply III-F-129 to 142. Duke proposed a woefully inadequate additive of 6.8%, based on a patchwork of unrelated and inapplicable sources, simplistic assumptions and unsupported conclusions. See Duke Op. III-F-57 to 60. Duke claimed for the first time on Rebuttal that, because construction management allegedly dates only to the 1960s, construction management costs should be excluded from SARR costs as a barrier to entry. See Duke Reb. III-F-133 to 138. As the Board's most recent SAC decisions affirm,

³³ Duke offered no evidence that the piles it posited on Opening are safe or feasible, nor did it even show that the ACW would be able to obtain such piles, given that they are no longer manufactured. Instead, Duke simply asserts that "it must be assumed that a pile supplier would be available." Duke Reb. III-F-111 (emphasis added).

³⁴ Contrary to Duke's rebuttal assertion, CSXT fully explained the necessary components of a communications system for the ACW, and accompanying costs (including the costs of communications equipment essential for safe and effective operation of the distributed power locomotive configuration posited by Duke). See CSXT Reply III-F-93 to 102.

construction management costs are properly included in a SAC presentation as a component of engineering costs. See TMPA at 157-58; PPL Montana at 30-31.³⁵ Once again, without even acknowledging it is doing so, Duke is silently attempting to overturn Board precedent, on Rebuttal.

The foregoing are far from the only inadequacies in Duke's road property investment evidence. As the following examples further illustrate, Duke consistently ignores or assumes away inescapable costs and facts, and substitutes unsupported assertions and false assumptions for evidence:³⁶

- Duke specified a 40:1 top of roadbed slope, but refused to include the cost of fine grading equipment necessary to achieve that standard. Duke Reb. III-F-56 to 57.
- After expressly advising CSXT that no materials concerning Wingate Track Constructors' estimate existed (CSXT Reply WP-III-F-882 to 885), Duke asserted on Rebuttal that Wingate's track installation quotes were the product of an "all-day meeting" and that items not specified in Duke's Wingate quote were (tacitly) included in that quote. Duke Reb. III-F-98; Duke WP Vol. 1, p. 0189.
- By relying upon the Engineering Reports' retaining wall quantities, Duke vastly understated the retaining wall quantities that would be required to secure the ACW roadbed, which Duke assumes would be wider than the original roadbed specifications. See CSXT Reply III-F-46-48. Duke further understates retaining wall quantities by ignoring the hundreds of additional retaining walls CSXT constructed to stabilize the road bed in the years after the Engineering Reports were completed. Id.
- Duke asserts, without support, that the irregular rocks produced by blasting would be suitable fill for its proposed gabion baskets. Most blasted rock would not fall within the narrow size range required for gabion fill. See Duke WP at 0214, 0216-217. Duke has not shown that its unconventional proposal is feasible. Moreover, Duke has not accounted for the costs of grading and stockpiling

³⁵ As CSXT has explained, the engineering additives adopted by the Board in recent Western cases (involving SARRs that generally traverse flat plains and prairies) would not be sufficient to cover essential engineering activities required to construct a predominately mountain railroad like the ACW. See CSXT Reply III-F-129 to 142. Remarkably, Duke's proposed engineering additive is substantially lower than those the Board adopted for construction in the Great Plains. See, e.g., PPL Montana.

³⁶ The erroneous and improper claims in Duke's construction evidence also include: (i) Duke ignores the need for undercutting the roadbed to eliminate unsuitable materials by simplistically assuming all material encountered during construction will be sufficiently sound for roadbed construction (Duke Reb. III-F-55 to 56); (ii) Duke claims excavation and fill cost quantities for precast culverts were included in its engineering reports-based costs, even though precast culverts were not used at the time those reports were prepared (Duke Reb. III-F-64); (iii) Duke assumes unwieldy precast concrete box culverts (rather than cast-in-place concrete culverts) that would be infeasible to deliver and install in the terrain in which the ACW would be built (CSXT Reply III-F-35 to 37); (iv) on Rebuttal, Duke took issue with CSXT's selection of railheads from which the construction of the ACW could progress (Duke Reb. III-F-86 n.60), yet in response to a CSXT workpaper request, Duke stated that it was not necessary to identify specific railheads at this juncture of the cost process (CSXT Reply WP-III-F-882 to 885); (v) Duke claims that because culverts will be placed as the railroad is being constructed, the culverts themselves can be transported on the partially prepared roadbed instead of over access roads (Duke Reb. III-F-64-66). This would result in the piecemeal, inefficient construction of the ACW roadbed, in which earthwork construction must stop while culverts are installed and vice versa.

blasted rock which would be necessary to use it as gabion fill. See CSXT Reply III-F-48 to 50.

- Duke alleged on Rebuttal that CSXT erred by selecting from Means unit costs for clearing and grubbing trees up to 24 inches. Duke's own Rebuttal Evidence shows that 30% of area trees exceed the maximum 12 inches in diameter assumed by Duke. See Duke Reb. III-F-24 to 26. Thus, Duke's proposal is not feasible for full grubbing and clearing of the ACW roadbed.

III. DUKE HAS FAILED TO PRESENT A FEASIBLE STAND-ALONE RAILROAD

Duke's SARR is woefully inadequate to accommodate the selected traffic safely or efficiently. Duke's capacity analysis is based upon the "opinion" of its operating witnesses, whose views were tested only by the output of witness Crowley's string diagram model. However, that model contains numerous critical and irreparable programming flaws that cause it to generate faulty operating statistics and nonsensical outputs (including daily train collisions, multiple trains attempting to "share" sidings, and trains that never decelerate). These deficiencies fatally undermine Duke's track configuration evidence, as well as its estimates of locomotive, rail car and train crew requirements.

A. Duke's String Diagram Model Simply Does Not Work

Duke attempts to blur the distinction between the parties' capacity modeling evidence, suggesting that "all such programs (properly designed) should produce similar results if the same inputs are used." Duke Reb. III-B-12 n.13. However, witness Crowley's made-for-litigation string program is not a "properly designed" capacity model. The model is riddled with programming and coding errors, and fails to measure accurately many factors (including grade and curvature, maintenance requirements, random line and equipment failures, and FRA-mandated safety inspection activities) that have a substantial impact on line capacity. The effect of these inherent deficiencies is compounded by the unrealistic operating assumptions input to the model. See CSXT Reply III-B-18 to 36, III-C-14 to 26.

Duke acknowledged that several of CSXT's criticisms of the string diagram program were correct. Although witness Crowley purported to make certain "modifications" to correct those problems (id. III-C-53 to 65), Duke's attempt to resuscitate the string program was unsuccessful.³⁷

³⁷ In TPMA, the Board rejected a similar attempt to overcome the deficiencies in the string program. TPMA at 70, 75. Finding that the purported corrections were not sufficiently documented, the Board held that TPMA "failed to meet its burden of proof" with respect to the issue of the SARR's cycle times. Id. at 75. In this case, Duke's own rebuttal workpapers not only fail to validate the "modified" string program, they conclusively demonstrate that the program continues to exhibit the very flaws that Duke claims to have corrected.

Repeated Train Collisions and Siding Conflicts. The string diagram model treats a train as a single point, and erroneously assumes that the entire track segment occupied by a train (other than the single point at the head end) is available for occupancy by opposing trains. CSXT Reply III-B-28, 30.³⁸ Duke's facile assertion that this criticism is "irrelevant" because "[t]he entire train moves at the same speed" (Duke Reb. III-C-61) is wrong. The location of the entire train (and not the speed at which individual cars are moving) determines the potential for train conflicts and collisions. Duke admits that the model allows such conflicts to occur even after witness Crowley's Rebuttal modifications. Duke Reb. III-C-59 n.72. However, Duke claims to have solved this problem by making "manual adjustments" to affected train movements in a "few cases." Id.

