

CANADIAN TRANSPORTATION AGENCY

IN THE MATTER OF the Determination of the 2026 Regulated Interswitching Rates and Redetermination of Rates for 2024 and 2025

**RESPONDING SUBMISSIONS OF CANADIAN PACIFIC RAILWAY COMPANY
(CARRYING ON BUSINESS AS CANADIAN PACIFIC KANSAS CITY “CPKC”)**

DATE: June 19, 2026

TO: **CANADIAN TRANSPORTATION AGENCY**

Secretariat
60 Laval Street, Unit 1-117
Gatineau, Québec J8X 3G9

ferroviaire-rail@otc-cta.gc.ca

I. OVERVIEW

1. This submission responds to several points raised in the respective submissions of CN and Factual Analysis of International Rail Rates (“**FAIR**”), each dated March 6, 2026.¹
2. By way of summary:
 - a. Contrary to CN’s submissions, neither U.S. reciprocal switching rates nor rates for switching between Class I and Class II (shortline) railroads are illustrative appropriate comparators for regulated interswitching rates in Canada, and this evidence should be given no weight by the Agency.
 - b. The expert economic report of Dr. Nadia Soboleva, relied upon by CN in support of its submissions, does not assist CN and should be given no weight. Dr. Soboleva’s economic analysis is based on limited CN data relating to rates for switching movements that are not comparable to the regulated interswitching

¹ All capitalized terms in this submission have the same meanings as in CPKC’s initial submission dated March 6, 2026.

movements in issue in this consultation. For this and other reasons, Dr. Soboleva's analysis estimates inflated interswitching rates and is not reliable.

- c. Even if Dr. Soboleva's methodology were reliable, the underlying data required for her analysis are very unlikely to be available to the Agency.
- d. CPKC supports CN's proposal to remove shipping of TIH/PIH goods from the ambit of regulated interswitching rates. CPKC also agrees with CN that there are special handling costs associated with switching auto carrier goods and dimensional loads; however, these costs are already accounted for in the Existing Methodology.
- e. Contrary to FAIR's submissions, the U.S. Surface Transportation Board's commodity revenue stratification report is not an appropriate point of comparison for regulated interswitching rates in Canada.
- f. Regulated interswitching rates determined using the Agency's Existing Methodology are not "fully compensatory" to railroads as FAIR suggests.
- g. There is no basis whatsoever for the unsubstantiated, unsupported and highly speculative allegations in the submissions of FAIR and the Competition Bureau that railroads are engaging in or are prone to engage in anticompetitive conduct, in connection with interswitching or otherwise. These allegations are outside the scope of this consultation and should not be considered by the Agency.

II. RESPONSE TO CN SUBMISSIONS

3. In its submission, CN advocates for the Agency to abandon the Existing Methodology entirely and replace it with what it characterizes as a system of market-based rates to be determined by the application of an economic regression methodology proposed by Dr. Nadia Soboleva. CN's position is that the Agency should give "decisive—effectively 100%—weight" to this "commercial market evidence," which it contends is the only way to meet the statutory requirement under the CTA that regulated interswitching rates be commercially fair and reasonable.

4. At the outset, CN mischaracterizes the FCA decision. Contrary to CN's submissions, the FCA did not order the Agency to "develop a new methodology" to determine regulated interswitching rates. As explained in CPKC's initial submission, the FCA found only that the Agency was not permitted to refuse to consider "commercial market factors" in setting regulated interswitching rates. The weight to be given to any such factors is entirely up to the Agency, and the FCA decision expressly recognized that upon reconsideration, the Agency could properly decide to give "no or little weight" to such "commercial market factors".

5. CN claims regulated interswitching rates have been less than half of "unregulated" interswitching rates over 2022-2025, which it calls a "significant distortion." It refers to two types of "unregulated" rates to be used as "benchmarks", the average² of which it suggests should be used to determine regulated interswitching rates in Canada:

² On p. 9 of its submission, CN states that its proposed methodology "safeguard[s] captive shippers by providing them with average market rates". Of course, the CTA's current methodology also relies upon average costs thus, according to CN's logic, equally safeguards captive shippers.

- a. interswitching activity in Canada involving Class I and Class II railways not subject to the Agency's regulated interswitching rates; and
- b. U.S. reciprocal switching traffic, the rates for which are not set by regulation or regulatory determination.

6. CPKC agrees that commercially fair and reasonable rates should reflect relevant market evidence and that relevant market comparisons can be used to evaluate the reasonableness of a rate. However, the above "benchmarks" proposed by CN are neither relevant nor appropriate.

7. In support of its submissions, CN has filed an expert report by Dr. Nadia Soboleva of Charles River Associates (the "**Soboleva Report**"), which runs regression analysis on the above referenced "unregulated" interswitching transactions in Canada and the U.S. All these data were provided to Dr. Soboleva by CN and are limited to interswitching movements in Canada and the U.S. for which CN was one of the transacting parties.

8. The Soboleva Report identifies distance, block size, and shipment type (with premiums for hazardous, autos, and dimensional loads) as key rate drivers, and uses those variables to determine what CN says Canadian regulated interswitching rates should be. CN claims that this "unregulated" interswitching data provides "robust market benchmarks," which CN proposes be used to determine Canadian regulated interswitching rates.³

9. Dr. Soboleva's evidence should be given no weight by the Agency in this consultation. The Soboleva report reflects several assumptions about the North American railway industry, including the nature of "unregulated" interswitching movements both in Canada and the U.S., that are inconsistent with the reality on the ground, and more importantly rely on data that is manifestly not comparable with the interswitching movements subject to regulated interswitching rates in Canada and which produce highly unreliable results.

10. In response to Dr. Soboleva's evidence, CPKC has included with this submission an expert report by Julie Carey of NERA. Ms. Carey is an economist with over two decades of experience providing opinions on economic issues in commercial and regulatory disputes. The U.S. railway industry is one of her areas of specialization, and she is regularly qualified to give evidence before the U.S. Surface Transportation Board ("**STB**") and in railroad-related arbitrations. Her experience includes preparing economic analyses regarding haulage, trackage, switching, leased line, and other rail service agreements, including in rate related disputes, as well as evaluating competitive negotiations and fair market value outcomes.⁴

11. Ms. Carey's report (the "**NERA Report**") identifies several methodological flaws in Dr. Soboleva's analysis that render Dr. Soboleva's analysis and conclusions unreliable. These are discussed further below.

³ CN Submission, p. 3.

⁴ NERA Report, para. 2 and Appendix A (CV of Julie M. Carey). This experience can be contrasted with that of Dr. Soboleva. While a qualified economist, her report provided a *curriculum vitae* that does not disclose any significant experience with, most notably, the U.S. railway industry which, as described in this submission, is a focus of her regression analysis

A. U.S. reciprocal interswitching is not a valid benchmark

12. As explained in CPKC's initial submission, the U.S. reciprocal switching rates of CN do not constitute a valid "benchmark" for regulated interswitching rates in Canada.

13. In her analysis, Dr. Soboleva defines "unregulated interswitching movements" in a way that means effectively all U.S. reciprocal switching rates (for a transaction CN is a party to) are included in her analysis. Indeed, most of her data — approximately [REDACTED] — is from the U.S.⁵ However, these switching movements — between Class I railways and between Class I and shortline railways — are economically and operationally distinct from the regulated Canadian interswitching services her estimates purport to model. The result is that her methodology produces rate estimates that are not only (statistically) unreliable but regardless provide an inappropriate basis for determining Canadian regulated interswitching rates.⁶

14. Both CN's submissions and Dr. Soboleva's proposed regression analysis fail to account for the substantive differences between the U.S. and Canadian railway markets. These include distinct geographical and railroad business relationship dynamics, different commodity mixes, and the wholly different U.S. regulatory regime.⁷ Some of these differences were addressed in CPKC's initial submission to the Agency, and the NERA Report confirms and expands on these issues. Dr. Soboleva has presented no evidence to support the assumption that the U.S. rates her report relies upon are sufficiently comparable to Canadian regulated interswitching.

Geography

15. The U.S. rail network is considerably larger, denser, and more interconnected than the Canadian network—the size and density of the rail network have a significant impact on the factors that affect supply, demand, price, and volume for rail services. For example, since switched carload volumes are generally much higher in the U.S. than in Canada, U.S. switching rates may be higher, reflecting the increased level of demand for switching.

16. Additionally, CN represents only a small proportion (approx. [REDACTED]) of total U.S. (inter)switching activity and CN's U.S. rail network is modest, focused in certain geographies in a very narrow area.⁸ This means that Dr. Soboleva's data is not even representative of U.S. (inter)switching activity broadly, let alone comparable to Canadian regulatory interswitching. For example, the U.S. reciprocal switch rates Dr. Soboleva relies upon are [REDACTED]

[REDACTED] Moreover, the rates in these geographies are the product of carrier-specific arrangements, historical merger conditions, and other factors unique to the U.S. market.¹⁰ Again, CN has presented no evidence that the rates reflected in the data utilized in the Soboleva report are representative of geographies or locations comparable to those subject to regulated interswitching in Canada.

⁵ NERA Report, para. 15.

⁶ NERA Report, para. 16.

⁷ NERA Report, para. 17.

⁸ NERA Report, para. 19.

⁹ NERA Report, para. 18.

¹⁰ NERA Report, para. 17.

U.S. regulatory regime and market dynamics

17. While CN characterizes U.S. interswitching as “unregulated,” U.S. interswitching is in fact regulated under 49 U.S.C. Section 11102(c) and 49 C.F.R. Part 1144. Although the STB rarely intervenes in the market directly, that does not mean the U.S. switching market is “unregulated”. Shippers and railroads in the U.S. are fully aware that the STB may order a railroad to provide interswitching services, and that the STB may determine both the routing and the applicable rate. Additionally, the STB may impose unique and specific reciprocal interswitching conditions on a railway as a condition of approving a merger.¹¹ In fact, the STB is currently holding public consultations to modify these regulations with the intention of increasing their expected regulatory impact on the market.¹² Considering that the STB’s approach is in flux, U.S. switching rates are clearly not a useful point of comparison to Canadian regulated interswitching rates.

18. Further, as the NERA Report explains, U.S. reciprocal switch tariffs with customers generally have characteristics that are quite different than in Canada. As a result, different switching rates may apply at the same switch location for specific customers, specific commodities, for movements with specific origin or destination points, or for specific switching railroads.¹³

19. As the NERA Report also notes, railways frequently negotiate reciprocal switch access agreements which are generally not publicly available. Numerous factors may affect prices under such agreements including the applicable traffic, locations, and other services included in the agreement, and the degree of competition between railroads in the region.¹⁴ For example, one U.S. railway may give reciprocal switch access at one location in exchange for equivalent access from the other railway in another location.¹⁵ U.S. railways also sometimes negotiate agreements to address reciprocal switch access issues arising from a merger, which are typically confidential, rather than having the STB impose conditions on them.¹⁶

20. In short, U.S. reciprocal switch rates reflect a unique regulatory regime and market dynamics. The Soboleva Report’s proposed methodology does not account for these factors, and CN has not presented any evidence to demonstrate how these U.S. reciprocal switch movements are comparable to regulated interswitching movements in Canada.

Factors relating to commodity/product mixes

21. The Soboleva Report incorrectly assumes that “unregulated” U.S. switching rates do not vary meaningfully across shipment types. To the contrary, different commodities attract different switching rates in the U.S.—they face different supply and demand characteristics as well as other functional aspects of the switch move that result in different rates.¹⁷ Approximately three-quarters of traffic subject to regulated interswitching in Canada involves three product types: [REDACTED]
[REDACTED] By contrast, the “unregulated” U.S. switching rates in Dr. Soboleva’s data involve a substantially different commodity mix, with movements of [REDACTED]

¹¹ NERA Report, para 26.

¹² <https://www.stb.gov/news-communications/latest-news/pr-26-01/>; NERA Report, para 27.

¹³ NERA Report, para 23.

¹⁴ NERA Report, para 25.

¹⁵ NERA Report, para 24.

¹⁶ NERA Report, para 26.

¹⁷ NERA Report, para 31.

comprising almost [REDACTED] of the data.¹⁸ Dr. Soboleva's regression does not control for these differences except in the narrow cases of automobile and hazardous shipments.¹⁹ Again, the result is that her analysis results in higher estimated rates than if variation in commodity-specific rates were accounted for.

B. Class I - Shortline railway switching and haulage is not a valid benchmark

22. As explained in CPKC's initial submission, shortline railroad rates do not constitute a valid benchmark for interswitching by Class I railroads. In summary:

- a. Class II shortline railroads face significantly different market factors than Class I railroads, as they are considerably smaller with limited scope of operations relative to Class I railroads.
- b. Class II railroads often lease their track from the incumbent Class I railroad.
- c. Class II rate information is often not available to the Agency.

23. Shortline railroads have different cost structures and reduced access to capital relative to Class I railroads. Their commercial markets are significantly more concentrated, and they have different risk profiles. They also face fundamentally different regulatory burdens than Class I railroads and have tailored their operations and commercial strategies to their unique environments.

24. Moreover, interchanged traffic between Class I and shortline railways in Canada and the U.S. are often part of a larger agreement dependent upon a number of factors unrelated to interchanging (interswitching), such as the sale or lease of a rail line or an agreement to interchange at locations other than the official interchange location (for efficiency reasons).²⁰ Indeed, in North America, many shortline railways were originally part of Class I railroads before being sold or leased to the shortline company. Often those sale or lease agreements would include provisions for future interswitching services with the short line. As such, the "unregulated" rates charged for interswitching between Class I and Class II railways often reflect factors associated with that asset transaction rather being solely based on market factors, as Dr. Soboleva's analysis assumes.

25. Despite these differences, the Soboleva Report relies on data of Class I switches with shortline railroads in Canada and the U.S.; indeed, these comprise [REDACTED] of the data Dr. Soboleva uses for purposes of her estimates.²¹ The NERA Report notes that inclusion of shortline switching rates introduces further distortion in Dr. Soboleva's proposed regression methodology.²²

26. CPKC's experience is that short line movements are often governed by overarching haulage service agreements. Consistent with this, the NERA Report notes haulage service is not the same as regulated interswitching from an operational perspective.²³ The prices negotiated in

¹⁸ NERA Report, para 29.

¹⁹ NERA Report, para 32.

²⁰ NERA Report, paras. 39-40.

²¹ NERA Report, para 33.

²² NERA Report, paras 34, 44.

²³ NERA Report, para 36.

haulage service agreements reflect not only these operational differences, but often historical sale or lease terms as well. This is yet another reason why shortline railway (inter) switching rates are not an appropriate benchmark for regulated interswitching rates.²⁴

27. Further, the commodity mix handled by shortlines also differs significantly from the traffic subject to regulated interswitching in Canada. One reason for this is that the function of a shortline railroad is often specific to the needs of particular local shippers.²⁵ As the NERA Report notes, the majority of the shortline movements in Dr. Soboleva's data involve [REDACTED]

[REDACTED] By contrast, as noted above, most regulated interswitching movements in Canada involve [REDACTED]

²⁶

28. All of these factors have important implications for the supply and demand relationship between Class I and Class II (shortline) railroads, which differs from the relationship between two Class I railroads, and renders these rates irrelevant to the regulated rates at issue in this consultation.

C. Conclusion on CN's proposed rates

29. In short, the Soboleva Report's methodology relies on data that are not representative of interswitching movements or rates regulated under the CTA and cannot be used, reliably, in any econometric (regression) analysis or otherwise to determine Canadian regulated interswitching rates as proposed by CN. Regardless, as the NERA Report explains, the Soboleva Report's proposed regression methodology, even setting aside its fundamental flaws, lacks statistical reliability.²⁷

30. Specifically, Ms. Carey acknowledges that it is not possible, using Dr. Soboleva's data set, to address all the issues described above in a regression analysis.²⁸ However, by way of illustration, the NERA Report attempts to account for some of these factors in two revised regression sensitivity tests using the same data. Not only did these adjustments by NERA make the analysis more statistically reliable, they also resulted in considerably lower estimated interswitching rates, further demonstrating the lack of reliability of Dr. Soboleva's proposed rates.²⁹

D. Other issues raised in CN's submissions

31. Even if Dr. Soboleva's methodology were appropriate, it proposes to rely on the availability of data from all federally-regulated railways in the U.S., which data is very unlikely to be available. Notably, the Agency does not have jurisdiction to compel production of this type of confidential commercial data from railways operating in the U.S., and there is no reason to believe that U.S. railways would produce this information voluntarily.

²⁴ NERA Report, para 39.

²⁵ NERA Report, para 37.

²⁶ NERA Report, para 38.

²⁷ NERA Report, paras 48-53.

²⁸ NERA Report, para 64.

²⁹ NERA Report, paras 54-72.

32. CPKC primarily has access to interswitching rate data in situations where CPKC is directly involved in the switch. The same limitation applies to CN. Moreover, both CPKC and CN agree that reciprocal switching arrangements in the U.S. are often negotiated and reflect myriad commercial factors unique to the parties (the NERA Report notes this as well). None of CPKC, CN, or the Agency will have U.S. data reflecting all of these arrangements for other Class I railways operating in the U.S., as many of these are confidential. Therefore, the Agency will not have sufficient U.S. data or context to use “unregulated” U.S. rates as any kind of “benchmark” let alone to directly calculate Canadian regulated interswitching rates as proposed by CN.

33. CN suggests that “TIH/PIH should be excluded entirely from the statutory interswitching regime”.³⁰ CPKC also raised concerns about TIH/PIH traffic in its initial submission, due to the significant risks associated with this traffic. CPKC agrees with CN that excluding TIH/PIH from regulated interswitching is likely in the public interest and supports the amendment CN proposes to the Regulations.

34. CN also recommends a premium for switching automobile carrier cars and dimensional traffic due to special handling requirements. In CPKC’s experience, these cars do require special handling, but those costs are captured in the Agency’s Existing Methodology and are reflected in current rates. Accordingly, there is no need for any changes to the Agency’s Existing Methodology to address this issue.

III. RESPONSE TO FAIR SUBMISSIONS

35. CPKC disagrees with three specific arguments made in the submissions of FAIR. First, the U.S. STB’s commodity revenue stratification report (“**CRSR**”) is not an appropriate point of comparison for regulated interswitching rates in Canada. Second, the current regulated interswitching rates in Canada are not “fully compensatory” for CPKC. Third, speaking for itself, CPKC states that there is absolutely no merit to FAIR’s suggestion of anticompetitive conduct by railways.

A. Comparison to STB revenue report is inappropriate

36. The Agency should give no weight to the STB CRSR, as advocated by FAIR, for a number of reasons.

37. First, the CRSR represents all rail traffic moved in the U.S., which is primarily line-haul traffic. Line-haul traffic is a different market than interswitching, and rates for the two cannot be compared on a like-for-like basis. The average length of haul for U.S. line-haul traffic is significantly longer than for Canadian regulated interswitching movements, and does not necessarily include an interchange. These longer haul lengths, among other things, also impose a different cost structure for line-haul traffic relative to regulated interswitching.

