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**BEFORE THE
SURFACE TRANSPORTATION BOARD**

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)	
In the Matter of:)	
)	Ex Parte No. 771
Report: Alternatives to URCS)	
)	
)	

**COMMENTS OF
THE WESTERN COAL TRAFFIC LEAGUE**

THE WESTERN COAL TRAFFIC LEAGUE
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Dated: February 23, 2023

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**COMMENTS OF
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The Western Coal Traffic League (“WCTL” or “League”) is an association of firms who ship and receive coals mined from mineral reserves in the West. The League has a long record of participation in proceedings before both the Interstate Commerce Commission and the Surface Transportation Board which proceedings have treated the subject of railroad service costs. Indeed, its long participation covers both past periods when railroads *understated* their service costs to the more recent times when the carriers have strived to overstate the costs of their transportation services so as to avoid the regulation of their pricing. Throughout this long history WCTL and its distinguished spokesmen before the agency including Dr. George Borts, R.L. Banks and Leroy E. Peabody Jr. have consistently advocated for cost-finding principles and methodologies that produce an accurate portrayal of railroad service costs.

Since the enactment of the *Staggers Act* in 1980, WCTL has been constant in its contentions in both proceedings treating the subject of railroad cost-finding and in

cases where railroad cost levels are in issue that for a litany of different reasons, the agency accepts as accurate, carrier cost levels that are in fact inflated and overstated.

Because of the League's long-standing concerns about the systematic overstatement in the Board's calculation of variable and other measures of railroad costs, the League welcomes this opportunity to comment on the *Alternatives to URCS* ("Christensen Report" or "Report"), prepared by Laurits R. Christensen Associates, Inc. for the Board.

The League's principal substantive comments are presented in the attached Verified Statement of Thomas D. Crowley and Robert D. Mulholland, President and a Senior Vice President, respectively, of L. E. Peabody & Associates, Inc. The League offers the following to elaborate upon and supplement the Verified Statement from Messrs. Crowley and Mulholland.

First, the League's ability to respond to the Christensen Report is compromised by the Board's determination not to make available the underlying workpapers and data. Access to such information would enable the League, its counsel, and its experts to have a much more informed understanding of how the new methodologies proposed in the Report would actually work, including their strengths and potential weaknesses, as well as the accuracy and reliability of the calculations on which the Christensen Report rests. Accordingly, the League's submission is necessarily preliminary and qualified.

Second, as Messrs. Crowley and Mulholland explain, there may be good cause to update the URCS Phase I variabilities, and doing so should result in universally lower variable costs. This reduction in variable costs would, in turn, increase the revenue-to-variable cost (“R/VC”) ratio for all shipments, cause more traffic to become eligible for rate relief (the R/VC ratios for some movements would be pushed above the jurisdictional threshold (“JT”) of 180%), increase the rate relief that may be available (the JT rate level would decrease for all eligible shipments), and support increased review of the existing commodity exemptions (more traffic would fall above the JT and be eligible for rate relief). The League submits that these matters are all worthy of consideration by the Board, all the more so in view of industry trends and developments, especially the use of so-called Precision Scheduled Railroading to reduce operating ratios and increase railroad profit margins, dividends, and buybacks, while severely degrading and even endangering the level of service to League members and other shippers.

If the transportation market is as “competitive” as the carriers claim, then the cost savings and efficiency gains that the carriers achieve, or claim to achieve, should be passed through to shippers. The reduction in railroad operating ratios, the increases in dividends and buybacks, and the carriers’ insistence on taking rate increases in excess of inflation indicate that savings are not being passed through, making it even more important to understand what is happening to costs at the level of individual movements.

Third, the shift to an incremental cost approach as proposed in the Christensen Report would result in a more direct attribution of costs to individual movements, as contrasted with the existing methodology's focus on estimating average variable costs. This more direct attribution would be helpful in reducing the arbitrariness in costing as discussed in the 2015 study by the Transportation Research Board, *Modernizing Freight Rail Regulation*, <https://nap.nationalacademies.org/catalog/21759/modernizing-freight-rail-regulation>.

Fourth, in terms of evaluating a shift from average variable to incremental costs, it may be useful to have some insight into how railroads measure their costs internally, in particular, whether railroads consider incremental costs to be more accurate, representative, or useful when considering the costs associated with individual movements. The League understands that railroads consider their internal management cost systems to be sensitive and proprietary. Nonetheless, the railroads should be able to provide some generalized descriptions and other information, without revealing any actual coefficients or regressions, *etc.*, that may be very probative in this regard.

Fifth, the League feels obliged to remind the Board of two other sources of major distortion in its calculation of variable costs under URCS. First, the cost of capital that the Board utilizes in URCS and for other purposes remains substantially overstated. The overstatement arises from two main causes. The first cause is the Board's continued insistence on using a historical market-risk premium in the Capital Asset Pricing Model

(“CAPM”) that does not reflect current economic and financial conditions. Those current economic and financial circumstances are what define the opportunity cost of capital at any particular point in time. The problems with using a historical market risk premium are similar to those with using variability percentages in Phase I of the URCS costing model that were developed using dated regression analyses that do not reflect the cost structure of the modern freight rail industry.

