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PUBLIC VERSION

March 6, 2026

Via email: ferroviaire-rail@otc-cta.gc.ca.

Secretariat, Canadian Transportation Agency
60 Laval Street, Unit 1-117
Gatineau, Quebec
Canada J8X 3G9

RE: CN'S SUBMISSION TO THE AGENCY'S CONSULTATION ON COMMERCIAL MARKET FACTORS TO BE CONSIDERED IN DETERMINING REGULATED INTERSWITCHING RATES

Dear Sir/Madam,

CN hereby provides its responses to the questions submitted by the Canadian Transportation Agency (the "**Agency**") in the context of its public consultation on the methodology to be developed to take into account commercial market factors in setting regulated interswitching rates under the *Canada Transportation Act* (the "**Act**") (the "**Consultation**").

This Consultation follows the Federal Court of Appeal's decision issued on October 9, 2025, in *Canadian National Railway v. Canadian Transportation Agency*, 2025 FCA 184 (the "**FCA Decision**"), in which the Court directed the Agency to consider commercial market factors, including interswitching rates in other markets and commercial market prices, in setting "commercially fair and reasonable" interswitching rates as required by s. 112 of the Act. In the FCA Decision, the Court set aside the Agency's 2024 interswitching rate determination and remitted the matter to the Agency for redetermination.

As a result of the FCA Decision, the Agency is now required not only to reissue the 2024 interswitching rate determination, but also to reissue the 2025 interswitching rate determination. In addition, on December 1, 2025, the Agency issued interim 2026 interswitching rates based on its existing cost-based methodology. These interim rates, as well as the 2024 and 2025 interswitching rates, will be redetermined once the Agency has developed its new



methodology as a result of this Consultation. CN understands that the 2024, 2025 and 2026 redetermined interswitching rates will apply retroactively.

A. CONFIDENTIALITY

CN's submissions are provided in two versions: a confidential version and a public version. The confidential version is marked "CONFIDENTIAL VERSION" and contains highly sensitive commercial and confidential information, which is shown within brackets ([]) and must not be disclosed to the public or to any other party without CN's prior written consent. In the public version, labelled "PUBLIC VERSION," all confidential information has been redacted.

B. EXPERT REPORT - DR. NADIA SOBOLEVA

To assist in answering the questions raised in the Consultation, CN retained Dr. Nadia Soboleva, Ph.D., as an expert to conduct an independent analysis of the commercial market factors relevant to determining regulated interswitching rates under s. 127.1(1) of the Act that are commercially fair and reasonable, and to develop a rate setting methodology that takes into account these factors. Dr. Soboleva is a Principal in the Antitrust & Competition Economics practice at Charles River Associates and has extensive and renowned experience with competition and regulatory matters in the North American rail sector.

A copy of Dr. Nadia Soboleva's report is enclosed (the "**Soboleva Report**"). Her report proposes a market-based methodology grounded in regression analyses of unregulated rates for comparable movements in Canada and the United States. As described in greater detail below, the analysis identifies several key commercial market factors influencing rates, including the movement distance, block size and shipment type. The proposed model identifies observable rate premiums associated with hazardous materials or dangerous goods, automobiles, and dimensional loads.

C. CN'S RESPONSES

In its Consultation, the Agency is seeking submissions on the following questions:

1. What are the commercial market factors that the Agency should consider in its determination of regulated interswitching rates?
2. What additional data should railways provide in order for the Agency to consider these market factors?



3. What weight, if any, should the Agency give to commercial market factors in its rate-setting methodology?
4. What methodology should be used to apply these weights to calculate interswitching rates?

Below are CN's responses to these questions. CN sincerely appreciates the opportunity to participate in this Consultation and hopes that its comments and recommendations will assist the Agency in developing an approach that is commercially fair and reasonable, and consistent with the direction provided by the Federal Court of Appeal.

1. WHAT ARE THE COMMERCIAL MARKET FACTORS THAT THE AGENCY SHOULD CONSIDER IN ITS DETERMINATION OF REGULATED INTERSWITCHING RATES?

As set out in s. 112 of the Act and consistent with the FCA Decision, regulated interswitching rates must be "commercially fair and reasonable" to all parties. CN submits that, as set out in the Soboleva Report, commercially fair and reasonable rates must reflect commercial market evidence that includes rates for movements that are similar to interswitching movements, are observed in Canada and other relevant markets, and are strictly market driven (i.e., unregulated). For the purposes of this submission, CN will refer to those comparable movements as the "unregulated interswitching" movements.

CN wishes to underline that there is a meaningful body of unregulated interswitching activity in Canada involving both Class 1 and Class 2 railways which is not subject to the regulated interswitching regime. Also, both Canadian Class I railways, namely CN and CPKC, operate in the United States and participate in unregulated reciprocal switching there. These unregulated transactions provide robust market benchmarks for deriving average unregulated switching rates that can be used to inform commercially fair and reasonable regulated interswitching rates. This data has been extensively analysed in the Soboleva Report.

More precisely, to identify the commercial market factors that the Agency should consider when determining the regulated interswitching rates, the Soboleva Report draws on CN's car level data of "unregulated interswitching" records (the "**CN Interswitching Data**") for the years 2022 to 2025. The CN Interswitching Data include both CN payables (what CN pays to other railways), and CN receivables (what other railways pay to CN). For each record, available data fields include the interswitching price per car, track distance, STCC commodity, AAR car type, origin/destination, interchange, equipment ID and interswitching timestamp to identify the car block size, and the price-authority partner (i.e., the railway that pays or receives the interswitching fee).



In her report, Dr. Soboleva performed a regression analysis on the subsample of unregulated interswitching transactions occurring between October 1, 2022, and September 30, 2023, to estimate 2024 market-based interswitching rates (the reasoning behind this date range is discussed below). The resulting model estimates coefficient parameters that quantify how specific observable characteristics influence the predicted interswitching rate (Exhibit 1)¹.

[Exhibit 1: Regression Analysis of Market Rates - October 2022 – September 2023]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

[Source: Figure 7 of the Soboleva Report — Regression Analysis of Unregulated Rates, October 2022 – September 2023]

Through this analysis, Dr. Soboleva identified several variables that have statistically significant effects on unregulated interswitching rates. These variables represent the commercial market factors that can be empirically derived and verified using unregulated interswitching records.

These identified factors are the following:

1. Shipment size (blocks of 60 cars or more versus shipments of 1–59 cars);
2. Distance between the interchange and siding; and
3. Shipment type with respect to:
 - a. Hazardous materials or dangerous goods;

¹ The same regression analysis method was employed using unregulated interswitching data from October 1, 2023, to September 30, 2024, to estimate the 2025 interswitching rates, and unregulated interswitching data from October 1, 2024, to September 30, 2025, to estimate the 2026 interswitching rates.



- b. Automobiles; and
- c. Dimensional (oversized) loads.

As detailed in the Soboleva Report, the signs and magnitudes of the estimated coefficients in Exhibit 1 align with the operational realities of interswitching movements and reflect market realities of supply and demand as well as competition both between railways and between railways and other modes of transportation (e.g., barges and trucking).

The Soboleva Report concludes that interswitching rates in the unregulated market increase with the distance of the move but that the rates are lower for movements involving blocks of 60 cars or more due to economies of scale. This generally aligns with the factors considered in the Agency's existing approach to setting rates based on distance and block size, as set out in the *Railway Interswitching Regulations*, and directed under section 127.1(2) of the Act.

The Soboleva Report further identifies three shipment categories for which there is a statistically significant difference in average unregulated interswitching rates. The positive coefficient estimates demonstrate that shipments requiring specialized handling, including automobiles, hazardous materials or dangerous goods, and dimensional (oversized) loads, command higher rates in the unregulated market. Indeed, automobiles require specialized equipment and trained personnel for safe operations. Dimensional loads similarly require specialized equipment and operational constraints, including unique placement requirements within trains. Hazardous materials or dangerous goods, including Toxic Inhalation Hazard (TIH) or Poison Inhalation Hazard (PIH), involve higher risks and necessitate strict compliance with safety and regulatory requirements as well as different switching rules, each of which directly affects the costs borne by terminal carriers.

These findings underscore that regulated interswitching rates, which are derived from system-wide averages, do not currently adequately compensate railway companies for the specialized handling, enhanced safety protocols, and materially higher costs associated with these shipments. Dr. Soboleva's regression analysis of unregulated interswitching transactions provides empirical support for this conclusion.

Furthermore, as detailed in the Soboleva Report, the market-based benchmarks derived in her analysis rely on observed unregulated transactions for traffic that does not require extraordinary handling beyond normal rail operations, other than for automotive, hazardous materials or dangerous goods, and dimensional loads. It is important to stress that there are other shipment types that require special handling including temperature-controlled traffic, unusually heavy or high-density loads, security sensitive commodities, fragile or shock sensitive cargo, and traffic requiring dedicated or specially prepared equipment. Such loads are not present in sufficient volumes in the data Dr. Soboleva analyzed. CN maintains that if such traffic were to appear in future data used for regulatory benchmarking, it would likely differ from other movements in the



data and also from the three shipment types included in the analysis (automotive, hazardous materials or dangerous goods, and dimensional loads). The Agency should then consider applying an appropriate premium for such traffic using the similar approach as proposed for other categories of special handling traffic.

Special consideration should also be given to TIH and PIH materials given the significant risks associated with their transport. The Soboleva report noted that TIH/PIH materials demand stricter safety measures, require more intensive handling, and necessitate higher insurance coverage compared to other hazardous or dangerous goods. TIH/PIH loads are not present in sufficient volumes in the data Dr. Soboleva analyzed to precisely estimate a separate premium than that for hazardous materials or dangerous goods, but she emphasized the importance to test for such premium in each year as traffic volumes change.

Accordingly, CN maintains that TIH/PIH should be excluded entirely from the statutory interswitching regime. Parliament has already recognized the unique risk profile of TIH materials by requiring a \$1 billion minimum liability insurance coverage under Schedule IV of the Act², and by expressly excluding them (along with radioactive materials) from long-haul interswitching under subsection 129(3) of the Act. This statutory exclusion reflects the reality that TIH/PIH materials require enhanced safety protocols, specially trained personnel, customized operating procedures, and distinct switching requirements. CN supports that the rationale underlying Parliament's exclusion of TIH materials from long-haul interswitching should apply equally to regulated interswitching. Thus, TIH/PIH materials should be fully excluded from the interswitching regime, since the rates charged do not represent true market³.

That said, and to be clear, should the Agency decide to retain TIH/PIH movements within regulated interswitching, CN submits that a premium must be applied to the regulated rates to reflect their true costs and the significant risks they impose on terminal carriers. Under CN's proposed methodology, TIH/PIH are included under the "Hazardous Material or Dangerous Goods" premium. However, CN reserves the right to propose a distinct methodology for determining market-based interswitching rates for TIH/PIH materials should the need arise in the future.

After fitting the regression model to the CN Interswitching Data, Dr. Soboleva used the model to generate estimated market-based rates for regulated interswitching of various types defined by

² Pursuant to paragraphs 92(1)(b) and (3)(b), subsection 92(4) and paragraph 93.1(1)(b) of the Act.

³ Dr. Soboleva included TIH/PIH commodities in the hazardous materials or dangerous goods category because the dataset did not contain enough TIH/PIH volume to analyze them separately. Moreover, even if adequate volumes were available, the observed unregulated interswitching rates for TIH/PIH would still not reflect true market prices. Railroads cannot charge the true market rate because federal law forces them to carry TIH/PIH under the common-carrier obligation and limits pricing discretion (*Branscomb, Lewis M., et al., 2010. *Rail Transportation of Toxic Inhalation Hazards: Policy Responses to the Safety and Security Externality*. Belfer Center for Science and International Affairs, Harvard Kennedy School.*



distance, block size, and shipment type (whether the shipment is hazardous or dangerous, automobiles, or dimensional). For this purpose, Dr. Soboleva used the Agency's existing distance zones and block size (for each zone, Dr. Soboleva used the midpoint distance of that zone, except for zone 4b where the starting minimum distance of 40 km was used). Dr. Soboleva also used premiums based on shipment type (hazardous materials or dangerous goods, automotives, and dimensional loads), to account for the statistically significant difference in average unregulated interswitching rates for such shipment types.

Exhibit 2 below shows Dr. Soboleva’s estimated commercial market-based interswitching rates for 2024 based on the regression analysis on the subsample of unregulated interswitching transactions occurring between October 1, 2022, and September 30, 2023.

[Exhibit 2 – Predicted 2024 Regulated Interswitching Rates]

Estimated 2024 Regulated Interswitching Rates

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

[Source: Figure 1 of the Soboleva Report — Regression Analysis of Unregulated Rates, October 2022 – September 2023]

CN submits that the extensive data analysis performed by Dr. Soboleva, along with the identified market factors, demonstrates that the Agency can dependably rely on unregulated interswitching records, collected and maintained by railways in the ordinary course of business, to calculate regulated interswitching rates that accurately reflect market rates using sound, rigorous, and well-established statistical methods.



2. WHAT ADDITIONAL DATA SHOULD RAILWAYS PROVIDE IN ORDER FOR THE AGENCY TO CONSIDER THESE MARKET FACTORS?

In order for the Agency to consider the previously outlined market factors in setting the regulated interswitching rates, Canadian Class 1 railways would need to provide their records of unregulated interswitching data to the Agency. This would include all transactions where they receive a payment from another railway for unregulated interswitching services they perform, or where they pay another railway for the service that railway performs for them. These data should include both Canadian unregulated interswitching transactions and US reciprocal switching transactions and exclude non-market rates whenever possible. Of course, these data would need to be provided to the Agency on a strictly confidential basis. We note that the data provided to Dr. Soboleva for her analysis were readily available to CN and imposed a minimal administrative burden, and the same would be expected for other railways.

In addition, considering that the Agency is required to issue the regulated interswitching rates for the upcoming year by December 1st, it would be important for the Agency to specify the precise 12-month period from which data will be drawn. In her report, Dr. Soboleva recommends that the relevant dataset span from October of the preceding year through September of the current year, which would afford the Agency with at least 6 weeks to collect, process, and compute the applicable rates before December 1 of each year. She also explains that a 12-month period is required to account for any seasonal differences in the market. CN agrees with this proposed approach.

3. WHAT WEIGHT, IF ANY, SHOULD THE AGENCY GIVE TO COMMERCIAL MARKET FACTORS IN ITS RATE-SETTING METHODOLOGY?

In the FCA Decision, the Court held that the “Agency must receive evidence relevant to commercial factors and consider those factors”⁴. CN submits that the Agency should give decisive—effectively 100%—weight to rigorously derived commercial market evidence when determining interswitching rates. This is the only approach that ensures the resulting rates are “commercially fair and reasonable” to “all parties,” including CN. The FCA ruled that, in setting interswitching rates, the Agency *must* apply that standard⁵.

