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Rail Transportation – Canada

Crude by rail poses higher social risk than financial risk for Canadian operators

» **Shipments of crude by rail in Canada in 2021 are expected to remain below the peaks of the beginning of 2020.** But reputational and social risks associated with accidents far outweighs the financial risk that shipping crude by rail poses for the two main Canadian rail freight operators, Canadian National Railway (CN Rail, A2 stable) and Canadian Pacific Railway (CP Rail, Baa1 stable). These two operators, which together move more than 95% of the country's crude by rail continue to take steps to improve safety.

» **The decline in crude production in western Canada has led to declining shipment volumes for the Canadian railways.** Yet despite big annual swings in carloads, the Canadian railways have relatively low exposure to the crude by rail segment; customer-supplied rail cars and customer contracts help minimize losses in revenue. CN Rail reported a 15% decline in carloads for its petroleum and chemicals segment for the nine months through September 2020 from the same period in 2019, while CP Rail reported a 30% decline in carloads for its Energy, Chemicals and Plastics segment. But even in busy years, crude and fuel shipments make up well below 10% of their transport revenue.

» **While crude by rail accounts for less than 2% of Canadian rail carloads, they involve a potential social-impact risk disproportionate to the business that they generate.** The railway operators which are subject to “common carrier” obligations where they have to accommodate all traffic offered to them, assume considerable social risk with the possibility of changing policies, socially driven regulation, and investment decisions. Rail accidents involving oil are rare in Canada, but they attract significant media attention and amplify public opposition to trains that carry crude by rail through or near towns and waterways.

» **We expect that both the rail operators and the Canadian government will continue their efforts to increase the safety of both rail transport and the transportation of dangerous goods in Canada.** Both CN Rail and CP Rail dedicate around 20% of their annual revenue toward capital spending, up to 50% of which goes toward railway infrastructure, spending that helps prevent derailments. The railways have taken a number of other steps to reduce accidents, including upgrading their networks with annual investments in infrastructure and new safety technologies. Western Canadian producers are also developing less flammable technologies to solidify their bitumen for rail transport. Canada's federal government said it will invest CAD25 million over three years to improve rail safety.

Crude by rail volumes will remain low through 2021 after steep decline in 2020

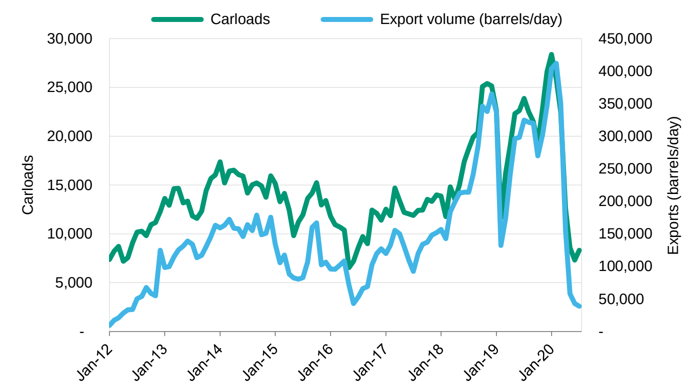
Shipments of crude by rail in Canada will remain subdued through 2021, well below the peaks of the beginning of 2020. But reputational and social risks associated with accidents far outweigh the financial risk that shipping crude by rail poses for the two main Canadian rail freight operators, Canadian National Railway (CN Rail, A2 stable) and Canadian Pacific Railway (CP Rail, Baa1 stable). These two Canadian Class I operators,[1] which together move more than 95% of the country's crude by rail, and operate as "common carriers" meaning they must provide its service to anyone willing to pay its fee, continue to take steps to improve safety.

Shipments of crude by rail declined in Canada in 2020 in line with the drop in the country's crude production (see Exhibit 1). Crude-by-rail exports, mostly to the US, have fallen accordingly. In the first half of 2020, Canada's crude production declined by 20% from its 2019 average of 5.5 million barrels/per day. CN Rail reported a 25% decline in carloads from its petroleum and chemicals segment in the second quarter of 2020 compared to the same period in 2019, while CP Rail reported a 28% decline in carloads for its Energy, Chemicals and Plastics segment.