38. Second, the CRSR revenue to variable cost ratio is calculated based on the STB Uniform Rail Costing System (“**URCS**”). The contribution to fixed costs for regulated interswitching is calculated by the Agency using the Agency’s regulatory costing model (“**ARCM**”). The two systems are fundamentally different, including because they apply different treatments to classify costs as fixed versus variable.

³⁰ CN Submission, p. 6.

39. Finally, there are structural differences in railways' costs between Canada and the United States. While U.S. railways incur the preponderance of costs in their local currency, Canadian railways incur significant costs in both Canadian and U.S. dollars. Railways in Canada are also subject to different tax rules, pension costs, and labour standards.

40. FAIR asserts that, because the Agency's calculated contribution to fixed costs for 2025 and 2026 appears to be numerically similar to the revenue to variable cost ratio for all traffic in the STB's CRSR in 2023, the Agency's regulated interswitching rates are commercially fair and reasonable. That is not an appropriate inference. The fact that the Agency's contribution to fixed cost estimates for interswitching in 2025 and 2026 appear similar to the STB revenue to variable cost ratio for line-haul traffic in 2023 is most likely a coincidence.

41. FAIR also asserts, based on the CRSR, that the average revenue to variable cost ratio for traffic that satisfies the "market dominance" threshold of 180% is "far higher" than for traffic below the threshold. While this statement is factually correct, it is a tautology. FAIR's observation that the average of a set of ratios above 180% is higher than the average of a set of ratios below 180% is circular, resulting from post-hoc selection bias.

42. Moreover, the 180% "market dominance" threshold is arbitrary. For example, it does not account for whether a given carload has competitive access to multiple means or modes of transportation nor does it account for the goods being shipped. On the other hand, as noted, movements of TIH/PIH products often attract higher rates due to the associated risks and handling complexity. In normal rail service markets, a broad range of revenue to variable cost ratios is expected, reflecting numerous factors that have little to do with competitive access. The fact that there is a significant difference in the average of the set of ratios above 180%, compared to those below 180%, is not surprising.

43. FAIR also asserts that "if the CRSR data were corrected to show the percentage contribution required to cover U.S. Class I railroad constant costs, as opposed to the contribution the U.S. Class I railroads actually achieve, the numbers ... very likely would be lower".³¹ This is presumably intended to imply that the railways are earning excessive revenues. In fact, the STB determined that CPKC's SOO Line Railroad operations in the U.S. earned less than the railway industry cost of capital in 2023 and 2024. This has also been true for several other U.S. railroads over the last several years.³²

B. Regulated interswitching rates are not "fully compensatory"

44. FAIR argues that Agency should not heed any suggestion by the railways that current regulated interswitching rates are "below market", because the Agency has previously stated that those rates "cover railway total cost".³³ FAIR is conflating the concept of a cost-based rate with a market rate.

45. CPKC disagrees that current regulated interswitching rates are "fully compensatory". In any event, whether a given rate covers a railway's costs, or not, has no bearing on whether it is above or below market.

³¹ FAIR Submission, para.22.

³² <https://www.stb.gov/wp-content/uploads/Revenue-Adequacy-Chart-2024.pdf>

³³ FAIR Submission, para 32.

C. No basis for any anticompetitive conduct allegations

46. In its submission, FAIR makes vague allegations of anticompetitive conduct by railways, without naming any specific company.³⁴ The Competition Bureau similarly suggests in its submission that there is a need to protect industry participants from abuse of market power by the railways.³⁵ While these allegations are outside the scope of this consultation, CPKC flatly rejects any suggestion that it has engaged in anticompetitive conduct or that there is any need to be concerned about abuse of market power in the railway industry. Neither FAIR nor the Competition Bureau has cited any evidence in support of these bald and speculative allegations. CPKC respectfully requests that they not be considered by the Agency in its analysis.

IV. ISSUES RAISED IN 2026 INTERSWITCHING RATES DECISION

47. Since CPKC filed its initial submissions in this consultation, the Agency released Determination R-2026-41, which set out the Agency's findings on matters relating to the 2024 review of the Regulations pursuant to subsection 128(5) of the Act (the "**Determination**"). In the Determination, the Agency found, among other things, that movement of empty railcars not preceded by a prior load falls within the meaning of "traffic" under the Act and are thus subject to regulated interswitching.

48. CPKC and CN have both been granted leave to appeal the Determination to the Federal Court of Appeal, including on the question of whether movement of empty cars is "traffic" to which the provisions of the Act and Regulations concerning regulated interswitching apply. Without prejudice to its position on the appeal, CPKC encourages the Agency to reconsider this issue in the context of this consultation. As the Agency acknowledged in the Determination, the definition of "traffic" in the CTA has given rise to uncertainty, with different stakeholders having differing interpretation of what constitutes "traffic" such that it is eligible for regulated interswitching.

49. Respectfully, the Agency erred in its interpretation of the term "traffic". Rather than applying the modern approach to statutory interpretation—which requires that statutory language be read in its entire context, harmoniously with the scheme and object of the Act—the Agency relied upon a textualist reading to conclude that "traffic" includes all rolling stock regardless of any nexus to the transportation of goods.

50. The Agency did not consider the terms "traffic" and "goods" by considering how they are used elsewhere in the Act and the Regulations – including in the French language version of the relevant provisions. In this context, the definition of "traffic" in Part III of the Act includes "equipment required for the movement of goods," suggesting that empty railcars not preceded by a loaded movement of goods fall outside its scope. The Agency also failed to consult the French version of the Act—which suggests a more specific, functional link between the transport of goods and required equipment—as it was required to do when resolving any ambiguity in the law.

51. Additionally, this interpretation of "traffic" represents an unexplained departure from prior Agency decisions. The Agency has previously interpreted the word "traffic" as relating to a

³⁴ See e.g. FAIR submission at paras 3, 14, 16, 26, 28, 30.

³⁵ See e.g. Competition Bureau submission comments regarding "the rail sector's potential for uncompetitive pricing and other terms of supply"; "protecting shippers from uncompetitive pricing"; "railway's market power"; "given the rail sector's tendency toward uncompetitive pricing"; "if benchmarks are based on ... regulated rates could simply reflect monopoly or duopoly pricing, rather than competitive outcomes;" "guard against potential abuse of market power".

commodity-driven cycle where the movement of empty cars is ancillary to the delivery of goods. That interpretation accords with industry reality and promotes predictability for both railways and shippers as to how rail movements will be charged.

52. By contrast, when a railway moves an empty car that is not preceded or followed by a loaded car, it is unclear how the regulated interswitching framework would apply because it is unknown when the empty car is picked up what will happen to it next (e.g. whether the empty car is simply being repositioned between the shipper's facilities, being placed into storage, or being repaired). The only information the railway has is the origin and destination points for the empty car, and the fact that it is empty. It has no visibility into whether that movement is part of a larger movement for the shipper being performed by the linehaul railway (and the terms on which that larger movement is being performed) or whether that linehaul movement of the empty car was free – that is, part of the cyclical interswitching movement contemplated in the Regulations - or was charged to the shipper.

53. In CPKC's experience, this uncertainty has already caused significant confusion among both railways and shippers as to how to treat empty car movements. It would therefore be helpful for all industry participants for the Agency to reconsider this aspect of the Determination before CPKC and CN's appeals are heard, and to confirm that standalone empty car movements are not subject to regulated interswitching.

All of which is respectfully submitted,



BLAKE, CASSELS & GRAYDON LLP
Lawyers for CPKC

per: Nicole Henderson

Canadian Transportation Agency
Consultation on Commercial Market Factors to Be Considered in
Determining Fair and Reasonable Interswitching Rates

Response Report of Julie M. Carey
NERA Economic Consulting
On Behalf of

Canadian Pacific Railway Company d/b/a CPKC

19 JUNE 2026

Table of Contents

I.	Introduction	1
A.	Overview of the Assignment and Expert Qualifications.....	1
B.	Summary of Opinion.....	2
II.	The Soboleva Analysis is Unreliable.....	3
A.	Summary of Dr. Soboleva’s findings.....	3
B.	Important Economic Factors are not Factored into Dr. Soboleva’s Methodology.....	5
III.	The Soboleva Analysis Lacks Sufficient Statistical Reliability and Sensitivities on Certain Assumptions Demonstrate How Significant The Issue Is	18
A.	The Soboleva Analysis Lacks Sufficient Statistical Reliability	18
B.	A Sensitivity with US and Canada Class 1 Railroads that Accounts for Commodity and Geography with Interchange Location has Higher Statistical Reliability and Lower Rate Estimates	21
C.	A Sensitivity with More Appropriate Weighting of Data Categories to Represent CTA Regulated Interswitching Also Improves Reliability with Lower Rate Estimates.....	24
IV.	Conclusion.....	27

I. Introduction

A. Overview of the Assignment and Expert Qualifications

1. I am Julie M. Carey. I am a Senior Managing Director at National Economic Research Associates ("NERA"), located in Washington, DC, United States (U.S.). NERA is a firm of consulting economists and finance professionals with offices in numerous cities in North America and around the world.

2. I am an economist with over 25 years of experience analyzing the railroad sector. I regularly provide expert evidence in railroad related regulatory proceedings, notably before the U.S. Surface Transportation Board ("STB"), as well as in railroad related commercial arbitrations. In doing so, I routinely conduct (macro and micro) economic analyses of freight rail networks. I have substantial experience regarding the economic principles of railroad switching and have frequently conducted economic analyses regarding haulage, trackage, switching, leased line and other rail service agreements, including in rate related disputes. Within the rail sector and other sectors, I routinely evaluate competitive negotiations and fair market value outcomes. Recently, I have authored several Verified Statements for STB proceedings regarding rail mergers evaluating vertical and horizontal competitive effects of proposed railroad transactions. Additional details on my qualifications and experience, including my expert testimony experience, are included in my CV.¹

3. NERA's compensation for my work and the work of my team acting under my direction in this matter is not contingent on the outcome of this consultation before the Canadian Transportation Agency ("CTA").

4. The assignment received from counsel for Canadian Pacific Railway Company, doing business as Canadian Pacific Kansas City (hereinafter referred to as "CPKC") was to review the Expert Report of Dr. Nadia Soboleva in this Canadian Transport Agency (CTA") consultation and provide an independent expert opinion on her report. I understand that it is my duty as an independent expert to provide opinion evidence that is fair, objective, and non-partisan, and that is related only to matters within my areas of expertise.

¹ See Appendix A. In preparing this report, I was principally assisted by Edward Lannan, an energy and transportation economist with over 10 years of professional experience in the railroad industry in the context of regulatory and commercial disputes. Mr. Lannan frequently performs economic analysis of railroad rates and costs for a variety of railroad services in regulatory proceedings in the rail industry in both the United States and Canada. He also frequently conducts cost analyses for rail services, including switching, interchange and line haul traffic moves, and conducts economic and statistical analyses of rail transportation rates, including for line haul and reciprocal switching services.

B. Summary of Opinion

5. Dr. Soboleva attempts to use “unregulated” rates for what she claims are “comparable” movements to estimate “benchmark” rates which CN proposes be used to determine CTA regulated interswitching rates. However, the “unregulated” rates relied upon by Dr. Soboleva to create the proposed estimated rates involve significant data deficiencies (e.g. CN’s reciprocal switching rates in the U.S. that represent a very small subset of the overall U.S. switching events) and regardless rely on rates for traffic that is not comparable to the movements covered by the CTA regulated interswitching rates. On the latter, by way of example, U.S. Class 1 to Class 1 switch rates have geographies, economic characteristics (e.g. railroad market dynamics and a regulatory regime specific to the U.S.), and commodity/product mixes that are fundamentally different from the CTA regulated interswitching rates. Indeed, U.S. reciprocal switch rates reflect distinct dynamics and historical arrangements unique to the U.S. railroad entities involved, which cannot be accounted for in Dr. Soboleva’s proposed methodology.² Further, Dr. Soboleva’s estimates rely on Class 1 to short line interswitching rates in both Canada and the U.S., however, short line rates are not comparable to the CTA interswitching rates given the unique characteristics of shortline interswitching in both Canada and the U.S. For these reasons alone, Dr. Soboleva’s proposed methodology and the rate estimates generated by that methodology are unreliable, indeed unusable.

6. I conducted two sensitivity analyses regarding Dr. Soboleva’s regression analysis for the sole purpose of determining, if possible, the materiality of certain of the flaws I have identified in Dr. Soboleva’s proposed methodology, which flaws were not (adequately) addressed by Dr. Soboleva. While the analysis is incomplete due to the data and other deficiencies described in this report, these sensitivity analyses illustrate the structural and statistical unreliability of Dr. Soboleva’s proposed methodology, and the (substantial) magnitude of the impact even these insufficient corrections have on Dr. Soboleva’s estimated “unregulated” (inter) switching rates.

7. For these reasons, in my opinion, Dr. Soboleva’s proposed methodology is not an appropriate economic (econometric) method for determining the CTA regulated interswitching rates. And it results in estimates that are unreliable and, indeed, unusable.

² Further, no railroad counterparty information other than CPKC is provided for the CN switch rates, which cannot be accounted for in Dr. Soboleva’s proposed methodology, which precludes determination of any identifiable railroad specific impact on the rates.

II. The Soboleva Analysis is Unreliable

A. Summary of Dr. Soboleva's findings

8. Dr. Soboleva was tasked with “undertak[ing] an independent analysis into: (i) the methodology that should be adopted to take account of market factors in setting regulated interswitching rates that are ‘commercially fair and reasonable’; and (ii) what those market factors ought to be.”³

9. Stating that her goal is to “address” a methodology which the CTA can “adopt” which considered “commercial market factors in setting regulated interswitching rates,”⁴ Dr. Soboleva uses rates charged for what she called “comparable movements”⁵ as a “benchmark”⁶ for CTA regulated interswitching rates. Specifically, Dr. Soboleva states that “unregulated” (inter)switching movement rates in the U.S. and Canada reflect both supply and demand factors of a given product, and that cost factors are inherently accounted for in the supply side equilibrium of those rates.⁷ As such, Dr. Soboleva states that these “unregulated” rates can be assumed to be commercially negotiated market prices that reflect commercial realities.⁸ Dr. Soboleva also assumes that these “unregulated” interswitching rates represent a comparative benchmark because they include traffic movements that she argues are “observably similar” to the traffic and movements covered by regulated CTA interswitching, conditional on certain factors (described below).⁹ Because she concludes that these “unregulated” rates “incorporate all relevant market factors”, Dr. Soboleva opines that her estimated regulated CTA interswitching rates are commercially fair and reasonable.¹⁰

10. Dr. Soboleva employed a linear regression analysis methodology to determine her estimated CTA interswitching rates. For this analysis, she concluded that the market factors that should be considered are: 1) distance between the customer and interchange location;¹¹ 2) if an interswitch involves more or less than 60 cars,¹² 3) if the movement contains a dimensional load,¹³ 4) if the

³ Soboleva Expert Report, p.1.

⁴ Soboleva Expert Report, p. 6.

⁵ Soboleva’s “proposed methodology is based on market prices for comparable movements where prices are not regulated. In [her] opinion, the best way to incorporate market factors into the determination of regulated interswitching rates is to use these market prices as a benchmark.” Soboleva Expert Report, p. 37.

⁶ Soboleva Expert Report, p. 37.

⁷ Soboleva Expert Report, p.16.

⁸ Soboleva Expert Report, p.15.

⁹ Soboleva Expert Report, p.17.

¹⁰ Soboleva Expert Report, p. 37.

¹¹ Soboleva Expert Report, pp. 24-27.

¹² Movements involving exactly 60 cars are categorized with moves involving more than 60 cars.

¹³ A dimensional load is a movement which is “oversized or heavier than average” (see Soboleva Expert Report, p. 2.)

interswitch movement occurred in the U.S. or Canada 5) if the movement involved automobiles or hazardous materials,¹⁴ and 6) the combined effect of factors 2) and 3).¹⁵

11. Applying this proposed methodology, Dr. Soboleva estimates the range of interswitching rates (depending on the categories above) summarized below in Figure 1 – these rates are substantially higher than CTA regulated interswitching rates for blocks of 60 or more cars. While the differences are more modest for single blocks of (1-59) cars, the rates proposed would increase rates for certain traffic types.

Figure 1: Comparison of Current CTA Regulated Interswitching Rates (Existing Methodology) vs Dr. Soboleva Proposed Estimates

Switch Zone	Single (1-59 Cars)						Block (60 or More Cars)					
	CTA Regulated Interswitching Rates		Dr. Soboleva Proposed Estimates			% SE 2026 > Actual 2025	CTA Regulated Interswitching Rates		Dr. Soboleva Proposed Estimates			% SE 2026 > Actual 2025
	2024	2025	2024	2025	2026	%	2024	2025	2024	2025	2026	%
1	\$425	\$460					\$75	\$100				
2	\$545	\$505					\$115	\$160				
3	\$640	\$615					\$110	\$120				

12. Dr. Soboleva also presents a version of her estimated CTA regulated interswitching rate estimates which does not consider automotive, hazardous, or dimensional shipments. This altered version of the regression analysis results in estimated rates which range from [REDACTED] depending on the parameters.¹⁶

13. Figure 2 below reports the CTA regulated interswitching carloads as compared to Dr. Soboleva's regression data used for the proposed estimated rates in all versions of her regressions, by switch zone and for single blocks (1-59 cars) and large blocks (60 cars or more). Figure 2 shows

¹⁴ These factors were each considered separately.

¹⁵ Soboleva Expert Report, p. 25.

¹⁶ In Soboleva's Estimated 2024 Interswitching Rates Regression, in regulated interswitching zone 1 for Block 60 of more cars, the base estimated rate is [REDACTED]. In Soboleva's 2024 Interswitching Rates Without Premiums Regression, the same estimate rate is [REDACTED]. Similar calculation comparisons may be made between these two regression results. Soboleva Expert Report, pp. 4-5.

interswitch movement occurred in the U.S. or Canada 5) if the movement involved automobiles or hazardous materials,¹⁴ and 6) the combined effect of factors 2) and 3).¹⁵

11. Applying this proposed methodology, Dr. Soboleva estimates the range of interswitching rates (depending on the categories above) summarized below in Figure 1 – these rates are substantially higher than CTA regulated interswitching rates for blocks of 60 or more cars. While the differences are more modest for single blocks of (1-59) cars, the rates proposed would increase rates for certain traffic types.

Figure 1: Comparison of Current CTA Regulated Interswitching Rates (Existing Methodology) vs Dr. Soboleva Proposed Estimates

Switch Zone	Single (1-59 Cars)						Block (60 or More Cars)					
	CTA Regulated Interswitching Rates		Dr. Soboleva Proposed Estimates			% SE 2026 > Actual 2025	CTA Regulated Interswitching Rates		Dr. Soboleva Proposed Estimates			% SE 2026 > Actual 2025
	2024	2025	2024	2025	2026	%	2024	2025	2024	2025	2026	%
1	\$425	\$460					\$75	\$100				
2	\$545	\$505					\$115	\$160				
3	\$640	\$615					\$110	\$120				

12. Dr. Soboleva also presents a version of her estimated CTA regulated interswitching rate estimates which does not consider automotive, hazardous, or dimensional shipments. This altered version of the regression analysis results in estimated rates which range from [REDACTED] depending on the parameters.¹⁶

13. Figure 2 below reports the CTA regulated interswitching carloads as compared to Dr. Soboleva's regression data used for the proposed estimated rates in all versions of her regressions, by switch zone and for single blocks (1-59 cars) and large blocks (60 cars or more). Figure 2 shows

¹⁴ These factors were each considered separately.