Dr. Soboleva’s proposed methodology relies on market prices for comparable movements where prices are not regulated. These market prices reflect both commercial factors, including supply and demand, and the underlying costs of providing the service. As she notes, market prices offer a concise and economically sound means of capturing the full range of current and future market conditions, integrating all cost elements along with other relevant commercial considerations. Importantly, they reflect the interaction of supply and demand for all parties

⁴ *Canadian National Railway Company v. Canadian Transportation Agency*, 2025 FCA 184 (CanLII), paras 28, 39.

⁵ *Canadian National Railway Company v. Canadian Transportation Agency*, 2025 FCA 184 (CanLII), para 19.

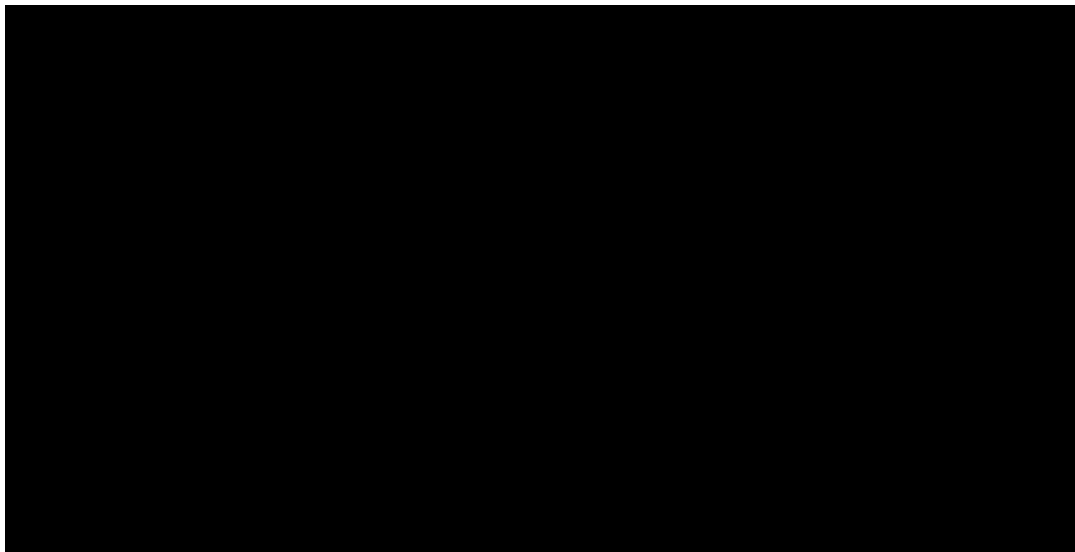


involved in setting that price, which notably is negotiated between railways, rather than with shippers. There is no commercial or economic rationale to modify these rates when assessing regulated rates that are “commercially fair and reasonable to all parties”. For these reasons, CN submits that market factors are invariably relevant to the setting of interswitching rates and should be given full weight.

CN’s proposed methodology further guarantees that regulated rates remain consistent with those found in commercial unregulated markets, thereby safeguarding captive shippers by providing them with average market rates. Therefore, the Agency should refrain from altering these market-based averages by introducing cost-based or other alternative calculation methods. Costs should be considered strictly within the context of subsection 127.1(3) of the Act, serving solely as a cost floor to ensure that regulated rates do not fall below average variable costs.

Dr. Soboleva’s analysis of CN’s interswitching data demonstrates that, over the 2022–2025 period, average regulated interswitching rates were less than half the average market rates observed for unregulated interswitching.⁶ This disparity underscores the significant distortion created by the Agency’s past practice of setting rates without considering commercial market-based factors, which the FCA has now directed to be considered under s. 112 of the Act.

[Exhibit 3: Average Regulated Rates vs. Unregulated Interswitching Rates]



[Source: Data from Figure 6 of the Soboleva Report — Average Rates for Switched Cars in CN data, 2022-2025]

⁶ These averages aggregate the effects of key market factors such as distance, block size, and the premiums associated with hazardous, dangerous, automobiles, and dimensional goods.



CN maintains that cost-based rate setting is problematic because railway costs are largely common and joint across shipments, making it difficult, and to some extent arbitrary, to allocate costs to individual movements. This creates uncertainty and increases the risk of misrepresentation of true economic costs and competitive market conditions. By contrast, a market-based approach, as the one proposed by CN and by Dr. Soboleva, ensures that regulated rates reflect both supply and demand-side realities, are informed by actual commercial transactions, and remain “commercially fair and reasonable” for all parties, while also allowing regulated rates to adapt annually to evolving market conditions.

4. WHAT METHODOLOGY SHOULD BE USED TO APPLY THESE WEIGHTS TO CALCULATE INTERSWITCHING RATES?

CN submits that the methodology to be used by the Agency should be the one proposed in the Soboleva Report, which essentially proposes to replace the Agency’s current cost-based estimates table with a table derived from a regression analysis of unregulated market rates in both Canada and the United States. As explained previously, under this approach, the resulting rates would vary by distance, block size, and shipment type. More specifically, in the case of automobiles, hazardous materials or dangerous goods, and dimensional loads, a premium would be added to the base rates.

Using this methodology, Dr. Soboleva estimated the following interswitching rates for the years 2024 [Exhibit 4], 2025 [Exhibit 5] and 2026 [Exhibit 6], which closely mirrors the Agency’s existing rate table:

[Exhibit 4 – Predicted 2024 Interswitching Rates]

Estimated 2024 Regulated Interswitching Rates

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	[Redacted]
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	[Redacted]
Dimensional Loads:	[Redacted]	[Redacted]

[Source: Figure 13 of the Soboleva Report]



[Exhibit 5 – Predicted 2025 Regulated Interswitching Rates]

Estimated 2025 Regulated Interswitching Rates

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

[Source: Figure 14 of the Soboleva Report]

[Exhibit 6 – Predicted 2026 Regulated Interswitching Rates]

Estimated 2026 Regulated Interswitching Rates

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

[Source: Figure 15 of the Soboleva Report]

As pointed out in the Soboleva Report, it would be possible for the Agency to calculate the rates using only the current factors considered by the Agency, namely distance and block size. However, this approach would result in the premiums observed across different shipment types



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being incorporated into the average rates for all shipments. This would be detrimental to shippers who are not moving those commodities, as the average rates would increase. For this reason, and because it would be less reflective of market, this approach should not be favored.

As noted above, CN does not believe the Agency should assign any weighting or trade-off between rates derived from commercial market-based evidence and rates produced using other methodologies, including the Agency's existing cost-based approach. Instead, the commercial market-based rates should stand on their own, subject only to the statutory considerations of section 127.1 and the floor in subsection 127.1(3) of the Act.

D. CONCLUSIONS

CN truly hopes that the Agency will give full and decisive consideration to the evidence and recommendations set out in this submission and in the Soboleva Report, and that it will adopt a market-based methodology that produces regulated interswitching rates that are economically and commercially fair to all parties. In this regard, CN wishes to stress that the Agency has both the authority and the jurisdiction to adopt the proposed market-based methodology and to amend the *Railway Interswitching Regulations*, if necessary.

Lastly, consistent with the FCA decision, CN assumes that when the Agency publishes its redetermination of the 2026 interswitching rates (as well as the 2024 and 2025 rates), it will detail and explain the methodology used to determine the rates and provide a clear reasoning supporting its determination, and that any relevant supporting documentation or calculations will be made available in a timely manner.

CN remains available to provide any additional information or clarification the Agency may require.

Best regards,

A handwritten signature in blue ink, appearing to read 'Pascale' followed by a stylized flourish.

Pascale De Meyer
Counsel Regulatory Affairs
Canadian National Railway Company

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Canadian Transportation Agency

Consultation on commercial market factors to be considered in determining fair and reasonable interswitching rates

Use of Market Factors to Determine Regulated Interswitching Rates

Nadia Soboleva, Ph.D.

March 5, 2026

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EXECUTIVE SUMMARY

1. I have been retained by Borden Ladner Gervais LLP (“BLG”), counsel to Canadian National Railway Company (“CN”), to undertake 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. I have approached this task objectively, impartially, and in complete independence from BLG or CN. My qualifications are set out in the attached Appendix which includes my curriculum vitae.¹
2. I understand that the Federal Court of Appeal (“FCA”) ruled that the Canadian Transportation Agency (“CTA”) must consider “commercial market factors,” referring to rates for comparable movements in other markets and commercial market prices, when setting regulated interswitching fees under the *Canada Transportation Act* (the “Act”).² Until this decision, the CTA’s interswitching rate setting methodology was cost-based.³ The FCA found that considering these commercial market factors was required in order to set regulated interswitching rates that are “commercially fair and reasonable to all parties” as required by the Act.⁴
3. My proposed methodology is based on market prices for comparable movements where prices are not regulated. In my opinion, the best way to incorporate market factors into the determination of regulated interswitching rates is to use these market prices as a benchmark. Market prices incorporate all relevant market factors, both supply (such as cost and capacity) and demand conditions, without requiring the CTA to consider individual market factors separately or develop an additional methodology to incorporate them into the cost-based rate determination. In this report, I apply the proposed methodology to show how such methodology can be implemented.
4. Generally, “interswitching” refers to switching movements performed by one railway on behalf of another that are regulated under the Act. For the purposes of this report, comparable movements that are not subject to the Act are referred to as “unregulated interswitching.” Market prices for unregulated interswitching incorporate both the impact of commercial market factors, such as demand, and the cost of providing these services. Unregulated interswitching rates are commercially determined between the railways, including for unregulated interswitching movements performed by the Canadian Class I railways, CN and Canadian Pacific Kansas City railway (“CPKC”), for each other and for other railways in both Canada and the U.S. The fees

¹ As described in the attached Appendix, I have been retained as an expert witness by CN in past proceedings. I have no past or present employment relationship to CN. I understand that my duty as an expert is to assist the Canadian Transportation Agency in matters related to my individual expertise.

² *Canadian National Railway v Canadian Transportation Agency*, 2025 FCA 184 (CanLII), (“FCA decision”), ¶¶ 6, 35, 39.

³ FCA decision, ¶8.

⁴ FCA decision, ¶¶ 6, 19, 39.

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charged for unregulated interswitching movements provide a reliable basis for determining what would be average regulated interswitching fees that are commercially fair and reasonable using available and observable market information.

5. In my analysis, I use CN data to identify unregulated interswitching rates where CN is either providing interswitching services to another railway or paying another railway for the interswitching service provided to CN. These data include both CN payables (what CN pays to other railways), and CN receivables (what other railways pay to CN). I rely on regression analysis to estimate average rates in the data.
6. Regression analysis is a statistical method of analyzing how a variable of interest (i.e., the “dependent” variable), such as price, changes in relation to one or more “independent” variables. Specifically, regression analysis models the expected (average) value of the dependent variable as a function of the independent variables. I provide a computationally simple method of determining average interswitching fees for unregulated transactions and use those results to compute proposed interswitching rates for regulated interswitching under the Act.
7. I find statistically significant and economically meaningful rate differences associated with shipment size: blocks of 60 cars or more have lower unregulated interswitching rates than those applied to shipments of 1 to 59 cars. There is also a statistically significant rate difference associated with the distance between the interchange and the siding or facility. My proposed methodology sets rates based on block size and distance, which I note are also assessed in the CTA’s current regulated rates.
8. I have also identified further market factors based on certain shipment types that have a statistically significant impact on the observed rates and should be taken into account. I refer to “shipment type” to capture the specific characteristics identified in this report, which are often dictated by commodity (for, e.g., hazardous and dangerous goods and automobiles) but also includes shipments with special handling requirements not limited to commodity type (for, e.g., dimensional loads). With few exceptions, the estimated unregulated rates do not vary meaningfully across shipment types. The exceptions are hazardous and dangerous goods, automobiles, and dimensional loads (oversized or heavier than average), which have unregulated rates that are higher than the average for other shipment types.⁵ These three categories typically

⁵ Government of Canada, “Containers for Transport of Dangerous Goods by Rail, a Transport Canada Standard,” Section 10.10.1 and 10.10.2, Last Modified July 2, 2019, available at <https://tc.canada.ca/en/dangerous-goods/publications/containers-transport-dangerous-goods-rail-transport-canada-standard>; Government of Canada, “Transportation of Dangerous Goods Regulations (SOR/2001-286),” Section 10.6, Last Modified February 18, 2026, available at <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/page-25.html#h-1230275>.

Recommended practice for the handling of automotive/multi-level cars in trains and yards includes distance requirements behind a working locomotives and open top hoppers or gondolas, and limited coupling speeds.

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involve additional handling requirements, which likely contribute to their higher market rates relative to other shipment types without additional handling.⁶ My proposed methodology includes premiums which reflect the higher average rates associated with those shipment types observed in the market as determined by the regression analysis.

9. Taking these commercial market factors into account, the rate estimates for 2024 generated by my proposed methodology are set out in the following table:

See AAR, "Manual of Standards and Recommended Practices Section N, Multi-Level Manual," p. 135, Effective April 2023, available at <https://aarpublications.com/section-n-multi-level-manual-for-motor-vehiclesg.html>.

Dimensional shipments are those that "meet[] one or more of the following conditions:

- 12' in height or exceeds 15'6" above top of rail (ATR) once loaded
- Combined Center of Gravity equals or exceeds 98"
- 10'8" in width or exceeds length or width of the car deck and greater than Plate "C"
- Gross weight exceeds track capacity on a standard railcar
- Any load requiring a 6 axle car or greater."

CN, "What is a dimensional shipment?," available at <https://www.cn.ca/-/media/files/customer-centre/customer-centre-documents/what-is-a-dimensional-shipment-en.pdf>.

⁶ The market-based benchmarks derived in this analysis rely on observed unregulated transactions for traffic that does not require extraordinary handling beyond normal rail operations, other than for automotive, hazardous and dangerous goods, and dimensional loads. I understand there are other shipment types that require special handling including temperature-controlled traffic, unusually heavy or high-density loads, security-sensitive commodities, fragile or shock-sensitive cargo, and traffic requiring dedicated or specially prepared equipment. Such loads are not present in sufficient volumes in the data I analyzed; e.g., I observed no refrigerated cars interswitched in the data. If such traffic were to appear in future data used for regulatory benchmarking, it would likely differ from other movements in the data and differ from the three shipment types included in my analysis (automotive, hazardous and dangerous, and dimensional). The CTA should consider excluding such traffic or applying an appropriate premium for such traffic using the similar approach as proposed for other categories of special handling traffic.

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[Figure 1: Estimated 2024 Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40

Premiums:

- Automotive (Car type "V"): [Redacted]
- Hazardous and Dangerous (STCC 48, 49): [Redacted]
- Dimensional Loads: [Redacted]

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

- I note that the premium for dimensional shipments is very large, both in the underlying data and in my estimates, at over \$ [Redacted] per car. Dimensional shipments are relatively rare in the data (both regulated and unregulated movements), and the variation in market-based rates for dimensional loads is high, with unregulated interswitching fees as high as \$ [Redacted] per railcar, reflecting the distinct nature of these shipments. Estimating a premium for dimensional loads may not always be statistically reliable in the future, due to relatively sparse data and large variation in the unregulated rates for these shipments. Given the size and potential volatility of the premium and the rarity of dimensional load interswitching movements, I recommend exempting dimensional loads from regulated interswitching. However, if this type of shipment remains included in the regulated interswitching regime, then a separate premium is necessary.
- It is also possible to calculate the rates using only the current factors considered by the CTA, namely distance and block size factors. However, this means that the distinctions observed in the shipment types would be incorporated into the average rates for all shipments. In my view, this approach should not be favoured as the premiums associated with automotive and hazardous and dangerous shipments are distinct from other shipments and therefore applicable to these shipments specifically. Nevertheless, if the CTA were to apply my methodology across all shipments without distinguishing those that have separate premiums as shown in Figure 1 above, then the resulting rates for 2024 would be as shown in Figure 2.