Duke's representation that the "modified" string program generated siding conflicts in only a "few cases" is demonstrably false. Duke's workpapers indicate that witness Crowley adjusted the movement of 38 trains on a single day (December 19). See Duke Reb. WP "Additional string hours.xls." But the model actually generated siding conflicts affecting 141 trains during the peak week, including incidents involving 54 trains on December 19.³⁹ Witness Crowley failed to carry his manual adjustments forward into the following day, creating significant discontinuities in the movement of adjusted trains and causing errors in the model's output for December 19 to cascade to subsequent days.⁴⁰ Moreover, Duke's "modified" string program failed to detect (much less prevent) train collisions on every day during the peak week. In total, 72 ACW trains were involved in collisions generated by the string program, including 18 trains on the peak day alone (see Table 2).

³⁸ Duke's unsubstantiated claim that train length is, in fact, considered by the model (Duke Reb. III-C-62 to 63) is belied by the repeated collisions and siding conflicts it generates. CSXT could find no indication in the workpapers or in the program code that train length is taken into account by the model.

³⁹ These siding conflicts appear in Duke Reb. WP "TIMESL.dbf"; "TIMESE.dbf"; "string51aM.xls" and "string51eM.xls." The ACW's "peak week" (December 16-22) is "represented" in Duke's workpapers as the following week (December 23-29). For example, results for the actual peak day (December 19) are shown in the workpapers as results for December 26. See Duke Reb. WP "ReadMe_CSX_REB.xls" Tab Serial #S. References in Duke's workpapers to "December 26" are cited herein as "December 19."

⁴⁰ See Duke Reb. WP "TIMESL.dbf"; "TIMESE.dbf." While Duke submitted workpapers containing both a "string file" and a "chart file" depicting these manual adjustments on December 19, it did not furnish similar workpapers for other days in the peak week (which would have disclosed uncorrected siding conflicts and train collisions on every day). The Board can confirm these results either by running the model (and creating the "string files" and "chart files" that Duke did not provide), or by examining the "TIMESL" and "TIMESE" files in Duke's Rebuttal workpapers.

Table 2: ACW Peak Day Train Collisions⁴¹

Train ID	Station	Station	Station	Cars	Separation	Approx. Speed (mph)
	W Bills Creek	E Bills Creek	W Scott			
C2LICKTOLD24A	12/19/01 3:10 AM	12/19/01 2:40 AM	12/19/01 2:31 AM	115	0:00:09	32.24
C2LICKCRES25	12/19/01 2:37 AM	12/19/01 2:40 AM	12/19/01 2:51 AM	110		25.20
	W Scott	E Scott	W Hurricane			
C2LICKTOLD24A	12/19/01 2:31 AM	12/19/01 2:20 AM	12/19/01 2:11 AM	110	0:00:17	32.24
C2LICKHARR25	12/19/01 2:18 AM	12/19/01 2:20 AM	12/19/01 2:29 AM	115		32.57
C2SYLVCERR25	12/19/01 4:57 AM	12/19/01 4:55 AM	12/19/01 4:46 AM	115	0:01:18	32.24
C2TOMSHUNT26	12/19/01 4:54 AM	12/19/01 4:56 AM	12/19/01 5:05 AM	114		32.57
	W bSt. Albans	E. St. Albans	W Bills Creek I			
C2TOMSHUNT26		12/19/01 19:35	12/19/01 19:28	114	0:01:18	40.58
C2BETHHUNT26	12/19/02 19:33	12/19/01 19:36	12/19/01 19:45	114		33.12
	W bCoal Run Jct	E. Coal Run Jct.	Shelby			
C2ROXANORW24		12/19/01 16:21	12/19/01 16:03	103	0:00:52	39.45
C2BLUGMIDD26		12/19/01 16:22	12/19/01 16:46	107		30.73
	Shelby	McVicker Mine	W. Levisa Jct			
C2RAPLROBI26	12/19/01 5:30	12/19/01 5:33	12/19/01 5:35	98	0:00:43	34.57
C2MCCLCERR26	12/19/01 5:36	12/19/01 5:33	12/19/01 5:32	103		38.96
	E. Boone	W Johnson City	E Johnson City			
C2SARATERR26	12/19/01 13:30	12/19/01 13:52	12/19/01 13:56	94	0:00:43	24.34
C2BATBPENR24	12/19/01 14:06	12/19/01 13:53	12/19/01 13:50	87		39.04
	E. Kona	W Toe River	E Toe River			
C2RAPLMIDD24	12/19/01 4:27	12/19/01 2:46	12/19/01 2:07	93	0:00:17	5.60
C2MOUSBEEI25	12/19/01 2:42	12/19/01 2:46	12/19/01 3:26	99		17.95
C2ROXANORW24	12/19/01 7:12	12/19/01 5:50	12/19/01 5:11	103	0:00:26	6.47
C2CLOVPENR25	12/19/01 5:46	12/19/01 5:51	12/19/01 6:30	88		17.95

Failure to Account Accurately for Grade, Curvature and Train Speed. Duke's assertion that "the revised string program has been modified to correctly identify grades, curves and maximum speeds" (Duke Reb. III-C-61) is wrong. While the modified model's acceleration algorithm considers curvature, the braking algorithm does not.⁴² Running the modified model also produces 1,462 instances during the

⁴¹ The train movement data set forth in Table 2 are taken directly from Duke Reb. WP "string 51aM.xls"; "string 51em.xls"; "TIMESL.dbf"; and "TIMESE.dbf." The term "Separation" in Column 6 refers to the interval between the times that the points representing the head end of opposing trains reached the subject location. For example, in the first incident depicted in Table 2, the head end of Train C2LICKCRES 25 arrived at E. Bills Creek only 9 seconds after the head end of Train C2LICKTOLD24A. Even at the unrealistic speeds assumed by the string model, Train C2LICKTOLD24A (a 115-car train more than 6,500 feet in length) could not possibly clear the switch point at E. Bills Creek in only 9 seconds.

⁴² The Board can confirm this by reviewing the program code submitted with Duke's Rebuttal (found in Duke Reb. WP "stringx.prg.") While Lines 1217-1239 of the code (which govern the acceleration algorithm) apply curvature information, Line 1096 (which governs braking) does not. This error is repeated in Lines 1897 and 3209.

peak week in which trains exceed the maximum speed limit assumed by the model.⁴³ The numerous errors made by the program in applying grade, curvature and velocity data cause the model to generate inaccurate cycle times for virtually all ACW trains.

Acceleration and Braking. Duke's assertion that CSXT's criticisms regarding the string program's application of acceleration and braking (see CSXT Reply III-B-27 to 34) "are no longer valid" (Duke Reb. III-C-62) is incorrect. Duke did not correct the programming error that causes the model not to apply braking to trains moving in the non-prevailing (empty) direction. See CSXT Reply III-B-27.⁴⁴ Duke also failed to correct the programming flaw that causes the model not to match the separate portions of "split" train movements (see CSXT Reply III-B-34 to 35). Moreover, while the model now calculates braking and acceleration values for "split" trains, the calculated values are never actually applied by the model.⁴⁵

In short, like the original version, Duke's "modified" string program assumes that multiple trains can occupy the same space (or pass each other on the same track), utilizes incorrect grade and curvature data, and applies acceleration and braking incorrectly or not at all. As in TMPA, these ongoing defects – which are confirmed by Duke's own Rebuttal workpapers – invalidate the model's output.

Apparently mindful that its string program has been fatally compromised, Duke suggests on Rebuttal that the feasibility of the ACW is not really dependent upon the model's output. Duke asserts that it "did not start with the string analysis in developing the ACW system configuration, yard locations and sizes, and operating plan." Duke Reb. III-C-3. Instead, those elements of its SARR supposedly

⁴³ These occurrences appear in the TIMESL and TIMESE files. As an example, the TIMESL file shows ACW train C1SAPPMIDD16 traversing the 3.34 miles between E. Typo and W. Davison in 7.2 minutes. This reflects an average speed of 27.83 MPH over a segment with a maximum speed (according to the ROUTES file) of 9.62 MPH. The same error affects 27 other trains operating over this segment.

⁴⁴ For braking to be properly applied, the program must set the variable "S" to "0" prior to initiating the braking sequence. See CSXT Reply WP III-B-"The String Process.doc" at 4. While Line 1059 of the revised program code (which governs trains moving in the prevailing direction) sets "S" to "0" prior to the application of braking in Lines 1077-1170, there is no similar instruction prior to Line 1883 (which governs braking in the non-prevailing direction). This omission – which persists in the "modified" model, causes the program not to apply braking to train movements in the non-prevailing direction.