The second cause of distortion in the URCS cost of capital is the use of a flawed implementation of the Multi-Stage Discounted Cash Flow model (“MSDCF”) that is unnecessary in the first place, improperly specified, and uses earnings per share growth rates to grow firm-wide cashflows that are distorted by massive railroad stock buybacks. The combined effect of the CAPM and MSDCF distortions is a cost of capital that overstates the needed return on capital for investors to invest in railroads.

Another source of distortion in URCS is the Board’s continuing refusal to allow shippers to make movement-specific adjustments to the system-average costs developed under URCS. The bar is especially prejudicial to unit train shippers of western coal. League members, for example, have invested in highly-efficient loading/unloading facilities to reduce cycle times and are increasingly required to perform more activities such as train loading and unloading operations and brake testing. Because expenses for those activities are included and allocated on a system-average basis in URCS, the regulatory costs are overstated for shippers that perform the activities themselves.

Western coal movements also tend to be more economical in terms of crewing, fuel consumption, power requirements, road property costs, and clerical costs associated with operating over individual railroad line segments. Yet, none of those efficiencies are allowed under the Board's approach to determining variable costs.

CONCLUSION

The League urges the Board to carefully consider the findings and recommendations of the Report; to make its underlying workpapers available to the parties; and to offer revisions to URCS that adopt those components of the Report which make more accurate the agency's railroad cost-finding methodology.

Respectfully submitted,



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Dated: February 23, 2023

BEFORE THE
SURFACE TRANSPORTATION BOARD

DOCKET NO. EP 771
REPORT: ALTERNATIVES TO URCS

Verified Statement

of

Thomas D. Crowley
President

and

Robert D. Mulholland
Senior Vice President

L. E. PEABODY & ASSOCIATES, INC.
ECONOMIC CONSULTANTS

On Behalf Of

THE WESTERN COAL TRAFFIC LEAGUE

Dated: February 23, 2023

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LIST OF EXHIBITS

Exhibit No.	Exhibit Description
(1)	(2)
1	Statement of Qualifications of Thomas D. Crowley
2	Statement of Qualifications of Robert D. Mulholland
3	Railroad Industry Revenue Adequacy Determination 2006-Present

I. INTRODUCTION

We are Thomas D. Crowley and Robert D. Mulholland, President and a Senior Vice President, respectively, of L. E. Peabody & Associates, Inc. L. E. Peabody & Associates, Inc. is an Economic Consulting Firm that specializes in addressing economic, transportation, marketing, financial, accounting and fuel supply matters. We spent most of our consulting careers of over 50 and 25 years, respectively, evaluating railroad operations, capacity, costs and profitability and pricing issues for shippers, producers, railroads and government agencies. Our credentials are included as Exhibit No. 1 and Exhibit No. 2 to this Verified Statement (“VS”).

Counsel for the Western Coal Traffic League (“WCTL”) asked us to evaluate certain aspects of the report entitled *Alternatives to URCS*, (“Christensen Report” or “Report”) prepared by Laurits R. Christensen Associates, Inc. (“Christensen Associates” or “the Authors”), in response to an October 21, 2022 Decision, in which the Surface Transportation Board (“STB” or “Board”) issued a Notice and request for comments regarding the Report.

The Christensen Report was prepared in response to a Board directive to “perform a study and write a report to identify and evaluate alternatives to [the Uniform Railroad Costing System (“URCS”)] that could be used as a replacement general purpose costing methodology to generate railroad-specific variable costs for regulatory purposes.”¹ As noted by the Board:

The Board uses URCS for a variety of regulatory functions. URCS is used in rate reasonableness proceedings as part of the initial market dominance determination, and at later stages is used in parts of the Board’s determination as to whether the challenged rate is reasonable, and, when warranted, the maximum rate prescription. URCS is also used to, among other things, develop variable costs for making cost determinations in abandonment proceedings, to provide the railroad industry and shippers with a standardized costing model, to cost the Board’s Carload Waybill

¹ October 21, 2022 Decision in STB Docket No. EP 771, “*Report: Alternatives to URCS*,” p. 2.

Sample to develop industry cost information, and to provide interested parties with basic cost information regarding railroad industry operations.²

The Authors evaluated multiple scenarios in which select components of the URCS formula were modified, and compared the costing results derived from those modified versions to results calculated using the current formula. In its request for comments, the Board did not opine as to the validity of any of the studied alternatives, and stated that it has not yet decided whether it will “move forward with a proposal to modify its general purpose costing system.”³

A thorough review of the Authors’ work is not possible because the supporting materials and workpapers that underpin the analyses have not been made public by the STB. Without them, we cannot verify, validate, or otherwise test the robustness of the conclusions presented in the Report. However, some of the results presented by Christensen Associates, taken at face value, raise issues related to some key URCS components that appear to warrant further scrutiny.

² Christensen Report, p. 1.

³ *Id.*, p. 2.

II. KEY FINDINGS

The Christensen Report concludes that URCS is materially dependent on inputs derived from “stale” analyses, and should be updated to improve movement costing.⁴ Based on our review of the limited public information, we believe one of the updates the Christensen Report recommends potentially has merit. Specifically, the Report concludes that variability percentages applied in Phase I of the URCS costing model are based on dated regression analyses that do not reflect the cost structure of the modern freight rail industry.