[Figure 2: Estimated 2024 Interswitching Rates Without Premiums]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Rates are a weighted average of all shipment types with weights proportional to the share of regulated interswitching shipments.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

12. Regulated interswitching rates are determined by December 1 of each year for application in the next calendar year (i.e., rates for 2024 were determined by December 1, 2023). Using this timing, I rely on the most current 12 months of data for each period but assume that 2-3 months would be required to collect and process the data from the railways. Therefore, I use October 2022 to September 2023 data to estimate the rates that would be computed by December 1, 2023, and applied to shipments in 2024. This leaves the period October-November 2023 to collect the data and compute the applicable rates for publication on December 1.

13. This methodology would require CN and CPKC (or, more generally, federally regulated railways) to provide unregulated interswitching data to the CTA annually.⁷ Such data would include all unregulated transactions where the railway either received a payment from another railway for an unregulated interswitching service they performed, or paid another railway for the service that railway performed for them. As explained below, it is preferable that these data include both unregulated interswitching transactions in Canada and reciprocal switching transactions in the U.S. and exclude non-market rates whenever possible, such as those imposed by a merger condition. In addition, data for regulated interswitching movements in Canada is required in order to apply weights to the average predicted rates.

⁷ If the CTA were to decide to limit data reporting to CN and CPKC only, this would still provide sufficient data to implement my proposed methodology.

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1. BACKGROUND AND MANDATE

14. I understand that the CTA is conducting a public consultation process on how commercial market factors should be considered in the determination of regulated interswitching rates.⁸
15. I have been asked to provide a report addressing what methodology should be adopted by the CTA to take into account commercial market factors in setting regulated interswitching rates that are “commercially fair and reasonable” under Section 127.1 of the Act, and what those market factors ought to be. I was not asked to consider how the methodology should account for the requirement that the interswitching rate not be less than the variable costs of moving the traffic under Section 127.1(3) of the Act.
16. In preparing this report, I have relied on the materials cited herein. Unless otherwise identified in the text or footnotes to this report, CN (through its counsel) is the source of all facts on which I rely. In particular, my analysis relies on rates paid or received by CN on all interswitching movements where CN is a party. My analysis relies on data as recorded by CN because I do not have access to comprehensive interswitching records from other railways.

2. INTERSWITCHING

17. In this report, interswitching refers to a specific form of railcar transfer between two railway companies.⁹ In this arrangement, one railway—known as the *terminal carrier*—moves railcars a short distance between the shipper’s origin or destination and a connecting railway.¹⁰ The second railway—known as the *line-haul carrier*—then transports the railcars over the longer segment of the journey to or from the final destination or origin.¹¹

⁸ CTA, “Consultation on commercial market factors to be considered in determining fair and reasonable interswitching rates,” Last Modified December 8, 2025, available at <https://otc-cta.gc.ca/eng/consultation/consultation-on-commercial-market-factors-to-be-considered-in-determining-fair-and-reasonable-interswitching-rates>.

⁹ *Canada Transportation Act*, SC 1996, c 10, Section 111, Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

¹⁰ Government of Canada, “Railway Interswitching Regulations,” Last Modified February 18, 2026, available at <https://laws-lois.justice.gc.ca/eng/regulations/sor-88-41/FullText.html>.

¹¹ Government of Canada, Canada Gazette, Part I, Volume 146, Number 26: “Regulations Amending the Railway Interswitching Regulations (Regulatory Impact Analysis Statement),” June 30, 2012, available at <https://gazette.gc.ca/rp-pr/p1/2012/2012-06-30/html/reg2-eng.html>.

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18. The transfer between the terminal carrier and the line-haul carrier occurs at an interchange point, where the lines of the two railways connect.¹² For these movements, the line-haul carrier receives the fee associated with the long-distance portion of the move, while the terminal carrier receives an interswitching fee, which is paid by the line-haul railway. Shippers typically do not pay interswitching fees directly, nor are these fees usually itemized on shipper invoices. From the shipper’s perspective, they are receiving a long-distance line-haul service; if interswitching is a part of that service, the two railways involved—the line-haul and terminal carriers—manage all operational arrangements and settle any associated interswitching charges between themselves.
19. In Canada, if the freight shipment point of origin or a destination is within a 30-kilometer (“km”) radius from an interchange, regulated interswitching rules apply.¹³ The Act states that a regulated interswitching rate is available to shippers whose siding or facility at origin or destination is within 30 km (radius) of an interchange or “reasonably close” to an interchange, as decided by the CTA.¹⁴ Under the Railway Interswitching Regulations under the Act, the 30-km radius around the interchange is divided into four zones, with Zone 1 being the closest to the interchange in track distance measured in km and Zone 4, the farthest. Specifically,
- “(a) interswitching distance zone 1, being a zone that includes sidings located wholly or partly within 6.4 km of an interchange;
 - (b) interswitching distance zone 2, being a zone that includes sidings located
 - (i) wholly or partly within 10 km of an interchange, and
 - (ii) wholly outside interswitching distance zone 1;
 - (c) interswitching distance zone 3, being a zone that includes sidings located
 - (i) wholly or partly within 20 km of an interchange, and
 - (ii) wholly outside interswitching distance zones 1 and 2;
 - (d) interswitching distance zone 4A, being a zone that includes sidings located
 - (i) wholly or partly within a radius of 30 km of an interchange,
 - (i.1) wholly or partly within 40 km or less of an interchange, and
 - (ii) wholly outside interswitching distance zones 1, 2 and 3;
 - (e) interswitching distance zone 4B, being a zone that includes sidings that are
 - (i) wholly or partly within a radius of 30 km of an interchange, and

¹² CTA, “Interswitching,” Last Modified October 22, 2025, available at <https://otc-cta.gc.ca/eng/interswitching>; *Canada Transportation Act*, Section 111, Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

¹³ Government of Canada, “Railway Interswitching Regulations,” Last Modified February 18, 2026, available at <https://laws-lois.justice.gc.ca/eng/regulations/sor-88-41/FullText.html>; *Canada Transportation Act*, Sections 127 (3) and (4), Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

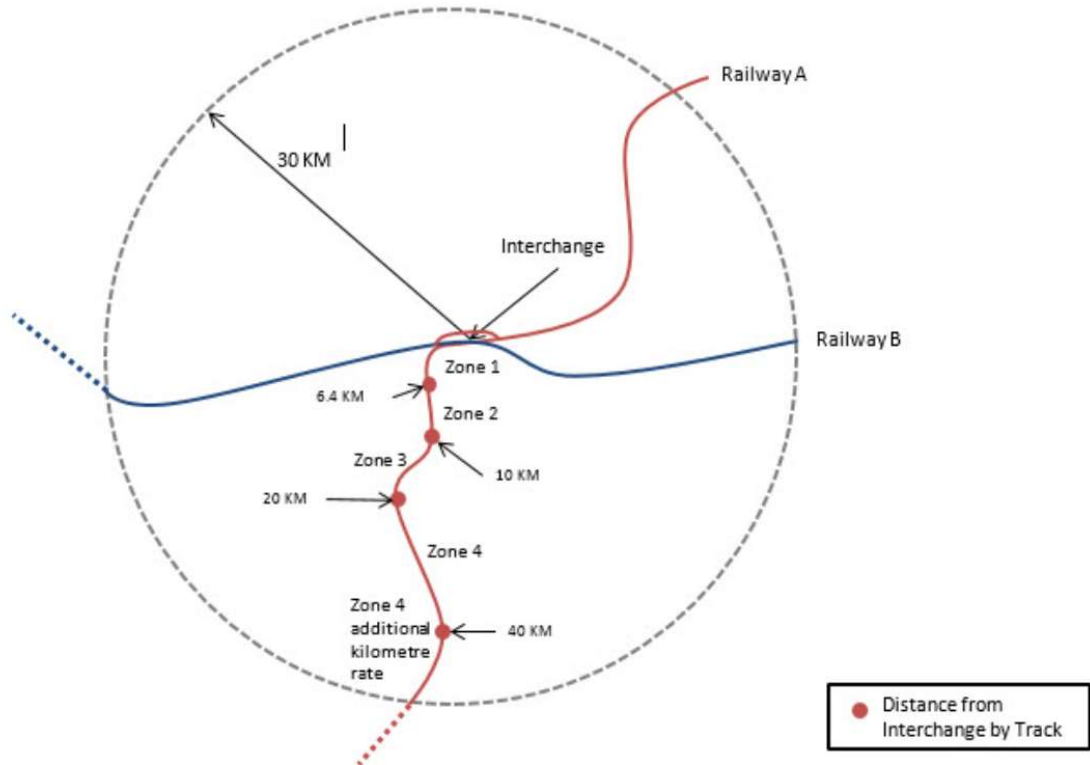
¹⁴ CTA, “Interswitching,” Last Modified October 22, 2025, available at <https://otc-cta.gc.ca/eng/interswitching>; *Canada Transportation Act*, Sections 127 (3) and (4), Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

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(ii) wholly outside interswitching distance zones 1, 2, 3 and 4A.”¹⁵

20. Figure 3 below, reproduced from the CTA discussion paper on regulated interswitching, shows the current regulated interswitching zones.

Figure 3: Regulated Interswitching Zones



Source: CTA Discussion Paper on the CTA Approach to Setting Regulated Interswitching Rates Figure 1, <https://otc-cta.gc.ca/eng/discussion-paper-cta-approach-setting-regulated-interswitching-rates>

21. The CTA currently sets two regulated interswitching rates for each zone: one for shipments of 1 to 59 cars, and one for shipments of 60 cars or more. Both rates are on a per-car basis. The regulated interswitching rates for each zone are set annually, where the CTA will “base the rates on a weighted average of what it costs the railways to provide interswitching services.”¹⁶ The

¹⁵ *Canada Transportation Act*, Section 127(3), Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>; Government of Canada, “Railway Interswitching Regulations,” Last modified February 18, 2026, available at <https://laws-lois.justice.gc.ca/eng/regulations/sor-88-41/FullText.html>.

¹⁶ *Canada Transportation Act*, Sections 127.1 (3) and (4), Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>; CTA, “Interswitching,” Last Modified October 22, 2025, available at <https://otc-cta.gc.ca/eng/interswitching>.

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costs are based on information gathered from the railway companies. The CTA determines variable costs based on service units for single-car road interswitching, single-car yard interswitching, and block-train interswitching.¹⁷ The CTA gathers information on the gross ton-miles, car-miles, train-miles, carloads, fuel consumed, crew wages, and diesel unit miles among others.¹⁸ The CTA applies unit costs derived from CN's and CPKC's financial and operating submissions.¹⁹ Each service unit is multiplied by its corresponding unit cost, and the resulting total is adjusted for inflation and productivity to produce a zone-level variable cost.²⁰ These movement-level costs are then averaged across shippers, and interchanges, using carload shares as weights, resulting in a weighted average variable cost per car for each interswitching zone and railway.²¹ Prior to the determination of a regulated interswitching rate, the CTA separately calculates a system average contribution to fixed costs for each railway. Fixed costs are calculated as each railway's fixed-cost contribution ratio, defined as the railway's total system cost divided by its system variable cost.²² This ratio is then added to the zone-level variable cost

¹⁷ CTA, "Determination No. R-2025-197," Appendix A, 1.1-1.2, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197#AppendixA>; "Determination No. R-2024-181," November 29, 2024, Appendix A, 1.1-1.2, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181#AppendixA>; "Determination No. R-2023-237," November 24, 2023, Appendix A, 1.1-1.2, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237#AppendixA>.

¹⁸ CTA, "Determination No. R-2025-197," Appendix A, 1.1-1.2, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197#AppendixA>; "Determination No. R-2024-181," November 29, 2024, Appendix A, 1.1-1.2, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181#AppendixA>; "Determination No. R-2023-237," November 24, 2023, Appendix A, 1.1-1.2, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237#AppendixA>.

¹⁹ CTA, "Determination No. R-2025-197," Appendix A, 2.0, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197#AppendixA>; "Determination No. R-2024-181," November 29, 2024, Appendix A, 2.0, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181#AppendixA>; "Determination No. R-2023-237," November 24, 2023, Appendix A, 2.0, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237#AppendixA>.

²⁰ CTA, "Determination No. R-2025-197," Appendix A, 2.0, B, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197>; "Determination No. R-2024-181," November 29, 2024, Appendix A, 2.0, B, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>; "Determination No. R-2023-237," November 24, 2023, Appendix A, 2.0, B, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>.

²¹ CTA, "Determination No. R-2025-197," Appendix A, 4.0, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197#AppendixA>; "Determination No. R-2024-181," November 29, 2024, Appendix A, 4.0, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181#AppendixA>; "Determination No. R-2023-237," November 24, 2023, Appendix A, 4.0, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237#AppendixA>.

²² CTA, "Determination No. R-2025-197," Appendix B, November 28, 2025, available at <https://otc-cta.gc.ca/eng/ruling/r-2025-197>; "Determination No. R-2024-181," November 29, 2024, Appendix B, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>; "Determination No. R-2023-237," November 24, 2023, Appendix B, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>.

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for each railway. Total costs (variable + fixed cost contribution) are averaged across railways, using carload shares as weights, resulting in an interswitching rate for each zone.

22. Figure 4 below shows historic interswitching rates as determined by the CTA.

Figure 4: Historical Regulated Interswitching Rates

Zone	2021 (Original)		2021 (Revised)		2022		2023		2024		2025	
	Single	Block	Single	Block	Single	Block	Single	Block	Single	Block	Single	Block
Zone 1	\$290	\$80	\$305	\$80	\$335	\$90	\$410	\$65	\$425	\$75	\$460	\$100
Zone 2	\$405	\$125	\$425	\$125	\$460	\$140	\$540	\$105	\$545	\$115	\$505	\$160
Zone 3	\$310	\$70	\$315	\$70	\$415	\$75	\$535	\$90	\$640	\$110	\$615	\$120
Zone 4A	\$260	\$100	\$270	\$100	\$475	\$95	\$515	\$115	\$580	\$150	\$605	\$175
	\$260 +	\$100 +	\$270 +	\$100 +	\$475 +	\$95 +	\$515 +	\$115 +	\$580 +	\$150 +	\$605 +	\$175 +
Zone 4B	\$8.5 per add. km	\$1.05 per add. km	\$8.5 per add. km	\$1.05 per add. km	\$10.75 per add. km	\$0.98 per add. km	\$6 per add. km	\$1.3 per add. km	\$7.36 per add. km	\$2.05 per add. km	\$8.60 per add. km	\$2.35 per add. km

Notes: Zone 5 pilot rates for extended interswitching are omitted. Rates for 2024 and 2025 are subject to redetermination.