Petroleum carloads for the Canadian rail operators vary considerably from year to year, but have declined in 2020 to levels in line with 2016, amid an oil price downturn (see Exhibit 2). CP Rail's greater annual variability compared to CN Rail reflects its higher exposure to hauls from Alberta and elsewhere in western Canada, and that about 30% of the crude that CN Rail moves is undiluted heavy bitumen which cannot be moved by pipeline and isn't subject to substitution. Canada's production of petroleum and other liquids declined with global crude demand in early 2020. Oil prices plunged in March and April 2020, and the onset of the coronavirus pandemic reduced demand for oil and refined petroleum products in Canada and the US, while the province of Alberta (Aa3 stable), which produces about 80% of Canada's crude, sustained production curtailments, which have since been lifted.

Exhibit 1

Canadian crude by rail shipments and exports surged with production before dropping with oil prices

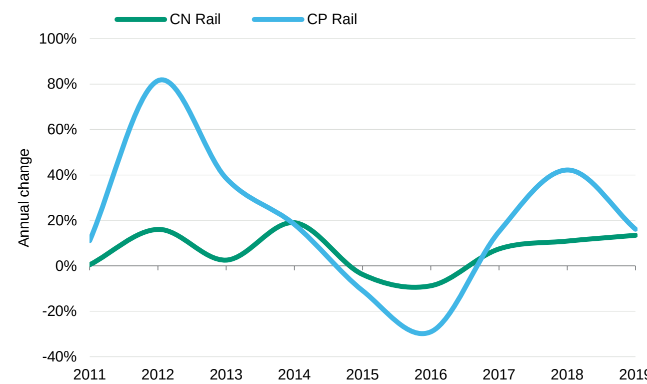


Source: Statistics Canada: Railway carloadings statistics, by total tonnage transported, monthly