In particular, the Authors’ findings indicate that both the variabilities for operating costs and the default variability percentages applied to capital costs significantly overstate the extent to which costs vary with traffic levels. If true, a portion of railroad fixed costs are inappropriately classified as variable costs in URCS.

Christensen Associates evaluated three (3) Phase I alternatives. Based on the publicly available summary data included in the Report, these alternatives would all produce universally lower variable costs than the current URCS model.⁵ Universally reduced variable costs would produce higher Revenue-to-Variable Cost (“R/VC”) ratios for all traffic. If R/VC ratios increase, the share of traffic moving at rates above the jurisdictional threshold (“JT”), which is calculated by multiplying the regulatory (i.e., URCS variable) costs by 180 percent,⁶ would also increase.

⁴ *Id.*, p. 1.

⁵ The Report does not present the results of any scenario in which only the Phase I variability percentages are updated and not the Phase III allocation methodology. Citing “the preliminary and exploratory nature of this request for comments,” the Board elected not to release Christensen Associates’ supporting materials with the Report. Because we were unable to review the workpapers supporting the Christensen Report, we cannot quantify the impact of updating only the variability factors. However, based strictly on the information included in the Christensen Report, that scenario would generally reduce variable costs for all shippers, including coal shippers.

⁶ “The statutory application of URCS is to determine variable costs for the STB’s jurisdictional threshold, where railroads are deemed not to exercise ‘market dominance’ over traffic with an URCS R/VC ratio below 180 percent. The statute (49 U.S.C. §10707) requires that variable costs for application of the threshold be obtained

Railroads operating when the Staggers Rail Act of 1980 (“Staggers”) was promulgated were not close to achieving revenue adequacy.⁷ Although regulators recognized that oversight was required as a check on monopolistic pricing power, they also saw a need to allow railroads to impose differentially higher rates on captive shippers to “ensure a financially sound carrier capable of meeting its current and future service needs.”⁸

The level of JT codified in Staggers ($R/VC = 1.80$) was set to ensure that traffic moving at rate levels below JT was exempted from regulatory oversight, affording the railroads a means by which to pursue the goal of attaining revenue adequacy in the long term through differential pricing.

It is hard to imagine that the authors of Staggers foresaw the series of railroad mergers that would unfold over the next few decades, and the increased market power that would be held by only a half dozen or so remaining Class I railroads as a result, some 43 years later.

Over the course of the last decade plus, modern Class I railroads have achieved revenue adequacy on an annual basis (by the Board’s standards) multiple times.⁹ The five (5) largest Class I railroads met the standard for long-term revenue adequacy proposed by the STB’s internal Rate Reform Task Force (“RRTF”) in 2019.¹⁰

either from URCS or a successor cost system adopted by the STB in lieu of URCS. Significantly, the 180 percent R/VC threshold is fixed in the statute. As a result, any cost methodology change—whether a modification or replacement of URCS—with a material effect on measured variable costs will affect the volume of rail freight subject to the jurisdictional threshold.” Christensen Report, p. 2.

⁷ By the Board’s definition, revenue adequacy is achieved when a carrier’s rate of return on its net asset investment base (“ROI”) is at least equal to the railroad industry current cost of capital (“COC”).

⁸ *Coal Rate Guidelines, Nationwide*, 1 I.C.C. 2d 520 (1985) (“Coal Rate Guidelines”) p. 535.

⁹ Exhibit No. 3 to this Verified Statement includes a summary of the STB’s revenue adequacy determination for each of the Class I railroads over the 16 years from 2006 through 2021, inclusive.

¹⁰ RRTF defined long-term revenue adequacy as being achieved when a railroad’s average ROI equals or exceeds the average COC over a time period that is not shorter than five (5) years and includes both a year in which a recession began and the following year.

If, as Christensen Associates' results seem to suggest, overstated URCS costs have resulted in an artificially reduced share of traffic subject to regulatory oversight (by virtue of systemically understated R/VC ratios), this helps to explain the recent industry trends toward long-term revenue adequacy in the freight rail industry.

It is logical that the share of traffic subject to regulatory oversight should increase as the railroads approach—and achieve—revenue adequacy. Christensen Associates projects that updating the Phase I URCS variability factors to reflect the cost structure of the modern freight railroad industry will produce this result within the existing regulatory framework.

III. STUDY FRAMEWORK

The URCS model develops movement costs in three (3) phases:

Phase I defines cost pools for analytically relevant groups of railroad operating costs, and implements econometric cost equations used to derive “variability factors” indicating the portions of those costs that are variable with railroads’ outputs—i.e., variable cost. Phase I was conducted once, prior to the Interstate Commerce Commission (ICC)’s adoption of URCS. Phase II is an annual process that compiles data from the railroads’ R-1 annual reports and other sources on railroad costs and outputs. Phase II is implemented as a set of linked electronic (Microsoft Excel) workpapers that compute unit variable costs and other statistics for Class I railroads that serve as inputs to movement-level costs. Phase III computes variable costs for railroad freight movements using an engineering-economic model that combines movement characteristics with unit variable costs and other data from Phase II.¹¹

The analytical framework used by Christensen Associates sought to quantify the impact of changes to two (2) different phases of the URCS costing model. The Report does not present any scenarios in which adjustments were made to the Phase II development of unit costs. Rather, the scenarios presented in the Report reflect the impact of making changes to the variability factors in Phase I and the processes used to develop movement-specific variable costs in Phase III.