Sources: 2021 Determination (Original), available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination (Revised), available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-178>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>; 2025 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

23. There are additional provisions for long-haul interswitching or extended interswitching under the Act, but they are outside the scope of this report.²³ A 2023 pilot project in the three Prairie provinces (Alberta, Manitoba, and Saskatchewan) extended the regulated interswitching limit in those provinces from a radius of 30 km to 160 km for a pilot period of 18 months.²⁴ I understand that in 2025 the temporary pilot expired without being reintroduced into the legislation by the new government. Long-haul interswitching may be available where other regulated interswitching is not available and allows for distances far greater than 30 km between origin/destination and the

²³ *Canada Transportation Act*, Sections 127(2.1), 127(5), and 129, Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

²⁴ *Canada Transportation Act*, Sections 127(2.1), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>; Government of Canada, “Extended Interswitching,” available at <https://tc.canada.ca/en/binder/32-extended-interswitching-1>. Extended interswitching with a 160 km radius was previously in force in the same provinces during 2014-2017. See Government of Canada, *Canada Gazette*, Part II, Volume 148, Number 17: “Regulations Amending the Railway Interswitching Regulations,” August 13, 2014, available at <https://gazette.gc.ca/rp-pr/p2/2014/2014-08-13/html/sor-dors193-eng.html>.

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interchange, subject to additional conditions.²⁵ I understand that the long-haul interswitching provisions were introduced in 2018 but have never been used.²⁶

24. Regulated interswitching under the Act applies to federally regulated railway companies.²⁷ Railways in Canada also interswitch railcars for each other at commercially negotiated rates that are not subject to CTA regulation. For example, these movements are unregulated where the distance falls outside of the regulated interswitching distance, or when the switching movement is performed by or for railways that are not federally regulated railways in Canada, such as the Southern Railway of British Columbia (“SRY”), even if the other railway involved, e.g., CN, is federally regulated.²⁸ For these unregulated movements in Canada, rates are commercially determined between the railways. As shown in Figure 5 below, there are railcars interswitched in Canada every year at unregulated interswitching rates.
25. As noted above, fees for interswitching and comparable movements – whether commercially negotiated or regulated – are paid by the line-haul railway to the terminal carrier. The shipper pays the line-haul railway for the line-haul service who then pays the interswitching fee to the interswitching railway. While regulated interswitching rates are published by the CTA and are observable by the shippers, these interswitching fees are not typically included on shipper invoices. Unregulated interswitching fees may not be known to shippers at all. Importantly, unregulated interswitching fees are set between the railways, not between shippers and railways. These interswitching rates are negotiated and determined by economic agents – railways – who each have significant expertise in railway operations, understand market dynamics, and rely on traffic volumes to achieve economies of scale.

²⁵ CTA, “Long-Haul Interswitching: A guide for freight rail shippers and federal railway companies,” Accessed March 3, 2026, available at <https://otc-cta.gc.ca/eng/publication/long-haul-interswitching-a-guide>.

²⁶ Government of Canada, “Questions and Answers on Measures in the Budget Implementation Act, 2023, No. 1” available at <https://tc.canada.ca/en/binder/6-supplementary-information-questions-answers-measures-budget-implementation-act-2023-no-1>.

²⁷ CTA, “Discussion Paper on the CTA Approach to Setting Regulated Interswitching Rates,” June 13, 2019, available at <https://otc-cta.gc.ca/eng/discussion-paper-cta-approach-setting-regulated-interswitching-rates>.

²⁸ Both railways involved must be federally regulated for CTA regulated interswitching to apply. See, for example, David F. Blair et al., “Canadian Transportation Agency’s 2021 Rail Interswitching Rates Changes and New 2022 Rail Interswitching Rates (Wonkish),” December 31, 2021, available at <https://www.mccarthy.ca/en/insights/blogs/mccarthy-tetrault-moves/canadian-transportation-agencys-2021-rail-interswitching-rates-changes-and-new-2022-rail-interswitching-rates-wonkish>.

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26. In the U.S., the unregulated equivalent to interswitching is referred to as “reciprocal switching” and a “terminal carrier” is referred to as a “serving carrier.”²⁹ Aside from these differences in terminology, the service and billing arrangements are the same as in Canada. The regulatory agency in the U.S., the Surface Transportation Board (“STB”), has elected not to directly regulate reciprocal switching rates. While reciprocal switching may be mandated under the current regulations in certain circumstances, it is the act of switching that can be prescribed, while the fees for reciprocal switching are not directly set by the STB, but rather negotiated between railways, with always the possibility of appealing to the STB in case of failure to reach an agreement.³⁰

27. All Class I railways in North America, and at least some smaller railways, publish public tariffs that show their unregulated interswitching fees. For example, CSX Transportation (CSXT) published Tariff 8101, which shows how CSXT switching fees vary for different shipments, and also shows that some unregulated interswitching is governed by contracts, not by the published tariff.³¹ While

²⁹ 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.stb.gov/news-communications/latest-news/pr-26-01/>; Union Pacific, “Serving Carrier & Reciprocal Switching Information,” Accessed March 3, 2026, available at <https://www.up.com/shipping/short-line/recipswitch>; Railinc, “Guide for Railroads,” last updated May 2025, p. 27, available at <https://public.railinc.com/sites/default/files/documents/GuideforRailroads.pdf>.

³⁰ See, for example, Surface Transportation Board, “STB Adopts Final Rule For Reciprocal Switching,” April 30, 2024, available at <https://www.stb.gov/news-communications/latest-news/pr-24-20/>; See also, Congressional Research Service, “The Surface Transportation Board (STB): Background and Current Issues,” February 7, 2025, available at https://www.congress.gov/crs_external_products/R/PDF/R47013/R47013.5.pdf. The STB has the authority to prescribe reciprocal switching agreements, but in forty years has not done so. The STB therefore is currently proposing to eliminate such prescriptive provision. Federal Register, “Eliminating Regulatory Barriers to Competition: Review of Part 1144,” proposed January 9, 2026, available at <https://www.federalregister.gov/documents/2026/01/09/2026-00241/eliminating-regulatory-barriers-to-competition-review-of-part-1144>.

³¹ See Detroit, MI and adjacent areas in CSX Transportation, “CSXT 8101 Publication,” Effective February 13, 2026, available at <https://www.csx.com/share/wwwcsx15/assets/File/Customers/CSXT-8101-Publication-Effective-02-13-2026.pdf>. See also CSX Transportation, “Publication CSXT 8100,” Effective April 1, 2026, available at https://www.csx.com/share/wwwcsx15/assets/File/Customers/CSXT_8100_Publication_Effective_4-1-2026.pdf; See also Norfolk Southern, “NS 8001 Switching and Absorption Tariff,” Effective March 1, 2026, available at <https://www.norfolksouthern.com/content/dam/nscorp/pdf/tariffs/NS%208001%2003-01-26.pdf> and CPKC, “Interline Switching Tariff 7,” Effective August 1, 2025, available at <https://www.cpkcr.com/content/dam/cpkc/documents/english/pdfs/tariffs/cp/CPKC-7-Effective-2025-08-01.pdf>; CN, “Optional Services CN 9001-US Reciprocal Switching U.S.A.,” Effective April 1, 2026, available at <https://www.cn.ca/en/customer-centre/prices-tariffs-transit-times/optional-services-tariffs/>; “BNSF Switching Book 8005-E,” Effective November 5, 2025, available at [https://domino.bnsf.com/website/miscprices.nsf/0/17CBE3453F006D7186258A06007C0537/\\$FILE/BNSF+8005](https://domino.bnsf.com/website/miscprices.nsf/0/17CBE3453F006D7186258A06007C0537/$FILE/BNSF+8005)

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the unregulated interswitching rates may be indicative of prices, data relied upon in the analyses described below also includes volumes, which allows one to know how much volume was switched at each unregulated rate. Such data better reflect market transactions that actually occurred and thus provide a reliable indicator of market rates. Published rates also omit distances and as my analyses below shows, distance is a statistically important determinant of interswitching rates.

3. Incorporating Market Factors in Determining Regulated Interswitching Rates

28. The FCA determined that the CTA must consider commercial market factors in setting regulated interswitching rates.³² A methodology that is based on market rates for unregulated interswitching would satisfy such requirement as all commercial market factors are reflected in market prices. Market price is the outcome of the interaction between supply and demand in the market.
29. On the supply side, the system-wide costs of providing rail services must be covered. Therefore, market prices reflect cost differences across shipments. For example, dangerous goods require special handling, including not being placed after the locomotive and being separated by at least one railcar from each other.³³ Route complexity, terrain, available capacity on the rail network, including potential congestion, liability risk and insurance are also important cost considerations.
30. On the demand side, demand for rail services varies over time and across shippers, which affects railway investments and railway pricing. Different demand across shippers depends on the value

-E%2C+Rev+0.pdf;

Union Pacific, "UP Reciprocal Switching Circular UP 8005 J," Effective July 1, 2025, available at <https://c02.my.uprr.com/pic/jas/pricedocquery.jas?issgCarrldfr=UP&docRefNbr=8005&docType=public>;

Genesee and Wyoming Railroad, "Rapid City, Pierre & Eastern Railroad, Inc. Public Switching Tariff RCPE TS 127006-2," Effective January 1, 2026, available at <https://www.gwrr.com/application/files/4617/6981/0760/PUBLIC-RCPE-TS-127006-2-EFF-01-01-2026.pdf>;

Watco, "Reciprocal Switching Tariff WTF 9012 Ann Arbor Railroad, LLC," Effective January 6, 2026, available at <https://www.watco.com/wp-content/uploads/2026/01/WTS-9012-AA-Reciprocal-Switch-Supplement-eff-1-6-2026-1.pdf>.

³² FCA decision, ¶¶ 6, 28, 39.

³³ Government of Canada, "Containers for Transport of Dangerous Goods by Rail, a Transport Canada Standard," Section 10.10.1 ("the railway vehicle on which the highway tank is transported is separated by at least one railway vehicle from a railway vehicle for which a placard is required to be displayed in accordance with Part 4 of the TDG Regulations, is separated by at least one railway vehicles from the locomotive and is located at the tail end or as close as possible to the tail end of the train and behind any loaded railway vehicle."), modified July 2, 2019, available at <https://tc.canada.ca/en/dangerous-goods/publications/containers-transport-dangerous-goods-rail-transport-canada-standard>. See also Government of Canada, "Transportation of Dangerous Goods Regulations (SOR/2001-286)," Section 10.6, Last amended October 25, 2024 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/page-25.html#h-1230275>.

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provided by railways to shippers, which varies across products, routing, and the alternative transportation options available to individual shippers. The options available to a shipper are both intra-modal and inter-modal.³⁴ Thus, freight railways compete with other freight railways and also compete with other modes of freight transportation such as pipelines, trucking, and marine transport for shippers' traffic.

31. Market prices reflect all factors affecting supply such as production decisions and cost structure of firms and all factors affecting demand. Market prices emerge from the collective behavior of all buyers and sellers in the market, each responding to information about costs, preferences, technology, and expectations. A change in the underlying factors, e.g., input costs or expectations about the demand, results in a new market price.
32. Accordingly, the appropriate way to account for commercial market factors in any analytical or practical setting is to examine prevailing market prices. Market prices provide a concise and economically sound means of capturing the totality of current and future market conditions, incorporating both all cost considerations and all other commercial market factors.³⁵
33. Economists use market prices because they incorporate all of the many elements of supply and demand. Note that market prices that reflect commercial reality need not correspond to the abstract concept of "perfectly competitive prices" that economists sometimes theorize could be obtained in hypothetical markets that lack the frictions that characterize markets in the real world.³⁶
34. In the rail context, and specifically in regulating the rail rates, economists propose relying on comparisons using market rates.³⁷ This is my approach, as set out in Section 4 below. Because I

³⁴ Intra-modal options in the rail context are other railway options. Inter-modal options include other forms of transportation, such as the use of pipelines, trucking and marine transport.

³⁵ Future costs, future demand and future competition matter because most railway assets are long-lived: the railway investment in capacity is based on expected demand and expected competition over the infrastructure's lifetime, which is decades.

³⁶ For example, prices posted at a supermarket reflect competition from nearby supermarkets, even if those competitors are somewhat less convenient for shoppers. Regardless of the extent of such competition, those would be market prices reflecting the commercial reality around that particular supermarket.

³⁷ See, for example: (i) the National Academies of Sciences, Engineering, and Medicine, "Modernizing Freight Rail Regulation," Committee for a Study of Freight Rail Transportation and Regulation, 2015, pp. 5-6; (ii) Schmalensee, Richard L. and Wilson, W.W. 2016. "Modernizing U.S. Freight Rail Regulation," *Review of Industrial Organization* 49 (2): 133–59; and (iii) Wilson, Wesley W., and Frank A. Wolak. 2016. "Freight Rail Costing and Regulation: The Uniform Rail Costing System." *Review of Industrial Organization* 49 (2): 229–61., (iv) Wilson, Wesley W., and Frank A. Wolak. 2022. "Price Benchmark Regulation of Multiproduct Firms: An Application to the Rail Industry." *Journal of Law and Economics* 65 (1Spec): S155-90, at S156-157, 165-166.

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lack public data on interswitching rates from other railways, I rely on the data that CN provided to me, which I understand could be provided to the CTA.

35. Rates for unregulated interswitching are commercially determined *between railways* and reflect market rates for interswitching services. These are railway to railway charges that are not set by the regulatory agencies. They are not negotiated with shippers and often are not separately invoiced.
36. Unregulated interswitching rates can be set either under a contract negotiated between two railways or published as a tariff by the railway providing the service. Regardless of whether the unregulated rates are negotiated between railways or published as tariffs, they reflect market factors. Published railway tariffs are what economists call “posted prices” which are ubiquitous.³⁸ Such posted prices are still market prices and are determined by commercial factors and reflect commercial reality. In other industries, prices are bilaterally negotiated between parties, which is similar to how contract prices are negotiated between railways for some interswitching arrangements. Such negotiations also result in market prices and reflect commercial reality. In either case, market prices reflect the interaction of both supply and demand factors.
37. The goal of interswitching regulation is to give shippers access to competing railways for line-haul movements.³⁹ Data for unregulated interswitching shows what prices are being paid in the market for such access in the absence of regulated rates. Such market rates reflect realized access for unregulated interswitching services and actual traffic volume moving at these rates.
38. These unregulated interswitching rates are market prices that railways pay to each other when providing access to line-haul movements. There may exist a concern that such access may be foreclosed if the terminal carrier charges interswitching rates that are high enough to foreclose access. However, there will be no such rates in the data I use because rates so high as to foreclose access will have no movement associated with them. In other words, the data I rely on are for actual interswitching movements that occurred because the price was not so high as to foreclose access. Hence, these rates reflect the ultimate objective of regulated interswitching: to ensure that foreclosure does not occur.
39. Furthermore, any foreclosure concern exists only where the terminal carrier competes with the line-haul carrier for the line-haul portion of the move. For example, a Class I carrier might quote a prohibitively high unregulated interswitching rate to another Class I carrier because they wish to obtain the line-haul service for themselves. Foreclosure is not a concern for smaller railways, who do not compete for the line-haul service. These smaller railways earn revenues only through

³⁸ For example, retail stores generally rely on posted prices. See, for example, Einav, Liran, et al. “Auctions versus posted prices in online markets.” *Journal of Political Economy* 126.1 (2018): 178-215.