¹⁵ Soboleva Expert Report, p. 25.

¹⁶ In Soboleva's Estimated 2024 Interswitching Rates Regression, in regulated interswitching zone 1 for Block 60 of more cars, the base estimated rate is [REDACTED]. In Soboleva's 2024 Interswitching Rates Without Premiums Regression, the same estimate rate is [REDACTED]. Similar calculation comparisons may be made between these two regression results. Soboleva Expert Report, pp. 4-5.

the very different traffic volumes in switch zones for CTA regulated interswitching as compared to the data used in Dr. Soboleva's proposed methodology. There are carloads in additional zones (zones that are not 1, 2, 3, 4) in the "unregulated" data.

Figure 2: Comparison of Existing CTA Interswitching Volumes vs Dr. Soboleva Regression Data used for Proposed Estimates (thousands of carloads)

Switch Zone	Single (1-59 Cars)							Block (60 or More Cars)						
	CTA Regulated Interswitching Cars (1,000s)			Cars Used in Dr. Soboleva Proposed Estimates (1,000s)			SE Cars < Actual (2024)	CTA Regulated Interswitching Cars (1,000s)			Cars Used in Dr. Soboleva Proposed Estimates (1,000s)			SE Cars < Actual (2024)
	2022	2023	2024	2022	2023	2024	%	2022	2023	2024	2022	2023	2024	%
1	58.8	65.2	65.9					4.4	5.3	4.1				
2	6.7	6.3	7.7					0.4	0.8	0.4				
3	24.4	24.6	21.4					131.3	136.1	150.3				
4A	44.0	44.5	41.1					1.1	1.8	0.6				
4B*	0.5	0.9	1.1					0.0	0.0	0.0				
Other	3.1	3.7	4.5					1.1	0.4	1.2				
Premiums														
Auto:														
Haz														
Dim Loads:														

Notes & Sources

1. CTA estimates from Canada Gazette, Volumes 157 and 158 at Number 50: COMMISSIONS. Available at <https://gazette.gc.ca/>.
2. Zone 4A volumes are "4" in the data, Zone 4B volumes are "4A" in the data. Designations inferred from Soboleva workpapers.
3. 2022 volumes used to predict 2024 rates, 2023 volumes used to predict 2025 rates, 2024 volumes used to predict 2026 rates
4. CNSwitching Data 2022-2025.
5. Premiums defined as Auto (Car type "V"), Haz (STCC 48, 49); Dim Loads defined as dimensional loads.

B. Important Economic Factors are not Factored into Dr. Soboleva's Methodology

14. Dr. Soboleva states, "in [her] opinion, that the best way to incorporate market factors into the determination of regulated interswitching rates" is to use "unregulated" rates for "comparable" movements.¹⁷ However, fundamentally, the rates relied upon by Dr. Soboleva to create the proposed estimated rates (which I refer to as Soboleva Estimates or SE) are not comparable to the movements covered by the CTA regulated interswitching rates. Because the data used to create the SE is not representative of the economic event it attempts to model, Dr. Soboleva's proposed methodology results in unreliable, indeed unusable, estimates.

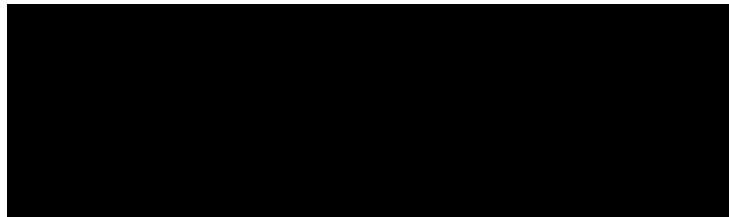
i. Data Deficiency

15. The CTA regulated interswitching rate is ultimately a price to be paid for a switching service which occurs between two Class-1 carriers within Canada. However, interswitches in Canada between two Class-1 carriers make up the least prevalent type of economic activity (and data) used by Dr. Soboleva to create the estimates in her report. As displayed in Figure 3 below, for all years,

¹⁷ Soboleva Expert Report, p. 1.

switches in Canada between Class-1 carriers make up [REDACTED] of Dr. Soboleva's full unregulated data.¹⁸ Dr. Soboleva acknowledges the small amount of Canadian Class 1 "unregulated" interswitching moves.¹⁹ Figure 3 shows that the vast majority of data used by Dr. Soboleva is U.S. data [REDACTED] and the majority [REDACTED] of the data involves (inter) switches between Class 1 and short line railroads in the U.S. and Canada, which I discuss further below.²⁰

Figure 3: Interswitching Traffic Volumes by Move Type and Country in Dr. Soboleva Data, 2022-2025²¹



ii. U.S. Switching Service Has Distinct Economic Characteristics from Canadian Interswitching

16. Dr. Soboleva's analysis assumes that virtually any (inter)switching (rates) in the U.S. is comparable to a regulated interswitching (rates) in Canada.²² While aware that her estimated Canadian interswitching rate relies heavily on U.S. data, stating "[i]ncluding U.S. data permits a more robust statistical model²³" Dr. Soboleva claims these U.S. switching rates are "observably similar, but unregulated, movements."²⁴ However, Dr. Soboleva lacks sufficient economic support for utilizing these U.S. rates as appropriate benchmarks for Class 1 regulated interswitching rates in

¹⁸ Figure 3 [REDACTED] cars represent the full dataset of unregulated rates, in Dr. Soboleva's 2022-2025 CN data build (hereafter "Dr. Soboleva's full unregulated data"). In her regression, Dr. Soboleva limits the data to FY 2022 to FY 2025, which reduces the car observations; see FN 20, Soboleva Expert Report.

¹⁹ "Relying only on the even smaller Canadian data for Class I railroad unregulated interswitching movements for which there are fewer than [REDACTED] per year is not feasible as there are too few such transactions." Soboleva Expert Report, pp. 21-22 and 36.

²⁰ Figure 3 [REDACTED] Figure 3 [REDACTED]

²¹ Summary shows the entire unregulated rates in the CN Switch Data from the 2022-2025 provided (aligning with Soboleva Expert Report p. 22, Figure 5). For her regression analysis, Dr. Soboleva utilizes switches occurring within specified fiscal years (including data only within the October 1st, 2022 through September 30, 2025 date range). I checked the Soboleva data used in her regressions and confirmed that the proportions of interswitching traffic moves in each category approximate the proportions presented in the entire set of unregulated rates in Figure 3.

²² As stated, the regression model controls for auto shipments, hazardous shipments, blocks of 60 cars or more, whether the switch is in U.S. or Canada, and dimensional loads. Therefore, it is most accurate to say, provided those factors are equivalent, the interswitch rates are equivalent. Soboleva Expert Report, p. 19.

²³ Soboleva Expert Report, p. 23.

²⁴ Soboleva Expert Report, p. 17.

Canada. The analysis presented below shows that they are not comparable movements.

17. Dr. Soboleva relies on this U.S. data notwithstanding the fact that it relates to switching movements subject to a very different (U.S.) market than in Canada. These differences are reflected in the geography of the U.S. movements relied upon in the Soboleva Report as compared to Canadian regulated interswitching movements, as well as the U.S.’ switching rates’ distinct economic characteristics and commodity/product mixes as compared to the regulated CTA interswitching Dr. Soboleva is attempting to model. For example, U.S. Class 1 to Class 1 switch rates have geographies, economic characteristics (e.g. railroad market dynamics and a regulatory regime specific to the U.S.), and commodity/product mixes that are fundamentally different from the CTA interswitching rates. Indeed, U.S. reciprocal switch rates reflect distinct dynamics and historical arrangements unique to the U.S. railroad entities involved, which cannot be accounted for in Dr. Soboleva’s proposed methodology. Moreover, and importantly from a geographical and commodity type and other economic characteristics perspective, Dr. Soboleva also relies on just a small portion of the U.S. reciprocal switch rates.²⁵ In short, the U.S. rates relied upon by Dr. Soboleva have many distinctive characteristics that cannot be adequately addressed by her proposed methodology, and are based on incomplete data.

18. Setting aside the comprehensiveness of the U.S. data, the **first** concern that I have relates to the US geography of the U.S. Class 1 switch rates used as “comparable movements” in the Soboleva Report. Figure 4 below shows the geographical locations of the U.S. “unregulated” switch movements (rates) in Dr. Soboleva’s full unregulated data as compared to Canada, illustrating the limited geographic scope of the U.S. data utilized by Dr. Soboleva to arrive at her estimates.²⁶ As can be seen, the U.S. data is [REDACTED]

[REDACTED]

²⁵ As explained below, the data used by Dr. Soboleva relates only to interswitches in which CN is involved and, as regards the U.S. data, CN’s U.S. business represents approximately [REDACTED] of total U.S. railroad operating revenue. Annual STB Report R-1, Schedule 210, total railroad operating revenues.

²⁶ As mentioned in FN 23 above, for her regression Dr. Soboleva limits her unregulated data to FY2022-FY2025 rather than use the full 2022-2025 data in her build. Distribution of data characteristics (including switch locations) in her sample vs. the full dataset appear to be nearly identical.

Figure 4: Switch Locations and Frequency for all Unregulated Class I Switch Rates in Dr. Soboleva's Data



19. Different geographical areas have different railroads and distinct railroad businesses. For the Class 1 to Class 1 “unregulated” U.S. switch rates in Dr. Soboleva’s data, switches between CN and other US Class 1s are included as well as switches between CN and CPKC. However, these CN only switches will comprise a small portion of the total U.S. rail market. There are 6 Class 1 railroads in the U.S. CN’s U.S. business is a modest sized Class 1 as compared to most of the other US Class I railroads, representing approximately [REDACTED] of the total revenue of U.S. Class 1 railroads.²⁷ While I do not have confidential data to quantify actual switches, based on my experience, the number of locations identified in CN’s switch book available for switching service is a very small percentage of the overall switching locations in the U.S.²⁸ Moreover, despite the inclusion of CN switch rates that it has along its network with other railroads in the U.S., no Class 1 railroad counterparty was identified (except for CN and CPKC rates with each other). Without this information there is no way to discern a railroad specific impact on the rates.²⁹

20. In short, the geographic scope of the U.S. “unregulated” switch rates in Dr. Soboleva’s data is a fraction of the overall US railroad network, lacking data from [REDACTED]
[REDACTED] Dr. Soboleva presents no analysis to support the assumption that the limited U.S. “unregulated” switch rates in Dr. Soboleva’s data are representative of the entire

²⁷ BNSF, UP, CSXT, NS, CN and CPKC 2023 Annual STB Report R-1, Schedule 210, total U.S. railroad operating revenues.

²⁸ An outdated Union Pacific switch book shows hundreds of customers with switching arrangements. See UP reciprocal Switch Circular Effective June 1, 2001, Available at <https://www.yumpu.com/en/document/read/36696748/up-reciprocal-switching-circular/7>. CN’s switch book identifies about 50 customers. CN, CN 9001-U.S., Optional Services, Reciprocal Switching USA, Effective September 1, 2025, available at <https://www.cn.ca/en/customer-centre/prices-tariffs-transit-times/optional-services-tariffs/>.

²⁹ It is my understanding that CN would not allow this information to be disclosed to NERA.

U.S., or, more importantly, of geographies or locations comparable to those applicable to Canadian regulated interswitching traffic.

21. My **second** concern is the unique economic characteristics and rate setting mechanisms used in the U.S. that are distinct from Canada. Dr. Soboleva posits that “unregulated interswitching movements provide a reliable basis for determining what would be average regulated interswitching fees that are commercially fair and reasonable,”³⁰ because “unregulated interswitching market prices incorporate both the impact of commercial market factors, such as demand, and the cost of providing these services.”³¹ However, U.S. reciprocal switch rates reflect distinctive market dynamics and historical arrangements unique to the U.S. railroad entities involved and are unaccounted for in Dr. Soboleva’s analysis (or by her proposed methodology).

22. To illustrate, based on my experience in U.S. rail markets, U.S. reciprocal switch access agreements generally include the following:

- a) reciprocal switch rate may only apply to a specific carrier based on the access of the receiving carrier on the other end of the traffic move (e.g. for moves only serving CN served locations) (paragraph 23 below)
- b) a given rate may only apply to one specific commodity serving a specific area (para 23 below)
- c) certain reciprocal switch access may have been given in exchange for equivalent (reciprocal) access at another location (paragraph 24 below)
- d) CN/CPKC negotiations with different U.S. class 1 railroads (BNSF, UP, CSXT and NS)³² (paragraph 25 below)
- e) merger related circumstances (include historical agreements and unique factors) (paragraph 26 below)

23. As examples of the types of issues identified in subparagraphs a) and b) above, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

³⁰ Soboleva Expert Report, p. 2.

³¹ Soboleva Expert Report, p. 1.

³² BNSF and UP U.S. operations are many times larger than CN and CPKC

[REDACTED]

24. For subparagraph c) above, reciprocal switch access in the U.S. may be given in exchange for equivalent access in another location. These agreements are not typically discernible without access to a contract between the two railroad parties and these agreements would reflect unique economic characteristics, idiosyncratic to the specific locations and the associated economic value of such access that cannot be accounted for by Dr. Soboleva's proposed methodology.

25. For subparagraph d) above, the market and other dynamics surrounding negotiations of reciprocal switching arrangements (including applicable traffic, locations, rates and other specific services that CN would have with U.S. based Class 1 railroads) would vary due to many factors. A few examples include the degree of competition between the railroads in the region, the specific customer dependency, the ability of the railroads to work together to each's benefit, the specific location(s) as well as the specific commodity, among others.

26. As for the merger-related circumstances raised in subparagraph e) above, parties may enter into negotiations to resolve reciprocal switch access issues that arise from the transaction. These are typically confidential agreements and not readily discernable. If the US transportation regulator, the STB, imposes unique and specific reciprocal switching conditions as part of a merger, that information is sometimes discernable but not readily documented. I provide three examples of this below. As part of the CN/IC merger, CN/IC and KCS entered into an access agreement, stating that

³³ See CN, CN 9001-U.S., Optional Services, Reciprocal Switching USA, Effective September 1, 2025, available at <https://www.cn.ca/en/customer-centre/prices-tariffs-transit-times/optional-services-tariffs/>.

³⁴ [REDACTED]

³⁵ See CN, CN 9001-U.S., Optional Services, Reciprocal Switching USA, Effective September 1, 2025, available at <https://www.cn.ca/en/customer-centre/prices-tariffs-transit-times/optional-services-tariffs/>.

³⁶ CPKC, Interline Switching Tariff, Effective August 1, 2025.

“CN/IC will provide switching for KCS to and from the Terminal Railway Alabama State Docks for traffic other than coal” and conversely that “KCS will provide switching for CN/IC to and from the Port of Gulfport.”³⁷ In the UP/SP merger, the STB required that, as a condition of the merger, UP/SP would reduce SP’s “high reciprocal switching charges of almost \$500 [USD] per car.”³⁸ In the Conrail decision, a merger condition for reciprocal switching was required where feasible in both directions (“not only CSX and NS over Conrail, but also Conrail over CSX and NS”).³⁹ None of this can be readily or reliably accounted for by Dr. Soboleva’s methodology (and consequently has not been accounted for).

27. In addition, I note that there is a distinct regulatory regime for reciprocal switching in the U.S. as compared to Canada. While it is true that in the U.S. railroads are allowed to negotiate rates between themselves and enter into switching agreements, the STB has a complaint-based process as a backstop regulation for disputes regarding switching rates and service to be adjudicated before the STB. As an example, Union Pacific recently filed a complaint against BNSF challenging changes that BNSF made to its reciprocal switching tariff.⁴⁰ Further the specific U.S. regulatory approach utilized by the STB for switching is in flux with a recent proposed rulemaking.⁴¹

28. The **third** concern that I have relates to the distinctive product mixes of the switching services of the Class 1 railroads in the U.S. used by Dr. Soboleva in her regression analysis and the regulated interswitching services in Canada. In short, the U.S. Class 1 railroads product mixes are not comparable to those in Canada. Dr. Soboleva does not address the importance of the commodity type (except for a few narrow instances of auto and hazardous traffic, discussed below) with respect to her proposed regression analysis.

29. Traffic from regulated interswitching in **Canada** generally involves three products that comprise about [REDACTED] of the traffic: [REDACTED]

³⁷ STB Docket No. 33556, “CN – Control – IC,” Decision No. 37, May 21, 1999, available at <https://www.stb.gov/wp-content/uploads/FD-33556-CN-IC-May-21-1999-Decision.pdf>.

³⁸ UPSP Decision, available at <https://www.uprr.com/aboutup/history/decision.pdf>. Other aspects of the UPSP merger also involve reciprocal switching: “In UP/SP-266, applicants acknowledge their modified agreement to provide reciprocal switching charges to BNSF at 2-to-1 points as well as non-2-to-1 points at a rate no higher than \$130 [USD], adjusted over time for costs. At other points, UP/SP will cap its reciprocal switching charges with all other railroads at \$150 [USD] per car, subject to the same adjustments, with further reductions possible through bilateral negotiation.”

³⁹ STB Docket No. 33388, “CSX, NS – Control and Operating Leases/Agreements – Conrail,” Decision No. 89, July 20, 1998, available at <https://www.stb.gov/wp-content/uploads/FD-33388-CSX-NS-Conrail-July-20-1998-Decision.pdf>.