Exhibit 2

Petroleum shipments vary considerably by year for each operator

Annual change in shipment of petroleum carloads

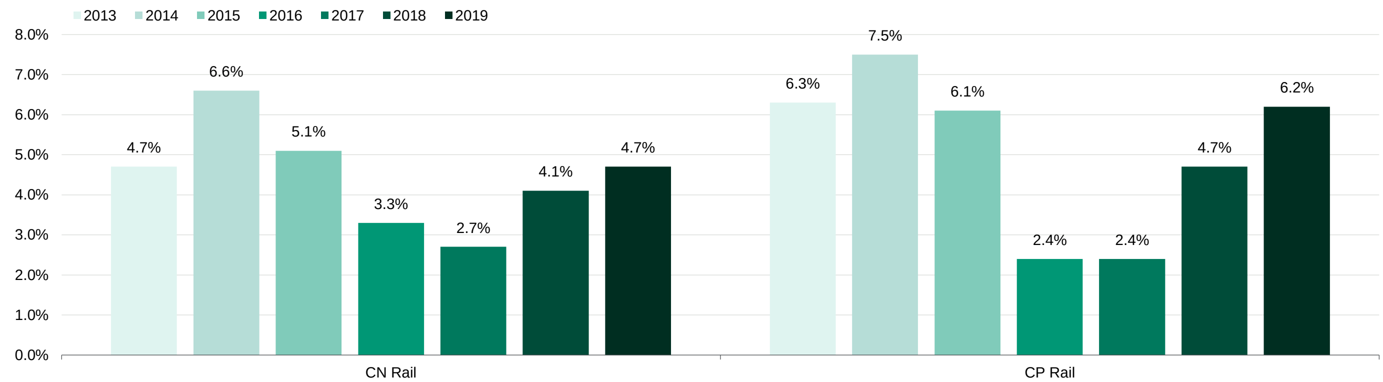


Source: company data

Decline in crude by rail shipment will not strain operators financially

The decline in crude production in western Canada has led to declining shipment volumes for the Canadian railways. Yet despite big annual swings in carloads, a number of factors ease the impact on the Canadian railways' financial standing, including their relatively low exposure to the crude by rail segment; customer-supplied rail cars; and contracts largely with the producers that include provisions for liquidated damages, minimum volume commitments, or take-or-pay capacity. As well about 30% of the crude that CN moves is undiluted heavy bitumen that shows less variability in volumes because it is not impacted by crude price differentials compared to diluted bitumen which is a pipeline grade barrel. CN Rail reported an 11% decline in carloads for its petroleum and chemicals segment for the nine months through September 2020 from the same period in 2019, while CP Rail reported a 30% decline in carloads for its Energy, Chemicals and Plastics segment. But even in busy years, crude and fuel shipments make up relatively little of their transport revenue—well below 10% (see Exhibit 3).

Exhibit 3
Crude by rail has comprised only small percentages of rail operators' total revenue
Proportion of total revenue from crude by rail, 2013-19



Source: Company annual reports

Because of the freight companies' contractual obligations with their oil- and fuel-producing customers, crude-by-rail revenue does not drop in line with actual shipments. Oil producer Cenovus Energy (Ba2 review for upgrade), a counterparty for both CN Rail and CP Rail, said in its second quarter 2020 reporting that it had been spending as much as CAD20 million (USD15 million) per month in contractual obligations for its suspended rail program—about one-quarter of its costs when fully active.

Despite the drop in carloads in early 2020, freight revenue did not drop to same level. For the nine months through September 2020, CP Rail's revenue from its Energy, Chemicals and Plastics segment fell by 16%—far less than the 30% drop in carloads. CN Rail's revenue from its petroleum and chemicals segment dropped by 14%, closer in line with its 15% decline in carloads.

Crude by rail poses reputational and social risk for freight operators

While crude by rail accounts for less than 2% of Canadian rail carloads, according to the Railway Association of Canada, they involve a potential social-impact risk disproportionate to the percentage of business that they generate. The railway operators assume a considerable social risk with the possibility of changing policies, socially driven regulation, and investment decisions, and cannot refuse to move crude on their network as they are required because of their "common carrier"obligation.

Increased public awareness of environmental and social issues will continue to draw public interest in crude-by-rail transport safety, along with continued pressure on the federal government of Canada (Aaa stable) to ensure safe movement. Greater safety measures and restrictions would likely include limiting train speeds and increased investment in safety features. New regulatory safety mandates would also affect the rail companies' ability to operate efficiently. Adherence to health and safety regulations and protocols tend to ease the credit impact of such steps, but unforeseen or acute disasters can still pose hazards to credit quality for these operators.

Rail accidents involving oil are rare in Canada, which has had seven oil train derailments since the major 2013 rail disaster at Lac-Mégantic, Quebec (see Exhibit 4). But rail accidents involving oil leaks or spills have an outsized impact in proportion to the actual number of accidents, attracting significant media attention and amplifying public opposition to trains that carry crude by rail through or near towns and waterways. Public awareness of the dangers of crude-by-rail shipments increased with the July 2013 Lac-Mégantic accident, in which a train carrying crude derailed, causing multiple explosions and fires in which 47 people died and multiple nearby businesses were destroyed. The train's operator Montreal, Maine & Atlantic Railway had only CAD25 million in liability insurance, later declared bankruptcy.

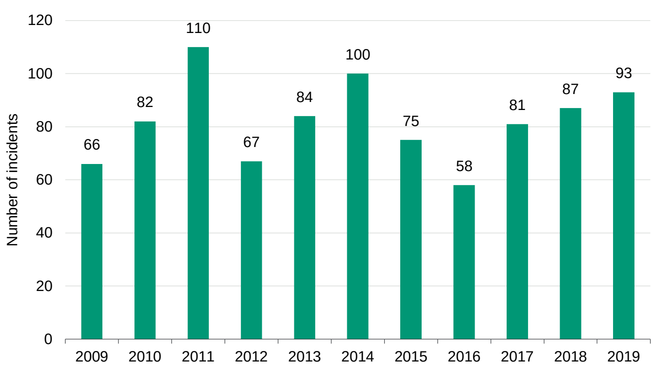
Exhibit 4
Canada has had seven rail accidents involving crude-by-rail shipments since the pivotal Lac-Mégantic disaster in 2013