³⁹ CTA, “Determination No R-2024-181,” ¶ 4, November 29, 2024, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

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interlining with line-haul carriers. Because, like all other railways, they benefit from increased scale, they have an incentive to facilitate access rather than foreclose such access. Increased access increases the traffic volume which in turn enables the benefits of returns to scale and scope for these railways.⁴⁰ Therefore, the unregulated interswitching rates from non-Class I railways are largely free from foreclosure concerns, which is why I use them as an important sensitivity check as described below. My findings are not substantially altered by restricting the analysis to non-Class I railways.

40. An additional point that reduces foreclosure concerns is that reciprocal switching in the U.S. is unregulated yet common, both with Class II and Class III railways, and also with Class I railways. Even though Class I railways compete for line-haul traffic, they still make extensive use of reciprocal switching arrangements with other Class I railways at rates that are not substantially different from transactions with Class II and Class III railways that offer no such competition for line-haul traffic (see Figure 6 below).
41. Whenever there are flows of unregulated interswitching railcars, whether at tariff rates or negotiated contract prices, one knows there is demand at that price. It is a commercially set price that allows railways without direct access to the shipper to compete for the shipper's long-haul business on commercially viable terms, as evidenced by the existence of transactions. My analysis accounts for volumes of carloads interswitched at each unregulated price, so that prices that have a larger volume of transactions contribute relatively more to the estimation of the model.

4. Analysis of Interswitching Rates

4.1 MODELING FRAMEWORK

42. A basic economic principle is that market prices reflect both supply and demand factors. Costs are embedded in supply factors; therefore, market prices are a convenient metric that combines costs with commercial market factors.

⁴⁰ Increasing returns to scale occur when a proportionate increase in all inputs results in a more than proportionate increase in output. Increasing return to scope occurs when producing two or more products together results in lower total costs than producing them separately. Carlton and Perloff, *Modern Industrial Organization*, pp. 36, 44. Due to the presence of fixed costs, railway operations are characterized by increasing returns to scale, where average cost declines as rail shipment volumes increase. In addition, railways also have increasing returns to scope, where costs are lower when multiple services are provided together, e.g., when rail tracks and yards are used to provide bulk commodity shipments and intermodal container shipments. Mayo, John W. and Willig, Robert. D., "Economic Foundations for 21st Century Freight Rail Rate Regulation," Ch. 2 of "U.S. Freight Rail Economics and Policy Are We on the Right Track?", edited by Jeffrey Macher, John Mayo, 2019, Routledge, pp. 33-34. See also Figure 3.1 illustrating fixed and variable costs in Ch. 3 of PPIAF "Railway Reform: Toolkit for Improving Rail Sector Performance," September 2017, The World Bank Group, available at <https://documents1.worldbank.org/curated/en/529921469672181559/pdf/69256-REVISED-ENGLISH-PUBLIC-RR-Toolkit-EN-New-report-date-2017-12-27.pdf>.

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43. I use data for unregulated interswitching movements to estimate average rates that could be applied to regulated interswitching. This approach infers rates for regulated interswitching movements using rates from observably similar, but unregulated, movements. This approach assumes that, conditional on observable characteristics of the interswitching movements such as distance, commodity, or block size, the impact of these characteristics (on average) for regulated traffic does not differ systematically from unregulated traffic.
44. 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 that do not foreclose line-haul access.⁴¹ Setting regulated interswitching rates to these estimated levels would enable such access and incorporate commercial market factors into the rate. These are market prices that are both economic for the railways providing the interswitching service because similar terms are offered by willing sellers in other settings and also allow line-haul railways without direct access to provide commercially viable services because similar terms have allowed them access in other settings.
45. The methodology I develop is not designed to prescribe what the market rate should be for any particular interchange location. Rather, the methodology is designed to report average market interswitching rates conditional on a small number of salient characteristics that reflect market factors.
46. Because the methodology reports average market interswitching rates, some market rates will necessarily be below the average and others above. Such differences do not necessarily indicate that a given market rate is “too low” or “too high.” Other local factors which the methodology does not account for may explain why a particular unregulated interswitching rate is above or below the average.⁴² Such idiosyncratic factors will not bias the estimates made by the methodology as long as these factors are not systematically different between regulated and unregulated interswitching movements.
47. I begin by calculating average regulated and unregulated interswitching rates in both Canada and the United States that are performed by either a Class I or a Class II/III railway. As I explain

⁴¹ In econometric terms, “systematically different” means that differences follow a consistent and predictable pattern that reflects the underlying structure of the data—such as differences in observable characteristics, persistent unobserved factors, or structural relationships. By contrast, movements that are not systematically different may still vary in observed outcomes, but these differences are purely random, unrelated to the explanatory variables, and reflect statistical noise rather than a distinct underlying process.

⁴² Indeed, such variation in prices are generally pro-competitive when they expand access for more price-sensitive traffic.

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below, I find that regulated interswitching rates in Canada are on average lower than unregulated rates in Canada and in the U.S. See Figure 6 below.

48. It is possible that regulated interswitching traffic in Canada tend to differ from unregulated traffic in ways that would affect interswitching rates. For example, regulated interswitched traffic may tend to be shorter in distance or involve a different mix of handling requirements compared to unregulated interswitched traffic. Regression analysis is a standard approach for accounting for any such observable differences in characteristics.⁴³
49. Regression analysis is widely accepted and employed as a method for estimating how, on average, interswitching rates vary with differences in the traffic's characteristics (e.g., distance, block size, etc.). When using the characteristics of an interswitching movement to estimate its rate in a regression analysis, the quality of the estimate depends directly on the characteristics that are used. Some examples help to illustrate how regression works.
- a. The simplest regression uses no characteristics to estimate the interswitching rate. In this case, the estimated rate would simply be the average unregulated rate in the sample.
 - b. Suppose the analyst added to this regression a single characteristic: the distance in kilometers from the interchange. Now the regression can produce estimated rates depending on the distance from the interchange.
 - c. Additional characteristics can be added to the regression such as block size, whether the shipment is hazardous, and so on. Each time a characteristic is added, it enables the regression to estimate a wider variety of rates.
 - d. Some characteristics might be strong predictors of interswitching rates while other characteristics may not affect rates. Best practice dictates that one should generally avoid adding many characteristics that do not add predictive power to the regression. For the purposes of estimation, an ideal regression model contains a small number, relative to the sample size, of highly salient characteristics that are important to explain differences in rates. Standard statistical tests have been developed for guiding the analyst in determining whether a given characteristic truly adds predictive power to the regression. The analyst combines these statistical tests with knowledge of the industry to determine which characteristics to include in the regression analysis.

⁴³ See, for example, Jeffrey Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, MIT Press (2002), p. 49-76.

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50. After carefully analyzing both the interswitching data provided by CN and the operational realities underlying these movements, I have determined that the following characteristics are appropriate to include in the regression model.⁴⁴
- a. Distance between of the siding and the interchange in kilometers,
 - b. Whether the interswitching movement involves a block size at or above 60 cars,
 - c. Whether the shipment contains hazardous materials or dangerous goods,
 - d. Whether the commodity is automobiles (Association of American Railroads (“AAR”) equipment type that begin with the letter “V”),
 - e. Whether the shipment contains a dimensional (oversized) load,⁴⁵
 - f. Whether the interchange was located in Canada or the United States.
51. For estimated rates based on all specifications, I conclude that market rates are generally higher than their corresponding regulated rates. This is especially salient for large block rates where the difference between regulated rates and market rates is substantial.

4.2 DATA

52. Because I lack public data on unregulated interswitching rates from other railways, I rely on the data that CN provided to me, which I understand could be provided to the CTA. At my request, CN provided me with a complete set of records at an individual railcar level for interswitching movements in Canada, as well as comparable movements referred to as unregulated interswitching movements in Canada and the U.S. These records include traffic either where CN performed the movement for another railway and received payment (receivable by CN fee), or where CN paid another railway to perform the movement (payable by CN fee). I asked CN to exclude traffic that moves at rates that are regulated as a result of any imposed post-merger conditions as such traffic and rates are neither reflective of market rates nor subject to the interswitching statutory regime at issue here.⁴⁶
53. All records include CN as one party, either as the terminal carrier or as the line-haul carrier, and identify the partner railway, which could be a Class I or a non-Class I railway, e.g., Class II. For Canada, the records include both federal railways and provincially regulated railways like SRY.

⁴⁴ I have tested specifications that include other variables such as gross car weight, car type and 2-digit STCC codes. The results were qualitatively similar to those of my preferred specification.

⁴⁵ As I discuss in section 7, dimensional shipments are better treated on a case-by-case basis. It is however possible to estimate a premium for those shipments if those were to be assigned a regulated rate.

⁴⁶ To the extent such traffic is included in my analyses it would likely create a downward bias in the estimate due to their regulated nature.

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The partner railway is identified as a “price authority” carrier in each record. Importantly, the data identifies the railway that pays or receives the interswitching fee.⁴⁷

54. Records include information on rates, commodity codes, distance of the interswitching portion of the move, origin station, destination station, interchange location, and AAR car type.
55. I identify market-based interswitching rates for unregulated interswitching from records that meet one of the following conditions and I refer to these as *unregulated* interswitching movements:
- a) the movement was performed in Canada and is not subject to the regulated rates provisions published by the CTA, or
 - b) the movement was performed in the U.S.
56. I identify regulated interswitching movements in Canada as those that meet the following conditions:
- a) the movement was performed by a federally regulated railway for another federally regulated railway⁴⁸ in Canada,
 - b) the rate charged corresponded to one of the regulated interswitching rates issued by the CTA in that year or the prior year.⁴⁹
57. I also exclude several categories of traffic from my analysis as described below:
- a. **Bridge switches.** A bridge switch refers to an interchange that occurs mid-route, rather than at the origin or destination of a shipment. Unlike origination or termination switches, bridge switches are not subject to regulation under the Act. They also tend to be operationally simpler: whereas origination and termination switches require coordination with loading or unloading facilities, management of terminal dwell, and other activities associated with handling traffic at a shipper’s facility, a bridge switch typically involves only the transfer of a railcar between railways.
 - b. **Haulage.** Haulage arrangements are like bridge switches in that their rates fall outside the scope of the CTA’s regulation. As with bridge switches, haulage movements differ

⁴⁷ Sometimes the railway that is physically performing the interswitching movement differs from the price authority. Because the proposed methodology reflects market prices, it is the price authority for each movement that is important for the purposes of my analysis.

⁴⁸ CTA, “Federal Railway Companies,” accessed March 3, 2026, available at <https://portail-portal.otc-cta.gc.ca/en/federal-railway-companies>.

⁴⁹ Records for movements in the beginning of each year sometimes have regulated rates equal to the prior years’ regulated rate. Please note that the distances in my analyses are restricted as discussed below.

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fundamentally from origination or termination switches: they do not require the terminal-related activities—such as coordinating with loading or unloading facilities or managing dwell—that make origin and termination switches more operationally complex.

- c. **Switches bundled with additional services.** Some origination and termination switches incorporate additional terminal services—such as transloading or storage—that are unrelated to the switching function itself. Including such bundled transactions in the analysis would risk overstating the true price of switching because the observed rates would reflect charges for supplementary services rather than switching alone.
- d. **Distances in excess of 50 km.** I exclude records for interswitching movements with distances to interchange longer than 50 km.⁵⁰ I performed a sensitivity analysis by expanding this distance to 200km and by reducing this distance to 30 km or 100 km and qualitatively the results are similar.
- e. **CN Subsidiaries.** I exclude records from the Iowa Northern Railway Company (IANR), including records from the period that preceded the acquisition by CN.

58. My analysis focuses on interswitching rates from 2022, 2023, 2024, and 2025. To propose market-based rates for regulated interswitching movements in 2024, I use unregulated interswitching movements from October 1, 2022 to September 30, 2023 to estimate 2024 rates; unregulated interswitching movements from October 1, 2023 to September 30, 2024 to estimate 2025 rates; and unregulated interswitching movements from October 1, 2024 to September 30, 2025 to estimate 2026 rates.⁵¹ As described above, this timing is meant to match the real-world timing that the CTA faces in setting and publishing interswitching rates toward the end of each year. Throughout my analysis, the rate I analyze is the rate per car. For U.S. traffic, rates were converted to Canadian dollars using the annual exchange rate from the Bank of Canada.⁵²

59. Figure 5 below shows the number of records I observed in the CN data by country, railway type, and regulated status. While there are generally more than [REDACTED] annual unregulated interswitching movements in Canada, they represent a relatively small number compared to the much larger volume of regulated interswitching traffic of around [REDACTED] each year. Relying only

⁵⁰ Regulated rates usually apply to interswitching movements where an interchange is within a 30 km radius of the point of origin or destination of a continuous move of traffic, but exceptions have applied for instance in the prairies. See *Canada Transportation Act*, Section 127(5), Last amended September 30, 2023 (Current to February 4, 2026), available at <https://laws-lois.justice.gc.ca/PDF/C-10.4.pdf>.

⁵¹ As a robustness check, I also tested a specification from November to October for each of the predicted rates. I also tested the robustness of the model with prediction based on calendar years. See the results sections and Appendix B.

⁵² Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>.

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average regulated interswitching rates were \$ [REDACTED] per car, while rates for unregulated interswitching movements were \$ [REDACTED] per car in Canada and \$ [REDACTED] per car in the U.S.

61. A small subset of observations—unregulated Canadian interswitching movements performed by Class I railways—has lower average rates. These represent fewer than [REDACTED] movements in any year and account for only a small share of Canadian Class I interswitching activity, which is predominantly at regulated rates as all Class I railways operating in Canada are federally regulated. I include these observations in my analysis and in the methodology I propose.
62. The averages in Figure 6 mask important differences such as premiums for automobiles, hazardous and dangerous goods, or dimensional loads; the distance from the interchange; and block size. Hence, conclusions should not be drawn directly from Figure 6. Note also how few records are in some categories. While there are close to [REDACTED] Canadian interswitching movements at regulated rates each year, the number of unregulated movements in Canada is much smaller. There are very few unregulated interswitching movements between Class I railways in Canada and the addition of other railways still results in the total unregulated records in Canada that are an order of magnitude less than the volume of regulated interswitching. Including U.S. data permits a more robust statistical model and the federally regulated railways in Canada both have extensive operations in the U.S.