⁴⁰ Union Pacific Trade Press, Union Pacific Challenges BNSF Switching Tariff Changes, May 15, 2026, Available at <https://www.up.com/announcements/customer-news/2026/CN2026-7>

⁴¹ Surface Transportation Board, “STB Proposes to Eliminate Barriers to Competition by Repealing Regulations at 49 C.F.R. Part 1144,” January 7, 2026, available at: https://www.bing.com/search?pglt=163&q=chicago+government+ruling+citation+format&cvid=d16ca1c000b40e1b221809a54824992&gs_lcrp=EgRIZGdlKgYIABBFgDkyBggAEEUYOdIBCDY5NTFqMGo3qAIAAsAIA&FORM=ANNTA1&PC=U531

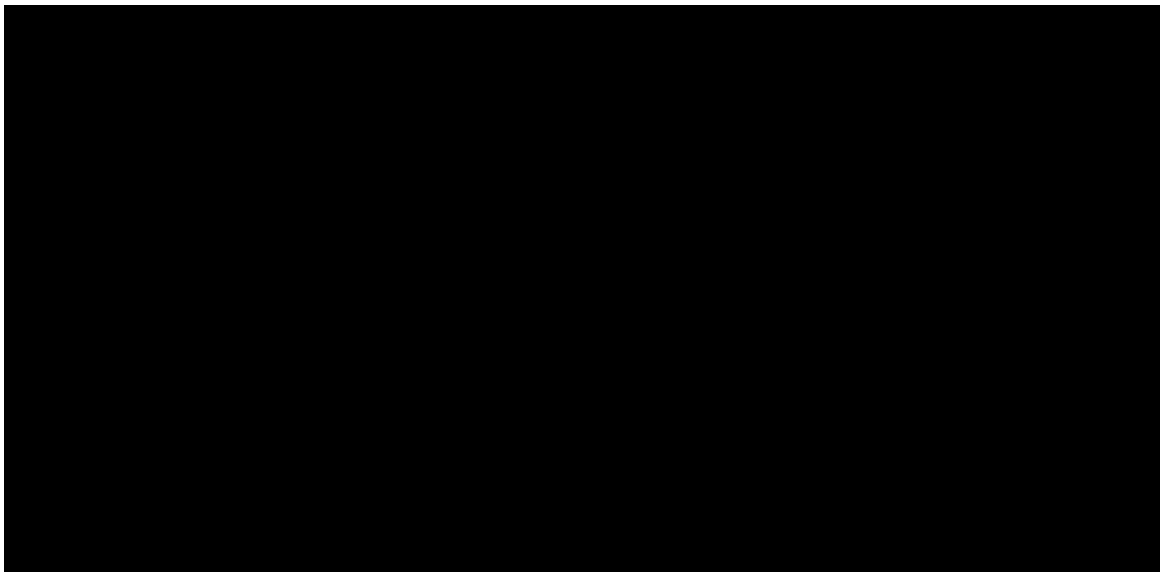
[REDACTED] of the overall traffic volumes, respectively. By contrast, “unregulated” switched traffic by Class-1 railroads on the U.S. network used by Dr. Soboleva in her regression analysis has a different mix of commodities and a higher proportion of [REDACTED]

[REDACTED]

In total, these commodities comprises [REDACTED] of the U.S. “unregulated” U.S. Class 1 switching in Dr. Soboleva’s regression data.⁴³

30. The relative mix of commodities involved in traffic movements in Dr. Soboleva’s data is shown in Figure 5 below, which covers the traffic volumes for specific commodities in the “unregulated” Class -1 to Class-1 U.S. switching data included in Dr. Soboleva’s data (in dark blue bars). Figure 5 additionally shows that Canadian Class-1 unregulated interswitching traffic types (in light blue bars) are mostly comprised of [REDACTED] [REDACTED] very different commodities than the CTA regulated interswitching traffic.

Figure 5: Comparison of Total Volumes Commodities (STCCs)⁴⁴ for Unregulated Class 1 Switches for All Dr. Soboleva’s Data by US and Canada



31. Different commodities can be expected to and do have different rates for many economic reasons. They face different supply and demand characteristics as well as other functional aspects of

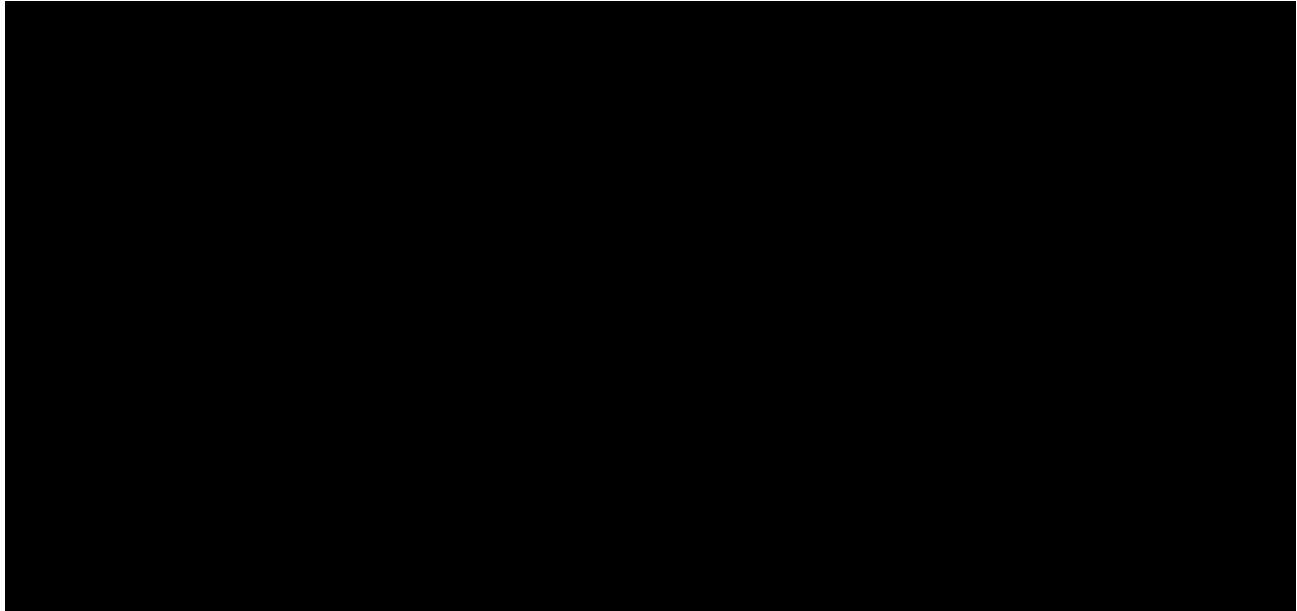
⁴² [REDACTED] is based on Dr. Soboleva’s full unregulated data.

⁴³ Globally all references to Dr. Soboleva refer to her regression data used to develop estimated rates proposed for CTA interswitching. Ibid.

⁴⁴ Standard Transportation Commodity Code (STCC) is frequently used in the railroad industry.

the switch move that result in different rates. As an example, grain products that may comprise certain farm commodities (STCC 01) are typically unit trains which have lower (per unit) cost of switching. In addition, all types of commodities face distinctive economic conditions that result in different rail rates for different commodities as shown below in Figure 6.

Figure 6 – Average Rate by Commodity for Data Used in Dr. Soboleva Estimate to Figure 4 – Average Rate by Commodity for All Unregulated Switch Data Used in Dr. Soboleva Proposed Estimated Rates⁴⁵⁴⁶



32. Dr. Soboleva does not adequately address the different commodity types in the CTA regulated interswitching traffic and in the “unregulated” U.S. (and Canadian) switch rates that she utilizes to estimate the proposed Canadian regulated interswitching rates. Dr. Soboleva’s regression only accounts for two specific product types, motor vehicle and hazardous traffic moves. As discussed above, there are many more product types that are involved in switching moves. Below in section III, I show the importance of adding the commodity type (i.e. STCC code) in one of my sensitivity analyses of Dr. Soboleva’s proposed methodology.⁴⁷

⁴⁵ Data extracted from Dr Soboleva workpaper. Unregulated rates identified by dropping observations where field “Regulated” = 0 on Dr. Soboleva data build. Calculations based on the total [REDACTED] reported in Figure 3 (full set of unregulated rates).

⁴⁶ I also separately test and compare the average switch rate by commodity for unregulated US vs. Canadian switches, finding that average switch rate differs by country for the same commodity.

⁴⁷ Using a higher proportion of commodities with higher rates pushes the estimated rates to higher levels for the average rates because Dr. Soboleva has not controlled for these commodity specific attributes (except motor vehicle and hazardous traffic moves).

ii. Class 1 Switching is Distinct from Short line Switching

33. The Canadian “unregulated” data relied on by Dr. Soboleva includes many interswitch rates that involve short line railroads. Specifically, interswitch rates between short line railroads and Class-1 railroads in the U.S. and Canada account for approximately [REDACTED] percent of Dr. Soboleva’s regression data.

34. There are many reasons that the interswitching rates between short line railroads and Class 1 railroads are not comparable and thus unreliable benchmarks for Canadian regulated interswitching rates between a Class 1 railroad and another Class 1 railroad, i.e. the typical arrangements for regulated CTA regulated interswitching.

35. For example, it is my understanding from CPKC that in Canada interchange between Class-1 and short line carriers often happens as a part of a haulage agreement rather than an individual interswitch event, as with regulated CTA interswitching.

36. A haulage service⁴⁹ is not the same as a reciprocal Class 1 to Class 1 interswitch. A haulage service involves an agreement between rail carriers where one railroad hires the haulage carrier with the hauling carrier physically handling the car and the other carrier may be responsible for car hire.⁵⁰ The rates negotiated in these short line- Class-1 agreements depend on factors negotiated, including which party pays the car hire time and mileages charges.⁵¹ All else constant, a Class 1 railroad incurring certain car hire or other costs would lead to a lower rate charged for the haulage service.

37. Further, the function of a short line railroad often is specific to the needs of local shippers. CPKC confirms that this is the case in Canada and the U.S., and my experience in the U.S. confirms that shortlines often address specific needs of local shippers located on the line segments.^{52,53}

⁴⁸ Figure 3 [REDACTED] Calculations based on Dr. Soboleva’s full unregulated data.

⁴⁹ This means that movements are facilitated over long distances and involve mutual use of the track, rather than the customer focused access of the CTA regulated interswitch.

⁵⁰ Railinc website, available at <https://public.railinc.com/documents/car-hire-haulage#:~:text=Haulage%20involves%20a%20bilateral%20agreement,to%20act%20as%20its%20agent>.

⁵¹ Railinc, Car Hire: Haulage Guidelines, August 2023, Available at <https://public.railinc.com/sites/default/files/documents/Car%20Hire%20Haulage%20Guidelines.pdf>

⁵² American Short Line and Regional Railroad Association, “The Modern Short Line Industry,” available at <https://www.aslrra.org/about-us/about-aslrra/the-modern-short-line-industry/>. “Short line railroads are especially known for their first- and last-mile service, which means they function frequently as the first and/or often final link between suppliers and customers who require critical goods and freight. Short lines are also well-known for their ability to provide tailored service to a variety of shippers; short lines make the extra effort to ensure that rail service for any carload size is an efficient transportation option for shippers along their route.”

⁵³ Some of the specialized short line services were explained in a recent US transaction of a short line railroad (Iowa Northern Railroad) by CN. STB FD No. 36744, “CN – Control – IANR,” Decision No. 3, January 14, 2025, at page 9-10, available at

38. In addition, the types of products switched by short line railroads are often different than the products switched in CTA regulated interswitching movements. According to the data used by Dr Soboleva, the majority of switching between Canadian or U.S. short lines and Class-1 carriers is

while the Class-1 to Class-1 CTA regulated interswitching in Canada are substantially .⁵⁵ For these top commodities, only one product is in common as between short lines (inter)switching and CTA regulated interswitching.

39. In addition, as many short line railroads were either sold or leased by Class-1 railroads, the historical relationship between the two parties and the specific agreement that was negotiated inclusive of aspects of the sale/lease and any future short line services is not the same as between two Class-1 railroads that independently commercially negotiated a rate solely based on market factors. It is my understanding, from CPKC, that in Canada and the U.S. haulage rates can be tied to the sales price rather than switch function.⁵⁶ Consequently, the rates agreed to by the parties may reflect factors completely unrelated to the transportation service but rather associated with the asset transaction.

40. Based on my U.S. experience, these types of short line/ Class 1 arrangements are common in the U.S. For example, CSX Transportation signed long term leases of more than 10 rail segments to Genessee and Wyoming (G&W) for their operational control over a long-term period.⁵⁷ The complex agreement included an agreement provided G&W operational control over these rail segments as well as agreements setting forth railroad services it would provide CSXT in the future with rates and terms and conditions.⁵⁸ Similarly to the Canadian experience, U.S. agreements may have rates that reflect factors completely unrelated to the transportation service but rather associated with the other lease or sale agreements. The Canadian and U.S. idiosyncrasies discussed above cannot be accounted for by Dr. Soboleva's proposed methodology (and consequently, have not been accounted for).

https://dcms-external.s3.amazonaws.com/DCMS_External_PROD/1736868708942/52295.pdf. The STB Decision noted that IANR provided "...boutique' services, which include, among other things, frequent switching, breaking apart trains from Class I carriers, and moving smaller blocks in and out of customer facilities" as well as recognized for its "...dedicated service' to "small and medium"-sized grain elevators."

⁵⁴ These products comprise of total short line switches.

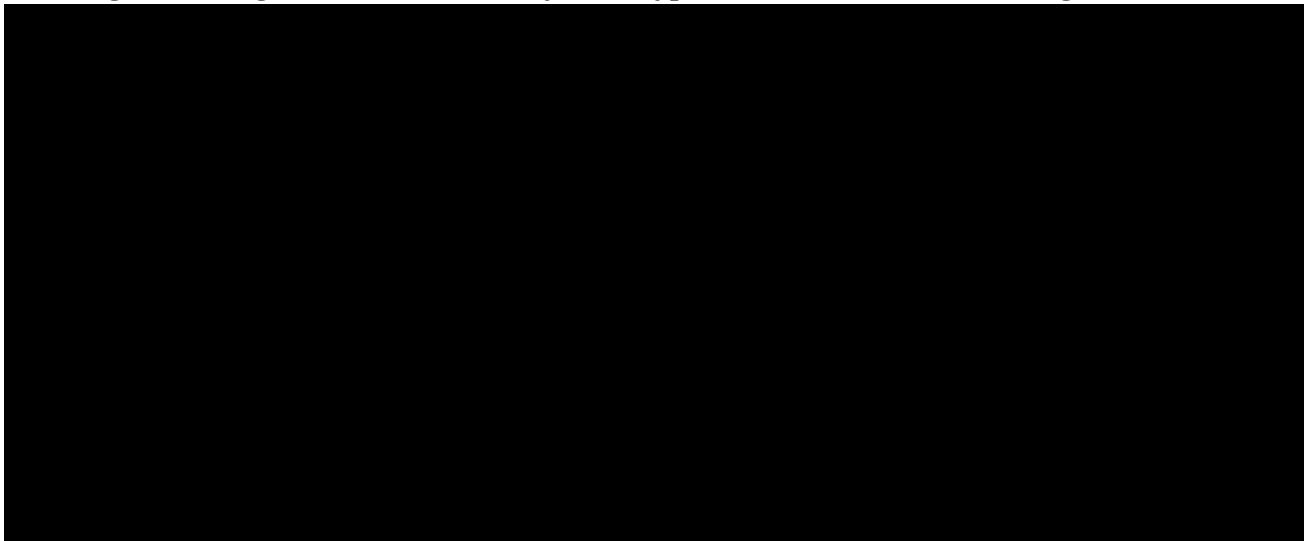
⁵⁵ These products comprise of total CTA regulated switches.

⁵⁷ See, e.g., Progressive Railroading, CSXT leases southeastern line to Genessee & Wyoming subsidiary, April 11, 2005, available at https://www.progressiverailroading.com/m_a/news/CSXT-leases-southeastern-line-to-Genessee-Wyoming-subsiary--8321

⁵⁸ STB FD No. 34671, "G&W – Continuance in Control Exemption – First Coast Railroad," April 25, 2005, available at <https://dcms-external.s3.amazonaws.com/MPD/62491/D998F3A4C9A7864F85256FE8004E8263/35741.pdf>.

41. There are further concerns. As previously discussed, [REDACTED] of the data that Dr. Soboleva uses in her regression analysis involves interswitching between Class 1 and short line carriers in the U.S. and Canada, while CTA interswitching occurs between two Class-1 carriers. The diverging service circumstances of these two types of (inter)switches lead to different economic characteristics regarding the block size for carloads that are (inter)switched. With regards to “large block” movements (for 60 cars or more), as shown in Figure 7 below, the proportion of “large block” movements of the total moves (large and small blocks) in Dr. Soboleva’s regression data (right) are [REDACTED] than in CTA interswitching data (left).

Figure 7: Large Block Movements by Rate Type in Dr. Soboleva’s Full Unregulated Data⁵⁹ [



42. Furthermore, the “unregulated” large blocks include about [REDACTED] of which approximately [REDACTED] involves Canadian and U.S. short line large block switches are not representative of CTA Class 1 regulated interswitching, which are mostly in the U.S. The remaining [REDACTED] cars in large blocks which are “unregulated” Class 1 large block switches mostly in Canada [REDACTED] is an insufficient amount of large block moves to reliably estimate the Canadian regulated interswitching rates, especially when considering the CTA regulated interswitching movement data is made up of [REDACTED] large block moves. (Figure 3 above).⁶⁰

⁵⁹ [REDACTED]

[REDACTED] “Unregulated” rates identified by dropping observations where Dr. Soboleva’s field “Regulated” = 0 in her full 2022-2025 CN data build.

⁶⁰ In my first sensitivity below, I am unable to include large from the unregulated rate data as-is due to concerns about the representativeness of CTA data, as discussed below. However, I do show the impact of a more realistically distributed large block indicator in my sensitivity below with the Soboleva regression run on rebalanced data. See Figure 10 below

43. The lack of Canadian Class I large block interswitches in Dr. Soboleva's regression data, which are about [REDACTED] of CTA regulated interswitches, creates a fundamental problem for the accuracy of Dr. Soboleva's proposed estimated large block rates.⁶¹

44. For each and all of these reasons, interswitching traffic between Class I railroads and shortline railroads are not a reliable benchmark for regulated CTA interswitching.

iii. Average "Unregulated Rates" Excluding U.S. Class 1 and All Short Line Switches--Solely based on Canadian Class-1 Railroads--Are Much Lower

45. As shown above, the overwhelming majority of the data relied upon by Dr. Soboleva involves movement from very different U.S. rail markets and non-comparable short line railroads, neither of which are appropriate "benchmarks" for the movements subject to CTA regulated interswitching rate between two Class 1 railroads. Just focusing on the Canadian "unregulated" interswitching rates used by Dr. Soboleva, the vast majority of the rates provided do not involve movements between Class-1 railroads in Canada, the latter accounting for only [REDACTED]

[REDACTED]⁶²

46. As shown in Figure 8 below, for Dr. Soboleva's full unregulated data, the mean rate is [REDACTED] and the median rate is [REDACTED]⁶³ However, when considering Class-1, Canadian interswitches, the specific economic service that Dr. Soboleva attempts to estimate, the rates are much lower. The mean Canadian Class-1 unregulated rate is [REDACTED] and the median is [REDACTED] These averages rates from comparable Canadian Class 1 unregulated entities are approximately [REDACTED] lower than the rates for all of the underlying data that is used by Dr. Soboleva to develop her estimated CTA regulated interswitching rates.⁶⁴

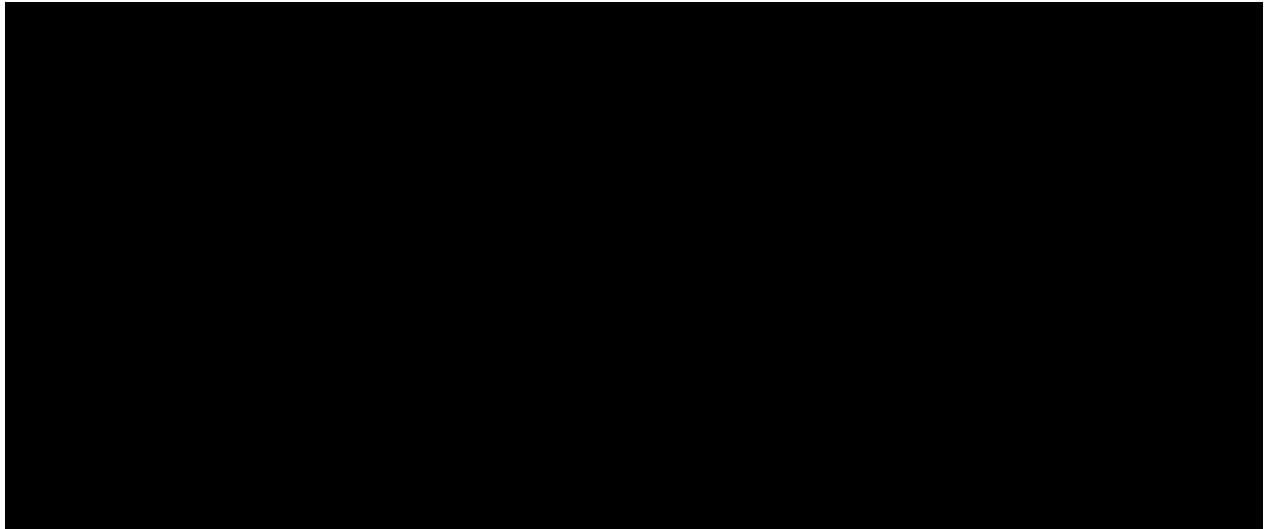
⁶¹ Soboleva Figure 1. In a sensitivity test I conducted, I attempted a specialized weighting technique to estimate large block rates as shown in Figure 10 below in Section II.D, and this sensitivity illustrates how significantly this affects the rates estimated using Dr. Soboleva's regression techniques.

