Selected Railroad Statistics – unaudited

	2017	2016	2015
Financial			
Key financial performance indicators			
Total revenues *($ millions)*	**13,041**	12,037	12,611
Rail freight revenues *($ millions)*	**12,293**	11,326	11,905
Operating income *($ millions)*	**5,558**	5,312	5,266
Net income *($ millions)*	**5,484**	3,640	3,538
Diluted earnings per share *($)*	**7.24**	4.67	4.39
Adjusted diluted earnings per share *($)* (1)	**4.99**	4.59	4.44
Free cash flow *($ millions)* (2)	**2,778**	2,520	2,373
Gross property additions *($ millions)*	**2,703**	2,752	2,706
Share repurchases *($ millions)*	**2,000**	2,000	1,750
Dividends per share *($)*	**1.65**	1.50	1.25
Financial position			
Total assets *($ millions)*	**37,629**	37,057	36,402
Total liabilities *($ millions)*	**20,973**	22,216	21,452
Shareholders' equity *($ millions)*	**16,656**	14,841	14,950
Financial ratios			
Operating ratio *(%)*	**57.4**	55.9	58.2
Adjusted debt-to-adjusted EBITDA *(times)* (3)	**1.65**	1.75	1.71
Operations (4)			
Statistical operating data			
Gross ton miles (GTMs) *(millions)*	**469,200**	423,426	442,084
Revenue ton miles (RTMs) *(millions)*	**237,098**	214,327	224,710
Carloads *(thousands)*	**5,737**	5,205	5,485
Route miles *(includes Canada and the U.S.)*	**19,500**	19,600	19,600
Employees *(end of year)*	**23,945**	22,249	23,066
Employees *(average for the year)*	**23,074**	22,322	24,406
Key operating measures			
Rail freight revenue per RTM *(cents)*	**5.18**	5.28	5.30
Rail freight revenue per carload *($)*	**2,143**	2,176	2,170
GTMs per average number of employees *(thousands)*	**20,335**	18,969	18,114
Operating expenses per GTM *(cents)*	**1.59**	1.59	1.66
Labor and fringe benefits expense per GTM *(cents)*	**0.47**	0.50	0.54
Diesel fuel consumed *(US gallons in millions)*	**441.4**	398.9	425.0
Average fuel price *($/US gallon)*	**2.74**	2.34	2.68
GTMs per US gallon of fuel consumed	**1,063**	1,061	1,040
Terminal dwell *(hours)*	**16.2**	14.0	15.0
Train velocity *(miles per hour)*	**25.3**	27.3	26.3
Safety indicators (5)			
Injury frequency rate *(per 200,000 person hours)*	**1.83**	1.70	1.63
Accident rate *(per million train miles)*	**1.83**	1.42	2.06

(1) See the section entitled Adjusted performance measures in the MD&A for an explanation of this non-GAAP measure.

(2) See the section entitled Liquidity and capital resources - Free cash flow in the MD&A for an explanation of this non-GAAP measure.

(3) See the section entitled Liquidity and capital resources - Adjusted debt-to-adjusted EBITDA multiple in the MD&A for an explanation of this non-GAAP measure.

(4) Statistical operating data, key operating measures and safety indicators are unaudited and based on estimated data available at such time and are subject to change as more complete information becomes available. Definitions of these indicators are provided on our website, www.cn.ca/glossary.

(5) Based on Federal Railroad Administration (FRA) reporting criteria.

Contents

Management's Discussion and Analysis

This Management's Discussion and Analysis (MD&A) dated January 31, 2018, relates to the consolidated financial position and results of operations of Canadian National Railway Company, together with its wholly-owned subsidiaries, collectively "CN" or the "Company," and should be read in conjunction with the Company's 2017 Annual Consolidated Financial Statements and Notes thereto. All financial information reflected herein is expressed in Canadian dollars and prepared in accordance with United States generally accepted accounting principles (GAAP), unless otherwise noted.