[Figure 6: Average Rates for Interswitched Cars in CN data, 2022-2025]

Year	Country	Regulated	Not Regulated		Overall
			Class 1	Not Class 1	
2022	Canada	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	USA				
	Combined				
2023	Canada	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	USA				
	Combined				
2024	Canada	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	USA				
	Combined				
2025	Canada	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	USA				
	Combined				

Notes: See paragraphs 55-57 for definitions of regulated and unregulated interswitching movements. Observations are labelled by the country of the interchange, based on province/state.

Source: CN Interswitching Data, 2022-2025; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-178>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>; 2025 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

5. PROPOSED METHODOLOGY

63. Based on the economics of rail freight transportation, the operational realities of interswitching movements, and my analysis of the data provided by CN, I propose the following methodology that can be used by the CTA to establish regulated interswitching rates that are commercially fair and reasonable. This methodology is based on commercial market factors, combining both the demand side and the cost side as reflected in market prices for comparable movements. The methodology is designed to be repeated each year based on the most recent data on unregulated interswitching rates.

64. **Objectives and Outputs.** The CTA currently issues regulated interswitching rates “for shippers whose siding or facility at origin or destination is within 30 kilometers (in a straight line) of an interchange; or ‘reasonably close’ to an interchange, as decided by the CTA.”⁵⁴ The CTA’s current

⁵⁴ CTA, “Interswitching,” Last Modified October 22, 2025, available at <https://otc-cta.gc.ca/eng/interswitching>.

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approach groups rates by km distance and issues cost-based rates based on distance and block size. My proposed methodology would replace the current cost-based estimates rate table with a table derived from a regression analysis of unregulated market rates in both Canada and the U.S. The proposed rate table remains the same, while market-based rates in the model are allowed to vary by distance, block size, and whether the shipment contains hazardous materials, or automobiles, or dimensional goods.⁵⁵ These salient characteristics are incorporated into the proposed rate table by calculating the weighted average across such characteristics in the regulated interswitching movements.

65. I have used the methodology to propose rates within the existing distance zones set by the CTA in the *Railway Interswitching Regulations*. I note however that the methodology could also be adopted to modify the current rate table to have, for example, fewer or more distance zones.
66. **Data Construction.** The proposed methodology first requires constructing data on interswitching rates. Because the CTA must determine regulated rates before December 1 of each year, I use data for the prior October 1 – September 30 period so that the October to December period is used for data processing and estimation. This gives CTA staff time to receive, process, and analyze data from the railways and publish rate tables in December. If the October to December window suggested for data analysis is too generous, the methodology can be readily adapted to another 12-month period. However, it is essential that the CTA base its rates on a 12-month window because rail traffic is seasonal for some commodities. Using only part of the year—for instance, only using data from January 1 – September 30—may paint a misleading picture of market rates due to the seasonality of some types of shipments. Once the data are collected from the railways, the data are then prepared for regression analysis. Appendix B.4 provides details about the data collection and preparation procedure.
67. **Regression Analysis.** After preparing data on interswitching rates, a regression analysis is performed by regressing unregulated rates on the distance from the interchange for each data point, the block size, whether the interchange is in the U.S., and whether the shipment contains hazardous materials, automobiles, or a dimensional (oversized) load.
68. **Table of Rates.** The regression coefficients are translated into estimated interswitching rates for each combination of zone and block size. By relying on observed market transactions, the regression approach allows the data to determine both the level of the base rate and the appropriate adjustments for different switch characteristics. Because market conditions evolve over time, these relationships must be updated using the most recent data. For this reason, the

⁵⁵ I recommend that the CTA exempt dimensional shipments from interswitching rate regulation. Nevertheless, if the CTA elects to include dimensional shipments in rate regulation, then dimensional goods should be included in the regression as well (see Appendix B for more details) and a separate premium for dimensional goods added to the rate table as shown in Figures 10, 11, and 12 below.

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procedure I propose should be implemented annually to ensure that the resulting rates continue to reflect current market realities.

69. **Note.** The data used to estimate 2024 rates would come from market rates for the preceding years (e.g., 2024 rates based on the data from the years 2022 and 2023).⁵⁶ I understand this is the existing delay for the current methodology. It is possible to introduce an adjustment for anticipated inflation to account for such lag between the data used from prior years to estimate rates for 2024, but I have not been asked to address those options in my analysis, though they could be addressed by the CTA.

6. REGRESSIONS ANALYSIS AND ESTIMATED RATES

70. I applied my proposed method to produce regulated interswitching rates for 2024. To do so, I performed the regression analysis on unregulated interswitching movements that occurred between October 1, 2022, and September 30, 2023. The fitted regression model consists of coefficient parameters that quantify the relationship between each characteristic listed above and the estimated interswitching rate. These coefficients are reported in Figure 7.

⁵⁶ Specifically, the window from October 1, 2022 to September 30, 2023 is used to estimate rates for 2024 to allow the period from October 1, 2023 to December 1, 2023 to be used to produce such estimates, as I understand the rates for year 2024 must be published by December 1, 2023.

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[Figure 7: Regression Analysis of Market Rates, October 2022 – September 2023]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from 2022. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the AAR car type. Dimensional loads are identified in CN data. See Appendix B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

- 71. The signs and magnitudes of the estimated coefficients are consistent with the operational realities of interswitching movements. For example, estimated rates rise with the distance to the interchange, they fall for large block sizes, and they are higher for shipments that require special handling like automobiles, hazardous materials or dangerous goods, and dimensional (oversized) loads.
- 72. The constant term in Figure 7 can be interpreted as a base rate per car. Adjustments to this base rate are then applied based on distance, block size, and the type of shipment. The size of these adjustments, and their sign, are determined by the pattern of market rates for unregulated interswitching movements. As Figure 7 shows, the average discount for a large block size is approximately \$ [REDACTED] per car (for loads that are not dimensional), so while large blocks move at a lower rate, the difference is not as large as provided for in the published rate table for 2024. Similarly, there are estimated premiums of \$ [REDACTED] per car for automobiles and \$ [REDACTED] per car for hazardous and dangerous goods, while the premium for dimensional loads is \$ [REDACTED] for blocks

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below 60 cars and \$ [REDACTED] for dimensional loads in blocks of 60 or more.⁵⁷ The “U.S. Interswitch” factor indicates that, on average, rates for reciprocal switching in the U.S. are approximately \$ [REDACTED] more than the rates for comparable services in Canada and inclusion of this variable into the regression model controls for country-specific differences. Importantly, this additional coefficient is not used to calculate regulated interswitching rates for Canadian traffic.

73. I include an interaction term between dimensional load and large block (60 or more cars), which allows the model to estimate separate premiums for dimensional loads shipped in large versus small blocks. Because average rates for dimensional loads are so much higher than those for other traffic, they can skew the estimated premiums for more typical shipments unless this interaction is included. In contrast, the rate differences by block size for automobiles and for hazardous or dangerous goods in the data do not differ from the other commodities and while I analyzed such possibility, regression results indicate that to not be necessary.
74. I repeat the same regression analysis using the next 12-month window: October 1, 2023 – September 30, 2024. Figure 8 reports the estimated coefficients. Although the estimates differ somewhat in magnitude, the qualitative findings are unchanged. I also perform the same regression for October 1, 2024 – September 30, 2025, and again find the qualitative findings to be similar. Figure 9 reports the estimated coefficients. Unlike the estimates reported in Figures 7 and 8, the model in Figure 9 is missing the interaction between dimensional load and large block. This is because, for the data spanning October 2024 – September 2024, there are no unregulated interswitching movements of dimensional loads in large blocks. Therefore, the model is unable to estimate separate premiums for dimensional loads with small blocks and large blocks.

⁵⁷ To calculate the premium for dimensional loads in large blocks, the coefficient on dimensional load [REDACTED] is added to the coefficient on the interaction of dimensional load and large block [REDACTED]
[REDACTED]

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[Figure 8: Regression Analysis of Market Rates, October 2023 – September 2024]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from 2023. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are identified in CN data. See Appendix B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2023-2024; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>.

[Figure 9: Regression Analysis of Market Rates, October 2024 – September 2025]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from 2024. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are defined in CN data. See Appendix B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2024-2025; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2023 Determination, <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>; 2025 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

75. After estimating these regressions using the data for unregulated interswitching movements, I use the regression coefficient estimates from the model to calculate market-based rates for regulated interswitching movements of various types defined by distance, block size, and whether the shipment contains automobiles, hazardous materials or dangerous goods, or a dimensional load. Figure 10 reports the estimated rates for 2024 (based on the sample of unregulated interswitching movements between October 2022 – September 2023). I retain the CTA’s definition of interswitching zones, which are based on track distance between the interchange and the ultimate origin or destination (the “siding”). For each zone I calculate a base rate using the midpoint distance of that zone. For example, Zone 1 includes interswitching movements with a track distance less than 6.4 km, so I use a distance of 3.2 km to calculate the estimated base rate for Zone 1 interswitching movements. The one exception is Zone 4b which includes switches within a 30 km radius but with more than 40 km of track distance. For Zone 4b interswitching movements, I calculate the base rate at 40 km and include the per km surcharge estimated by the regression

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model for distances above 40 km. For automobiles, hazardous materials or dangerous goods, and dimensional loads, a premium is added to the base rates in Figure 10.⁵⁸

76. I note that the premium for dimensional goods is very large, though there are relatively few unregulated interswitching movements of dimensional loads in the data. These account for a very small percentage of all interswitching movements, whether regulated or not, and I discuss below reasons to exempt dimensional loads from the statutory interswitching regime. Should such exemption not be possible, the next favoured option is to add a premium to the base rate. While the estimated premiums for dimensional loads are statistically significant for the years of data I analyzed, this may not always be the case as it depends heavily on having enough unregulated interswitching movements of dimensional loads in a given year.

⁵⁸ The premiums for automobiles and hazardous materials are taken directly from the corresponding coefficients of the regression model. The premium for dimensional loads is a weighted average of the dimensional load premium for small blocks (1–59 cars) and large blocks (60 or more cars) with weights proportional to the share of regulated interswitched dimensional loads. 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 the dimensional load premium reported in Figure 10 is identical to the premium estimated for dimensional loads moved in small blocks.

[Figure 10: Estimated 2024 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

77. Figures 11 and 12 report interswitching rates for 2025 and 2026 based on the regression models in Figures 8 and 9. The rates vary somewhat from year to year, though the overall pattern of rates is fairly consistent over time.

[Figure 11: Estimated 2025 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2023-2024; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>.

[Figure 12: Estimated 2026 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49)	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a

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weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2024-2025; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>; 2025 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

7. SPECIAL HANDLING PREMIUMS

78. The CTA’s published interswitching rates do not differ by shipment type. In contrast, my analysis of the market data found distinct premiums for shipments that require additional handling: automotive, hazardous materials or dangerous goods, and dimensional loads. I note that the rates and the premiums for automotive and hazardous materials or dangerous goods are relatively close to those of other shipments. In contrast, the estimated rate with premium and the average rate for dimensional goods is an order of magnitude larger than those of other shipments. Below I discuss methodological considerations related to these premiums.

7.1 DIMENSIONAL LOADS

79. Dimensional (oversized) loads arise when the load exceeds the standard dimensions of the railcar by being “too high” or “too wide.” As a result, such loads require special handling. Depending on the load, the handling requirement may be relatively modest or quite extensive.
80. When analyzing rates for unregulated interswitching movements of dimensional loads, I find that, on average, their rates are [REDACTED] higher than those for other types of traffic. For example, in 2023, the average rate for unregulated interswitching dimensional loads is [REDACTED] the rate for all other shipments. In the data, rates for unregulated interswitching dimensional loads in some instances are over [REDACTED] per railcar, even for large block shipments (i.e., 60 cars or more).
81. There are relatively few dimensional loads in the data, whether regulated or not. This does not mean that dimensional shipments are rare as a category, only that there are not many interswitched dimensional loads. There are fewer than [REDACTED] carloads of dimensional loads in the unregulated data in any given year. These [REDACTED] carloads involve a very small number of shippers, so there are not many distinct unregulated rates across these carloads.
82. Generally, dimensional loads are diverse including loads such as machinery and equipment, steel plates, and wind turbines. I understand that dimensional loads vary in the handling requirements they impose. Some loads require reduced operation speed; some require a dedicated train service. Given this broad range of handling needs, it is not surprising that the associated interswitching rates for unregulated traffic vary widely as well.

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83. Currently, standard regulated interswitching rates also apply to dimensional loads in Canada. In contrast, unregulated rates for dimensional loads often exclude them from the standard tariffs. For example, published tariffs for unregulated interswitching services in the U.S. for CN and CPKC explicitly exclude dimensional loads from published tariff rates,⁵⁹ while published tariffs for NS and CSXT state that they do not provide reciprocal switching service for dimensional loads.⁶⁰ This further suggests that markets treat dimensional goods differently.⁶¹ Rather than being priced with the rest of interswitched traffic, dimensional loads interswitching is priced separately on a case-by-case basis.
84. Econometrically trying to fit in a distinct type of data while having not many observations to do so creates a statistical challenge. The proposed methodology can accommodate such rate discrepancy, but the premium on dimensional load shipments may not always be estimated with high degree of statistical confidence. Attempting to estimate a large premium that applies to a relatively small number of regulated moves and is estimated from a relatively small set of observations in the unregulated data does not seem particularly wise. Instead, a more robust alternative approach may be to exempt dimensional loads from the interswitching regulatory regime. That being said, and to be clear, if dimensional loads are not excluded, I maintain that they should be subject to a significant premium to reflect the market, as my methodology is proposing. Appendix B shows that estimated interswitching rates for 2024 for non-dimensional loads when exempting dimensional shipments are very similar to those described in Figure 10 above.

7.2 OTHER SPECIAL HANDLING LOADS

85. I also include two separate variables and estimate additional premiums for automotive and hazardous and dangerous goods. The CTA's current method does not include such a distinction. A potential modification would be to remove traffic associated with additional

⁵⁹ CPKC, "Interline Switching Tariff 7," Effective August 1, 2025, p. 4, available at <https://author.cpkcr.com/content/dam/cpkc/documents/english/pdfs/tariffs/cp/CPKC-7-Effective-2025-08-01.pdf>; CN, "Optional Services CN 9001-US Reciprocal Switching U.S.A.," Effective April 1, 2026, p. 5, available at <https://www.cn.ca/en/customer-centre/prices-tariffs-transit-times/optional-services-tariffs/>.

⁶⁰ Norfolk Southern, "NS 8001-A Switching and Absorption Tariff," Effective October 1, 2024, p. 14, available at <https://www.norfolksouthern.com/content/dam/nscorp/pdf/tariffs/11-15-2024/NS%208001-A%2010-01-24.pdf>; CSX Transportation, "Publication CSXT 8100," Effective April 1, 2026, p. 32, available at https://www.csx.com/share/wwwcsx15/assets/File/Customers/CSXT_8100_Publication_Effective_4-1-2026.pdf.