⁶² Figure 3.

⁶³ The mean is the simple average of all rates, and the median is the middle value of rates when ordered from least to greatest.

⁶⁴ The CN March 6, 2026 submission in this matter states that Dr. Soboleva's analysis shows that average regulated interswitching rates were less than half of the average market rates observed for unregulated interswitching and that the "disparity underscores the significant distortion created by the Agency's past practice of setting rates without consideration of commercial market- based factors," correcting the Dr. Soboleva unregulated data to be limited to Canadian Class 1 unregulated switches reports rates approximately equal to [REDACTED] which is reasonably in line with the average regulated rates reported by Dr. Soboleva in Exhibit 3 as presented in the CN submission.

Figure 8: Comparison of the Average and Median Unregulated Switching Rates for All Dr. Soboleva Regression Data vs Solely Unregulated Canadian Class 1 Railroads⁶⁵



47. In short, relying on rates that do not reflect the economic characteristics of the actual CTA regulated interswitching service involving Canadian Class 1 railroads results in unreliable proposed Canadian regulated interswitching rates. In fact, Dr. Soboleva agrees. She states that “Under the assumption that unregulated and regulated interswitching movements do not systematically differ, conditional on observable characteristics, the average market rates produced by my methodology can be interpreted as commercially viable interswitching rates.”⁶⁶ However, as demonstrated above in Figure 8 and discussed further below (Section III), this assumption does not hold and it is unsurprising that an inappropriate sample results in rate estimates that are unreliable and demonstrably overstated.

III. The Soboleva Analysis Lacks Sufficient Statistical Reliability and Sensitivities on Certain Assumptions Demonstrate How Significant The Issue Is

A. The Soboleva Analysis Lacks Sufficient Statistical Reliability

48. To better understand Dr. Soboleva’s regression results, in particular in light of the concerns I identify above, I looked at the statistical reliability of Dr. Soboleva’s regressions, and what affects

⁶⁵ These data are actual rates in Dr. Soboleva’s underlying rate data (and not her predicted rates). Unregulated rates identified by dropping observations where Dr. Soboleva’s field “Regulated” = 0. Calculations based on Dr. Soboleva’s full unregulated data after US rates are converted to CAD. Canadian rates identified where “country” equals “CAN.” Class I rates identified where “class1” equals 1.

⁶⁶ Soboleva Expert Report, p. 17.

even an incomplete ‘correction’ for some of my concerns can have on that statistical reliability. To be clear, I cannot address all factors of concern that I have identified (as would be required for any regression to, even possibly, produce reliable results) but I attempt to address certain issues to illustrate the unreliability in Dr. Soboleva’s proposed methodology and proposed estimated rates, even setting aside the fundamental issues related to the very limited representation of U.S. Class I railroads that are included in Dr. Soboleva’s regression data.⁶⁷

49. Dr. Soboleva presents 8 versions of her regression analysis. Each analysis uses slightly different formulations or portions of the underlying data, but are all similar and contain similar deficiencies to those I describe above in Section II.B. As explained below in each of the regression specifications, Dr. Soboleva’s estimates do not contain sufficient statistical power to be reliable.

50. To understand the statistical reliability issues inherent in Dr Soboleva’s analysis, I present a summary of her R-squared statistics from all 8 versions of her regression analysis in Figure 9 below, including the 3 regressions she relies on for her rate estimates (with 30% - 50% R-squared). In simple terms the R-squared statistic represents the explanatory power embodied in the regression analysis. This statistic indicates how well the regression is able to explain all of the changes (referred to as variation) in the specific data being analyzed; in other words, it describes the amount of variation that is captured by and explained by the independent variables included in the econometric model.⁶⁸ R squared values range from 0% – 100%, where higher values indicate greater reliability (or fit) of the overall regression, and lower values indicate less reliability (and fit).

⁶⁷ As mentioned above CN’s U.S business represents approximately [REDACTED] of the total U.S. railroad revenue. Annual STB Report R-1, Schedule 210, total railroad operating revenues.

⁶⁸ James H. Stock & Mark W. Watson, *Introduction to Econometrics* (4th ed. 2020) (section "Measures of Fit and Prediction Accuracy"), pp. 153-54, available at <https://www.sea-stat.com/wp-content/uploads/2020/08/James-H.-Stock-Mark-W.-Watson-Introduction-to-Econometrics-Global-Edition-Pearson-Education-Limited-2020.pdf>.

Figure 9: Range of R-Squared from Dr. Soboleva's Regression Models⁶⁹

Regression Model	R Squared
Oct. 2022 to Sept. 2023	0.503
Oct. 2023 to Sept. 2024	0.433
Oct. 2024 to Sept. 2025	0.289
Soboleva - Log Transformed	0.301
Soboleva - No C-1 Data	0.671
Soboleva - Highest 10% Excluded	0.441
Soboleva - Nov. 2022 to Oct. 2023	0.527
Soboleva - Exempt Dimensional Loads	0.246

51. As can be seen above, the models presented by Dr. Soboleva have an r^2 which range from .289 to .671, while the r^2 of her main specifications are .503, .435, and .289 when applied to 2022 to 2023, 2023 to 2024 and 2024 to 2025 data years respectively.⁷⁰ This means that Dr. Soboleva's proposed switch rate estimates have, accepting her proposed regression methodology in its entirety at face value, an explanatory power of only approximately 30% to 50%, with the lower bound for the most recent data.

52. These low r^2 raise substantial concerns for reliable estimates in and of themselves. The unreliable estimates for the current period with a particularly low r^2 of 29% in the most recent data vintage (October 2024-September 2025) creates the largest concern for reliability and is only likely to become more unreliable over time. Reduced reliability over time is expected and supported by Dr. Soboleva's results, which report a r^2 equal to 50% for the Oct 2022-Sept 2023 period but precipitously fall to 29% for October 2024 to September 2025 period.

53. Certain econometric analyses may have relatively low r^2 and still be of some relevance. For example, where econometric analyses seek to understand whether a specific variable has a relationship with the variable of interest, and it is unnecessary to accurately model every aspect of the economic activity under consideration. However, Dr. Soboleva's regression analyses is proposed by CN to be used to determine a specific price that railroads pay for regulated CTA interswitching services, in effect, to determine the future. A methodology which can only predict the interswitching

⁶⁹ Soboleva Expert Report, pp. 27, 29, 30, 44-47, 49. Note that Dr. Soboleva conducted an analysis that excluded Class 1 railroads but not an analysis that excluded short line railroads. The model that excludes Class 1 railroads has the highest R-squared which aligns with statistical intuition that explaining rates for similar groups of railroad rates (separated by railroad type) leads to higher explanatory power.

⁷⁰ Soboleva Expert Report, pp. 27, 29-30, 44-47, 49.

rate at a 29% level in the present is unreliable for purposes of determining the regulated CTA interswitching rate, setting aside all other deficiencies with the methodology.

B. A Sensitivity with US and Canada Class 1 Railroads that Accounts for Commodity and Geography with Interchange Location has Higher Statistical Reliability and Lower Rate Estimates

54. Where possible, I attempted to address certain economic factors that I identified above, which were not (adequately) addressed by Dr. Soboleva's regressions, to assess the reliability of Dr. Soboleva's proposed methodology. This sensitivity analysis, while incomplete due in part to the fact that CN switches represent only approximately [REDACTED] of the total revenue of U.S. Class 1 railroads,⁷¹ improves the statistical reliability of the estimation for single block rates (1-59 cars). Unfortunately, there is insufficient larger block (60 or more cars) traffic movement data in the "unregulated" data used by Dr. Soboleva to assess (or improve) the statistical reliability for larger block traffic movement, which of course is a large portion of the movements covered by Canadian regulated interswitching rates (as discussed further below).⁷²

55. As previously stated, among other controls, Dr. Soboleva's single block rate proposed regression methodology contains a variable for whether the move takes place in the U.S. or in Canada, certain types of commodities,⁷³ and certain aspects of shipment size.⁷⁴ However, Dr. Soboleva did not adequately control for these factors, failing to control for the majority of commodity types or for specific interchange location. To correct this, my revision to Dr. Soboleva's regressions includes two-digit STCC code for all commodities in the data (rather than just Dr. Soboleva's controls for automotive and hazardous products)⁷⁵ and the specific interchange locations which can capture location specific factors.⁷⁶ Rates are then predicted separately for each Switch Zone – Interchange – STCC combination and averaged below.

56. I also removed the large block control specifications in Dr. Soboleva's proposed regression.⁷⁷

⁷¹ Revenue for BNSF, UP, CSXT, NS, CN and CPKC from Annual STB Report R-1, Schedule 210, total railroad operating revenues.

⁷² My sensitivity analysis discussed in the next section adopts Dr. Soboleva's specification with modifications to incorporate large blocks and switch zone distribution. These modifications include a regression approach to use weighting factors that capture economic characteristics observed in the regulated data as compared to other types of characteristics observed in regulated data and applying the relative weights to all unregulated data (including as compared to known unregulated factors).

⁷³ For her "auto" control, Dr. Soboleva used car type as a proxy for the contents of the shipment rather than a direct measure: Soboleva Expert Report, p. 27.

⁷⁴ Soboleva Expert Report, p. 27.

⁷⁵ Dr. Soboleva only predicts premiums for automotive and hazardous commodities, but I report rates for many commodities in my sensitivity.

⁷⁶ The distance variable is used for a zonal rate computation but it is not clear if it is economically required.

⁷⁷ I excluded the large block data given the dearth of that data (as described above).

As discussed above and as shown in Figure 6, there are insufficient large block moves to reliably predict a rate from the unregulated data, especially when considering the Canadian regulated interswitching movement data is made up of [REDACTED] large block moves.⁷⁸ However, I do show the impact of a more realistically distributed large block indicator in my sensitivity below with the Soboleva regression run on rebalanced data.

57. Furthermore, when estimating the regression with STCC and interchange fixed effects, as I specify in my updated Soboleva model, it is the case that for some of those interchanges and STCCs there are no large block moves at all in the “unregulated” data, so large block rates predicted for these moves are not reliable.⁷⁹

58. As acknowledged by Dr. Soboleva,⁸⁰ dimensional loads make up a miniscule amount of the regression data, especially for large block moves (only [REDACTED] are unregulated large block dimensional loads) so I was unable to include Dr. Soboleva’s large block and dimensional load interaction term. However, I did include a dimensional load control for my single block estimates because, despite the small number of observations, the proportion of dimensional loads is approximately the same between regulated and “unregulated” data so it can be assumed to be representative.

59. Finally, I restrict the data to Class 1 switches to more accurately reflect the CTA interswitching rates the proposed methodology is to be predicting (removing short lines).

60. I retain Dr. Soboleva’s distance controls and her standard error clustering.⁸¹ I run the regression on all years of data to include the greatest possible amount of data points for rate prediction.⁸²

61. This improved estimate for single block rates predicts rates that are lower on average than those estimated by Dr. Soboleva. As shown in Figure 10 below, specifically, between \$355 and \$411

⁷⁸ More importantly than the small number of observations, we know that [REDACTED] large block moves are not representative of the amount of large block moves that economically drives the rates associated with large blocks. We would need closer to [REDACTED] of the sample data to be large block moves to even attempt to predict CTA regulated interswitch rates, even setting aside all the other deficiencies with Dr. Soboleva’s proposed regressions that cannot be accounted for.

⁷⁹ For example, [REDACTED] These are examples of locations and products for which large block rates cannot be reliably predicted without evidence pointing to their direct comparability, even setting aside all the other deficiencies with Dr. Soboleva’s proposed regressions that cannot be accounted for. .

⁸⁰ See Dr. Soboleva Expert Report, FN 58.

⁸¹ The “country” control is redundant when interchange location is included, so it is not included separately in my specification.

⁸² I use the full Dr. Soboleva unregulated dataset for the specifications presented in Figures 9 and 10.

for single block Canadian interswitch locations compared to between \$ [REDACTED] in the Dr. Soboleva’s estimates, both averaged over the three year period. This represents up to a 49% reduction in estimated single block rates (as compared to Dr. Soboleva’s estimate), depending on the zone.

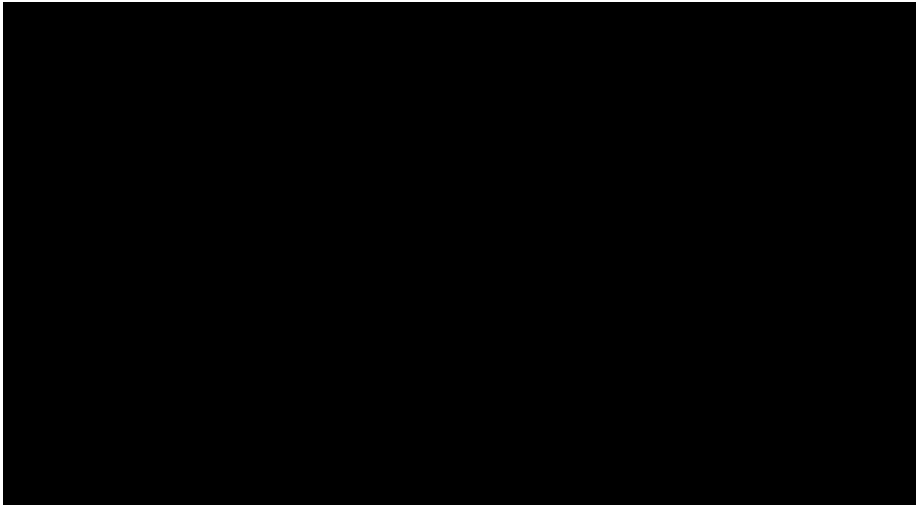
Figure 10: Improved Economic Characteristics in Dr Soboleva Proposed Estimation for CTA Interswitching Rate (Class 1 Only, Blocks of 1-59 cars, Average 2022-2025 Data)⁸³

Switch Zones	CTA Regulated Interswitching Rates (Avg. 2024-2025)	Dr. Soboleva Proposed Estimates		NERA	
		Avg. All Years	Estimated on All Years	(Estimated All Years)	Reduction from [d]
[a]	[b]	[REDACTED]			
1	\$443				
2	\$525				
3	\$628				
4a	\$593				
4b	\$593 + 7.98 /km > 40				

Dimensional Premium:

- Notes & Sources**
- 1. Soboleva data build, CN data 2022-2025.
 - 2. CTA estimates from Canada Gazette, Volumes 157 and 158 at Number 50: COMMISSIONS. Available at <https://gazette.gc.ca/>.
 - 3. 4B % increase calculated on the base are for additional km over 40 for the switch.
 - 4. NERA estimate is the average of all estimated Canada interchange location rates for all STCCs.
 - 5. NERA dimensional premium is for single-block traffic.

Figure 11: Comparison of Reliability of Dr. Soboleva Specification to NERA Revision⁸⁴



⁸³ I recognize that the 2024-2026 CTA interswitching rates may be subject to change. I excluded a few negative rate estimates from the additive nature of the rate calculation that resulted from insufficient data for certain move types. We also dropped 3 outlier observations from my regression, identified with weight “99999999”.

⁸⁴ We tested the Soboleva specification with all years data included and the r^2 for the combined data only reported [REDACTED]

62. The details of my results are presented in Appendix B.

63. This revised specification creates an r^2 of .66, higher than the r^2 for Dr. Soboleva's proposed estimated rates, with r^2 's of 30-50% (as shown in Figure 11).

64. However, despite the fact that this regression model is more statistically reliable, it is not sufficiently reliable to set the Canadian regulated interswitching rates, particularly given the data and other deficiencies identified above (Section II) that are not accounted for. Notably, there are numerous instances of mismatches in the "unregulated" data Dr. Soboleva uses to develop her proposed estimates as compared to the CTA regulated interswitch traffic (large blocks and commodities). For large blocks, the fact that less than [REDACTED] of the "unregulated" data represents moves with large blocks for Canadian Class 1 railroads as compared with large blocks making up approximately [REDACTED] for CTA regulated interswitching (see Figure 7 in Section II.ii. above) means that the "unregulated" data is not representative of the CTA regulated interswitching traffic. Additionally, as discussed above, the distribution of commodities (STCCs) in the regulated vs "unregulated" data is quite different, with different products making up the top shares of each group. The difference in the characteristics between regulated and "unregulated" interswitching data makes any statistical analysis unreliable. It is sometimes possible to discern sufficient variation from a small data sample such as the one used by Dr. Soboleva. However, that is only acceptable when the small data set can be assumed to accurately represent the real population. However, in this instance I know that is not the case as discussed in section II.

65. In short, the U.S. "unregulated" rate benchmarks are demonstrably not appropriate to establish related Canadian interswitch rates.⁸⁵ But, this revised specification clearly demonstrates that the regression methodology utilized by Dr. Soboleva produces unreliable estimated rates.

C. A Sensitivity with More Appropriate Weighting of Data Categories to Represent CTA Regulated Interswitching Also Improves Reliability with Lower Rate Estimates

66. As mentioned above, a separate sensitivity analysis was developed to attempt to use Dr. Soboleva's (regression) specification and her proposed estimated rates despite the large block and dimensional load data that was too sparse to reliably develop estimates with a proper econometric specification. This sensitivity analysis also addresses issues with limitations of switch zone distribution data.