CN's common shares are listed on the Toronto and New York stock exchanges. Additional information about CN filed with Canadian securities regulatory authorities and the United States Securities and Exchange Commission (SEC), including the Company's 2017 Annual Information Form and Form 40-F, may be found online on SEDAR at www.sedar.com, on the SEC's website at www.sec.gov through EDGAR, and on the Company's website at www.cn.ca in the Investors section. Printed copies of such documents may be obtained by contacting CN's Corporate Secretary's Office.

Business profile

CN is engaged in the rail and related transportation business. CN's network of approximately 20,000 route miles of track spans Canada and mid-America, uniquely connecting three coasts: the Atlantic, the Pacific and the Gulf of Mexico. CN's extensive network and efficient connections to all Class I railroads provide CN customers access to Canada, the United States (U.S.) and Mexico. A true backbone of the economy, CN handles over $250 billion worth of goods annually and carries over 300 million tons of cargo, serving exporters, importers, retailers, farmers and manufacturers.

CN's freight revenues are derived from seven commodity groups representing a diversified and balanced portfolio of goods transported between a wide range of origins and destinations. This product and geographic diversity better positions the Company to face economic fluctuations and enhances its potential for growth opportunities. For the year ended December 31, 2017, no individual commodity group accounted for more than 25% of total revenues. From a geographic standpoint, 16% of revenues relate to U.S. domestic traffic, 33% transborder traffic, 17% Canadian domestic traffic and 34% overseas traffic. The Company is the originating carrier for over 85%, and the originating and terminating carrier for over 65%, of traffic moving along its network, which allows it both to capitalize on service advantages and build on opportunities to efficiently use assets.

Corporate organization

The Company manages its rail operations in Canada and the U.S. as one business segment. Financial information reported at this level, such as revenues, operating income and cash flow from operations, is used by the Company's corporate management in evaluating financial and operational performance and allocating resources across CN's network. The Company's strategic initiatives are developed and managed centrally by corporate management and are communicated to its regional activity centers (the Western Region, Eastern Region and Southern Region), whose role is to manage the day-to-day service requirements of their respective territories, control direct costs incurred locally, and execute the strategy and operating plan established by corporate management.

See *Note 18 – Segmented information* to the Company's 2017 Annual Consolidated Financial Statements for additional information on the Company's corporate organization, as well as selected financial information by geographic area.

Strategy overview

CN's business strategy is anchored on the continuous pursuit of *Operational and Service Excellence*, an unwavering commitment to safety and sustainability, and the development of a solid team of motivated and competent railroaders. CN's goal is to deliver valuable transportation services for its customers and to grow the business at low incremental cost. A clear strategic agenda, driven by a commitment to innovation, productivity, supply-chain collaboration, running trains safely, and minimizing environmental impact, drives the Company's efforts to create value for customers. CN thereby creates value for its shareholders by striving for sustainable financial performance through profitable top-line growth, adequate free cash flow and return on invested capital. CN is also focused on returning value to shareholders through dividend payments and share repurchases.

CN's success and long-term economic viability depend on the presence of a supportive regulatory and policy environment that drives investment and innovation. CN's success also depends on a stream of capital investments that supports its business strategy. These investments cover a wide range of areas, from track infrastructure and rolling stock, to information and operating technologies, and other equipment and assets that improve the safety, efficiency and reliability of CN's service offering. Investments in track infrastructure enhance the productivity and integrity of the plant, and increase the capacity and the fluidity of the network. The acquisition of new locomotives and railcars generates several key benefits. New locomotives increase capacity, fuel productivity and efficiency, and improve the reliability of service. Locomotives equipped with distributed power allow for greater productivity of trains, particularly in cold weather, while improving train handling and safety. Targeted railcar acquisitions aim to tap growth opportunities, complementing the fleet of privately owned railcars that traverse CN's network. CN's strategic investments in information technology provide access to timely and accurate information which supports CN's ongoing efforts to drive innovation and efficiency in service, cost control, asset utilization, and safety and employee engagement.