⁴⁵ The Board can confirm this error by reviewing the program code. Specifically, the value for BRAKE calculated in Line 3256 and the value for ELAPSE (acceleration time) calculated in Lines 3355 and 3440 are never referenced in Lines 3478-3563, where total running time for each train is accumulated.

were based in the first instance on the opinion of its witnesses. Id. Notwithstanding this belated disclaimer, Duke's entire SAC case clearly hinges upon the output of its string diagram model.

Duke acknowledges repeatedly that it relied upon the output of the model to "verify the feasibility of the ACW's network." See, e.g., Duke Reb. III-C-2 to 3.⁴⁶ Duke proffered no other evidence to test or otherwise verify the opinion of its operating witnesses that the ACW's proposed configuration is feasible. In the absence of a credible string diagram analysis, Duke cannot sustain its burden of proof with respect to the ACW system's feasibility. Moreover, Duke candidly admits that "items such as the number of road locomotives, railcars and train crew members required by the ACW are driven by the string program" and are, therefore, "dependent on the string analysis." Id. at III-C-8, n.7 (emphases added). The irreparable deficiencies in the string program render Duke's evidence with respect to each of these critical SARR elements invalid.⁴⁷ Table 3 summarizes the differences between the parties with respect to these items.

Table 3: Summary of Duke Operating Expense Items

Expense Category	CSXT Reply	Duke Rebuttal	Difference
Train & Engine Personnel	\$42,604,568	\$8,774,465	\$33,830,103
Locomotive Lease Expense	51,860,264	15,780,769	36,079,495
Locomotive Maintenance	28,868,338	7,390,828	21,477,510
Locomotive Operating Exp.	43,882,936	23,480,954	20,401,982
Car Lease Expense	22,148,166	5,389,069	16,759,097
TOTAL	\$189,364,272	\$60,816,085	\$128,548,187

⁴⁶ See also Duke Reb. I-16 (model used to "validate and fine tune" its witnesses' opinions); III-B-12 (model used to "finalize [the ACW] and verify that it has the capacity to handle its peak-period traffic efficiently"); III-C-3 ("the string program was used to verify the ACW's capacity and determine the extent to which specific adjustments were needed").

⁴⁷ Duke's claim (Duke Reb. III-B-13 n.13) that CSXT's methodology of using mathematical formulas to calculate operating statistics was rejected in FMC and McCarty Farms is wrong. In both cases, the complainant's evidence was rejected because it applied erroneous assumptions, not because it employed mathematical formulas in calculating operating expenses. In FMC, the ICC rejected the Complainant's locomotive fleet calculations because it failed to demonstrate that its assumed limit of 115 cars per train was consistent with the selected customers' requirements. FMC at 154 n.202, 155. In McCarty Farms, the Board rejected the Complainant's attempt to reduce the SARR's locomotive requirements by adding and removing units to trains at several points along the route (thereby threatening schedules and cycle times). McCarty Farms at 477 n.38. Similarly, the Board found "unrealistic" the complainant's assumed utilization level of 186,150 locomotive unit miles per year. Id. at 477 n.38, 481 (Duke cites these decisions despite its own failure to comply with the shipment patterns of customers and CSXT in building ACW trains, and its assumption that ACW locomotives could average 152,000 LUMs/year.).

B. Duke's Criticisms of CSXT's SAC Evidence Are Without Merit

Duke argues that CSXT's current system and operations "must be disregarded in evaluating Duke's SAC evidence." Duke Reb. III-B-3. Duke is both legally and factually incorrect. While a complainant need not conform its SARR to the physical configuration and operating characteristics of the incumbent carrier, the incumbent's existing facilities and operations provide important real world benchmarks by which the Board can evaluate the feasibility of the complainant's proposal. Indeed, "SAC principles do not permit shippers to construct hypothetical railroads whose operations are premised on assumptions that would simply not be feasible in the real world." TMPA at 38. Where (as here) a complainant posits a "different kind of railroad" (Duke Reb. III-B-3) that relies upon operating assumptions and practices that are unprecedented in (and, to a significant degree, inconsistent with) real world railroading experience, it must present credible evidence that its proposal is both operationally sound and realistically achievable. Duke has failed to do so.

1. Main Track

The ACW's proposed main track configuration is inadequate to handle the traffic volumes selected by Duke. The number of trains Duke projects is more than 25 percent higher than current CSXT volume. The ACW proposes to handle this traffic with significantly less capacity than CSXT has today.

CSXT conducted three separate and independent analyses of the ACW's facility requirements, utilizing established industry methods and analytical tools:

1. The Rail Traffic Controller (RTC) Simulation Model. The RTC model was developed by Berkeley Simulation Software.⁴⁸ It has been relied upon extensively by railroads, transit authorities and government planning agencies to conduct sophisticated capacity analyses in a variety of real world settings (including the Alameda Corridor and Chicago Terminal projects, several Amtrak service studies, and Seattle's passenger service expansion). CSXT Reply III-B-37 to 46.
2. Capacity Constraint Analysis. This track capacity methodology has been used for more than a decade, and is particularly useful in ascertaining the capacity of a single-track railroad such as the ACW. CSXT Reply III-B-46 to 54. CSXT's Capacity Constraint Analysis identified the need for additional passing sidings at 13 locations on ACW's main line. CSXT Reply III-B-53, Tb. III-B-6.⁴⁹
3. The C.D. Kloor Table of Estimated Track Capacities. The "Kloor Table" has been in use since the 1970's to measure the capacity required to handle given train volumes over single-track lines with

⁴⁸ The RTC model was not (as Duke asserts) "developed by CSXT's witnesses." Duke Reb. III-B-10.

⁴⁹ CSXT's RTC simulations showed that the results of the Capacity Constraint Analysis were conservative, and that even more capacity would be required on the ACW main lines. Id. III-B-42-44.

acceptable delays. CSXT's Kloer Table evidence confirmed that the capacity provided by Duke on the ACW's main lines is inadequate to accommodate the selected traffic. CSXT Reply III-B-54 to 57, Table III-B-9.

The mutually consistent (and reinforcing) results of these analyses demonstrated that the ACW would need approximately 55 miles of second main track, and 19 passing sidings, in addition to the track facilities posited by Duke. CSXT Reb. III-B-58 to 63, Tables III-B-10, III-B-11. Without such capacity, the ACW would experience gridlock. Id. at III-B-37 to 46.

Duke offered no location-specific response to CSXT's capacity analyses. Rather, Duke's Rebuttal consisted of a series of disjointed (and utterly unpersuasive) assertions. Duke's suggestion that CSXT's RTC model analysis covered only 207 miles of ACW track between Boody, VA and Bostic, NC, is nonsense. Duke Reb. Exh. III-B-7 at 2. The CSXT exhibits cited by Duke to support this claim were clearly identified in CSXT's Reply Narrative as mere "samples" of the RTC model's output. CSXT Reply III-B-39 to 41. CSXT's workpapers contain the results of the RTC's modeling of the entire ACW system. Id. III-B-19.⁵⁰ Duke's complaint that the RTC analysis employed the real world operating parameters developed by witness Fliess, rather than the generic (and unrealistic) assumptions relied upon by Duke, is unavailing. Operating a railroad in accordance with Duke's assumptions would be infeasible (and in certain respects, unlawful). See CSXT Reply III-C-12 to 26.