⁸⁵ Also, other economic characteristics are unaccounted for. As example, the railroad counterparty is unidentifiable, insufficient amounts of data exist for numerous variables. (large blocks), other concerns apply.

67. As is the case with the above sensitivity, this analysis was completed for the purpose of demonstrating the difficulties with Dr. Soboleva's proposed methodology and the unreliability of the estimated rates it produces. It does not address all irreparable issues discussed in Section II.

68. As detailed above, the unregulated switching rates used by Dr. Soboleva to estimate CTA interswitching rates do not align with the economic and operational characteristics of actual CTA regulated interswitches. However, instead of adding additional control variables (as accomplished in the section above's sensitivity regression), it is possible to use Dr. Soboleva's control variables through a transformation process that relies on the data Dr. Soboleva has and weights the economic characteristics of the "unregulated" rates to better match the characteristics of the CTA regulated interswitches. This process involves re-weighting the importance the regression applies to specific observations in the "unregulated" rate data to better mimic the spread/relationship of the CTA regulated interswitching data. This too improves on NERA's above revisions to Dr. Soboleva's proposed regression methodology with greater reliability and confirms the unreliability of Dr. Soboleva's estimated rates.

69. For variables switching zone and large block, which represent the physical characteristics of Canadian regulated interswitching moves, I estimate an "unregulated" dataset that more closely mirrors the distribution of these variables in the regulated rate data. As shown above, the proportion of large block movements vary greatly between regulated and "unregulated" traffic, therefore a regression methodology using "unregulated" data to predict rates for moves with these characteristics is inaccurate.

70. To attempt to correct for this, I calculate a weight equal to the count of cars that fall into each category for both variables for regulated traffic (i.e. total cars for large block vs. small block, and switch zones 1-4), then divide that by the count of cars in those categories for "unregulated" traffic. I then use that weight in my revised regression estimation so that observations in the "unregulated" data are given influence proportionate to the influence in the regulated data. This leads the regression to predict lower rates across all zones, often nearing or exceeding [REDACTED] for the further switch zones. The proposed estimated rates as a result of these corrections are presented in Figure 12 below, along with the 2024 and 2025 published CTA interswitching rates and Dr. Soboleva's original proposed estimates.

Figure 12: NERA Revisions to Dr Soboleva Proposed Estimated CTA Switch Rate, Weighted by Regulated Data Characteristics⁸⁶

Single (1 to 59 Cars) - Proposed 2024 Rate				Block (60 or More Cars) - Proposed 2024 Rate		
Regulated Switching Zone	CTA Regulated Interswitching Rates	Dr. Soboleva	NERA	CTA Regulated Interswitching Rates	Dr. Soboleva	NERA
1	\$425			\$75		
2	\$545			\$115		
3	\$640			\$110		
4a	\$580			\$150		
4b	\$580 + \$7.36 /km > 40			\$150 + \$2.05 /km > 40		

Auto Premium:
Hazardous Premium:
Dimensional Loads
(Large Block):

Notes & Sources

1. Soboleva CN Data, 2022-2025.
2. The coefficient on hazardous commodity type was not significant in this specification.

Single (1 to 59 Cars) - Proposed 2025 Rate				Block (60 or More Cars) - Proposed 2025 Rate		
Regulated Switching Zone	CTA Regulated Interswitching Rates	Dr. Soboleva	NERA	CTA Regulated Interswitching Rates	Dr. Soboleva	NERA
1	\$460			\$100		
2	\$505			\$160		
3	\$615			\$120		
4a	\$605			\$175		
4b	\$605 + \$8.60 /km > 40			\$175 + \$2.35 /km > 40		

Auto Premium:
Hazardous Premium:
Dimensional Loads
Premium:

Notes & Sources

1. Soboleva CN Data, 2022-2025.
2. Dimensional premium included above is for single block. Insufficient large block x dimensional load cars in the unregulated data to estimate an effect (coefficient was omitted from the regression)

⁸⁶ See Appendix B. for full results.

Single (1 to 59 Cars) - Proposed 2026 Rate		Block (60 or More Cars) - Proposed 2026 Rate		
Regulated Switching Zone	Regulated Interswitching Rates	CTA Regulated Interswitching Rates	Dr. Soboleva	NERA
1	\$365	\$90		
2	\$465	\$145		
3	\$450	\$105		
4a	\$455	\$190		
4b	\$455 + \$3.40 /km > 40	\$190 + \$3.40 /km > 40		
Auto Premium:				
Hazardous Premium:				
Dimensional Load				
Premium:				
Notes & Sources				
1. Soboleva CN Data, 2022-2025.				
2. Canada Gazette, Part I, Volume 159, Number 50: COMMISSIONS. December 13, 2025.				
Available at: https://gazette.gc.ca/rp-pr/p1/2025/2025-12-13/html/commis-eng.html#cs8				

71. As shown above, these revised regressions estimated rates well below Dr. Soboleva's estimates—up to 57% lower in the model with the highest R-squared.

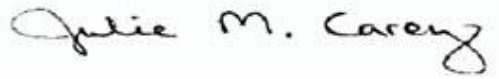
72. The R-squared for 2024 regression is highest (0.85) with the lowest rates, especially for large block estimates, however the r-squared for the other specifications are lower, matching the original SE result.⁸⁷ As shown above in Figure 12, my dimensional load premiums for my sensitivity on data weighted to reflect the proportion of large block moves and moves in switch zones 1-4 are over \$1000 lower than Dr. Soboleva's, showing that more large block moves in the data results in lower rates for large block moves.⁸⁸

IV. Conclusion

For all the reasons explained above, Dr. Soboleva's proposed methodology is not an appropriate economic (econometric) method for determining the CTA regulated interswitching rates. And it results in estimates that are unreliable and, indeed, unusable.

⁸⁷ R-squared for 2025 predicted rates is 0.35}}, then 0.29 for 2026.

⁸⁸ As Dr. Soboleva mentions in her FN 58, "Although some unregulated dimensional loads were moved in large blocks between October 2022 and September 2023, there were no regulated dimensional loads moved in large blocks." So just as the dimensional load premium reported in Dr. Soboleva's Figure 10 is identical to the premium estimated for dimensional loads moved in small blocks, my Figure 10 reports the same.



Julie M. Carey signed June 19, 2026



Edward Lannan signed June 19, 2026

APPENDIX A: CV

JULIE M. CAREY
SENIOR MANAGING DIRECTOR

Julie M. Carey is a Senior Managing Director at NERA Economic Consulting. She has substantial experience with energy and transportation sectors, providing expert evidence in commercial and regulatory disputes, as well as international arbitrations. She has more than 25 years of experience addressing economic issues in energy, pipelines and railroad sectors. Ms. Carey is recognized as a leading energy expert (2019-2025) and a leading arbitration expert (2021-2025) by Who's Who Legal.

In addition to her expert consultancy assignments, Ms. Carey is also an adjunct professor at Georgetown University where she teaches a graduate level course in energy economics and policy, which includes instruction on economics of energy products and transportation and regulatory economics.

Ms. Carey routinely provides expert consulting and testifying services in regulatory matters before the U.S. regulators (FERC, STB, etc.) as well as Canadian federal and state/provincial regulatory agencies. Ms. Carey's work also includes commercial disputes before U.S. courts, and within arbitrations including the American Arbitration Association (AAA), as well as international arbitration venues.

Ms. Carey has substantial expertise in economic analyses of energy and transportation markets. She routinely conducts economic analyses of energy and transportation markets to understand historical and forecasted market conditions (supply, demand and prices), as well as to evaluate competition, claims of market manipulation, and other anticompetitive acts. She has conducted these analyses many dozens of times for the purposes of the regulatory approval of mergers and acquisitions, market-based rate authority, market rules, negotiated rates, as well as within investigations and commercial disputes. Her work includes evaluation of the reasonableness of rates and whether market participant bidding, trading and other behavior is discriminatory or otherwise manipulative, and whether prices reflect competitive market prices. Ms. Carey's work includes a variety of other regulatory economic analysis including affiliate relationships, cost of service and forward-looking costs, among others.

Within her commercial dispute work, Ms. Carey has been involved in many claims of breach of contract including oil and gas, pipelines, coal, power, renewable, and railroad transportation. She has also been involved in cases concerning partnership disputes, delayed plant operations, diminished value claims, replacement power, antitrust and manipulation claims, clean air act, and bankruptcy, among others. Ms. Carey has substantial experience with economic damages (historical and future lost profit analyses) and conducts asset valuation analyses. She has assessed and quantified economic damages and valuations in dozens of cases which include breach of contract, antitrust, class action, and other types of disputes.

Ms. Carey also has experience with environmental analysis (e.g., greenhouse gases and other types of emissions) and macroeconomic modeling (i.e., jobs, GDP, taxes) in which she studies the impact of energy infrastructure construction and operations on the economy for regulatory and business decision-making.

EDUCATION

- **Pennsylvania State University**
Doctoral Studies Program Coursework/M.A., Economics, 1993
- **Allegheny College**
Bachelor of Science, Economics, 1991

PROFESSIONAL EXPERIENCE

2020-Present	NERA Economic Consulting – Senior Managing Director (and Managing Director)
2017-2019	NERA Economic Consulting - Director
2016-Present	Georgetown University (Washington, DC) - Adjunct Professor
2011-2017	Navigant Consulting, Inc. (Washington, DC) - Director
2004-2010	LECG, Inc. (Washington, DC) - Principal
2000-2004	FTI Consulting, Inc. (Washington, DC) - Director, Manager
1996-2000	LECG, Inc. (Washington, DC) - Economist, Senior Associate, Associate
1994-1996	American Public Power Association (Washington, DC) - Research Analyst

CERTIFICATIONS, MEMBERSHIPS, AND AWARDS

- Leading Energy Expert by Who's Who Legal (2019-2025)
- Leading Arbitration Expert by Who's Who Legal (2021 and 2025)
- International Association for Energy Economists
- U.S. Association for Energy Economists

SELECTED RAILROAD PROJECT EXPERIENCE

Railroad

- Expert consulting for the potential competitive impact of the numerous railroad acquisition in the U.S.
- Expert reports, deposition and hearing testimony for economic analysis for a confidential arbitration involving a dispute regarding interchange, switching and transportation agreements between Class 1 railroad and a short line railroad.
- Expert reports before the Surface Transportation Board (STB) and analysis of the impact on competition from the transaction of request for Norfolk Southern to control a short line railroad Norfolk and Portsmouth Belt Railroad and an underlying concern for claimed exclusionary behavior.
- Expert reports in a regulatory proceeding and a commercial court case involving the appropriate economic rate for a trackage-related service.
- Expert report and analysis of horizontal and vertical competitive effects from a railroad acquisition. Economic analysis of traffic, competition and market power evaluation involving acquisition of Iowa Northern Railroad by Canadian National.
- Expert reports and hearing testimony regarding vertical competitive effect analysis of a railroad merger and a joint venture agreement, including analysis of economic terms of the long-term contract, price effect analysis and analysis of railroad costs and profitable pricing strategy as well as public benefits for an STB merger review of the Canadian Pacific and Kansas City Southern Railroad. Assets included US, Canada, and Mexico.
- Economic analysis and expert testimony in an arbitration regarding a reasonable railroad linehaul rate and coal transportation in Canada including long term forecasts and valuation related analyses.
- Expert reports in a STB regulatory proceeding involving a terminal trackage service request arising from a merger condition and a related compensation and rate.
- Expert report before the STB addressing economic and regulatory aspects of the appropriate rate to use for trackage rights fees, including numerous valuation methodologies.

- Expert report and expert testimony in an arbitration regarding multiple breach of contract claims for joint-line transportation service, and financial, economic and regulatory considerations regarding the contracts, negotiations and the financial and economic impact and economic damages.
- Expert consultation analyzing economics of containerized freight transportation, including intermodal rail and competition with alternative transportation modes in a transportation contract dispute and claims of anticompetitive behavior for a commercial arbitration.
- Expert report in STB proceeding regarding the potential introduction of indirect competition analyses within market dominance determinations for coal transportation rates to utility generation facilities.
- Expert evidence in numerous STB regulatory proceedings involving rail transportation rate disputes for coal, including evaluation of appropriate regulatory economic approach to assess the reasonableness of a rate, evaluation of transportation agreement pricing and service provisions, long term forecasts of coal deliveries, coal-power plant heat rate and performance, transportation rates (all modes), and revenue attribution methodologies for shared facilities.
- Economic analysis of transportation and coal market and damages in claimed breach of coal sales agreement, including analysis of replacement coal, environmental attributes, and costs.

SELECTED EXPERT AFFIDAVITS AND TESTIMONY

Cause No. MDL 2022 CI 02879, In re CPS Energy Litigation in The District Court of Bexar County, Texas, 407th Judicial District, Cause No. 2021- CI-05138, In the District Court Of Harris County, Texas, 407th Judicial District CPS Energy, Plaintiff/Counter-Defendant v. Houston Pipeline Company LP and Oasis Pipeline, LP, Defendant/Counter-Plaintiff, Expert Report of Julie M. Carey, November 8, 2023, Deposition Testimony February 1, 2024, Trial Testimony April 14, 2026.

FERC Docket, OR25-7-000, Application Mustang Pipe Line LLC for Market-Based Rate Authority, Supplemental Direct Testimony of Julie M. Carey (and Julia Williams Nunez), February 9, 2026, Direct Testimony, March 11, 2025, Affidavit, June 11, 2025.

In the Matter of a Commercial Arbitration, Confidential Parties, Railroad Transportation, Switching, Interchange and Transportation Agreement dispute; Expert Report of Julie Carey; March 10, 2025, Deposition Testimony, May 8, 2025, Hearing Testimony, November 14, 2025.

Surface Transportation Board (STB), Docket No. FD 36836, Norfolk Southern Railway Acquisition of Control of Norfolk & Portsmouth Belt Railroad Company, Verified Statement of Julie Carey, February 26, 2025, Reply Verified Statement June 20, 2025. Reply Verified Statement September 18, 2025, Deposition Testimony October 21, 2025.

In the Matter of an Arbitration under the Rules of the ADR Institute of Canada, Confidential Parties Confidential parties; Arbitration Act, RSA 2000, c A-43; Carbon Credits Agreement Dispute, Expert Report of Julie Carey and Sugandha Tuladhar; November 30, 2024, Reply Expert Report, June 17, 2025, Hearing Testimony, September 10, 2025.

FERC Docket, OR25-10-000, Application for Colonial Pipeline for Market Based Rates (Baltimore), Direct Testimony of Julie M. Carey, July 31, 2025.

FERC Docket No. ER11-47, Change in Status Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey and Julia Nunez, July, 2025.

Klesch Group Holdings Limited, Klesch Refining Denmark A/S, Kalundborg Refinery A/S v. Kingdom of Denmark, ICSID Case No. ARB/23/48, Klesch Group Holdings Limited, Raffinerie Heide GmbH v. The Federal Republic of Germany ICSID Case No. ARB/23/49, Klesch Group Holdings Limited, Klesch Refining Denmark A/S, Kalundborg Refinery A/S, Raffinerie Heide GmbH v. The European Union ICSID Case No. ARB(AF)/23/1, Expert Report of Julie Carey (With Marco Schönborn) July 18, 2025.

U.S. District Court Northern District of Illinois Eastern Division, No. 1:25-cv-2439, Commuter Rail Division of The Regional Transportation Authority v The Union Pacific Railroad Company, Declaration June 17, 2025. Reply Declaration, June 25, 2025.

FERC Docket, OR25-7-000, Application of Mustang Pipe Line LLC for Market-Based Rate Authority, Direct Testimony of Julie M. Carey and Julia Williams Nunez, March 11, 2025, Affidavit, June 11, 2025.

STB, Docket No. FD 36844, Commuter Rail Division of The Regional Transportation Authority d/b/a Metra —terminal trackage rights- and The Union Pacific Railroad Company, Verified Statement of Julie Carey June 3, 2025.

In the Matter of a Commercial Arbitration Confidential Transportation Agreement; Expert Report of Julie Carey; February 26, 2025, Response Report, May 28, 2025.

U.S. District Court for the Eastern District of Michigan, Consumers Energy Company and DTE Electric Company, Plaintiff, v. Toshiba America Energy Systems Corporation and Toshiba Corporation, Expert Report of Julie M. Carey, November 1, 2024, Deposition Testimony January 17, 2025.

FERC Docket No. ER11-47, Change in Status Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey and Julia Nunez, January 2025.

Colorado Air Pollution Control Division's Proposed GHG Emissions Reduction Rule for the Midstream Sector by CDPHE Air Pollution Control Division, Hearing Testimony of Julie Carey and Sugandha Tuladhar, December 19, 2024.

Confidential parties; Arbitration Act, RSA 2000, c A-43; Carbon Credits Agreement Dispute, Expert Report of Julie Carey and Sugandha Tuladhar; November 30, 2024.

U.S. District Court for the Western District of Washington, No. 2:23-cv-00542 Bio Energy (Washington) LLC, a Delaware limited liability company, v. King County, Washington, Expert Report of Julie M. Carey, July 8, 2024, Rebuttal Expert Report August 7, 2024, Deposition Testimony August 23, 2024, Supplemental Rebuttal Expert Report, October 21, 2024.

FERC Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey and Julia Nunez, June 28, 2024.

Surface Transportation Board (STB), Docket No. FD 36744, Canadian National Railway Company And Grand Trunk Corporation Control Iowa Northern Railway Company, Expert Report of Julie Carey, May 29, 2024.

In the Matter of Application of TransAlta Corporation (TA), for Recovery of Decommissioning Costs for Sundance A Units from the Balancing Pool, Alberta Utility Commission, Expert Report of Julie Carey and Kurt Strunk, March 11, 2022, Reply Report April 26, 2024, Hearing Testimony May 11-12, 2024.

In the Matter of an Arbitration under the Rules of the International Centre for Settlement of Investment Disputes, ICSID Case No. Arb/21/54, Kelag-Kärntner Elektrizitäts-Aktiengesellschaft, Ki-Kelag International GmbH, Windfarm Mv I S.R.L., Kelavent Charlie S.R.L., Kelavent Echo S.R.L. V. Romania, Expert Report of Julie Carey (with Chris Dippon), March 29, 2023, Rebuttal Report of Julie M. Carey, December 6, 2023, Hearing Testimony, March 13-14, 2024.

In the Matter of an Arbitration under the Rules of the ADR Institute of Canada, Confidential Parties, Expert Report of Julie Carey, October 10, 2023, Expert Reply Report January 15, 2024, Expert Hearing Testimony, February 6-7, 2024.

Cause No. MDL 2022 CI 02879, In re CPS Energy Litigation in The District Court Of Bexar County, Texas, 407th Judicial District, Cause No. 2021-24173, In The District Court Of Harris County, Texas, 334th Judicial District Enterprise Products, Operating LLC, Plaintiff/Counter-Defendant v. City of San Antonio Acting by and Through the City Public Service Board (CPS Energy), Defendant/Counter-Plaintiff, Expert Report of Julie M. Carey, November 8, 2023, Deposition Testimony February 1, 2024.