Balancing "Operational and Service Excellence"

The basic driver of the Company's business is demand for reliable, efficient, and cost effective transportation for customers. As such, the Company's focus is the pursuit of *Operational and Service Excellence*: striving to operate safely and efficiently while providing a high level of service to customers.

For many years, CN has operated with a mindset that drives cost efficiency and asset utilization. That mindset flows naturally from CN's *Precision Railroading* model, which focuses on improving every process that affects delivery of customers' goods. It is a highly disciplined process whereby CN handles individual rail shipments according to a specific trip plan and manages all aspects of railroad operations to meet customer commitments efficiently and profitably. This calls for the relentless measurement of results and the use of such results to generate further execution improvements in the service provided to customers. The Company's continuous search for efficiency is best captured in its performance according to key operating metrics such as car velocity, train speed, and yard and locomotive productivity. All are at the center of a highly productive and fluid railroad operation, requiring daily engagement in the field. The Company works hard to run more efficient trains, reduce dwell times at terminals and improve overall network velocity. With CN's business model, fewer railcars and locomotives are needed to ship the same amount of freight in a tight, reliable and efficient operation. The railroad is run based on a disciplined operating methodology, executing with a sense of urgency and accountability. This philosophy is a key contributor to CN's operating ratio, earnings growth and return on invested capital.

CN understands the importance of balancing its drive for productivity with efforts to enhance customer service. The Company's efforts to deliver *Operational and Service Excellence* are anchored on an end-to-end supply chain mindset, working closely with customers and supply chain partners, as well as involving all relevant areas of the Company in the process. By fostering better end-to-end service performance and encouraging all supply-chain players to continuously improve daily engagement, information sharing, problem solving, and execution, CN aims to help customers achieve greater competitiveness in their own markets. Supply chain collaboration agreements with ports, terminal operators and customers leverage key performance metrics that drive efficiencies across the entire supply chain.

The Company is strengthening its commitment to *Operational and Service Excellence* through a wide range of innovations anchored on its continuous improvement philosophy. CN is building on its industry leadership in terms of fast and reliable hub-to-hub service by continuing to improve across the range of customer touch points. The Company's major push in first-mile/last-mile service is all about improving the quality of customer interactions – developing a sharper outside-in perspective; better monitoring of traffic forecasts; higher and more responsive car order fulfillment; and proactive customer communication at the local level.

CN's broad-based service innovations benefit customers and support the Company's goal to drive top-line growth. CN understands the importance of being the best operator in the business, and being the best service innovator as well.

Delivering safely and responsibly

CN is committed to the safety of its employees, the communities in which it operates and the environment. Safety consciousness permeates every aspect of CN's operations. The Company's long-term safety improvement is driven by continued significant investments in infrastructure, rigorous safety processes and a focus on employee training and safety awareness. CN continues to strengthen its safety culture by investing significantly in training, coaching, recognition and employee involvement initiatives.

CN's Safety Management Plan is the framework for putting safety at the center of its day-to-day operations. This proactive plan is designed to minimize risk, drive continuous improvement in the reduction of injuries and accidents, and engage employees at all levels of the organization. CN believes that the rail industry can enhance safety by working more closely with communities. Under CN's structured Community Engagement program, the Company engages with municipal officers and their emergency responders in an effort to assist them in their emergency response planning. In many cases, this outreach includes face-to-face meetings, during which CN discusses its comprehensive safety programs; its safety performance; the nature, volume and economic importance of dangerous commodities it transports through their communities; a review of emergency response planning; and arranging for training sessions for emergency responders. The outreach builds on CN's involvement in the Transportation Community Awareness and Emergency Response (TRANSCAER®), through which the Company has been working for many years to help communities in Canada and the U.S. understand the movement of hazardous materials and what is required in the event of transportation incidents.