Duke's assertion (Duke Reb. Exh. III-B-7 at 4 to 5) that the Capacity Constraint Analysis' use of a "peaking factor" double counts the effect of the ACW's peak period traffic is wrong. The "peaking factor" accounts for variations in train volume within a given day, because train movements are not uniformly distributed during any (peak or non-peak) day. CSXT Reply III-B-51 to 53. For example, the specific times at which ACW trains would operate on December 19 resulted in a significant (2.22) peaking factor for that date. Id. at 53. In order to provide adequate service, the ACW's track facilities must be capable of handling such peaks even on busy days. Applying a more conservative peaking factor of 1.5, CSXT identified various locations at which additional passing sidings would be required to

⁵⁰ See CSXT Reply WP "DUKE3NEW.zip;" "DUKE3NEWREAL.zip;" "DUKE3NEWSIDINGS.zip;" "DUKE3NEWSIDINGS.ppt;" "DUKE4NEWCYCLE.zip;" "DUKE4NEWCYCLE.ppt;" "DUKE5BCYCLE.zip;" "DUKE6MAINT.zip." Citations to these files were provided to Duke in a letter from CSXT's counsel dated October 4, 2002. Duke apparently did not bother to review the workpapers prior to making its erroneous allegation regarding the scope of CSXT's RTC analysis. (See Duke Reb. Exh. III-B-7 (at 2), parenthetical note that "we are still checking workpapers.")

maintain fluid ACW operations. CSXT Reply Table III-B-6. Duke did not even attempt to rebut this location-specific analysis.

Duke's similar attempt to dismiss CSXT's Kloer Table analysis as a "rule of thumb" (Duke Reb. Exh. III-B-7 at 3) misses the point: when tested in accordance with the Kloer guidelines, the ACW's track configuration fails miserably. CSXT Reply III-B-57.⁵¹ Contrary to Duke's assertion (Duke Reb. Exh. III-B-7 at 4), Kloer Table analysis confirms that the number and spacing of passing sidings proposed by Duke for the ACW's main lines is insufficient to accommodate the ACW's projected train volumes. CSXT Reply Table III-B-9.

Duke has utterly failed to demonstrate that the ACW's proposed branch line configuration is feasible. Indeed, Duke submitted no capacity analysis whatsoever for approximately 292 miles of ACW branch lines (nearly a quarter of the ACW system). CSXT Reply III-B-19; CSXT Reply Exh. III-B-5. A variety of real world factors (including mine equipment problems, coal availability, schedule changes at mines and destination facilities, random track and locomotive failures, weather and maintenance requirements) affect branch line operations on a daily basis. Id. III-B-10 to 18. CSXT's mine area marshalling yards afford it the capacity to stage train movements in response to such occurrences. Given Duke's decision not to replicate those facilities (see Duke Reb. III-B-3, III-C-6), CSXT identified certain additional passing sidings and double track segments that would be needed on ACW branch lines to maintain fluid train operations. CSXT Reply III-B-58 to 63, Tables III-B-10 & 11; CSXT Reply Exh. III-B-2. Duke's Rebuttal contained no location-specific response to CSXT's branch line capacity analysis. Indeed, Duke acknowledged that its "modified" string diagram model did not even consider the ACW's secondary lines "because there are few, if any, train meets on these line segments." Duke Reb. III-C-54. This unsupported assertion (which the RTC simulation disproved) is insufficient to sustain Duke's burden of demonstrating that the ACW's branch line network is feasible.

Finally, Duke has failed to address the ramifications of its decision to reroute substantial volumes of coal traffic from their current CSXT system routings to alternative lines and interchange points. See TMPA, at 21-22. CSXT demonstrated that such reroutings would require the construction of

⁵¹ In TMPA (at 69), the Board itself cited a "rule of thumb" (that the practical capacity of a line is no more than 75% of theoretical capacity) developed by the American Railway Engineering Association.

interchange tracks at several locations that are not CSXT interchange points today, and that additional track facilities would be required on CSXT's line south of Spartanburg, SC, in order for it to accommodate the massive volume of coal traffic that the ACW proposes to tender to CSXT at that location. CSXT Reply III-B-64 to 72. TMPA (at 22-25) indicates that Duke's failure to address (and provide for) such off-line impacts of rerouting cross-over traffic warrants exclusion of that traffic from the ACW's traffic base. At a minimum, the cost of the facilities required for CSXT to receive rerouted traffic at new interchange points, and to handle it efficiently south of Spartanburg, must be included in the calculation of SARR construction costs. See CSXT Reply Exh. III-B-22.

2. Yards

Duke's Rebuttal adopted CSXT's proposals to add one yard track at Ceredo and Pineville Jct., and to extend the yard at Porter Jct. from 0.8 miles to 1.3 miles. Duke Reb. III-B-22, 25. However, "Duke's experts do not agree with CSXT that any additional yard tracks are required because they disagree with CSXT's assessment of the time required to perform various functions at these yards." Duke Reb. III-B-23. The times allotted by Duke for yard-based functions such as empty train inspection and preparation, interchange activities, and crew changes are utterly unrealistic. See pp. 28-30, infra. Moreover, Duke has not provided any facilities to manage the flow of empty and loaded trains in the vicinity of ACW mine origins (particularly on the busy St. Albans Branch). CSXT Reply Tables III-B-10, III-B-11. CSXT's showing that, in the absence of marshalling yards, the ACW would require "staging" tracks on branch lines was un rebutted by Duke – whose capacity analysis did not even consider these locations.

IV. DUKE'S OPERATING PLAN IS BASED UPON UNREALISTIC ASSUMPTIONS

Duke's operating plan consisted of a series of generic assumptions based solely upon the unsupported "opinion" of its operating witnesses (Messrs. Yocum and Lyman).⁵² Neither Duke's

⁵² Witness Lyman's statement of qualifications provides no indication that he possesses significant coal railroading experience. The majority of Mr. Lyman's career was spent at locations on ATSF (including California, Kansas, Texas and Illinois) where little (if any) mine service activity takes place. While witness Yocum spent a portion of his career with the Chessie System (a portion of which was located in the territory that the ACW proposes to serve), Duke's evidence and workpapers contain no indication that Mr. Yocum actually visited any of the locations or facilities at issue in this case, or that any of Duke's "experts" conducted any substantive analyses to test the operating assumptions that they sponsored. Duke Op. WP Duke/CSXT 05091-05096; Duke Reb. III-B-2 n.1. The glaring errors made by Duke in designing the ACW - including twice locating the ACW's eastern most yard in the steepest,

evidence nor its workpapers include any location-specific analysis demonstrating that those operating assumptions are realistic. CSXT Reply III-C-2 to 4. By contrast, CSXT's operating evidence is based upon first-hand observation and location-specific analysis. CSXT witness Fliess supplemented 32 years of direct experience (including service in operating field positions in the Central Appalachian territory at issue in this case) by personally inspecting the vast majority of the mine origins and destination power plants that the ACW proposes to serve. CSXT Reply III-C-17. His detailed analysis of the ACW's proposed operations (including the use of Distributed Power ("DP")) developed a realistic assessment of the time and resources required for the ACW to provide safe and efficient service to the selected traffic group. Id. III-C-12 to 26. Moreover, CSXT submitted a unique exhibit that goes beyond expert opinion — a one-hour videotape of actual coal service operations in the territory to be served by the ACW. CSXT Reply Exh. III-C-1. The Board can judge for itself how feasible is Duke's proposal to provide comparable service with the facilities and operating plan posited for the ACW.

A. Train Sizes

In order to minimize ACW locomotive requirements, Duke posits an operating plan based upon trains of up to 115 cars (rather than the 90-95 cars historically handled by CSXT). Duke Op. III-C-6 to 7; Duke Reb. III-C-14 to 15.⁵³ CSXT showed that such an increase in train size is inconsistent with the real world practices of coal receivers and the ACW's sole interchange partner (CSXT). CSXT Reply III-C-7 to 8. Nevertheless, Duke adhered to its artificial specification of 115 cars per train, claiming that CSXT's real world evidence "[does] not establish that CSXT could not (or would not) handle the ACW's trains over 95 cars in length." Duke Reb. III-C-14.

Duke – not CSXT – has the burden of proving that the ACW's operating parameters (including train size) are consistent with real world requirements. "Car loading factors and train lengths cannot be set without regard to the practices and preferences of shippers and connecting railroads." McCarty Farms, 2 S.T.B. at 476. While Duke has the right to select the ACW's traffic, it may not unilaterally

narrowest portion of the New River Gorge (at Fayette and Gauley, WV); designing a satellite-based communications system which was scrapped on Rebuttal (Duke Reb. III-B-28 to 29); providing for woefully inadequate locomotive and car fleets; and proposing train inspection procedures that would violate FRA regulations – belie Duke's assertion that Messrs. Yocum and Lyman "are fully aware of the unique aspects of eastern mountain railroading." Duke Reb. III-B-2 n.1.