⁶¹ See, for example, BNSF, "BNSF Switching Book 8005-E," Effective November 5, 2025, p. 35, available at [https://domino.bnsf.com/website/miscprices.nsf/0/17CBE3453F006D7186258A06007C0537/\\$FILE/BNSF+8005-E%2C+Rev+0.pdf](https://domino.bnsf.com/website/miscprices.nsf/0/17CBE3453F006D7186258A06007C0537/$FILE/BNSF+8005-E%2C+Rev+0.pdf); Norfolk Southern, "NS 8001-A Switching and Absorption Tariff," Effective October 1, 2024, p. 14, available at <https://www.norfolksouthern.com/content/dam/nscorp/pdf/tariffs/11-15-2024/NS%208001-A%2010-01-24.pdf>; CSX Transportation, "Publication CSXT 8100," Effective April 1, 2026, p. 32, available at https://www.csx.com/share/wwwcsx15/assets/File/Customers/CSXT_8100_Publication_Effective_4-1-2026.pdf.

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handling requirements from the interswitching statutory regime. Again, that should be the case only if the CTA does not adopt a premium for these commodities in the published interswitching rates.

86. The premiums estimated by my methodology reflect both cost and market factors, including the additional labor and operational costs associated with special handling and, in the case of hazardous materials, higher insurance and risk-management costs. Eliminating these premiums would effectively ignore these important market factors when setting regulated interswitching rates.
87. I understand that there is variation within hazardous materials or dangerous goods, where some goods require more precautions, more handling, and more insurance which likely would result in higher market rates. For example, some poisonous by inhalation (“PIH”) or toxic by inhalation (“TIH”) goods fall in this category. Railways, for example CN, CPKC, and CSXT, point to the extra handling requirements for materials that represent an inhalation hazard in their tariffs.⁶² Transporting those materials also requires added liability insurance requirements.⁶³ While the data I have access to contains too few of such shipments to precisely estimate a separate premium, it is important to test for such premium in each year as traffic volumes change.
88. If these premiums are removed from the regulated interswitching rate table, but remain in the regression model, then the regulated rates for interswitching movements requiring special handling would be combined with all other traffic and subject to a single average rate for all. This means that relative to the model with a separate premium, the average rate applicable to shipments of automobiles or hazardous materials or dimensional loads would decrease, while rates for all other traffic would correspondingly increase. Section 2.2 in Appendix B describes how to modify my proposed methodology to omit special handling premiums from the published interswitching rate table.
89. If the CTA chooses to omit special handling premiums from the regulated interswitching rate tables, then I recommend either (1) exempting products with estimated premiums – automobiles, hazardous materials or dangerous goods, and especially dimensional loads – from

⁶² Those materials are often referred to as Poison Inhalation Hazard (PIH) or Toxic Inhalation Hazard (TIH) and can require extra planning and precautions when transported. See for instance CSX Transportation, “Publication CSXT 8100,” Effective April 1, 2026, p. 25, available at https://www.csx.com/share/wwwcsx15/assets/File/Customers/CSXT_8100_Publication_Effective_4-1-2026.pdf. “The planning required to transport TIH Hazards can be significant and, even if a shipment can be accommodated, it can take a fair amount of time to develop the appropriate route and plan.” Those types of shipments are also excluded from interswitching tariffs by CPKC. See CPKC Interline Switching Tariff 7, p. 4, Effective August 2025, available at <https://www.cpkcr.com/content/dam/cpkc/documents/english/pdfs/tariffs/cp/CPKC-7-Effective-2025-08-01.pdf>

⁶³ See CTA, “Rail Certificates of Fitness,” accessed March 4, 2026, available at <https://otc-cta.gc.ca/eng/rail-certificates-fitness-licences>.

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the interswitching statutory regime, or (2) retaining these variables in the regression model to allow the underlying variation in the data to be correctly accounted for. This is especially important for dimensional goods which are very different from all other shipments.

90. Should the CTA wish to control separately for other shipment types, currently or in the future, the methodology can accommodate both a distinct control variable and the tables can include – or not – a corresponding premium. The estimated premiums for all special handling carloads would be included in the regression model, and preferably in the rate table. In the alternative, they may be omitted from the rate tables but retained in the regression model as discussed above.

8. CONCLUSION

91. My proposed methodology is based on market prices for comparable movements where prices are not regulated. In my opinion, the best way to incorporate market factors into the determination of regulated interswitching rates is to use these market prices as a benchmark. Market prices incorporate all relevant market factors, both supply (such as cost and capacity) and demand conditions. As such, market prices, which incorporate all relevant market factors, will be given 100 percent weight in the methodology used to determine commercially fair and reasonable interswitching rates. In this report, I apply my proposed methodology to produce regulated interswitching rates for 2024, 2025, and 2026 to illustrate how the methodology can be used in practice.
92. In my analysis, I use CN data to identify unregulated interswitching rates where CN is providing interswitching services to another railway or paying another railway for the interswitching service provided to CN. I provide a computationally simple method of using regression analysis to determine average interswitching rates for unregulated transactions and use those results to compute proposed interswitching rates for regulated interswitching under the Act. My proposed methodology sets rates based on block size and distance, which I note are also the factors considered in the CTA's current regulated rates.
93. I have also identified market factors based on certain shipment types that have additional handling requirements and should be taken into account.⁶⁴ These shipment types are hazardous materials or dangerous goods, automobiles, and dimensional loads (oversized or heavier than average), which have unregulated rates that are higher than the average for other shipment types.⁶⁵ These three categories typically involve additional handling requirements, which likely contribute to their higher market rates relative to other shipment types without

⁶⁴ I refer to “shipment type” to capture the specific characteristics identified in this report, which are often dictated by commodity (for, e.g., hazardous and dangerous goods and automobiles) but also includes shipments with special handling requirements not limited to commodity type (for, e.g., dimensional loads).

⁶⁵ See Figures 7, 8, and 9; See also footnote 6.

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additional handling.⁶⁶ My proposed methodology includes premiums which reflect the coefficient associated with those shipment types as determined by regression analysis.

94. Taking these commercial market factors into account, the rate estimates for 2024, 2025, and 2026 generated by my proposed methodology are set out in the following table:

[Figure 13: Estimated 2024 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

⁶⁶ The market-based benchmarks derived in this analysis rely on observed unregulated transactions for traffic that does not require extraordinary handling beyond normal rail operations, other than for automotive, hazardous and dangerous goods, and dimensional loads. I understand there are other shipment types that require special handling including temperature-controlled traffic, unusually heavy or high-density loads, security sensitive commodities, fragile or shock sensitive cargo, and traffic requiring dedicated or specially prepared equipment. Such loads are not present in sufficient volumes in the data I analyzed; e.g., I observe no refrigerated cars interswitched in the data. If such traffic were to appear in future data used for regulatory benchmarking, it would likely differ from other movements in the data and also from the three shipment types included in my analysis (automotive, hazardous and dangerous, and dimensional). The CTA may consider excluding such traffic or applying an appropriate premium for such traffic using the similar approach as proposed for other categories of special handling traffic.

[Figure 14: Estimated 2025 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49):	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2023-2024; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>.

[Figure 15: Estimated 2026 Regulated Interswitching Rates]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):	[Redacted]	
Hazardous and Dangerous (STCC 48, 49)	[Redacted]	
Dimensional Loads:	[Redacted]	

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a

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weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2024-2025; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>; 2024 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2023-237>; 2025 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2024-181>.

95. It is also possible to calculate the rates using only the current factors considered by the CTA, namely distance and block size factors. However, this means that the premiums observed across shipment types would be incorporated into the average rates for all shipments. In my view, this approach should not be favoured as the premiums associated with automotive and hazardous and dangerous shipments are distinct from other shipments and therefore applicable to these shipments specifically. Nevertheless, if the CTA were to apply my methodology across all shipments without distinguishing those that have separate premiums as shown in Figure 13 above, then the resulting rates for 2024 would be as shown in Figure 16.

[Figure 16: Estimated 2024 Regulated Interswitching Rates without Premiums]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for zone 4b is calculated using a distance of 40 km with a per km surcharge included. Rates are a weighted average of all shipment types with weights proportional to the share of regulated interswitching shipments.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

96. This methodology requires CN and CPKC to provide their regulated and unregulated interswitching data to the CTA annually. Such data would include all transactions where CN or CPKC receive a payment from another railway for an interswitching service they perform, or where they pay another railway for the service that railway performs for CN or CPKC as discussed in the Appendix B. As explained above, including interswitching movements in the U.S. adds a significant amount of information that improves the statistical power of the regression estimates. I recommend that the data for this methodology include regulated and

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unregulated interswitching transactions in Canada and reciprocal switching transactions in the U.S. and exclude non-market rates – other than regulated interswitching under the Act – whenever possible.

A handwritten signature in black ink, appearing to read "Nadia Soboleva". The signature is written in a cursive style with a large initial 'N' and 'S'.

Nadia Soboleva, signed March 5, 2026

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APPENDIX A: QUALIFICATIONS

1. My qualifications are detailed in my curriculum vitae, a copy of which is attached. I am a Principal in the Antitrust & Competition Economics practice at Charles River Associates. I have addressed competition and regulatory issues in the rail industry, including providing expert opinions in final offer arbitration (“FOA”) proceedings and expert opinions in CTA proceedings. I have considerable experience working with CN’s waybill data as part of my work in FOA and other proceedings. I also have considerable experience working with other railway data as part of my experience with non-CN railway data.
2. I have been qualified as an economic expert in rail FOA and other rail matters. I have testified in three FOA rail proceedings and I have undertaken analyses of railway competition issues, including rates, services, and performance, in commercial disputes involving Class I railways. I have also analyzed rail rates in Canada and the U.S. in work involving a government agency and in rail proceedings at the U.S. Surface Transportation Board. I have also addressed competition issues in rail and other transportation industries in multiple matters. In addition to the rail work, I analyzed competition in transportation industries, including competition in air travel, rate choices in passenger air travel, and rate and service in marine freight transport. My work also includes analysis of fair and reasonable rates for licensed technologies in telecommunication industries. Prior to joining Charles River Associates in 2019, I worked on antitrust, competition, and intellectual property issues in the United States at NERA Economic Consulting and Cornerstone Research. I was previously Assistant Professor of Economics at the University of Toronto and a consultant at the World Bank. I received my Ph.D. in economics from Yale University.

APPENDIX B: ADDITIONAL DETAILS REGARDING THE METHODOLOGY

B.1. SENSITIVITY TESTING OF THE PROPOSED SPECIFICATION

1. My proposed methodology uses an ordinary least squares regression model (“OLS”), which is tried, true, and simple to use.⁶⁷ As I describe below, alternative regression specifications confirm the robustness of the proposed methodology. Below, I describe four specific scenarios, but I actually considered more specifications, which were ruled out because they did not fit the data as well.
2. The four additional scenarios, all of which confirm the robustness of the proposed methodology are: (1) using the logarithmic transformation for the regression specification, (2) limiting my analyses to non-Class I railways, (3) excluding the top 10% values from unregulated rate data before estimating a regression, and (4) shifting the analysis window by one month to a twelve-month period from November 1, 2022 through October 31, 2023.⁶⁸

1. Logarithmic Model Specification

3. Log transformations can improve the statistical properties of a regression analysis when the underlying variable is very skewed. A log transformation also alters the interpretation of the regression coefficients, and to calculate the estimated interswitching rates one must reverse the transformation using an exponential function. I estimated my regression specification on log-transformed interswitching rates. I report the coefficient estimates in Figure B1.

Figure B1 below shows estimated values of the regression coefficient for the model that would be used to estimate rates for year 2024. The signs of the coefficients, relative values, and direction are similar to those in the main model for the year 2024. Estimated rates are very close as well to the rates shown in Figure B5.

⁶⁷ See Jeffrey Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, MIT Press (2002), pp. 49-76.

⁶⁸ I have considered additional scenarios such as using quantile regressions, but while they produce qualitatively similar results, they do not fit the data as well. For example, for quantile regressions, dividing the data into both quantiles and distance zones can produce zones with no records for a particular shipment type for a particular quantile.

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[Figure B1: Regression Analysis of Market Rates, Log-transformed Dependent Variable]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the (log) switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from the starting year for each model. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are identified in CN data. See Appendix Section B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

2. Excluding Data for Class I Railways

4. Regulated interswitching aims to provide access so as to enable competition for the line-haul movements. One might be concerned that some interswitching rates charged by Class I railways may be set so high as to prevent a competing railway from securing the line-haul shipment, thereby diverting line-haul traffic from the competitor. Economists call this foreclosure. While the extent to which foreclosure occurs remains a matter of debate, economic theory is clear that Class II or III railways, who do not themselves compete for line-haul traffic, have no incentive to foreclose. I therefore restrict this analysis to interswitching movements performed only by Class II or III railways. The results are very similar to those I find when looking at all data.

[Figure B2: Regression Analysis of Market Rates, Excluding Class I]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from the starting year for each model. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are identified in CN data. See Appendix Section B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

3. Excluding Top 10 Percent Values of the Unregulated Rates

- Estimated rates reflect distribution of rates in the data. I assessed how sensitive the model is to the value of the outliers. A small number of unregulated interswitching movements may be unusual in some way that is difficult to observe in the data, but which nevertheless causes their rates to greatly exceed those of more typical interswitching traffic. To explore whether a small number of unusually high interswitching rates may be driving my results, I conducted a sensitivity check wherein I excluded the highest decile of rates from the analysis. As I show below the results remain largely the same.

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- 6. I excluded any shipments with rates greater than or equal to the 90th percentile rate, separately for small and large block shipments of automotive, hazardous, dimensional, and other goods. The estimated coefficients are reported in Figure B3.

[Figure B3: Regression Analysis of Market Rates, Top 10% of Rates Excluded]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from the starting year for each model. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are identified in CN data. See Appendix Section B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

4. Shifting Analysis Window by One Month

- 7. The CTA publishes the regulated interswitching rate by December 1 of each year. I assumed that the window from October 1, 2023 to December 1, 2023 is necessary to determine regulated interswitching rates for 2024. This means that the underlying data would cover the period from October 1, 2022 to September 30, 2023. I also estimated the model assuming CTA would use the

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data from November 1, 2022 to October 31, 2023. As Figure B4 below shows, the results are very similar.

[Figure B4: Regression Analysis of Market Rates, November 2022 – October 2023]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Dimensional Load	
Dimensional Load x 60 or More Cars	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). The dependent variable for each regression is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from the starting year for each model. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are identified in CN data. See Appendix Section B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

- Figure B5 reports estimated interswitching rates from these four alternative models, all of which yield similar results. As in the baseline model, rates rise with distance, fall slightly for larger blocks, and carry a premium when special handling is needed. This suggests the baseline model and rate estimates are robust to alternative specifications.