Location	Operator	Date	Spillage (thousands of litres)
Gladwick, Ontario	CN Rail	14-Feb-15	1,700
Gogama, Ontario	CN Rail	7-Mar-15	2,600
St Lazare, Manitoba	CN Rail	16-Feb-19	800
Barwick, Ontario	CN Rail	4-May-19	0
Guernsey, Saskatchewan	CP Rail	9-Dec-19	1,500
Guernsey, Saskatchewan	CP Rail	6-Feb-20	1,600
Emo, Ontario	CN Rail	18-Feb-20	210

Source: TSB Canada

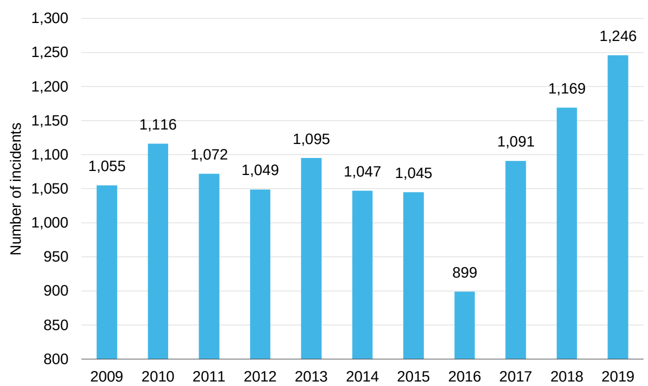
Rail accidents and derailments have steadily increased from historically low levels in 2016, according to the Transportation Safety Board of Canada (see Exhibits 5-6). After a spate of train crashes in the winter of 2019-20, the Canadian government in February 2020 issued an order restricting the speed of trains carrying dangerous goods. A Ministerial Order that took effect on 1 April 2020 replaced the February order, establishing speed restrictions for non-winter and winter months for trains moving crude or liquefied petroleum gas.

Exhibit 5
Canadian train derailments have increased since 2016 low...
Main-track derailments



Source: Transportation Safety Board of Canada

Exhibit 6
...along with all rail-related accidents
All accidents



Source: Transportation Safety Board of Canada

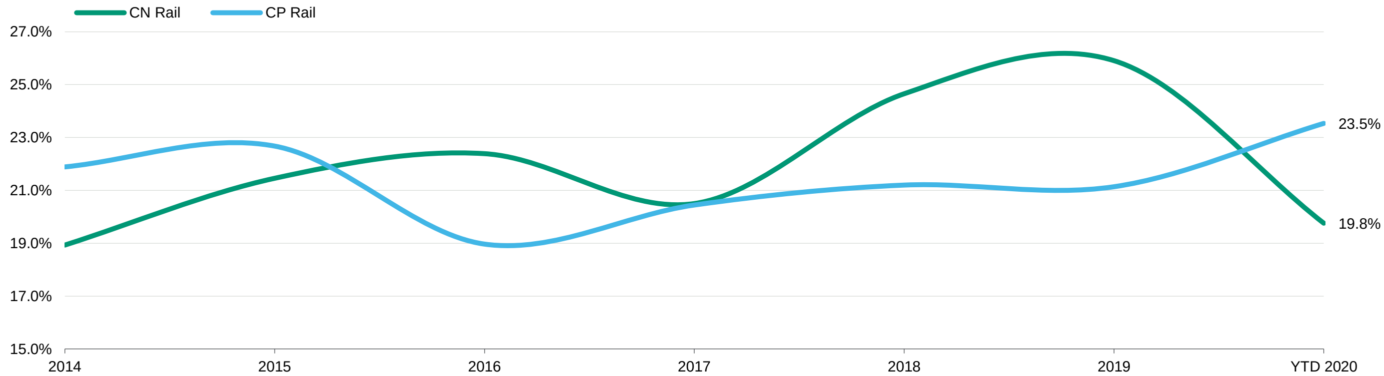
Efforts to improve rail transportation safety will continue

We expect that both the rail operators and the Canadian government will continue their efforts to increase the safety of both rail transport and the transportation of dangerous goods in Canada. These safety measures do not significantly affect credit metrics for the rail operators, which already spend heavily on maintenance.