In The United States Court Of Appeals For The Fifth Circuit Inhance Technologies LLC (Petitioner) V.

Environmental Protection Agency, et al., Respondents, On Appeal from Order of the Environmental Protection Agency, Declaration of Julie M. Carey, December 6, 2023.

In the Matter of Arbitration, under the London Court of International Arbitration (“LCIA”) 2020 Arbitration Rules, Confidential Parties, Hearing Testimony of Julie Carey, March 16, 2023, Reply Expert Report, December 15, 2022; Expert Report, April 8, 2022.

Confidential parties; Arbitration Act, RSA 2000, c A-43; Expert Report of Julie Carey and Willis Geffert; June 17, 2022; Hearing testimony October 27, 2022.

Surface Transportation Board (“STB”), FD 36500, Canadian Pacific Railway Limited; Canadian Pacific Railway, Company; Soo Line Railroad Company; Central Maine & Quebec; Railway Us Inc.; Dakota, Minnesota & Eastern Railroad Corporation; And Delaware & Hudson Railway Company, Inc. – Control – Kansas City Southern, The Kansas City Southern Railway Company, Gateway Eastern Railway Company, And The Texas Mexican Railway Company, Verified Statement of Julie M. Carey (with A. Bremser), February 28, 2022, July 12, 2022 (Rebuttal) and Hearing Testimony September 30 2022.

Shady Hills Energy Center, LLC, V. Seminole Electric Cooperative, Inc., Shady Hills Energy Center, LLC, Counter-Defendant, EFS Shady Hills Expansion Holdings, LLC, EFS Shady Hills, LLC, General Electric Credit Corporation Of Tennessee, Inc., GE Capital Us Holdings, Inc., Ge Capital Global Holdings, LLC, Case No. 8:20-CV-00081-WFJ-JSS US District Court Middle District of Florida (Tampa Division. Expert Report of Julie M. Carey, April 1, 2022; Deposition Testimony June 21, 2022.

Equinor Marketing & Trading (US) Inc. v. Mustang Pipe Line LLC. FERC Docket No. OR21-5-001 Prepared Answering Testimony of Julie Carey, May 3, 2022.

Highly Confidential Commercial Arbitration regarding solar power project development agreements, Japan Commercial Arbitration Association Rules, Expert Report of Julie M. Carey, January 12, 2022, Supplemented March 28, 2022.

FERC, Change in Status Filing for Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey (with Al Bremser), March 17, 2022.

Surface Transportation Board (“STB”), FD 36500, Canadian Pacific Railway Limited; Canadian Pacific Railway, Company; Soo Line Railroad Company; Central Maine & Quebec; Railway Us Inc.; Dakota, Minnesota & Eastern Railroad Corporation; And Delaware & Hudson Railway Company, Inc. – Control – Kansas City Southern, The Kansas City Southern Railway Company, Gateway Eastern Railway Company, And The Texas Mexican Railway Company, Verified Statement of Julie M. Carey (with A. Bremser), February 28, 2022.

Texas PUC Docket Numbers 52321 and 52322; Application of The Electric Reliability Council of Texas, Inc. For A Debt Obligation Order Under Pura Chapter 39, Subchapter M And N, And Request for A Good Cause Exception, Reply Expert Report of Julie M. Carey, August 12, 2021.

Highly Confidential Commercial Arbitration regarding Railroad Transportation Rate, Expert Report of Julie M. Carey, May 26, 2021, Expert Testimony July 9 and 12, 2021.

FERC Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey and Al Bremser, June 29, 2021.

STB, FD 32760 (Sub-No. 46), BNSF Railway Company – Terminal Trackage Rights – The Kansas City Southern Railway Company and The Union Pacific Railroad Company, Opening Verified Statement (VS) of Julie M. Carey, January 26, 2021; Reply VS on April 12, 2021 and Rebuttal VS on May 11, 2021.

FERC Docket Nos. OR18-7-002, et al. (Consolidated), Epsilon Trading, LLC, Chevron Products Company, and Valero Marketing and Supply Company v. Colonial Pipeline Company, In Market-Based Rate Proceeding, Prepared Answering Testimony of Julie M. Carey to Complainants, January 24, 2020; Prepared Answering Testimony to Trial Staff, April 6, 2020. Trial Testimony - December 3, 4, 7-9, 2020.

FTC v. Peabody Energy Corporation and Arch Coal, Inc., Civil Action No. 4:20-cv-000317-SEP before the U.S. District Court Eastern District of Missouri, Expert Report of Julie M. Carey, May 29, 2020, Response Expert Report (June 19, 2020), Deposition Testimony (June 29, 2020), Trial Testimony (July 21, 2020).

FERC Docket No. OR20-5-000, NGL Supply Wholesale, LLC v. Phillips 66 Pipeline LLC and Phillips 66 Company, Affidavit of Julie M. Carey, January 2, 2020.

In the Matter of Arbitration, under the London Court of International Arbitration (“LCIA”) Arbitration Rules, LCIA Case No. 183933, Between Hemlock Semiconductor Pte. Ltd, Claimant and Yingli Green Energy International Trading Limited, Respondent, Expert Report, May 9, 2019.

Surface Transportation Board (“STB”), FD 32760 (Sub-No. 46), BNSF Railway Company – Terminal Trackage Rights – The Kansas City Southern Railway Company and The Union Pacific Railroad Company, Verified Statement of Julie M. Carey, February 4, 2019.

Canadian National Energy Board Hearing Order RHW-002-2017, File OF-Tolls-Group2-T309-2017-01 01, TEML Westspur Pipelines Limited, Notice of Complaint pursuant to Part IV of the National Energy Board Act by Crescent Point Resources Partnership, Reply to Sur-Reply Expert Report of Julie M. Carey, November 23, 2018. Reply Expert Report of Julie M. Carey (submitted jointly with other subject matter experts), August 31, 2018.

FERC Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey and Laura Olive, June 27, 2018.

In the Matter of Arbitration Proceeding Concern disputes with respect to a share purchase agreement dated June 26, 2014 Between Pacer Construction Holdings Corporation, Pacer Construction Management Corporation, Pacer Mamisiwin Corporation, Pacer Construction Corporation, Pacer Foundations Corporation, Pacer Projects Corporation, FTI Consulting Canada Inc. (in its capacity as receiver and manager of Pacer Promec Energy Corporation and Pacer Promec Energy Construction Corporation) and Mastec, Inc. and Richard Pelletier holdings Inc., Richard Pelletier, Resman holdings ltd., Don Taylor, 592652 Alberta ltd., and John Simpson; Testimony of Julie M. Carey and Bradley A. Heys, June 18, 2018.

Millennium Bulk Terminals - Longview, LLC, A Delaware Limited Liability Corporation V. Washington Department of Ecology, An Agency of The State of Washington; Superior Court of Washington For Thurston County, Case No. 17-2-06442-34, Declaration of Julie M. Carey, May 9, 2018.

In the Matter of Arbitration Between CSX Transportation, Inc., Claimant and Central Railroad Company of Indianapolis d/b/a Chicago, Fort Wayne & Eastern Railroad; the Columbus & Ohio River Railroad Company; First Coast Railroad Inc.; Golden Isles Terminal Railroad, Inc.; Indiana & Ohio Railway Company; Marquette Rail, LLC; Meridian & Bigbee Railroad, LLC; Mid-Michigan Railroad, Inc. d/b/a Michigan Shore Railroad, Inc.; and Riceboro Southern Railway, LLC, Testimony of Julie M. Carey, April 20, 2018.

In the Matter of Arbitration Proceeding Concern disputes with respect to a share purchase agreement dated June 26, 2014 between Pacer Construction Holdings Corporation, Pacer Construction Management Corporation, Pacer Mamisiwin Corporation, Pacer Construction Corporation, Pacer Foundations Corporation, Pacer Projects Corporation, FTI Consulting Canada Inc. (in its capacity as receiver and manager of Pacer Promec Energy Corporation and Pacer Promec Energy Construction Corporation) and Mastec, Inc. and Richard Pelletier Holdings Inc., Richard Pelletier, Resman Holdings ltd., Don Taylor, 592652 Alberta ltd., and John Simpson; Reply Expert Report of Julie M. Carey and Bradley A. Heys, April 9, 2018.

In the Matter of New England Central Railroad, Inc., Trackage Rights Order, Pan Am Southern, LLC. Surface Transportation Board (“STB”), Docket No. FD 35842, Verified Statement of Julie M. Carey, December 6, 2017.

In the Matter of Arbitration Between CSX Transportation, Inc., Claimant and Central Railroad Company of Indianapolis d/b/a Chicago, Fort Wayne & Eastern Railroad; the Columbus & Ohio River Railroad Company; First Coast Railroad Inc.; Golden Isles Terminal Railroad, Inc.; Indiana & Ohio Railway Company; Marquette Rail, LLC; Meridian & Bigbee Railroad, LLC; Mid-Michigan Railroad, Inc. d/b/a Michigan Shore Railroad, Inc.; and Riceboro Southern Railway, LLC, Expert Testimony of Julie M. Carey, November 15, 2017.

Application of Millennium Bulk Terminals-Longview, LLC for Shoreline Substantial Development Permit and Conditional Use Permit, File Number 12-04-0375, Shoreline Permit Number 17-0992, Expert Testimony of Julie M. Carey, November 6, 2017.

Application of Millennium Bulk Terminals-Longview, LLC for Shoreline Substantial Development Permit and Conditional Use Permit, File Number 12-04-0375, Shoreline Permit Number 17-0992, Expert Report of Julie M. Carey and Peter Rawlings (ERM), October 26, 2017.

National Energy Board Hearing Order RHW-002-2017, File OF-Tolls-Group2-T309-2017-01 01, TEMPL Westspur Pipelines Limited, Notice of Complaint pursuant to Part IV of the National Energy Board Act by Crescent Point Resources Partnership, Expert Report of Julie M. Carey, September 15, 2017.

Minnesota Public Utilities Commission, Docket No. PL-9/PPL-15-137, In the Matter of the Application of Enbridge Energy, Limited Partnership for a Routing Permit for the Line 3 Replacement Project in Minnesota from the North Dakota Border to the Wisconsin Border., Expert Report of Julie M. Carey (With Dr. Rick Lichty). January 30, 2017.

FERC Docket No. ER10-2179 et al., Triennial Update for Market Based Rate Authority for Calvert Cliffs Nuclear Power Plant, LLC, et al. in the Northeast region, Affidavit of Julie M. Carey (with Julie R. Solomon). December 29, 2016.

FERC Docket No. ER13-1536 et al., Triennial Update for Market Based Rate Authority for Exelon in the Northeast region, Affidavit of Julie M. Carey (with Julie R. Solomon). December 29, 2016.

FERC Docket No. ER10-1823 et al., Triennial Update for Market Based Rate Authority for Dominion Energy Marketing, et al. in the Northeast region, Affidavit of Julie M. Carey (with Julie R. Solomon). December 29, 2016.

FERC Docket No. ER11-1933 et al., Triennial Update for Market Based Rate Authority for Green Mountain Power, et al. in the Northeast region, Affidavit of Julie M. Carey, December 23, 2016

FERC Docket No. ER11-47 et al., Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the Northeast region, Affidavit of Julie M. Carey. December 27, 2016.

U.S. Army Corps of Engineers, Seattle District, Response to Draft Environmental Impact Statement for the National Environmental Policy Act Regarding the Proposed Millennium Bulk Terminals Longview Project, Expert Evidence. November 29, 2016.

Cowlitz County and the Washington State Department of Ecology, Response to Draft Environmental Impact Statement for the State Environmental Policy Act Regarding the Proposed Millennium Bulk Terminals Longview Project, Expert Evidence. June 13, 2016.

FERC Docket No. EC16-, Supplemental Affidavit of Julie M. Carey to Support Ohio Valley Electric Corporation's Application for Market Based Rate Authority in PJM, MISO, and other market areas. January 17, 2016. (Initial Report November 6, 2015)

Wisconsin Public Service Commission, Docket No. 6800-CE-176, Application for a CPCN To Build an Natural Gas-Fueled Power Plant at its Riverside Energy Center Facility, Surrebuttal Testimony of Julie M. Carey. December 16, 2015.

Wisconsin Public Service Commission, Docket No. 6800-CE-176, Application for a CPCN To Build an Natural Gas-Fueled Power Plant at its Riverside Energy Center Facility, Rebuttal Testimony of Julie M. Carey. December 4, 2015.

FERC Docket No. Docket No. EC15-, Supplemental Affidavit of Julie M. Carey to Support PNM's Application for Authorization of Disposition of Jurisdictional Facilities. November 6, 2015. (Initial Report September 25, 2015.)

FERC Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the Southwestern Power Pool region, Affidavit of Julie M. Carey. June 30, 2015.

FERC Docket No. ER10-2302, Change in Status Filing for Public Service Company of New Mexico, et al., Affidavit of Julie M. Carey. August 15, 2014.

FERC Docket No. ER14-, Change in Status Filing for American Electric Power Company, et al., Affidavit of Julie M. Carey (with Ben Ullman). December 27, 2013.

FERC Docket No. ER11-47 et al., Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. in the PJM RTO region, Affidavit of Julie M. Carey. December 20, 2013.

FERC Docket No. ER13-1896-000, Application of American Generation Resources Inc. for Market Based Rate Authority, Affidavit of Julie Carey. July 5, 2013.

ULVAC, INC vs. China Solar Power (Holdings) Ltd., In the Matter of a Commercial Arbitration, Hong Kong International Arbitration Centre, HKIAC /A11013, Expert Report of Julie Carey. June 11, 2013.

Energy Conversion Devices, Inc., et al., Chapter 11, Case No. 12-43166, U.S. Bankruptcy Court Eastern District of Michigan Southern Division, Expert Report for Praxair by Julie Carey (with Graham Stevens). April 17, 2013.

HS Orka hf. vs. Nordural Grundartangi, ehf and Orkauveita Reykjavíkur, In the Matter of a Commercial Arbitration, Stockholm Chamber of Commerce Arbitration V (191/2011), Expert Testimony of Julie M. Carey. February 5, 2013.

STB Ex. Parte No. 717, Reply to Petition of Association of American Railroads to Institute a Rulemaking Proceeding to Reintroduce Indirect Competition as A Factor Considered in Market Dominance Determinations for Coal Transported to Utility Generation Facilities. Verified Statement of Julie M. Carey (with James M. Speyer), January 14, 2013.

FERC Docket No. ER96-1551 and ER01-615 and ER09-74, Triennial Update for Market Based Rate Authority for Public Service Company of New Mexico, Affidavit of Julie M. Carey. December 21, 2012.

HS Orka hf. vs. Nordural Grundartangi, ehf and Orkauveita Reykjavíkur, In the Matter of a Commercial Arbitration, Stockholm Chamber of Commerce Arbitration V (191/2011), Expert Rebuttal Report of Julie M. Carey. October 24, 2012.

On behalf of Montana Alberta Tie Ltd ("Enbridge – MATL"), Alberta Utilities Commission, Proceeding 1633, Expert Testimony of Julie M. Carey (with Cliff Hamal). September 18-19, 2012.

HS Orka hf. vs. Nordural Grundartangi, ehf and Orkauveita Reykjavíkur, In the Matter of a Commercial Arbitration, Stockholm Chamber of Commerce Arbitration V (191/2011), Expert Report of Julie M. Carey. August 29, 2012.

FERC Docket No. ER11-47, Triennial Update for Market Based Rate Authority for American Electric Power Company, et al. (Southwestern Power Pool), Affidavit of Julie M. Carey. June 29, 2012.

On behalf of Montana Alberta Tie Ltd ("Enbridge – MATL"), Alberta Utilities Commission, Proceeding 1633, Testimony of Julie M. Carey (with Cliff Hamal). June 15, 2012.

FERC Docket No. ER10-727-001, Request for Market Based Rate Authority for AEP Retail Energy Partners LLC, Affidavit of Julie M. Carey. March 23, 2010.

FERC Docket No. ER96-1551 and ER01-615 and ER09-74, Triennial Update for Market Based Rate Authority for Public Service Company of New Mexico, Affidavit of Julie M. Carey. March 8, 2010.

On behalf of COALSALES II, L.L.C., In the matter of Gulf Power Company v. COALSALES II, L.L.C.

Docket no. 3:06 CV 270/MCR/MD, before the US District Court for the Northern District of Florida, Pensacola Division, Expert Reports of Julie M. Carey (with Cliff Hamal). December 11, 2008 and August 19, 2008.

FERC Docket Nos. ER96-2495, ER97-4143, ER97-1238, ER98-2075 and ER98-542, Change in Status Filing for American Electric Power for Market-Based Rate Authority, Affidavit of Julie M. Carey. May 25, 2007.

FERC Docket No. Docket EC06-113-000, Application for Asset Transfer of Contra Costa #8 for Pacific Gas and Electric Company, Mirant Delta, LLC and Mirant Special Procurement, Inc., Affidavit of Julie A. Murphy (now Julie M. Carey). April 17, 2006.

FERC Docket No. ER96-1551 and ER01-615, Change in Status Filing for Public Service Company of New Mexico for Market-Based Rate Authority, Affidavit of Julie A. Murphy. January 12, 2006.

FERC Docket No. ER05-1244-000 and ER05-1244-001, Application by Societe Generale Energie (USA) Corp. for Market-Based Rate Authority, Affidavit of Julie A. Murphy. July 21, 2005.

Testimony of Julie Murphy on behalf of Onvoy, Inc., Onvoy, Inc. v. Allete, Inc. f/k/a Minnesota Power, Inc. d/b/a Minnesota Power and Light Company and, Enventis Telecom, Inc., Sixth Judicial District Court File No. 69-C9-03-601595, St. Louis County, Minnesota. April 21, 2005.

STB Docket No. 42071, Otter Tail Power Co. v. BNSF Railway Co, Sponsored Evidence within Section III-A Stand-Alone Traffic Group of the Supplemental Response. March 1, 2005. Additional Reply Evidence, March 22, 2004. Reply Evidence, October 8, 2003.

Expert Report Julie A. Murphy (with John Klick) on behalf of Onvoy, Inc., Onvoy, Inc. v. Allete, Inc. f/k/a Minnesota Power, Inc. d/b/a Minnesota Power and Light Company and, Enventis Telecom, Inc., Sixth Judicial District Court File No. 69-C9-03-601595, St. Louis County, Minnesota. December 5, 2004.

STB Docket No. 41191 (Sub-No. 1), AEP Texas North Company v. Burlington Northern and Santa Fe Railway Company, Verified Statement of Julie A. Murphy. September 9, 2004. Reply Evidence Section III-A Stand-Alone Traffic Group, May 24, 2004.

MI PSC Case No. U-13531, In the Matter of the Commission's Own Motion to Review the Costs of Telecommunication Services Provided by SBC Michigan, Final Reply Declaration of Julie A. Murphy (with Michael Baranowski). May 10, 2004. Initial Declaration, January 20, 2004.