An important difference between the Phase III alternatives and the Phase I alternatives that were tested by the Authors is that *the Phase III alternatives result in a change in the distribution of system variable costs among shipments*, whereas *the Phase I alternatives result in a change in the level of system variable costs*. Stated differently, the Phase III updates reallocate system variable costs among the traffic groups, whereas the Phase I updates change the allocation of fixed and variable costs.

¹¹ Christensen Report, p. 2.

If a Phase III update results in decreased variable costs for a particular traffic group, it will result in offsetting increases in variable costs for a different traffic group(s). However, *a Phase I update may result in decreased (or increased) variable costs for all traffic.*

A. PHASE III UPDATES

Much of the Report was dedicated to discussion of the analyses the Authors conducted to assess the impact of alternate methods for allocating system average variable costs to individual shipments in Phase III of URCS. Specifically, Christensen Associates tested the impact of three (3) models as alternatives to the current efficiency and make-whole adjustments applied in Phase III. All of the studied methods are variations of models that have been considered before. We raise them here only to give context to the discussion regarding the impact of Phase I alternatives in the following section.

One of the alternate models Christensen Associates tested was first introduced by the Board in Ex Parte 431 (Sub-No. 4) as a possible URCS modification in 2013 (the “Carload Weighted Block” or “CWB Model”). During that proceeding, several interested parties submitted four (4) rounds of comments regarding the proposed modifications over a period of several years.

The second alternate model tested was jointly introduced by the Association of American Railroads (“AAR”) and the BNSF Railway Company (“BNSF”) during the same proceeding (the “AAR Model”). This alternate was a slightly modified version of the Board’s model with adjusted weighting factors, and was also discussed at length by commenting parties in Ex Parte 431 (Sub-No. 4).

After considering the extensive record of comments and supporting analyses, the Board discontinued the Ex Parte 431 (Sub-No. 4) proceeding in 2019¹² without adopting any of the proposed adjustments.¹³

The Christensen Report also considered two (2) other previously considered alternatives to URCS: (1) the “new empirical industrial organization” (“NEIO”) model developed by Wesley W. Wilson and John D. Bitzan in September 2003 for the Federal Railroad Administration (“FRA”); and (2) an in-house model called the “Christensen Hybrid” (“Hybrid”), which was developed by Christensen Associates in November 2009 in a “Competition Study” performed for the STB.

The NEIO model estimates costs based on a regression analysis of Carload Waybill Sample (“CWS”) rates. The Hybrid model combines the NEIO CWS regression analysis with estimated generic (non-shipment-specific, i.e., average) marginal costs. The Authors “eliminated the NEIO model as a stand-alone URCS alternative on theoretical grounds related to the absence of direct cost information in the CWS and proceeded with implementations of the Hybrid model.”¹⁴

B. PHASE I UPDATES

Christensen Associates evaluated three (3) Phase I alternatives under various scenarios, each of which included updated Phase III allocation methodologies discussed in the prior section of this VS. All three (3) sets of comparisons showed the same general impact for the tested Phase I updates. For purposes of simplicity, we focus on the Phase I updates paired with the Hybrid model Phase III in this discussion of the impact of updating the Phase I variabilities. We chose the Hybrid model over the CWB and AAR models because the Authors tested an additional Phase I scenario in the Hybrid update that they did not test in the CWB or AAR updates.

¹² More than six (6) years after the Board first solicited comments.

¹³ STB Docket No. EP 431 (Sub-No. 4), *Review of the General Purpose Costing System*, decided June 5, 2019.

¹⁴ Christensen Report, p. 4.

In evaluating the Hybrid model, Christensen Associates tested the following Phase I “scenarios” or iterations of the Hybrid model, and compared each to the current “Legacy” URCS.

1. URCS Scenario: replaces URCS Phase III with the NEIO regression in the Hybrid model. This Hybrid scenario is intended to isolate the effects on shipment costs of using the NEIO model instead of URCS Phase III;
2. CA1 Scenario: replaces URCS Phase III with the NEIO regression in the Hybrid model and a limited Phase I update retaining URCS default variabilities. This Hybrid scenario updates the URCS Phase I variabilities for operating costs using output elasticity estimates while retaining the URCS Phase I default variabilities for ROI and DLR costs;¹⁵
3. CA2 Scenario: replaces URCS Phase III with the NEIO regression in the Hybrid model and a full Phase I update. This Hybrid scenario updates the URCS Phase I variabilities for operating costs using elasticity estimates and updates the URCS Phase I default variabilities for ROI and DLR costs with disaggregated [railroad-specific] elasticity;¹⁶ and
4. CA3 Scenario: replaces URCS Phase III with the NEIO regression in the Hybrid model and a full Phase I update. This Hybrid scenario also updates the URCS Phase I variabilities for operating costs using elasticity estimates and updates the URCS Phase I default variabilities for ROI and DLR costs with aggregate elasticity from the industry rather than railroad-specific elasticity.

Christensen Associates identified the CA2 scenario as their preferred approach.¹⁷

Table 1 below shows the impact of the various Hybrid model scenarios on variable costs based on the information included in the Christensen Report.

¹⁵ Christensen Associates notes that scenario CA1 “largely preserves the legacy URCS approach to developing ‘intermediate run’ costs.” Christensen Report, p. 141. ROI includes return on investment and DLR includes depreciation, leases and rents.