CN has been deepening its commitment to a sustainable operation for many years, and has made sustainability an integral part of its business strategy. The best way in which CN can positively impact the environment is by continuously improving the efficiency of its operations, and reducing its carbon footprint. As part of the Company's comprehensive sustainability action plan and to comply with CN's environmental policy, the Company engages in a number of initiatives, including the use of fuel-efficient locomotives and trucks that reduce greenhouse gas emissions; increasing operational and building efficiencies; investing in energy-efficient data centers and recycling programs for information technology systems; reducing, recycling and reusing waste and scrap at its facilities and on its network; engaging in modal shift agreements that favor low emission transport services; and participating in the Carbon Disclosure Project (CDP) to gain a more comprehensive view of its carbon footprint. The Company combines its expert resources, environmental management procedures, training and audits for employees and contractors, and emergency preparedness response activities to help ensure that it conducts its operations and activities while protecting the natural environment. The Company's environmental activities include monitoring CN's environmental performance in Canada and the U.S. (ensuring compliance), identifying environmental issues inside the Company, and managing them in accordance with CN's environmental policy, which is overseen by the Environment, Safety and Security Committee of the Board of Directors. Certain risk mitigation strategies, such as periodic audits, employee training programs and emergency plans and procedures, are in place to minimize the environmental risks to the Company.

The Company's CDP Report, CN's Sustainability Report entitled "Delivering Responsibly" and the Company's Corporate Governance Manual, which outlines the role and responsibilities of the Environment, Safety and Security Committee of the Board of Directors, are available on CN's website in the Delivering Responsibly section.

Building a solid team of railroaders

CN's ability to develop the best railroaders in the industry has been a key contributor to the Company's success. CN recognizes that without the right people – no matter how good a service plan or business model a company may have – it will not be able to fully execute. This is why the Company is focused on hiring the right people, onboarding them successfully, helping them build positive relationships with their colleagues, and helping all employees to grow and develop. As part of its strategy to build a solid team of railroaders, the Company leverages its state-of-the-art training facilities in preparing employees to be highly skilled, safety conscious and confident in their work environment. Curricula for technical training and leadership development has been designed to meet the learning needs of CN's railroaders – both current and future. These programs and initiatives provide a solid platform for the assessment and development of the Company's talent pool, and are tightly integrated with the Company's business strategy. Progress made in developing current and future leaders through the Company's leadership development programs is reviewed by the Human Resources and Compensation Committee of the Board of Directors.

2017 Highlights

Top-line growth

In 2017, CN added more than $1 billion in top-line growth with revenues up 8% and volumes up 11% in terms of revenue ton miles (RTMs), compared to the prior year. The Company's top-line growth resulted from strong volumes across almost all of its commodity groups. To accommodate higher volumes and new growth opportunities, the Company increased its capital budget during the year and hired more employees across its network.

Financial highlights

- CN attained record revenues and operating income, as well as record reported and adjusted net income and earnings per share in 2017. (1)
- Net income increased by $1,844 million, or 51%, to $5,484 million, and diluted earnings per share increased by 55% to $7.24, in 2017 compared to the prior year.
- Adjusted net income increased by $197 million, or 6%, to $3,778 million, and adjusted diluted earnings per share increased by 9% to $4.99, in 2017 compared to the prior year. (1)
- Operating income increased by $246 million, or 5%, to $5,558 million in 2017.
- Operating ratio of 57.4%, an increase of 1.5 points over 2016.
- Revenues increased by $1,004 million, or 8%, to $13,041 million in 2017, compared to the prior year.
- Operating expenses increased by $758 million, or 11%, to $7,483 million in 2017.
- The Company generated record free cash flow of $2,778 million, a 10% increase over 2016. (2)

(1) See the section of this MD&A entitled Adjusted performance measures for an explanation of these non-GAAP measures.

(2) See the section of this MD&A entitled Liquidity and capital resources – Free cash flow for an explanation of this non-GAAP measure.