⁵³ The lengths to which Duke went in re-sizing ACW trains is shown in CSXT Reply WP III-C-0007 to 0009 ("ACW Trains for which Duke Increased Train Size Above 95 Cars").

change the movement characteristics of that traffic to suit its litigation objectives. In McCarty Farms, the Board rejected the Complainant's assumption that trains would be significantly longer than those historically operated by the incumbent carrier, and it should do so here. In any event, Duke's proposal to operate 115-car trains is incompatible with its design for ACW yard tracks which, Duke itself admits, can only accommodate "trains up to 105 cars in length." Duke Reb. III-B-18.

B. Train Inspections

Duke's assumption that the ACW could complete all of the tasks required to service and inspect empty trains at Fayette, Ceredo and Bostic in 1.25 hours is specious. Duke Op. III-C-15; Duke Reb. III-C-45 to 48. That would provide less than 40 seconds per car to inspect a 115-car train, with no additional time to switch out bad order cars, switch in replacement cars, resize the train (as necessary), perform the FRA-mandated brake test and change crews. Duke proffered no data or evidence to support its witnesses' "opinion" that outbound trains could be prepared for departure in a manner consistent with FRA safety regulations in such a short period of time. CSXT Reply III-C-24 to 25; see 49 C.F.R. § 215.101 *et seq*; 49 C.F.R. § 232. CSXT's real world experience indicates that these functions normally take about 5-6 hours. CSXT Reply III-C-24 to 25; CSXT Reply WP III-C-0041 to 0042.⁵⁴

Duke's hypothesis that the ACW would inspect trains more than four times faster than CSXT is based upon the premise that inspections would be conducted using ATV-type vehicles "without having to exit the vehicle." Duke Reb. III-C-46.⁵⁵ A proper examination of a car's mechanical appliances (wheels, bearings, ladders, etc.) in compliance with FRA regulations cannot be performed from the seat of an ATV. Duke's claim that the ACW's "new" car fleet and maintenance program would reduce the number of bad order cars (Duke Reb. III-C-47) is beside the point - FRA regulations require that every car in an outbound train be thoroughly inspected prior to departure, regardless of its age or maintenance history.⁵⁶ Moreover, Duke's suggestion that the ACW could complete the train preparation process in 75 minutes by performing multiple functions simultaneously (Duke Reb. III-C-45 to 46) is not only wrong,

⁵⁴ In TMPA (at 78), both parties agreed that preparation of empty trains would require 6 hours.

⁵⁵ Indeed, Duke makes the incredible claim that "one crew can inspect two trains simultaneously" using this procedure. Duke Op. III-D-20.

⁵⁶ See 49 C.F.R. Part 215. In any event, because the ACW would (according to Duke) have only 1,016 cars, most of the cars loaded at ACW mines would be the same shipper - and CSXT-owned equipment - with the same failure rate that CSXT loads today.

but illegal. FRA regulations require that trains be "blue flagged" during the inspection process for safety reasons – cars cannot be switched in and out of the train, and locomotives cannot be removed or attached, until the inspection is completed. CSXT Reply III-C-24 to 25. Duke's approach - which treats the safety-sensitive train preparation function like an Indy 500 "pit stop" - is utterly unrealistic.

C. Crew Changes

Duke's assumption that crew changes could be completed in 15 minutes or less (Duke Reb. III-C-34 to 38) is not credible. Based upon its real world experience, CSXT estimated that ACW crew changes would average 2.5 hours. CSXT Reply III-C-23; CSXT Reply WP III-C-344 to 346. Duke acknowledges that calling a crew prior to the arrival of an inbound train in order to expedite the process would put at risk the crew's availability under the Hours of Service laws (thereby increasing operating costs). Duke Reb. III-C-38; see also CSXT Reply III-C-21 to 23. Yet, Duke's operating plan makes no provision for extra crews that would inevitably be required if the ACW were to adopt such a practice. Instead, Duke asserts that the "flexibility" of a non-union operation would enable the ACW to re-draw crew districts, and modify both crew assignments and crew-change locations, on a daily basis in response to train delays. Duke Reb. III-C-35 to 36. Duke proffers no real world evidence suggesting that such a chaotic procedure would work.

D. Loading Time At Mine Origins

Duke's generic assumption that loading time would be no greater than six hours at all "flood load" mines, and 14 hours at mines where loading operations are performed by mine personnel (Duke Reb. III-C-27), is based solely upon the opinion of its operating witnesses, who never even visited 52 of the 57 mines to which this critical assumption was applied. By contrast, CSXT witness Fliess presented a highly detailed, location-specific analysis of the tasks that ACW engineers and conductors would be required to perform during the loading process at each mine (based upon Duke's proposed operating plan).⁵⁷ That analysis showed that Duke's generic loading time assumption is unrealistic. See CSXT Reply III-C-15 to 18, Exh. III-C-2.

Duke attempts to deflect CSXT's criticism of its loading time assumption by stating that the

⁵⁷ The video submitted by CSXT as Reply Exh. III-C-1 illustrates the unique characteristics of loading operations at ACW-served mines.

string diagram model "started with the actual train release times at the mines" and did not incorporate loading time. Duke Reb. III-C-28. Thus, Duke concedes that the string model takes no account whatsoever of the time required to switch and place empty cars at the mine, load the cars, and prepare loaded trains for departure. See CSXT Reply III-C-18, n.22. This omission fatally undermines Duke's cycle time calculations, which are based upon the model's output. Duke's assertion that the ACW's use of Distributed Power would reduce loading time at "most" mines (Duke Reb. III-C-32) is likewise demonstrably false. The mine track diagrams set forth in CSXT Reply Exh. III-C-2 (which identify the capacity of each track) demonstrate clearly that the tracks at the vast majority of ACW-served mines are not long enough to permit loading without breaking trains into multiple cuts. Duke's contrary assertion is pure speculation – Duke did not even purport to study the issue. The absence of any location-specific analysis of mine origin service constitutes a failure of proof by Duke on this issue.

E. Locomotives

ACW's proposed fleet of 80 road and 5 helper locomotives is derived solely from operating statistics generated by the discredited string diagram program. Duke Reb. III-C-8 n.7; III-C-16 to 17. Given the unreliability of that model's output, and Duke's failure even to consider dwell time at mine origins in running the model (III-C-28), its locomotive fleet calculations must be rejected. See TMPA at 83-84.

In any event, Duke's own evidence demonstrates that its proposed locomotive fleet is woefully inadequate. The string model output indicates that, between 2:00 a.m. and 6:00 a.m. on the peak day (December 19), there would be 65 active trains, powered by 187 road and helper units, operating on those ACW lines modeled by witness Crowley.⁵⁸ This does not include locomotives engaged during that period in loading operations at the mines, or moving trains over the branch line segments not modeled by Duke. CSXT Reply III-B-19.