¹⁶ Christensen Associates notes that scenario CA2 produces “variable cost estimates that would be interpreted as short-run marginal costs.” Christensen Report, p. 141.

¹⁷ Christensen Report, pp. 6, 112-113.

Table 1
Comparison of Hybrid Model Scenarios

Size Category in Carloads	Variable Cost per Revenue Ton-Mile (RTM) (2019 Cents/RTM) ^{1/}					Percent Change vs. Hybrid URCS ^{2/}		
	Legacy URCS	Hybrid URCS	Hybrid CA1	Hybrid CA2	Hybrid CA3	Hybrid CA1	Hybrid CA2	Hybrid CA3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1. One	3.58	3.50	3.33	2.43	2.73	-5%	-31%	-22%
2. 2-5	2.98	2.99	2.83	2.08	2.30	-5%	-30%	-23%
3. 6-24	2.57	2.96	2.80	2.06	2.22	-5%	-30%	-25%
4. 25-49	2.58	2.70	2.57	1.89	1.99	-5%	-30%	-26%
5. 50-74	2.24	2.97	2.81	2.06	2.23	-5%	-31%	-25%
6. 75+	1.55	1.82	1.71	1.26	1.38	-6%	-31%	-24%
7. Intermodal	3.84	3.24	3.05	2.25	2.50	-6%	-31%	-23%

^{1/} Christensen Report, Table ES-1, page 7.

^{2/} Comparison of Columns (4) through (6) to Column (3).

As shown in Table 1 above, all three (3) Phase I updates tested by Christensen Associates produce across-the-board reductions in variable costs per revenue ton-mile. This can be seen in Columns (7) through (9), which compare the variable costs in Columns (4) through (6) (with Phase I updates) to the variable costs in Column (3) (without Phase I updates), for each of the seven (7) traffic groups included in the Christensen Report.

The observed change from Legacy URCS to Hybrid URCS shown in Column (3) relative to Column (2) reflects the adjustment (redistribution of variable costs among traffic groups) related to the Phase III update under the tested Hybrid Scenario, before Phase I adjustments were tested.

As shown in Table 1, implementing any of the tested Phase I updates would reduce URCS costs for all traffic groups, with the largest reduction under the Authors' preferred "CA2" approach (Column (8)).

IV. CONCLUSION

URCS Phase I has not been updated since the adoption of URCS in 1989. In addition, URCS costing is reliant on “default” variabilities for capital costs that were not updated when the Phase I models were developed in 1989. Due to significant changes in the railroad industry since the 1980’s, the costs applicable to these default variabilities have increased significantly since the adoption of URCS. Specifically, the Authors state that the share of Class I railroad costs subject to default variabilities has risen from “22 percent as of the adoption of URCS to 46 percent in 2019.”¹⁸

The Christensen Report concludes that the decades-old inputs URCS uses to determine the extent to which costs vary with output in Phase I do not reflect the economics of the modern freight rail industry. The Authors further conclude that updating Phase I variabilities applicable to capital costs under their preferred alternative would result in URCS costs that more closely approximate short-run marginal costs, and they advocate for this change.

Based on the results presented in the Report, updating the URCS Phase I variabilities using any of the tested alternatives would reduce URCS variable costs across the board (in the absence of any other adjustments). This would impact all of the models the Board uses to carry out its functions related to economic regulation, and would reduce the rate level at the statutory rate floor for shipments subject to the Board’s jurisdiction, increasing the share of traffic with rates above the jurisdictional threshold.

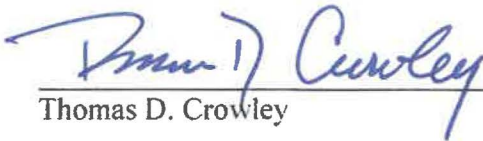
An increase in the share of traffic subject to regulatory oversight is logical in the current environment in which the freight railroads have demonstrated an ability to consistently achieve

¹⁸ *Id.*, p. 180.

revenue adequacy. This also underscores the need for the Board to develop a framework for implementing the revenue adequacy constraint afforded to shippers in rate cases.

VERIFICATIONS

I, Thomas D. Crowley, verify under penalty of perjury that I have read this Verified Statement on behalf of WCTL, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Thomas D. Crowley

Executed on 2/23/23

* * *

I, Robert D. Mulholland, verify under penalty of perjury that I have read this Verified Statement on behalf of WCTL, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Robert D. Mulholland

Executed on 2/23/2023

THOMAS D. CROWLEY
STATEMENT OF QUALIFICATIONS

My name is Thomas D. Crowley. I am an economist and President of the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314, 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737, and 7 Horicon Avenue, Glens Falls, New York 12801.

I am a graduate of the University of Maine from which I obtained a Bachelor of Science degree in Economics. I have also taken graduate courses in transportation at George Washington University in Washington, D.C. I spent three years in the United States Army and since February 1971 have been employed by L. E. Peabody & Associates, Inc.

I am a member of the American Economic Association, the Transportation Research Forum, and a life member of the American Railway Engineering and Maintenance-of-Way Association.