While the rail operators do not disclose their annual spending that goes specifically toward safety measures, both CN Rail and CP Rail dedicate around 20% of their annual revenue toward capital spending (see Exhibit 7). We estimate that they each spend up to 50% of those capital budgets on railway infrastructure, spending that helps prevent derailments.

Exhibit 7

Canadian railways dedicate around 20% of revenue to capital spending, including rail maintenance



YTD = 1 January to 30 September

Source: Company financial statements

Both CN Rail and CP Rail have taken a number of steps to reduce derailments and other accidents that includes, installing automated emergency brakes that engage if cars start to separate, electromagnetic detectors to identify cracks in railcar wheels, and foam trailers at key points on crude routes to fight fires. The railways have begun using predictive analytics and machine learning to maintain rail equipment and tracks more actively, and begun using improved inspection and detection technologies. Other safety initiatives that CN Rail has outlined include TEST cars (equipped railcars in regular train service with sensor and artificial intelligence technology to fully automate track inspections) along crude routes, and automated inspection portals that will increase the frequency of inspections with improved quality, especially on difficult parts of the railcar.

As well older and less crash-resistant tank cars have been phased out, as mandated by law, replaced with new and retrofitted car designs that include thicker steel, a head shield, thermal protection and top-fitting protection. Transport Canada in 2016 began requiring mandatory minimum levels of insurance for federally regulated railways that carry dangerous goods, and ordered all railways to identify alternative routes using remote rail lines instead of lines that run through urban areas.

Rail safety is also improving with adjustments to the cargo itself, as western Canadian producers develop less flammable technologies to solidify their bitumen for rail transport, thereby easing both safety and environmental hazards of crude by rail. The CanaPux pellets (an innovation developed by CN Rail) encases bitumen into plastic pellets, designed to prevent the product from leaking in the environment reducing environmental risk should a derailment occur.

Meanwhile, in September 2020, the federal government announced it is investing CAD25 million over three years through Transport Canada for the Rail Safety Improvement Program. This investment will support 165 new projects and initiatives aimed to increase safety and Canadians' confidence at grade crossings and along rail lines, according to the government. This effort comes on top of initiatives the government has already taken since the Lac-Mégantic disaster in 2013, when it increased oversight of railways by adding inspectors, introducing new safety rules, and requiring that Transport Canada license the railways to operate.

Moody's related publications

Outlook:

» Railroads – North America: Outlook changes to stable as rail freight picks up steam, 29 October 2020

Sector in-depth reports:

» ESG – Canada: Focus on Indigenous rights increasingly vital for project execution, corporate activities, 22 June 2020

» Corporates – Canada: Blockades are credit negative for Canadian National Rail and TC Energy, 19 February 2020

Sector comments:

» Freight Railroads – North America: Rail freight drops more than 20% in April, tenuously stabilizes in some freight groups, 7 May 2020

» Transportation – North America: Transportation sector at risk in extended coronavirus outbreak, 17 March 2020

Rating action:

» Moody's affirms ratings of Canadian National Rail, senior unsecured at A2; outlook stable, 25 June 2020

Credit opinions:

» Canadian National Railway Company: Update following recent affirmation, 30 June 2020

» Canadian Pacific Railway Company: Update to credit analysis, 29 April 2020

Rating methodology:

» Surface Transportation and Logistics, May 2019

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

1 Canada's government defines a Class I rail carrier as "a railway company that realized gross revenues of at least [CAD]250,000,000 for the provision of rail services in each of the two calendar years before the year in which information is provided pursuant to this Part." (https://laws-lois.justice.gc.ca/eng/regulations/sor-96-334/page-3.html#docCont)

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