Duke concedes that every locomotive in the ACW fleet would have to operate more than 152,000 LUMs per year – nearly 2 ½ times CSXT's systemwide utilization rate – in order to handle the selected traffic with only 85 road units. Duke Reb. III-C-19. Duke blithely asserts that the "increased efficiency"

⁵⁸ See Duke Reb. WP "chart 77a.xls"; "chart 77b.xls"; "chart 77c.xls"; "chart 77d.xls"; "chart 77e.xls"; "chart 77f.xls."

of its SARR makes such a quantum leap in locomotive productivity achievable. Duke Reb. III-C-17 to 18. However, CSXT's systemwide average includes merchandise and intermodal train operations in long-haul corridors over terrain far less difficult than that found in Central Appalachia. CSXT Reply III-C-10. The dwell time associated with loading and unloading at mines and power plants (during which locomotives generate few unit miles), and the lower speeds at which coal trains operate, make it a certainty that locomotives used in the ACW's coal operations (like CSXT's) would experience a lower number of LUMs per year than CSXT's system average. Id. CSXT's estimate of the ACW's locomotive requirements, and not Duke's, comports with real world experience.⁵⁹

F. Operating Personnel

Duke's operating personnel estimates rest on the novel, counterintuitive assumption that its employees — drawn from the same labor pool as CSXT employees — would work longer hours for lower pay while simultaneously increasing dramatically their skills, training, experience and productivity. Such a superhuman workforce does not exist, and the Board should not accept Duke's contrived proposal, which is not merely “non-union,” but blatantly “anti-union.” This is yet another example of Duke's simply assuming away real world requirements to concoct a fantasy railroad whose costs and revenues are patently unachievable under real world conditions. By assuming a hyper-efficient, multi-skilled super workforce that would work for less pay and without significant supervision (such a workforce does not and could not exist), Duke grossly underestimates what is required to operate a modern railroad and has so understaffed the ACW that it would be unworkable and dangerous.⁶⁰

Duke's gross understaffing of the ACW's operating (and maintenance of way) departments is also largely attributable to its reliance on its defective string diagram model, which generated the operating statistics that in turn largely determined the size of Duke's operations staff. CSXT's proposed ACW staffing levels are lower than those in comparable real world operations, and are therefore conservative. See CSXT Reply III-C-32; Exh. III-C-4; Exh. III-D-1.

⁵⁹ In McCarty Farms, the Board rejected as “not practical” Complainant's locomotive fleet calculations, which assumed a similarly excessive utilization rate of 186,150 LUMs per year. McCarty Farms, at 477.

⁶⁰ Space does not permit a detailed summary of the flaws in Duke's personnel evidence, and CSXT directs the Board to its evidentiary filings for more detailed explication of Duke's inadequate evidence. See CSXT Reply III-D-15 to 54.

G. Maintenance of Way Costs

CSXT estimates that the ACW will incur \$140 million in annual maintenance of way operating expenses, compared to Duke's estimate of only \$45.2 million. See Duke Reb. III-D-122. The fundamental difference lies in the number of personnel and the amount of equipment and materials needed to perform the day-to-day maintenance of the railroad. Duke hypothesizes that a mere 75 cross-trained, cross-certified, multi-functional super-personnel could perform all of the day-to-day track, signal, communications and bridge maintenance, plus perform all of the required track inspections. Duke Reb. III-D-107. CSXT, based on reality and not fantasy, estimates that 329 roadmasters, track laborers and foremen, bridge and building personnel, signal maintainers, communications maintainers and electricians would be required. CSXT Reply III-D-92.⁶¹

V. DUKE HAS SUBSTANTIALLY OVERSTATED ACW VOLUMES AND REVENUES

Duke's use of erroneous data, inappropriate manipulation of the data, and unsupported assumptions and methods result in an overstatement of ACW revenues of more than \$300 million during the 20-year DCF period. See Duke Reb. III-A-76, Table III-A-7. Below, CSXT describes some of the more significant errors in Duke's calculation of ACW revenues.

A. Duke Has Overstated Traffic Volumes For 2002-2004

To calculate ACW traffic volumes for 2002 (when ACW operations commence) to 2004, CSXT took the O-D pairs identified in Duke's Opening and (a) for the first 8 months of 2002, multiplied the 2001 ACW traffic volumes by the percentage change in traffic volumes between the first 8 months in 2001 and the first 8 months of 2002 by CSXT line of business (as reflected in actual traffic data for those periods); (b) for the last 4 months of 2002, used the percentage change in traffic volumes targeted for that period in CSXT's course of business sales goals (set in late 2001), adjusted by Energy Venture

⁶¹ The grade and curvature along the ACW route, and rapid fluctuations in temperature, combined with high density heavy coal train movements, place enormous strains on the track structure that must be addressed regularly. In order to minimize slow orders and keep trains moving, well-equipped gangs must be spaced along the entire ACW route. CSXT's Mr. Dean, a former Division Engineer on the Clinchfield, who was responsible for maintenance in this territory for many years, developed from the bottom up the maintenance of way workforce necessary for the ACW. Duke's attempts on Rebuttal to discredit the detailed and well-supported CSXT estimate, by drawing meaningless comparisons to short lines and other railroads that do not even approach the heavy coal train densities over steep grades and sharp curves posited by Duke, are unavailing. Once again, based upon Duke's fantasy assumptions, the ACW would be neither efficient nor least-cost, it would simply be inoperational.

Analysis' independent, course-of-business projection of the reduction in 4th Quarter 2002 coal deliveries compared to 4th Quarter 2001; and (c) for 2003-2004, used the percentage change in traffic volumes targeted for those years in CSXT's course-of-business sales goals (set in late 2001). CSXT Reply III-A-9. For Duke traffic, CSXT applied Duke's actual traffic volumes for the first 6 months of 2002, Duke's own course-of-business projections of its own traffic for the last 6 months of 2002, and the coal burn forecast for 2003 and 2004 provided by Duke in discovery.

Duke's Rebuttal overstated traffic volumes for the first 8 months of that year. Duke claims that ACW traffic for the first 8 months of 2002 grew by 2.6% as compared to the same period in 2001. Duke Reb. Tables III-A-3 and 4. However, Duke's workpapers do not provide any means to audit the calculations upon which that projection is based. Whatever method Duke used to generate its claim that ACW traffic increased during the first 8 months of 2002, that claim conflicts with at least three significant real world benchmarks. First, CSXT's coal traffic indisputably declined by 7.2% during the first 8 months of 2002. CSXT Reply Table III-A-5. Second, and more importantly, Duke overstated traffic to its own plants for 2002 by [REDACTED], claiming [REDACTED] when only [REDACTED] actually moved.⁶² The overstatement included [REDACTED] phantom tons of issue traffic (representing about [REDACTED] in associated revenues) and about [REDACTED] non-existent tons of Marshall traffic (representing about [REDACTED] in overstated revenues). Accurate projection of Duke's own traffic is critical, because revenues for that traffic represent more than 11% of the ACW's total revenues for each year 2002-2004. Duke knew when it filed its Rebuttal that it had significantly overstated its 2002 traffic, but it did not inform the Board of – much less offer any explanation for – this error. Third, Duke overestimated export coal volumes for this period, projecting an 8% decline in traffic,⁶³ when export volumes actually fell by nearly 20%. See Coal Transportation Report at 8 (Jan. 13, 2003).

Duke attempts to justify its inflated projections with two arguments. First, Duke speculates that traffic that actually moved historically from mines not served by the ACW somehow might have moved

⁶² CSXT uses Duke's actual traffic to each of its own plants for the first 6 months of 2002 combined with the volume estimates – communicated by Duke in the normal course of business – for the second half of 2002 to serve as the 2002 tonnage estimate for the Duke plants. CSXT Reply WP-III-A-5157 to 5158. By contrast, Duke's made-for-litigation estimate of its own traffic for the last 6 months of 2002 was 34% higher than its course-of-business forecast. CSXT Reply III-A-8 to 9.

⁶³ Duke Reb. WP "csxRevprojbasedontariffs rebuttal.xls," sheet 2.

instead from mines served by the ACW (without proffering any evidence as to the price or quality of coal available from these various mines), because the ACW allegedly would offer lower rates to shippers. Duke Reb. III-A-8 to 9. Duke advances this same argument – improperly raised for the first time on Rebuttal – any time it cannot otherwise justify its ACW traffic volume assumptions. Id. III-A-19 to 20, 60; Exh. III-A-7 at 9-11. This argument is fatally undermined by Duke’s own SAC presentation which assumes that the ACW will charge rates at least equal to those charged by CSXT, and assumes the answer to the ultimate SAC issue which the Board must resolve -- whether stand-alone revenues exceed stand-alone costs.

Second, Duke asserts that the conditions (high stockpiles, warm weather) that contributed to reduced coal traffic during the first eight months of 2002 were unusual, and that traffic was returning to “normal” levels during the last quarter of 2002. Duke Reb. III-A-6 to 10. In reality, CSXT’s coal traffic for the last quarter of 2002 declined by 7.4% (compared to 4th Quarter 2001), while revenues fell 8.4%. See, e.g., Coal Transportation Report, at 5 (Feb. 24, 2003).