Reinvestment in the business

CN spent $2.7 billion in its capital program, with $1.6 billion invested to maintain the safety and integrity of the network, particularly track infrastructure. Spending also included $0.4 billion on strategic initiatives to increase capacity and support growth opportunities, including line capacity upgrades and information technology initiatives, $0.4 billion on implementation of Positive Train Control (PTC), the safety technology mandated by the U.S. Congress, and $0.3 billion on equipment capital expenditures, including the acquisition of 34 new high-horsepower locomotives.

Shareholder returns

The Company repurchased 20.4 million of its common shares during the year, returning $2.0 billion to its shareholders. CN also increased its quarterly dividend per share by 10% to $0.4125 from $0.3750 in 2016, effective for the first quarter of 2017, and paid $1.2 billion in dividends in 2017.

Sustainability

The Company's sustainability practices once again earned it a place on the Dow Jones Sustainability World and North American Indices as well as a position on the *Climate A List* by CDP in 2017.

U.S. Tax Cuts and Job Act

On December 22, 2017, the President of the United States signed into law the *Tax Cuts and Jobs Act* ("U.S. Tax Reform"). The U.S. Tax Reform reduces the U.S. federal corporate income tax rate from 35% to 21%, effective as of January 1, 2018. The U.S. Tax Reform also allows for immediate capital expensing of new investments in certain qualified depreciable assets made after September 27, 2017, which will be phased down starting in year 2023. As a result of the U.S. Tax Reform, the Company's net deferred income tax liability decreased by $1,764 million.

The U.S. Tax Reform introduces other important changes to U.S. corporate income tax laws that may significantly affect CN in future years including, the creation of a new Base Erosion Anti-abuse Tax (BEAT) that subjects certain payments from U.S. corporations to foreign related parties to additional taxes, and limitations to the deduction for net interest expense incurred by U.S. corporations. Future regulations and interpretations to be issued by U.S. authorities may also impact the Company's estimates and assumptions used in calculating its income tax provisions.

2018 Business outlook and assumptions

The Company expects growth across a range of commodities, particularly in intermodal traffic, frac sand, Canadian petroleum coke and coal exports, Canadian grain, refined petroleum products, and lumber and panels. The Company expects lower volumes of crude oil and potash.

Underpinning the 2018 business outlook, the Company assumes that North American industrial production will increase in the range of two to three percent. For the 2017/2018 crop year, the grain crops in both Canada and the U.S. were above their respective three-year averages. The Company assumes that the 2018/2019 grain crops in both Canada and the U.S. will be in line with their respective three-year averages.

Future value creation

Reinvestment in the business

In 2018, CN plans to invest approximately $3.2 billion in its capital program, of which $1.6 billion is targeted toward track and railway infrastructure maintenance to support safe and efficient operations. A further $0.8 billion is expected to be spent on initiatives to increase capacity and enable growth, such as track infrastructure expansion; investments in yards and intermodal terminals; and on information technology to improve safety performance, operational efficiency and customer service. The Company plans to invest $0.4 billion to advance the implementation of PTC along parts of its network. CN's equipment capital expenditures are targeted to reach $0.4 billion in 2018, allowing the Company to tap growth opportunities and improve the quality of the fleet, and in order to handle expected traffic increase and improve operational efficiency, CN expects to take delivery of 60 new high-horsepower locomotives. Including the 2018 planned acquisition, CN expects to acquire 200 new locomotives over the next three years to accommodate future growth opportunities and drive operational efficiency across its system.

Shareholder returns

On October 22, 2017, the Company's Board of Directors approved a new Normal Course Issuer Bid that allows for the repurchase of up to 31.0 million common shares between October 30, 2017 and October 29, 2018. In addition, on January 23, 2018, the Company's Board of Directors approved an increase of 10% to the quarterly dividend to common shareholders, from $0.4125 per share in 2017 to $0.4550 per share in 2018, effective for the first quarter.

Management's Discussion and Analysis

The forward-looking statements discussed in this section are subject to risks and uncertainties that could cause actual results or performance to differ materially from those expressed or implied in such statements and are based on certain factors and assumptions which the Company considers reasonable, about events, developments, prospects and opportunities that may not materialize or that may be offset entirely or partially by other events and developments. In addition to the assumptions and expectations discussed in this section, reference should be made to the section of this MD&A entitled *Forward-looking statements* for assumptions and risk factors affecting such statements.