STB Docket No. 41185, Arizona Public Service and PacifiCorp v. Burlington Northern Santa Fe Railway Company, Verified Statement of Julie Murphy. April 18, 2004.

Texas PUC SOAH Docket. No.473-04-0001, PUC Project No. 27957, Application of CenturyTel of San Marcos, Inc. for Approval of a Plan for Disaggregation of State and Federal Universal Service Support, Testimony of Julie Murphy on Behalf of Grande Communications Networks, Inc. February 19, 2004. (Direct Testimony, December 29, 2003.)

STB Docket No. 42058. Arizona Electric Power Cooperative Inc. v. the Burlington Northern and Santa Fe Railway Company and Union Pacific Railroad Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Co. January 26, 2004. Verified Statement of Julie Murphy (with John Klick). April 18, 2003.

STB Docket No. 42072, Carolina Power & Light Co v. Norfolk Southern Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group, Supplemental Reply Evidence January 12, 2004. Reply Evidence, October 11, 2002.

STB Docket No. 42069, Duke Energy Corporation v. Norfolk Southern Railway Company, Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Supplemental Reply Evidence and Argument of Norfolk Southern Railway Co. January 12, 2004. Reply Evidence, September 27, 2002.

STB Docket No. 42070, Duke Energy v. CSX Transportation, Inc., Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Supplemental Testimony of CSX Transportation, Inc. January 5,

2004. Reply Evidence, September 20, 2002.

FCC WCB Docket No.03-18. In the Matter of Alascom, Inc. Request for Waiver of Commission Rule and Orders Requiring Annual Tariff Revision, Alascom, Inc. Petition for Waiver, Response Declaration Julie Murphy (with John Klick), Supplement to Waiver Request and Response to FOIA Request. April 4, 2003. Additional Evidence provided March 13, 2003, March 5, 2003, January 7, 2003.

STB Docket No. 42057, Xcel v. BNSF Railway Co., Sponsored Testimony within Section III-A Stand-Alone Traffic Group of Reply Evidence and Argument of Burlington Northern Santa Fe Railway Co. April 4, 2003.

CA PUC Application No. 01-02-024. Joint Application of AT&T Communications of California, Inc. (U 5002 C) and WorldCom, Inc. for the Commission to Reexamine the Recurring Costs and Prices of Unbundled Switching, Loop, Transport and Other Network Elements in Its First Annual Review of Unbundled Network Element Cost Pursuant to Ordering Parag. 11 of D.99-11-050. Reply Declaration of Julie Murphy (with Robert A. Mercer). February 7, 2003.

OTHER REPORTS

For the Center for Liquefied Natural Gas (LNG), provided comments on the U.S. Department of Energy's LNG Study (Energy, Economic, and Environmental Assessment of U.S. LNG Exports"), March 2025 (with NERA).

Electricity Price Impacts of Technology-Neutral Tax Incentives With Incremental Electricity Demand from Data Centers, Prepared for Clean Energy Buyers Association (CEBA), February 10, 2025. (With NERA team).

Comments on the Colorado Air Pollution Control Division's Initial Economic Impact Analysis of a Proposed GHG Emissions Reduction Rule for the Midstream Sector by CDPHE Air Pollution Control Division, October 25, 2024.

Confidential Report for the Department of Energy conducting a market analysis for a proposed loan guarantee for a company within the Electric Vehicle and Infrastructure sector, October 2024. (With NERA team).

Confidential Report for the Department of Energy conducting a market analysis for a proposed loan guarantee for a company within the electricity power sector, August 2024. (With NERA team).

Confidential Report for the Department of Energy conducting a market analysis for a proposed loan guarantee for a company within the green hydrogen sector, June 2024. (With NERA team).

Confidential Report for the Department of Energy conducting a market analysis for a proposed loan guarantee for a company within the electricity power sector, June 2024. (With NERA team).

Economic Impact Assessment of the Absence of Inhance Technologies' Fluorination Technology for Packaging and Fuel Systems, September 2023. (with NERA Team)

Supply Chain, Capacity Considerations and Other Key Issues: "Ethylene Oxide Emissions Standards for Sterilization Facilities: National Emission Standards for Hazardous Air Pollutants (NESHAP)" and "Pesticide Registration Review; Proposed Interim Decision and Draft Risk Assessment Addendum for Ethylene Oxide", June 26, 2023. (with NERA Team)

Analysis of U.S. Natural Gas Market Price Impacts from Increasing Natural Gas Supply Accessibility for Different Natural Gas Demand Outlooks, May 2023. (with NERA Team)

Report and Analysis of Economic Benefits of the PEPCO's Long Term Capital Plan for the Maryland Regulatory Rate Proceeding, Potomac Electric Power Company (PEPCO), May 2023. (with Edward Lannan).

Report and Analysis of Economic Benefits of the PEPCO's Long Term Capital Plan for the District of Columbia Regulatory Rate Proceeding, Potomac Electric Power Company (PEPCO), April 2023. (with Edward Lannan).

Confidential Report for the Department of Energy conducting a market analysis for a proposed loan guarantee for a company within the energy storage sector, April 2023 (With NERA team).

Report and Analysis of Economic Benefits of Washington Gas's Long Term pipeline infrastructure plan on the District of Columbia for the DC Regulatory Rate Proceeding, December 2022 (with Edward Lannan).

Analysis of Economic Benefits of the PEPCO's Long Term Capital Plan, Potomac Electric Power Company (PEPCO), January 2020.

Economic Benefits Analysis of PROJECTpipes on the District of Columbia, November 2018 (Julie Carey and Derya Eryilmaz).

Analysis of Economic Benefits of the Capital Grid Project in the District of Columbia and Maryland, Potomac Electric Power Company (PEPCO), August 31, 2017.

Evaluation of the Economic Contributions of Littoral Combat Ship (LCS) Program, Lockheed Martin Corporation, Julie M. Carey (with Kate Rodenrys), January 7, 2015 (Supplemented December 2015 and 2017).

Comments to the FERC Notice of Inquiry: Modifications to Commission Requirements for Review of Transactions under Section 203 of the Federal Power Act and Market-Based Rate Applications under Section 205 of the Federal Power Act RM16-21-000, Julie Carey and others, November 28, 2016.

Economic Analysis of Electric Vehicle Market from Illinois' Proposed Legislation, Julie M. Carey (with Celia David and John Gartner), May 17, 2016 (Updated August 10, 2016).

Economic Impact Assessment Study of Enbridge Line 3 Replacement Program; National Energy Board Application, Hearing Order OH-002-2015, November 5, 2014. (OF-Fac-Oil-E101-2014-11 01)

An Analysis of a Refined Product Pipeline Competitive Tariff Rates and of the Current Competitiveness of the Refined Product Pipelines Market-Based Rate Markets, Confidential Report, Julie M. Carey (with Kate Rodenrys and George Schink), June 9, 2014.

Oil Pipeline Regulation and Competition, Confidential White Paper for the Association of Oil Pipe Lines, Julie Carey (with George Schink, Rick Smead, and Julie Solomon), August 2013.

Report on the Preliminary Analysis of the Potential Competition Faced by a Reversed Crude Oil Pipeline and Competition Faced by an Existing System, Confidential Report, Julie Carey (with Kate Rodenrys and George Schink), June 24, 2013.

PUBLICATIONS AND PRESENTATIONS FOR LAST 10 YEARS AND PRIOR SELECTED

Ukraine Arbitration Week, Panel Discussion on Energy and Climate Disputes, December 19, 2025.

Washington Arbitration Week Conference, Renewable Energy Related Disputes, Panel Discussion, October 2025.

Economic damages Oil Pipelines: Market Developments, Presentation at Liquid Energy Pipeline Association, September 2025.

Reports of the Natural Gas Industry's Demise are Greatly Exaggerated, Energy Bar Association, Panel Session, October 17, 2024.

Oil Pipelines and Products: Market Development and Energy Transition, Presentation at open session at FERC staff on behalf of Liquid Energy Pipeline Association (AOPL), October 9, 2024.

Oil Pipelines: Market Developments, Presentation at Liquid Energy Pipeline Association, September 18, 2024.

Demystifying the Damages Assessment in International Arbitration (Book Chapter), Global Arbitration Review Guide to Damages in International Arbitration (6th Edition), June 2024.

Alternative Approaches To Valuing Damages In Investor-State Arbitration, Washington, Arbitration Week, November, 20, 2023.

Antitrust and Oil Pipelines, Panel Discussion Liquid Energy Pipeline Association, September 21, 2023.

Consequences of Energy Transition Policies for Investment Arbitration Disputes, Washington Arbitration Update, May 22, 2023.

Washington Arbitration Week Conference, Working With Your Expert: How to Draft the Damages Section of a Memorial and Work with the Damages Expert in Preparation of the Hearing? (Practical Session) Panel Discussion, December 1, 2022.

Oil Pipelines: Market Developments, Presentation at Liquid Energy Pipeline Association, 9/15/22.

All Roads Lead to Asia: Some Guideposts for Economic Damages and Recent Highlights, Global Arbitration Review - Asia. Book Chapter with Chris Dippon and Brad Heys, April 2022.

Washington Arbitration Update Conference, Assessing Damages in Non-Expropriatory Breaches, Presentation and Panel Discussion, October 14, 2021.

Round Table Discussion Energy International Arbitration Update, Financier Worldwide. October 22, 2021.

Oil Pipelines Markets, Presentation at Association of Oil Pipelines (AOPL) Annual Business Conference, September 23, 2021.

Measuring Economic Damages with Maximum Certainty, Global Arbitration Review, May 21, 2021. (with Christian Dippon and Will Taylor). (Updated from April 2, 2019 publication)

Oil Pipelines: The Regulatory and Market Landscape, Presentation at open session at FERC staff on behalf of Association of Oil Pipelines (AOPL), May 7, 2020.

Evolution of Forecasting Techniques for Dynamic Energy Markets, Chapter in the Handbook of Energy Finance, Theories, Practices and Simulations, Julie Carey (with Derya Eryilmaz) March 2020.

The Future of the U.S. Renewable Energy Disputes: Decoding Recent Trends and Updates, Presentation for the Knowledge Group, March 24, 2020. (with Al Bremser)

Energy Disputes and Litigation: Effective Strategies and Best Practices for the Year Ahead Energy, Presentation for the Knowledge Group, December 5, 2019. (with Al Bremser)

Oil Pipeline Transportation Markets, Presentation at AOPL Annual Business Conference, September 2019.

A Practical Guide to Economic Damages in Complex Commercial Disputes, Presentation for the Knowledge Group, May 2, 2019. (with Christian Dippon)

Crude Oil and Refined Products and Transportation Markets, Presentation at open session at FERC on behalf of AOPL, April 24, 2019.

Measuring Economic Damages with Maximum Certainty, Global Arbitration Review, 02 April 2, 2019. (with Christian Dippon and Will Taylor).

Crude Oil and Refined Products and Transportation Markets, Presentation at open session at FERC on behalf of AOPL, January 31, 2018.

Infrastructure Development and Impact on the Supply Chain, including implementation of the FAST Act. The Association of Transportation Law Professionals, Transportation Forum, XIV, October 16, 2017.

Crude Oil and Transportation Market and Regulatory Developments, Julie Carey and Laura Olive Association of Oil Pipeline Business Conference, September 20, 2017.

What Lies Beneath the Shifting Politics: Implications of US Energy Policy on Global Energy Markets, International Association of Energy Economics (IAEE), Julie Carey and Maggie Shober, 2017.

Crude Oil and Transportation Market and Regulatory Developments, Julie Carey, Association of Oil Pipeline Business Conference, September 16, 2016.

Will Trudeau and Obama Fulfill Their Energy Promises? Julie Carey, The Energy Advisors, March 25, 2016.

NGL Market Development Panel, Infocast Midstream Summit, February 17, 2016.

Energy Market Trends, Economic Implications, and the Outlook for Infrastructure, Construction Superconference, December 8, 2015.

Effects of Rising Demand for Energy Infrastructure Development on Labor, Other Resources, and the Economy, Julie Carey (with Chris Ring and Rebekah Hannif-Ali), Navigant Construction Forum, December 2015.

Trials, Tribulations and Turmoil in Crude Oil Markets, Association of Corporate Counsel, Nov. 24, 2015.

Near Term Energy Market Dynamics and the Clean Power Plan, Western Coal Traffic League Fall Meetings, Julie Carey (with Maggie Shober), November 19, 2015.

The Impact of Crude Oil and Natural Gas Market Trends on Litigation, Energy Litigation Journal (ABA Section), Julie M. Carey (with Bob Broxson and Sonya Kwon), November 2015.

Today's Energy Market and the Cost of Artificially Suppressing Demand with the Crude Oil Export Ban, Kelley, Drye, and Warren, Energy Regulatory Conference, October 22, 2015.

Regulation and Competition in Oil Pipelines and Related Industries, Association of Oil Pipelines Business Conference, Julie Carey (with Julie Solomon), September 17, 2015.

Low Crude Oil Price Impacts: Market Dynamics, Economic Implications and Disputes, Texas Lawyers Houston, Julie Carey (with Robert Lang), May 21, 2015.

Rising Tide: Litigation Wave from Low Oil Prices & Economic Implications, Texas Lawyers- Dallas, Julie Carey (with Robert Lang), May 8, 2015.

What Is the Future of the Long-Delayed Keystone XL Pipeline? Inter-American Dialogue's Latin America Advisor – Energy, May 5, 2014.

Enforcement Shifts Energy-Trading Strategies, Energy Litigation Journal (ABA Section), Julie M. Carey (with Cliff Hamal and Ben Ullman), March 2014.

Energy Commodity Trading's Evolving Regulatory Frontier, Natural Gas Notes, January 2014.

Trading Firms in the Bullseye Amid Stepped Up Oversight of Energy Markets, *Forbes*, October 11, 2013.

Rail Emerging as Long-Term North American Crude Option, Oil and Gas Journal, August 5, 2013.

Report on the Preliminary Analysis of the Competition Faced by a Crude Oil Pipeline System, Confidential Report, Julie Carey (with Kate Rodenrys and George Schink), June 7, 2013.

How Unconventional Oil and Gas Is Supercharging the U.S. Economy, *Forbes* (online), December 13, 2012.

Unconventional Resources, Economic Growth and Power Generation Implications, Julie M. Carey, PowerGen Conference, Orlando, Florida, December 13, 2012.

Surprise Side Effect of Shale Gas Boom: A Plunge in U.S. Greenhouse Gas Emissions, *Forbes*, December 7, 2012.

The Economics of Unconventional Oil and Gas, North American Gas Summit, Julie M. Carey, November 15, 2012.

The Unconventional Path for Domestic Crude Oil and Natural Gas Resources, U.S. Association for Energy Economists Dialog, Julie M. Carey and Christopher L. Ring, September 2012.

Shale Gas and Oil: Economy-Wide Game Changers, Natural Gas Notes, August 1, 2012.

The Renewable Transformation and Nine Trends to Watch For, Julie Carey (with Cliff W. Hamal), US Association for Energy Economists Dialog, November 2010.

Clean Energy Policy Initiative Impacts on the Environment and the Economy, Confidential Client Report, May 2009.

Strategic Recommendations for Expiring Power Contracts, Confidential Report, Julie Carey (with Cliff W. Hamal), Prepared on Behalf of Ontario Power Authority, January 22, 2009.

Force Majeure Risks and Ontario Power Authority's Power Contracts, Julie Carey (with Cliff W. Hamal),

Prepared on Behalf of Ontario Power Authority, March 31, 2008.

Financial Accommodation for Force Majeure Events, Julie Carey (with Cliff W. Hamal), Prepared on Behalf of Ontario Power Authority, January 21, 2008.

APPENDIX B – REGRESSION RESULTS AND PREDICTED RATES

**III.B. A Sensitivity with US and Canada Class 1
Railroads that Accounts for Commodity and
Geography with Interchange Location have Higher
Statistical Reliability and Lower Rate Estimates**

Improved Economic Characteristics in Dr Soboleva Proposed Estimation for CTA Interswitching Rate (Class 1 Only, Blocks of 1-59 cars, Average 2022-2025 Data)

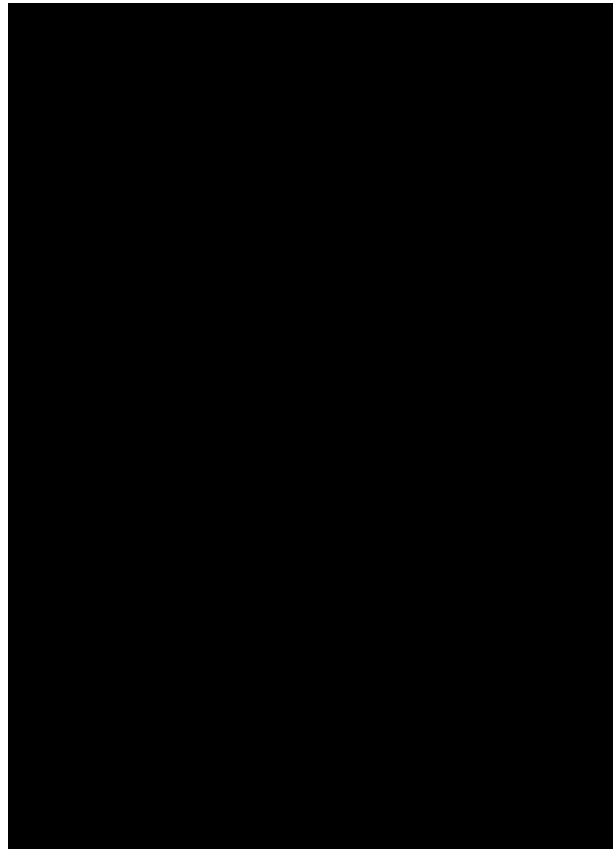
VARIABLES	(1) Rate
-----------	-------------

Improved Economic Characteristics in Dr
Soboleva Proposed Estimation for CTA
Interswitching Rate (Class 1 Only, Blocks of 1-
59 cars, Average 2022-2025 Data)

VARIABLES	(1) Rate

**Improved Economic Characteristics in Dr
Soboleva Proposed Estimation for CTA
Interswitching Rate (Class 1 Only, Blocks of 1-
59 cars, Average 2022-2025 Data)**

(1)



**Average Estimated Class I Single Rates (1-59 Cars) (All Years
2022-2025) by Two-Digit STCC
(Based on III.B Sensitivity)**

1. *Journal of the American Medical Association*, 2000; 283: 2689-2695.

1. Soboleva data build, CN data 2022-2025 (NERA Model).
2. Zone 4b average rate is 4b base rate (without adder).

**III.C. A Sensitivity with More Appropriate Weighting
of Data Categories to Represent CTA Regulated Switching
Also Improves Reliability with Lower Rate Estimates**

CONTAINS CONFIDENTIAL INFORMATION

NERA Revisions to Dr Soboleva Proposed Estimated CTA Switch Rate, Weighted
by Regulated Data Characteristics

	(1)	(2)	(3)
VARIABLES	oct2022-sep2023	oct2023-sep2024	oct2024-sep2025