The firm of L. E. Peabody & Associates, Inc. specializes in analyzing matters related to the rail transportation of all commodities. As a result of my extensive economic consulting practice since 1971 and my participation in maximum-rate, rail merger, service disputes and rule-making proceedings before various government and private governing bodies, I have become thoroughly familiar with the rail carriers and the traffic they move over the major rail routes in the United States. This familiarity extends to subjects of railroad service, costs and profitability, cost of capital, railroad capacity, railroad traffic prioritization and the structure and operation of the various contracts and tariffs that historically have governed the movement of traffic by rail.

As an economic consultant, I have organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, for shippers, for associations and for

THOMAS D. CROWLEY
STATEMENT OF QUALIFICATIONS

state governments and other public bodies dealing with transportation and related economic problems. Examples of studies I have participated in include organizing and directing traffic, operational and cost analyses in connection with single car and multiple car movements, unit train operations for coal, grain, oil and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from both eastern and western origins to various destinations in the United States. The nature of these studies enabled me to become familiar with the operating practices and accounting procedures utilized by railroads in the normal course of business.

Additionally, I have inspected and studied both railroad terminal and line-haul facilities used in handling various commodities. These operational reviews and studies were used as a basis for the determination of the traffic and operating characteristics for specific movements of numerous commodities handled by rail.

I have frequently been called upon to develop and coordinate economic and operational studies relative to the rail transportation of various commodities. My responsibilities in these undertakings included the analyses of rail routes, rail operations and an assessment of the relative efficiency and costs of railroad operations over those routes. I have also analyzed and made recommendations regarding the acquisition of railcars according to the specific needs of various shippers. The results of these analyses have been employed in order to assist shippers in the development and negotiation of rail transportation contracts which optimize operational efficiency and cost effectiveness.

THOMAS D. CROWLEY
STATEMENT OF QUALIFICATIONS

I have developed property and business valuations of privately held freight and passenger railroads for use in regulatory, litigation and commercial settings. These valuation assignments required me to develop company and/or industry specific costs of debt, preferred equity and common equity, as well as target and actual capital structures. I am also well acquainted with and have used the commonly accepted models for determining a company's cost of common equity, including the Discounted Cash Flow Model ("DCF"), Capital Asset Pricing Model ("CAPM"), and the Farma-French Three Factor Model.

Moreover, I have developed numerous variable cost calculations utilizing the various formulas employed by the Interstate Commerce Commission ("ICC") and the Surface Transportation Board ("STB") for the development of variable costs for common carriers, with particular emphasis on the basis and use of the Uniform Railroad Costing System ("URCS") and its predecessor, Rail Form A. I have utilized URCS/Rail form A costing principles since the beginning of my career with L. E. Peabody & Associates Inc. in 1971.

I have frequently presented both oral and written testimony before the ICC, STB, Federal Railroad Administration, Federal Energy Regulatory Commission, Railroad Accounting Principles Board, Postal Rate Commission and numerous state regulatory commissions, federal courts and state courts. This testimony was generally related to the development of variable cost of service calculations, rail traffic and operating patterns, fuel supply economics, contract interpretations, economic principles concerning the maximum level of rates, implementation of maximum rate principles, and calculation of reparations or damages, including interest. I presented testimony before the Congress of the United States, Committee on Transportation and Infrastructure on the status of rail competition in the western United States. I have also

THOMAS D. CROWLEY
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presented expert testimony in a number of court and arbitration proceedings concerning the level of rates, rate adjustment procedures, service, capacity, costing, rail operating procedures and other economic components of specific contracts.

Since the implementation of the *Staggers Rail Act of 1980*, which clarified that rail carriers could enter into transportation contracts with shippers, I have been actively involved in negotiating transportation contracts on behalf of shippers. Specifically, I have advised shippers concerning transportation rates based on market conditions and carrier competition, movement specific service commitments, specific cost-based rate adjustment provisions, contract reopeners that recognize changes in productivity and cost-based ancillary charges.

I have developed different economic analyses regarding rail transportation matters for over sixty (60) electric utility companies located in all parts of the United States, and for major associations, including American Chemistry Council, American Paper Institute, American Petroleum Institute, Chemical Manufacturers Association, the Chlorine Institute, Coal Exporters Association, Edison Electric Institute, the Fertilizer Institute, Mail Order Association of America, National Coal Association, National Grain and Feed Association, National Industrial Transportation League, North America Freight Car Association and Western Coal Traffic League. In addition, I have assisted numerous government agencies, major industries and major railroad companies in solving various transportation-related problems.

In the two Western rail mergers that resulted in the creation of the present BNSF Railway Company and Union Pacific Railroad Company and in the acquisition of Conrail by Norfolk Southern Railway Company and CSX Transportation, Inc., I reviewed the railroads' applications including their supporting traffic, cost and operating data and provided detailed evidence

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supporting requests for conditions designed to maintain the competitive rail environment that existed before the proposed mergers and acquisition. In these proceedings, I represented shipper interests, including plastic, chemical, coal, paper and steel shippers.