Forward-looking statements

Certain statements included in this MD&A are "forward-looking statements" within the meaning of the *United States Private Securities Litigation Reform Act of 1995* and under Canadian securities laws. By their nature, forward-looking statements involve risks, uncertainties and assumptions. The Company cautions that its assumptions may not materialize and that current economic conditions render such assumptions, although reasonable at the time they were made, subject to greater uncertainty. Forward-looking statements may be identified by the use of terminology such as "believes," "expects," "anticipates," "assumes," "outlook," "plans," "targets" or other similar words.

Forward-looking statements include, but are not limited to, those set forth in the table below, which also presents key assumptions used in determining the forward-looking statements. See also the section of this MD&A entitled *Strategy overview - 2018 Business outlook and assumptions*.

Forward-looking statements	Key assumptions
Statements relating to revenue growth opportunities, including those referring to general economic and business conditions	• North American and global economic growth • Long-term growth opportunities being less affected by current economic conditions
Statements relating to the Company's ability to meet debt repayments and future obligations in the foreseeable future, including income tax payments, and capital spending	• North American and global economic growth • Adequate credit ratios • Investment-grade credit ratings • Access to capital markets • Adequate cash generated from operations and other sources of financing • Reasonable interpretations of existing or future tax laws and regulations
Statements relating to pension contributions	• Adequate cash generated from operations and other sources of financing • Adequate long-term return on investment on pension plan assets • Level of funding as determined by actuarial valuations, particularly influenced by discount rates for funding purposes

Forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors which may cause the actual results or performance of the Company to be materially different from the outlook or any future results or performance implied by such statements. Accordingly, readers are advised not to place undue reliance on forward-looking statements. Important risk factors that could affect the forward-looking statements include, but are not limited to, the effects of general economic and business conditions; industry competition; inflation, currency and interest rate fluctuations; changes in fuel prices; legislative and/or regulatory developments; compliance with environmental laws and regulations; actions by regulators; increases in maintenance and operating costs; security threats; reliance on technology and related cybersecurity risk; trade restrictions or other changes to international trade arrangements; transportation of hazardous materials; various events which could disrupt operations, including natural events such as severe weather, droughts, fires, floods and earthquakes; climate change; labor negotiations and disruptions; environmental claims; uncertainties of investigations, proceedings or other types of claims and litigation; risks and liabilities arising from derailments; timing and completion of capital programs; and other risks detailed from time to time in reports filed by CN with securities regulators in Canada and the U.S., including its Annual Information Form and Form 40-F. See the section entitled *Business risks* of this MD&A for a description of major risk factors.

Forward-looking statements reflect information as of the date on which they are made. CN assumes no obligation to update or revise forward-looking statements to reflect future events, changes in circumstances, or changes in beliefs, unless required by applicable securities laws. In the event CN does update any forward-looking statement, no inference should be made that CN will make additional updates with respect to that statement, related matters, or any other forward-looking statement.

Financial outlook

During the year, the Company issued and updated its 2017 financial outlook. The 2017 actual results were in line with the Company's last 2017 financial outlook that was issued on October 24, 2017.