To develop traffic volumes for 2003-2004, both parties applied the percentage change targeted by CSXT for each of these two years in its course-of-business projections made in late 2001. However, the parties applied those forecasts to different traffic bases. CSXT applied the percentage change to a base consisting of the traffic projected to move in the prior year. That is, for 2003, CSXT applied the percentage change in traffic goals for 2003 to the volume of traffic that CSXT estimated would move in 2002. For 2004, CSXT applied the percentage change in traffic goals to the volume of traffic that it estimated would move in 2003. By contrast, Duke applied these percentage changes to the 2001 traffic base. As described above, actual coal traffic in 2002 fell substantially below 2001 levels and the 2002 traffic levels Duke estimated for the ACW. Duke’s approach thus projects forward its overstated 2002 traffic volumes into 2003-2004 (and every subsequent year). This overstatement is likely to be further exacerbated by declining Appalachian coal production in 2003.⁶⁴

⁶⁴ For example, in its course-of-business presentation to securities analysts, CSX stated that “looking forward” its view of coal markets was “unfavorable.” CSX Fourth Quarter Earnings, p. 21, <www.csx.com/company/investor/q4_2002/earnings_presentation_2002_q4_bw.pdf>. Similarly, Global Insight and JD Energy forecast a 3.72% decline in Appalachian coal production in 2003. Coal Monthly, p. 2 (Dec. 2002). EIA’s short-term energy Outlook projects a 0.7% decline in Appalachian coal production in 2003. See <www.eia.doe.gov/emeu/steo/pub/9tab.html>. Hill & Associates expects that Central Appalachia production may fall by another 15 million tons in 2003. Coal Age (Jan 1, 2003).

B. Duke Has Overstated Traffic Volumes For 2005-2021

The STB has previously relied on course-of-business coal demand forecasts by independent entities as the basis for projecting SARR traffic for time periods beyond the period covered by railroad course-of-business traffic forecasts.⁶⁵ For example, in WP&L, the Board based projections of long-term SARR volumes on a composite of independent coal demand forecasts.⁶⁶ Consistent with STB decisions, CSXT projected ACW traffic for 2005-2021 using EIA Central Appalachian coal demand projections (which, due to EIA methodology, significantly overstate likely future coal production), and a composite of four independent third-party forecasts. CSXT Reply III-A-14 to 23.⁶⁷ EIA projects an average decline of 1.0% per year in coal volumes for the period 2005-2021, while the composite forecast projects an annual decline of 1.8% for the same period, and a plant-specific forecast done by EVA projects a 2.2% decline in ACW traffic.⁶⁸

Duke has failed entirely to meet its burden of proof concerning volumes for the period 2005-2021. On Opening, Duke simply asserted, without any evidentiary support, that ACW traffic volumes would remain flat for that period. Duke Op. III-A-18. In the face of multiple independent forecasts introduced by CSXT (all projecting significantly declining volumes), Duke's Rebuttal limited its assumption of flat volumes to 14.6 million tons of traffic to solely-served CSXT points in North Carolina and South Carolina (which constitute about 15% of the ACW's coal volumes in 2005), and misapplied the EIA projections to almost all of the other traffic. Duke Reb. III-A-16 to 22, Exh. III-A-7

⁶⁵ In TMPA and FMC, the Board used the EIA's Annual Energy Outlook to project coal traffic for the last 17 years of the DCF period. As CSXT's experts demonstrated, EIA demand projections are very optimistic, and employ a number of unrealistic assumptions and methods, which result in significant overstatement of likely CAPP coal demand (and thus overstates ACW traffic volumes). See CSXT Reply App. D.

⁶⁶ The composite of independent forecasts relied upon by the Board in WP&L was sponsored by WP&L witness Jamie Heller. WP&L, at 17-20. Mr. Heller, as a witness here for Duke, offers no explanation for his rejection in this case of the composite approach he advocated in WP&L.

⁶⁷ These forecasts were made by EIA, Energy Ventures Analysis, DRI-WEFA, and Hill & Associates. The latter three experts took the forecasts they made in the normal course of business – not for purposes of this litigation – and culled out data not relevant to the ACW traffic group.

⁶⁸ CSXT has projected Duke's traffic for 2005-2021 based on Duke's own coal burn forecast submitted to the State of North Carolina. CSXT Reply III-A-27. Although Duke criticizes CSXT for not using the EIA forecast for Duke traffic, CSXT's use of Duke's compliance plan burn forecasts [REDACTED] than if CSXT had relied instead on the rate of change in demand forecast by the EIA and other analysts. See CSXT Reb. WP "csxRevprojbasedontariffs_revised.xls" at Index (Row 46) and revsummary (Rows 10 and 13) worksheets.

(first of three exhibits) at 5 to 9 and (second exhibit) at 1 to 13. As a result, Duke forecasts ACW volumes will decline by a mere 0.3% annually for the period 2005-2021. Duke Reb. Table III-A-5. There is no basis for Duke's arbitrary and self-serving alteration of these projections.

In its most recent decisions on this issue, TPMA, WP&L and FMC, the Board applied the coal demand projections of independent analysts without creating exceptions for sole-served points. To the extent plants are served by only one railroad today, that fact is public and, if relevant, would already be incorporated in EIA's and others' projections. Duke's argument that a flat volume assumption is justified because of "uncertainties as to where coal would originate" (Duke Reb. III-A-17) provides no basis for ignoring independent coal demand projections. By their nature, coal traffic projections are uncertain. Other independent analysts' course-of-business projections demonstrate that EIA's traffic projections for 2005-2021 are likely overly-optimistic. See CSXT Reply App. D & E. Duke's speculation that even if "CSXT-captive" plants in North Carolina and South Carolina switch coal sources, "they will continue to be served by CSXT and thus the ACW" (Duke Reb. III-A-19), is belied by the fact that several of the "CSXT-captive" plants Duke identifies are not even served by the ACW.⁶⁹

Moreover, Duke has failed to offer any evidence in support of its flat volume assumption. The two expert reports Duke introduced for the first time on Rebuttal (Duke Reb. Ex. III-A-7) make no projections of demand for coal, nor do they even address Duke's assumption that demand for Central Appalachian coal will remain flat from 2005 to 2021, or that demand for CAPP coal at solely-served plants in North Carolina or South Carolina will remain flat during that period.⁷⁰ In sum, the projections CSXT presented are the best, most accurate and reliable evidence (and the only evidence submitted at the time required by the Board's rules) of likely ACW traffic volumes from 2005-2021.⁷¹

⁶⁹ See Duke WP "Rebuttal ACW Traffic Forecast.xls" at Stand-Alone Coal Forecast worksheet. For example, Duke identifies Cross, Penroyal and Middleton SC, and Wilmington and Lumberton, NC destinations, none of which is served by the ACW.

⁷⁰ Both Heller and Wolf purport to address only the analyses of EVA and Hill, which show that the EIA projections of declining coal movements are overly-optimistic. Duke's criticism of Hill and EVA for "failing" to take into account Duke's assumption that the ACW may reduce its rates (by some unspecified amount) is revealing. See Duke Reb. Exh. III-A-7 at 9/15 to 11/15 (second of three exhibits with this number, which apparently has no sponsoring witness). Duke's experts' criticism is apparently premised upon an unspecified rate level that is substantially lower than that Duke uses for the rest of its SAC analysis. See id. If Duke's experts do not even know the ACW's rate assumptions, they cannot possibly provide a meaningful estimate of the traffic volume the ACW would carry at that unknown rate.