[Figure B5: 2024 Estimated Rates]

Regulated Interswitching Zone	Base Rate							
	Single (1-59 Cars)				Block (60 or More Cars)			
	Logarithmic	Class 2	Trimmed	Shifted Window	Logarithmic	Class 2	Trimmed	Shifted Window
1								
2								
3								
4a								
4b								
		per km over 40	per km over 40	per km over 40	per km over 40	per km over 40	per km over 40	per km over 40
Premiums:								
Automotive (Car type "V"):								
Hazardous and Dangerous (STCC 48, 49):								
Dimensional Loads:								

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, hazardous and dangerous materials, and dimensional loads are added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads. Premiums for the logarithmic model represent the percentage increase in rate, relative to the base rate.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

B.2. ALTERNATIVE REGRESSION SPECIFICATIONS

9. In this section, I discuss potential modifications to the methodology I propose in my report. Specifically, I focus on how results change when dimensional loads are exempted and some or all premiums are excluded.

1. Exempt Dimensional Loads from Interswitching Rate Regulation

10. As discussed in my report, rates for dimensional loads differ greatly from the rest of the data. There are not very many of these rates in either the regulated or unregulated data, and econometrically trying to fit in a distinct type of data while having not many observations to do so creates a statistical challenge. The methodology can accommodate such rate discrepancy, but the premium on dimensional load shipments may not always be estimated with as high of a degree of statistical confidence as the CTA may desire.

11. In light of this, it is possible that the CTA may choose not to attempt to estimate a large premium that applies to a relatively small number of regulated moves and that is estimated from a relatively small set of observations in the unregulated data. Instead, a more robust approach may be to exempt dimensional loads from regulated interswitching rates. Were the CTA to adopt exemption of dimensional loads from regulation, the CTA would need to modify my proposed methodology slightly. The modification entails omitting dimensional loads from the data and omitting the coefficients for dimensional loads and the interaction of dimensional load with block size. Figure

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B6 reports regression results after making these two modifications for unregulated switches between October 2022 and September 2023.

[Figure B6: Regression Analysis of Market Rates. Exempt Dimensional Loads from Interswitching Rate Regulation]

Constant	
KM	
60 or More Cars	
Automobiles	
Hazardous Materials	
U.S. Interswitch	
Observations	
R-squared	

Notes: Cluster-robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). The dependent variable is the switching rate in CAD. Rates which were paid in USD are converted to CAD using the average exchange rate from 2022. Hazardous Materials refers to STCC codes starting with 48 or 49. Automobiles are identified as carloads with “V” as the first initial of the car type. Dimensional loads are excluded from the analysis. See Appendix Section B.3 for a discussion of clustered standard errors.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

12. Figure B7 uses the model estimated in Figure B6 to calculate regulated interswitching rates. Since dimensional loads have been excluded from the analysis, Figure B7 contains no premium for dimensional loads.

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[Figure B7: 2024 Estimated Rates, Exempt Dimensional Loads from Interswitching Rate Regulation]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More Cars
1	[Redacted]	[Redacted]
2	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]
4a	[Redacted]	[Redacted]
4b	[Redacted] + [Redacted] per km over 40	[Redacted] + [Redacted] per km over 40
Premiums:		
Automotive (Car type "V"):		
Hazardous and Dangerous (STCC 48, 49):		

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for Zone 4b is calculated using a distance of 40 km with a per km surcharge included. Premiums for automobiles, and hazardous and dangerous materials are added to the base rate when applicable.
Sources: CN Interswitching Data, 2022-2023; Bank of Canada, "Annual exchange rates," published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

2. Omit Premiums for Special Handling Requirements.

13. Figure B8 is similar to Figure 1 in the report except that it omits the premiums for automobiles and hazardous and dangerous goods. Those premiums have been incorporated into the base rates for each zone and block size. I incorporate them by calculating, separately for each cell in the table, the interswitching rates for automobiles, hazardous materials, and all other shipments. Then I take a weighted average of those three rates for each cell, weighting by the traffic volumes of regulated traffic. Omitting the premiums for automobiles and hazardous materials causes the rates for other traffic to rise. Note that the table in Figure B8 still contains a premium for dimensional loads. As I explained in the report and previously in this Appendix, dimensional loads are sufficiently different from other traffic that, unless they are exempted from regulation, they should receive their own premium. If the CTA chooses to include dimensional loads in interswitching rate regulation while omitting premiums for special handling, I recommend at least including a premium for dimensional loads.

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[Figure B8: 2024 Estimated Rates, Omit Premiums for Special Handling Requirements]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More Cars
1	[REDACTED]	[REDACTED]
2	[REDACTED]	[REDACTED]
3	[REDACTED]	[REDACTED]
4a	[REDACTED]	[REDACTED]
4b	[REDACTED] + [REDACTED] per km over 40	[REDACTED] + [REDACTED] per km over 40
Premiums:		
Dimensional Loads: [REDACTED]		

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for zone 4b is calculated using a distance of 40 km with a per km surcharge included. The premium for dimensional loads is added to the base rate when applicable. The premium on dimensional loads is a weighted average of small block and large block premiums with weights proportional to the share of regulated interswitched dimensional loads.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

3. Exempt Dimensional Loads and Omit Premiums for Special Handling Requirements

14. It is possible to both exempt dimensional loads and omit premiums for special handling. Figure B9 contains a rate table from the regression model in Figure 1 (with dimensional loads excluded from the analysis) where the premiums for automobiles and hazardous and dangerous goods have also been omitted.

[Figure B9: 2024 Estimated Rates, Exempt Dimensional Loads and Omit Premiums]

Regulated Interswitching Zone	Base Rate	
	Single 1-59 Cars	Block 60 or More Cars
1		
2		
3		
4a		
4b	per km over 40	per km over 40

Notes: Base rates are calculated using the midpoint of the range of distances for each zone. The base rate for zone 4b is calculated using a distance of 40 km with a per km surcharge included. Rates are a weighted average of all shipment types with weights proportional to the share of regulated interswitching shipments.

Sources: CN Interswitching Data, 2022-2023; Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>; 2021 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2020-194>; 2021 Re-Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-161>; 2022 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2021-176>; 2023 Determination, available at <https://otc-cta.gc.ca/eng/ruling/r-2022-164>.

B.3. CLUSTERED STANDARD ERRORS

- Interswitching rates in the data and in the published tariffs are set for a particular interswitching location and not for each individual carload. For example, CPKC published tariffs show reciprocal switching rates for interswitching in Baton Rouge, LA for Exxon Mobile customers. In the CN data, the lower rate applies to a customer with a shorter distance to the interchange.

Figure B10: CPKC Public Switching Tariff

ExxonMobil Chemical Co	4999 Scenic Hwy, Baton Rouge LA 70805	\$400 CN; \$300 UP
ExxonMobil Chemical Co	11675 Scotland Ave, Baton Rouge LA 70807	\$715 UP
ExxonMobil Chemical Co	12875 Scenic Hwy, Baton Rouge LA 70807	\$715 UP
ExxonMobil Corp [Resin Plant]	12480 Scenic Hwy, Baton Rouge LA 70807	\$715 CN, UP
ExxonMobil Corp [Refinery]	4045 Scenic Hwy, Baton Rouge LA 70805	\$400 CN; \$300 UP

Source: CPKC Interline Switching Tariff 7, Effective August 2025, available at <https://www.cpkcr.com/content/dam/cpkc/documents/english/pdfs/tariffs/cp/CPKC-7-Effective-2025-08-01.pdf>.

- Importantly, the interswitching rate in this case does not vary with total carloads under this tariff and all carloads for this customer and this distance interswitched between CPKC and CN have the same rate. That is, rates do not vary for the same customer-interchange-distance across

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carloads because they are set at a customer-interchange-distance level, not an individual carload level.

17. This has an important implication for a regression analysis. The standard approach to estimating standard errors assumes that all observations, which in this case are at a carload level, are independent from each other, which is not the case when multiple observations are generated for the same customer-interchange-distance from the interchange. An analyst who uses the standard approach to estimating standard errors would likely understate standard errors and therefore overestimate the level of statistical significance of coefficients in the regression.⁶⁹
18. When groups of observations are not independent of each other—such as multiple carloads moving under a common rate—one must account for that correlation. Cluster-robust standard errors, also known as clustered standard errors, correct for the fact that all the carloads moving under the same tariff or negotiated rate are correlated (i.e., they all have the same rate). Failing to correct for this correlation can bias standard errors and distort statistical inference.⁷⁰
19. The standard errors provided in the regression tables in this report are all clustered. For the purposes of clustering standard errors, I define a rate to be a unique combination of interswitching railway, paying railway, interchange station, STCC code, AAR car type, whether the car was part of a block of 60 cars or more, whether the interswitching movement was originating or terminating, and distance from the interchange.
20. Importantly, while clustered standard errors are necessary for performing statistical inference, they are not needed if it is only the value of the estimated coefficient that is of interest. My proposed regression specification produces the same values of estimated coefficients whether the CTA computes clustered standard errors or not. Indeed, clustering standard errors has no effect on the estimated regression coefficients and therefore no effect on the estimated interswitching rates. If the CTA decides not to compute clustered standard errors, it is fine to ignore the default standard errors that are provided by most software packages and use the estimated coefficients to calculate regulated interswitching rates.
21. Alternatively, an analyst could aggregate the data to the customer-interchange-distance from interchange level and estimate the regression using that as a level of observation. For such a specification, total carload counts for a customer should be employed as a weight, so that when twice as many cars move at a lower rate, that observation is appropriately weighted as one with a

⁶⁹ Standard errors capture the uncertainty in an estimate. Smaller standard errors mean greater precision; standard errors that are understated can overstate the confidence we should place in the result. See Abadie, A., et al. (2023), When should you adjust standard errors for clustering? *The Quarterly Journal of Economics*, 138(1), pp. 2, 31-34.

⁷⁰ For a more in-depth discussion of clustered standard errors, see for instance, Abadie, A., et al. (2023), When should you adjust standard errors for clustering? *The Quarterly Journal of Economics*, 138(1), 1-35.

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lower rate but more carloads. My analysis of data aggregated to this level produces comparable estimates, but this approach requires more data processing as care needs to be exercised to appropriately aggregate rates and apply weights.

B.4. DATA PREPARATION

22. My analyses rely on the data provided by CN and therefore I do not observe interswitching rates for other federally regulated railways. To ensure accurate assessment, it is important that other federally regulated railways provide data to the CTA. These data are described below.
23. **Geography:** Data on interswitching movements that occur in either Canada or the U.S. The methodology includes an explicit control to distinguish the U.S. rates from the Canadian rates.
24. **Timeframe:** Data on interswitching movements that occurred between October 1 of the prior year and September 30 of the current year. For example, in setting rates for 2026, I recommend the CTA request switching movements that occurred between October 1, 2024 and September 30, 2025.⁷¹
25. **Observations:** Data on individual carloads that were 1) interswitching movements with distance within 50 km or less from the interchange (measured as rail distance), 2) either an origin or destination interswitching movement (bridge movements omitted), 3) interswitching movements only (interswitching movements with rates including other services like haulage should be omitted), and 4) unregulated rates that are not subject to special restrictions such as a consent decree from a prior merger. Requirement 3 is designed to omit movements that are bundled with other services such as haulage or transloading services. Requirement 4 is designed to restrict the data on unregulated interswitching movements to those with market rates.
26. **Information for each carload:** For each carload, the following information is required: the date of the interswitching movement, the interchange point, the identity of the line-haul carrier, the identity terminal carrier, the rate in original currency, an indicator of the currency used, the distance from the interchange in km by rail, the STCC code, the hazardous code when applicable, the AAR car type or an indicator for car type "V" (automotive), the block size, an indicator for dimensional loads, whether the interswitching movement is originating or terminating, and whether this is a payable or a receivable transaction (useful to duplicates control). For movements in Canada that are subject to regulated interswitching under the Act, an indicator variable should also be included alongside other variables.
27. **Restricting the analysis sample to market rates:** To ensure that market rates in Canada do not inadvertently capture rates already regulated under the Act, a key step in data preparation is to assign any interswitching movements that 1) were performed in Canada, 2) by a federally

⁷¹ As discussed above, the methodology can rely on any other 12 months data period, but then the data request to railways need to refer to that period.

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regulated railway with another federally regulated railway, and 3) had a rate that matched one of the regulated rates for that year or the previous year.⁷² This helps ensure that regulated interswitching movements are not included in the regression analysis. While the railways are asked to provide such information, the methodology requires that only market rates are used, which is why I propose this additional step to ensure the data are sound. If the CTA chooses to exempt dimensional loads (or other special handling shipments) from rate regulation, they can be omitted from the data request and from the regression analysis.

28. **Deduplicating records:** If two railways providing these data are both involved in a switching movement, then that movement will appear twice in the combined data. For example, interswitching movements between CN and CP are likely to be provided once by CN and once by CP. It may be best to request all records and control for duplicates by taking only payable (or only receivable) records from each but only for transactions when both railways report their data. For interswitching with other railways where the other railway, such as SRY, is not federally regulated and thus not likely to provide data, both payable and receivable records should be used.
29. **Additional processing:** The analysis requires construction of additional variables. In particular, constructing indicator variables for regression for each category of special handling goods. For automotive, AAR car type that begins with “V”, for hazardous and dangerous goods, an indicator for any goods with a STCC code beginning with 48 or a hazardous code beginning with 49. If other categories of special handling goods are examined for separate premiums, e.g., PIH/TIH or refrigerated goods, a corresponding indicator variable needs to be created. Rates that are reported in U.S. dollars should be converted into Canadian dollars, using for example the appropriate average annual exchange rates published by the Bank of Canada.⁷³

⁷² Due to lags in record keeping, sometimes a regulated interswitching movement at the beginning of the year may be recorded with the regulated rate from the prior year.

⁷³ Bank of Canada, “Annual exchange rates,” published December 31, 2025, available at <https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/>.

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In intellectual property matters, Dr. Soboleva addresses intellectual property issues in determining reasonable royalty and lost profits damages in patent matters, often involving standard essential patents (SEPs) and fair, reasonable, non-discriminatory (FRAND) licensing obligations. Dr. Soboleva also advises manufacturers and patent holders in licensing negotiations, involving economic valuation of patents and analysis of copyright issues in music, artistic performances, radio, and printed matters. Dr. Soboleva has provided expert testimony in patent infringement matters.

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Testimony, Expert Reports, and Witness Statements

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Recent Selected Presentations

“What’s New in Canada: Canadian Competition Law and Economics Update”, American Bar Association webinar, May 2025

“Competition assessments involving effects on product quality, variety and repositioning,” Canadian Bar Association Economist Roundtable with the Competition Bureau, May 2024

“Economics in Copyright,” U.S. Copyright Society webinar, November 2022

“Breaking it Down: Calculating and Incorporating Efficiencies 2.0” Canadian Bar Association Competition Law and Foreign Investment Review Section’s Economics and Law Committee and Mergers Committee webinar, March 2021

“Failing Firm and Efficiencies Analysis in Distressed M&A Review,” Panel discussant at the Canadian Bar Association Competition Law Section Annual Fall Meeting, October 2020

Professional history

2019–Present	<i>Principal</i> , Charles River Associates, Toronto, Canada
2012–2019	<i>Senior Consultant</i> , NERA Economic Consulting, San Francisco, CA and Toronto, Canada
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