I have participated in various proceedings involved with the division of through rail rates. For example, I participated in ICC Docket No. 35585, *Akron, Canton & Youngstown Railroad Company, et al. v. Aberdeen and Rockfish Railroad Company, et al.* which was a complaint filed by the northern and mid-western rail lines to change the primary north-south divisions. I was personally involved in all traffic, operating and cost aspects of this proceeding on behalf of the northern and mid-western rail lines. I was the lead witness on behalf of the Long Island Rail Road in ICC Docket No. 36874, *Notice of Intent to File Division Complaint by the Long Island Rail Road Company.*

ROBERT D. MULHOLLAND
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My name is Robert D. Mulholland. I am an economist and a Senior Vice President of the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at: 1501 Duke Street, Suite 200, Alexandria, Virginia 22314; 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737; and 7 Horicon Avenue, Glens Falls, New York 12801.

I am a graduate of George Mason University's School of Public Policy, from which I obtained a Master's degree in Transportation Policy, Operations & Logistics, and Bowdoin College, from which I obtained a Bachelor of Arts degree in Government and Legal Studies. I have been employed by L. E. Peabody & Associates, Inc. since 2008 and from 1995 to 2004. From 2004 to 2006, I was the staff economist for the Office of Freight Management and Operations of the Federal Highway Administration ("FHWA") of the United States Department of Transportation ("USDOT"). From 2006 to 2008, I worked for ICF International as a consultant in the transportation group.

L. E. Peabody & Associates, Inc. specializes in analyzing matters related to the rail transportation of all commodities. As a result of my extensive consulting experience since 1995 and my participation in and support of maximum-rate, rail merger, service dispute, reasonable practices, and rule-making proceedings before various government bodies, I have become thoroughly familiar with the major freight and passenger rail carriers in the United States. This familiarity extends to subjects of railroad costs and revenues, service, maintenance, operations, capacity, traffic prioritization, and contract and tariff terms that govern the movement of commodities by rail.

As a consultant, I have directed and conducted economic and operations studies and prepared reports for passenger and freight carriers, shippers, federal agencies, the United States

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Congress, associations, and other public bodies dealing with transportation and related economic issues. Examples of studies I have participated in include organizing and directing rail facilities analyses, quantifying the impact of service disruptions for shippers, evaluation of traffic and operating factors in connection with single and multiple car movements and unit train operations for various commodities, rate and revenue division analyses, and other studies dealing with transportation markets for many commodities over various surface modes throughout the United States. Through these studies I have become familiar with railroad costing and operating practices.

I have inspected and studied railroad terminal facilities used in handling various commodities to collect data that were used as a basis for the determination of traffic and operating characteristics for specific movements handled by rail. I have conducted field studies of short line rail systems and rail spurs, and industry-owned rail facilities, and developed reports assessing their capacity to accommodate various projected operating scenarios and traffic levels.

I have developed operational and economic studies relative to the rail transportation of coal, chemicals, intermodal traffic, and other commodities on behalf of shippers, including analyses of the relative efficiency and costs of railroad operations over multiple routes. The results of these analyses have been used to assist shippers in the development and negotiation of rail transportation contracts that optimize operational efficiency and cost effectiveness.

I have presented written testimony before the STB related to the development of evidence including rail traffic volume and revenue forecasts, cross-over traffic revenue divisions, and train operations in several maximum reasonable rate proceedings on behalf of coal and chemicals

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shippers, and the development of evidence including rail fuel consumption and cost determinations in an unreasonable practice proceeding.

I have supported the negotiation of transportation contracts between shippers and railroads. Specifically, I have conducted studies concerning transportation rates based on market conditions and carrier competition, movement specific service commitments, and specific cost-based rate adjustment provisions. I have developed numerous variable cost calculations utilizing the various formulas employed by the Surface Transportation Board (“STB”) for the development of variable costs for common carriers, with particular emphasis on the basis and use of the Uniform Railroad Costing System (“URCS”). I have utilized URCS costing principles since the beginning of my career with L. E. Peabody & Associates Inc. in 1995.

I have conducted different economic analyses regarding rail transportation matters for dozens of electric utility companies located in all parts of the United States, and for major associations, including the Chlorine Institute, the American Chemistry Council, the Chemical Manufacturers Association, the National Industrial Transportation League, and the Western Coal Traffic League. In addition, I have assisted numerous government agencies in analyzing and solving various transportation-related problems.

In the Western rail merger that resulted in the creation of the present Union Pacific Railroad Company, I reviewed the railroads’ applications including their supporting traffic, cost and operating data and developed detailed evidence supporting requests for conditions designed to maintain the competitive rail environment that existed before the proposed merger.

While employed at FHWA, I was a member of the USDOT inter-agency working group that drafted the National Freight Policy. In addition, I served on the USDOT Freight Gateway

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Team, a group headed by the Undersecretary for Policy and composed of one representative from each of the surface modal agencies.

While employed at ICF International, I directed and conducted numerous analyses of the rail and trucking industries for federal transportation agencies including the Federal Railroad Administration ("FRA"), the Federal Motor Carrier Safety Administration ("FMCSA"), and the FHWA, including analyses of the current rail and trucking industries and forecasts of future trends in both industries.