⁷¹ Duke also overstated volumes of Lake traffic by about 3.4 million tons annually by inappropriately applying the EIA Ohio Utility forecast to 50% of the Lake traffic when the overwhelming percentage of

C. Duke Has Overstated The ACW's Revenues

Duke overstated the ACW's revenues through a variety of inappropriate means. First, Duke "enhanced" the ACW's revenues on over two million tons of traffic in 2002 by diverting that traffic to longer, and less efficient, routes than those over which it moves today.⁷² CSXT Reply III-A-39 to 43. Duke's gambit not only violates the principle that any new route be "reasonable," but also fails to address "the ramifications of requiring the residual carrier to alter its handling of the traffic." TMPA, slip op. at 16, 22; see pp. 25-26, supra.⁷³

Second, Duke assigned the ACW too high a revenue division on crossover traffic, by applying a "modified mileage prorate" division formula. Citing both the significantly lower densities on the residual CSXT than on the ACW, and the distortions that result when the modified mileage prorate is applied to crossover movements that travel very short distances on the ACW or the residual incumbent, CSXT submitted an "enhanced mileage prorate" (CSXT Reply III-A-43 to 47; App. C), which ensures that both ACW and the residual CSXT obtain some contribution toward fixed costs, regardless of whether CSXT could cover its stand-alone or full economic costs. CSXT Reply III-A-44, 47. CSXT proposes the enhanced mileage prorate because it represents an improvement on the prorate used in prior cases by providing each carrier with a reasonable opportunity to achieve long-term viability.⁷⁴

Third, Duke improperly inflated its calculations of future revenues. Consistent with TMPA and

Lake traffic (well above 50%) actually moves to Canada. Lake traffic that is not destined for Canada is delivered to Michigan and Wisconsin – not to Ohio. See Duke Reb. WP "Rebuttal ACW Traffic Forecast.xls" at worksheet EIA 2004-2020 by Coal Type, row 23. Duke also erroneously contends that ACW origins, such as the Fola mine, are in the Northern Appalachian region instead of the Central Appalachian region and should therefore be subject to the NAPP forecast. Duke Reb. III-A-3 n.3; III-A-17. See EIA Coal Glossary at 302.

⁷² For example, Duke reroutes Northern Appalachian coal via DK Cabin, which not only increases mileage, but converts a single-line CSXT move to a three-line movement, including two trips across the mountains. CSXT Reply III-A-42 to 43.

⁷³ The sole purpose of this exercise was to inflate the ACW's revenues on certain crossover moves. The principal justification Duke proffered for such inefficient routings was the possibility of rate reductions by the SARR. Duke Reb. III-A-60. As explained above, Duke's assumption of rate cutting by the ACW – improperly raised for the first time on rebuttal – is belied by Duke's own stand-alone evidence, in which the ACW's rates are the same as those of CSXT.

⁷⁴ The enhanced mileage prorate promotes the long-term viability of both carriers, a necessary condition if the crossover traffic is to be available to the ACW in the long run. Such a method is essential for allocating sufficient revenues to permit the residual CSXT to maintain and reinvest in those of its lines and facilities that are not included in the ACW, but which Duke necessarily presumes will generate traffic in which the ACW will participate over the 20-year life of the DCF analysis.

other Board precedent, CSXT projected future revenues under existing contracts by using the actual rate escalation provisions of those contracts. CSXT Reply III-A-49 to 59. For contracts expiring before 2004, CSXT used its 2001 course-of-business forecast to determine rate escalations, consistent with the approach used for projecting traffic volumes for the same period. For periods after 2004 (upon the expiration of contracts), CSXT based its revenue escalation projections on the EIA forecast of changes in transportation charges (1.4% for the years 2004-2021), which is likewise consistent with CSXT's basis for projecting traffic volumes (and therefore maintains the economic and logical linkage between price and volume). Based on this approach, CSXT projects average annual rate changes [REDACTED] between 2002 and 2021.⁷⁵

Duke's Opening submission overstated the ACW's future revenue increases by using inaccurate or outdated inflation indices; using a simple average of a subset (rather than a weighted average of all) of the relevant contracts; misinterpreting the escalation provisions of relevant contracts; and applying the wrong contracts to lake, river and export coal. CSXT Reply III-A-49 to 59. Although Duke represented that it had fixed many, if not all, of these errors (Duke Reb. III-A-66 to 71), yet the 2.5% average annual rate increase calculated by Duke for the period 2004-2021 remained unchanged from its Opening to its Rebuttal evidence.⁷⁶

This undisclosed increase stems from a new rate change calculation introduced for the first time in Duke's Rebuttal evidence and, in particular, from an undisclosed arithmetic sleight of hand. For the period 2011-2021, Duke claims to calculate rate changes by (1) computing a ratio which has as its numerator the average change in rates for 2002-2010 based on existing CSXT contracts and as its denominator the RCAF-U for 2002-2010, and (2) multiplying this ratio by the projected RCAF-U for 2011-2021. Duke Reb. III-A-70. For example, if the average change in rates calculated by Duke for 2002-2010 was 1% and the average RCAF-U for that period was 2%, then the change in rates Duke claims it applied for the period 2011-2021 is ½ of the projected RCAF-U for that latter period.

⁷⁵ Duke argues that the EIA and other rate adjustment forecasts relied upon by CSXT should be ignored because they are based on historic data which do not reflect CSXT's escalation of rates for shippers such as Duke. This claim is false. CSXT's course-of-business forecast, made in late 2001, takes into account these rates.

⁷⁶ Duke Op. WP "csxRevprojbasedontariffs rebuttal.xls," WP Sheet 2 and Duke Reb. WP at "csxRevprojbasedontariffs rebuttal.xls," Sheet 2.

However, examination of Duke's actual rate changes calculations,⁷⁷ shows that Duke added the value 1 to both the numerator and denominator of the ratio for the 2003-2010 period. Using our prior example, where the calculated change in rates was $\frac{1}{2}$ the RCAF-U for 2002-2010, Duke would have calculated the ratio to be 1.01/1.02 or roughly 99%. Duke then multiplied this artificially inflated ratio by the projected RCAF-U for 2011-2021. Again, going back to our example, where the projected RCAF-U for this period was 2% and thus, in theory, the projected change in rate should have been 1% (i.e., $\frac{1}{2}$ of 2%), instead Duke projects a rate of change of nearly 2% (i.e., 99% of 2%). Duke's attempt to hide its actual rate calculation for 2011-2021 is both disingenuous and unsupported by law or logic.

Finally, Duke's rate escalation methodology for River, Lake and Export traffic is significantly overstated every year of the forecast period for at least three reasons: (1) Duke overstated revenues to the Pier IX line of business by [REDACTED] by more than doubling the rate per ton [REDACTED] [REDACTED] instead of applying the proper rate escalation factor [REDACTED].⁷⁸ (2) While Duke purported to rely on CSXT's estimate of rate escalations to water terminals for 2002–2004, it did not accurately calculate the weighted average rates by neglecting to multiply appropriate variables. Correcting these formulaic errors results in rate escalation equal to 2.3%, 1.2% and .6% per year instead of the 4.57%, 3.1% and 2.4% that Duke erroneously calculated for the 2002, 2003 and 2004 years, respectively.⁷⁹ (3) For the 2005-2021 period, Duke employs the same defective methodology described above for the rail destined contracts which effectively escalates rates to water destinations by the RCAF-U for the duration of the DCF period.

⁷⁷ Duke Reb. WP "CSX Contract Info Duke rebuttal.xls," Contracts worksheet, cells AM107:BE107.

⁷⁸ Duke Reb. WP "csxRevprojbasedontariffs rebuttal.xls," Sheet 2, cell F15.

⁷⁹ Duke Reb. WP "water contracts escalation rebuttal.xls," worksheet Water CTs (Cells W191:Y191).

VI. CONCLUSION

For the foregoing reasons and all of the reasons set forth in CSXT's evidentiary submissions, the Board should reject Duke's efforts to enhance its commercial position by seeking a regulatory rate prescription. The Board should conclude that the challenged rates are reasonable, dismiss this case with prejudice, and thereby allow the parties to return to doing business the way they have for decades, through commercial negotiations.

Respectfully submitted,

A handwritten signature in black ink that reads "R. Eden Martin" followed by a small mark that appears to be "PK". The signature is written over a horizontal line.

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CERTIFICATE OF SERVICE

I hereby certify that, on this 14th day of April, 2002, I served the foregoing "Brief of Defendant CSX Transportation, Inc." by causing five copies thereof to be delivered, in the manner indicated, to:

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