Railroad Industry Revenue Adequacy Determination 2006-Present

Railroad	2006 3/	2007 4/	2008 5/	2009 6/	2010 7/	2011 8/	2012 9/	2013 10/	2014 11/	2015 12/	2016 13/	2017 14/	2018 15/	2019 16/	2020 17/	2021 18/	17-21 19/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
A. Railroad's Return on Investment ("ROI")																	
1. BNSF Railway Company	11.43%	9.97%	10.51%	8.67%	10.28%	12.39%	13.47%	14.01%	12.88%	12.82%	10.11%	10.70%	11.89%	12.04%	11.60%	13.19%	11.88%
2. CSX Transportation, Inc.	8.15%	7.61%	9.34%	7.30%	10.85%	11.54%	10.81%	10.00%	10.18%	9.00%	8.62%	8.86%	13.18%	12.84%	11.35%	15.51%	12.35%
3. Grand Trunk Corporation (Canadian National Railway)	9.47%	10.11%	9.89%	6.04%	9.21%	8.74%	10.19%	11.84%	11.30%	10.77%	8.60%	7.69%	7.69%	7.47%	7.20%	7.79%	7.57%
4. Kansas City Southern Railway	9.31%	9.37%	7.72%	6.51%	9.77%	10.76%	9.54%	8.67%	8.18%	7.20%	6.23%	7.09%	8.03%	6.20%	8.06%	8.25%	7.53%
5. Norfolk Southern Railroad	14.36%	13.55%	13.75%	7.69%	10.96%	12.87%	11.48%	12.07%	11.69%	9.03%	9.20%	10.06%	11.63%	11.59%	7.52%	13.18%	10.80%
6. SOO Line Corporation (Canadian Pacific Railway)	11.60%	15.25%	9.29%	6.28%	8.01%	7.13%	5.15%	12.03%	-0.42%	14.50%	9.58%	10.71%	13.49%	11.34%	10.68%	13.51%	11.95%
7. Union Pacific Railroad	8.21%	8.90%	10.46%	8.62%	11.54%	13.11%	14.69%	15.39%	17.35%	15.54%	13.39%	14.06%	15.80%	15.55%	14.44%	17.03%	15.38%
B. Railroad Industry Cost of Capital 1/																	
1. After-Tax Composite Cost of Capital	9.94%	11.33%	11.75%	10.43%	11.03%	11.57%	11.12%	11.32%	10.65%	9.61%	8.88%	10.04%	12.22%	9.34%	7.89%	10.37%	9.97%
C. Revenue Adequacy 2/																	
1. BNSF Railway Company	YES	No	No	No	No	YES	YES	YES	YES	YES	YES	YES	No	YES	YES	YES	YES
2. CSX Transportation, Inc.	No	No	No	No	No	No	No	No	No	No	No	No	YES	YES	YES	YES	YES
3. Grand Trunk Corporation (Canadian National Railway)	No	No	No	No	No	No	No	YES	YES	YES	No	No	No	No	No	No	No
4. Kansas City Southern Railway	No	No	No	No	No	No	No	No	No	No	No	No	No	No	YES	No	No
5. Norfolk Southern Railroad	YES	YES	YES	No	No	YES	YES	YES	YES	No	YES	YES	No	YES	No	YES	YES
6. SOO Line Corporation (Canadian Pacific Railway)	YES	YES	No	No	No	No	No	YES	No	YES	YES	YES	YES	YES	YES	YES	YES
7. Union Pacific Railroad	No	No	No	No	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

1/ As determined in STB Ex Parte No. 558.

2/ If the cost of capital in Section B is lower than the ROI for a specific railroad in a given year then that railroad is determined to be revenue adequate.

3/ STB Ex Parte 552 Sub No. 11 decided on May 1, 2008.

4/ STB Ex Parte 552 Sub No. 12 decided on September 24, 2008.

5/ STB Ex Parte 552 Sub No. 13 decided on October 16, 2009.

6/ STB Ex Parte 552 Sub No. 14 decided on November 9, 2010.

7/ STB Ex Parte 552 Sub No. 15 decided on December 31, 2013. This is a revised revenue adequacy determination based on R-1 revisions by BNSF.

8/ STB Ex Parte 552 Sub No. 16 decided on December 31, 2013. This is a revised revenue adequacy determination based on R-1 revisions by BNSF.

9/ STB Ex Parte 552 Sub No. 17 decided on December 31, 2013. This is a revised revenue adequacy determination based on R-1 revisions by BNSF.

10/ STB Ex Parte 552 Sub No. 18 decided on August 29, 2014.

11/ STB Ex Parte 552 Sub No. 19 decided on September 3, 2015.

12/ STB Ex Parte 552 Sub No. 20 decided on September 6, 2016.

13/ STB Ex Parte 552 Sub No. 21 decided on September 5, 2017.

14/ L.E. Peabody and Associates calculations based on revised R-1's filed in STB Ex Parte 552 Sub No. 22. These R-1 revisions reflect the STB directive to remove the impact of the new tax law from 2017 financials. The STB never formally revised the calculations released in STB Ex Parte 552 Sub No. 22 decided on December 17, 2018, likely due to the fact that the final revenue adequacy determinations did not change based on the revised calculations.

15/ STB Ex Parte 552 Sub No. 23 decided on September 4, 2019.

16/ STB Ex Parte 552 Sub No. 24 decided on October 1, 2020.

17/ STB Ex Parte 552 Sub No. 25 decided on September 3, 2021.

18/ STB Ex Parte 552 Sub No. 26 decided on August 31, 2022.

19/ Average of Columns (13) through (17), which represents a 5-year period including a year in which a recession began (2020) and the following year (2021). This is the standard proposed by the STB's Rate Reform Task Force ("RRTF") in 2019.