Financial highlights

In millions, except percentage and per share data	2017	2016	2015	Change Favorable/(Unfavorable) 2017 vs 2016	Change Favorable/(Unfavorable) 2016 vs 2015
Revenues	**$ 13,041**	$ 12,037	$ 12,611	8%	(5%)
Operating income	**$ 5,558**	$ 5,312	$ 5,266	5%	1%
Net income	**$ 5,484**	$ 3,640	$ 3,538	51%	3%
Adjusted net income (1)	**$ 3,778**	$ 3,581	$ 3,580	6%	-
Basic earnings per share	**$ 7.28**	$ 4.69	$ 4.42	55%	6%
Adjusted basic earnings per share (1)	**$ 5.02**	$ 4.61	$ 4.47	9%	3%
Diluted earnings per share	**$ 7.24**	$ 4.67	$ 4.39	55%	6%
Adjusted diluted earnings per share (1)	**$ 4.99**	$ 4.59	$ 4.44	9%	3%
Dividends declared per share	**$ 1.65**	$ 1.50	$ 1.25	10%	20%
Total assets	**$ 37,629**	$ 37,057	$ 36,402	2%	2%
Total long-term liabilities	**$ 16,990**	$ 19,208	$ 18,454	12%	(4%)
Operating ratio	**57.4%**	55.9%	58.2%	(1.5)-pts	2.3-pts
Free cash flow (2)	**$ 2,778**	$ 2,520	$ 2,373	10%	6%

(1) See the section of this MD&A entitled Adjusted performance measures for an explanation of this non-GAAP measure.

(2) See the section of this MD&A entitled Liquidity and capital resources – Free cash flow for an explanation of this non-GAAP measure.

2017 compared to 2016

Net income for the year ended December 31, 2017 was $5,484 million, an increase of $1,844 million, or 51%, when compared to 2016, and diluted earnings per share increased by 55% to $7.24. The increase was primarily due to a deferred income tax recovery of $1,764 million ($2.33 per diluted share) resulting from the enactment of the U.S. Tax Reform and the impact of higher volumes.

Operating income for the year ended December 31, 2017 increased by $246 million, or 5%, to $5,558 million. The increase mainly reflects increased revenues from higher volumes, freight rate increases and higher applicable fuel surcharge rates, partly offset by higher costs from increased volumes and higher fuel prices. The operating ratio, defined as operating expenses as a percentage of revenues, was 57.4% in 2017, compared to 55.9% in 2016. Higher fuel prices had a 0.9-point impact on the increase for the year.

Revenues for the year ended December 31, 2017 totaled $13,041 million compared to $12,037 million in 2016. The increase of $1,004 million, or 8%, was mainly attributable to higher volumes of traffic in overseas intermodal, frac sand, coal and petroleum coke exports, and Canadian grain; freight rate increases; and higher applicable fuel surcharge rates; partly offset by the negative translation impact of a stronger Canadian dollar.

Operating expenses for the year ended December 31, 2017 amounted to $7,483 million compared to $6,725 million in 2016. The increase of $758 million, or 11%, was mainly due to higher costs from increased volumes and higher fuel prices, partly offset by the positive translation impact of a stronger Canadian dollar.

Non-GAAP measures

This MD&A makes reference to non-GAAP measures including adjusted performance measures, constant currency, free cash flow, and adjusted debt-to-adjusted EBITDA multiple, that do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. From management's perspective, these non-GAAP measures are useful measures of performance and provide investors with supplementary information to assess the Company's results of operations and liquidity. These non-GAAP measures should not be considered in isolation or as a substitute for financial measures prepared in accordance with GAAP.

For further details of these non-GAAP measures, including a reconciliation to the most directly comparable GAAP financial measures, refer to the sections entitled *Adjusted performance measures, Constant currency* and *Liquidity and capital resources.*

Adjusted performance measures

Management believes that adjusted net income and adjusted earnings per share are useful measures of performance that can facilitate period-to-period comparisons, as they exclude items that do not necessarily arise as part of CN's normal day-to-day operations and could distort the analysis of trends in business performance. Management uses these measures, which exclude certain income and expense items in its results that management believes are not reflective of CN's underlying business operations, to set performance goals and as a means to measure CN's performance. The exclusion of items in adjusted net income and adjusted earnings per share does not, however, imply that these items are necessarily non-recurring. These measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

For the year ended December 31, 2017, the Company reported adjusted net income of $3,778 million, or $4.99 per diluted share, which excludes a net deferred income tax recovery of $1,706 million ($2.25 per diluted share) consisting of the following:

- in the fourth quarter, a deferred income tax recovery of $1,764 million ($2.33 per diluted share) resulting from the enactment of the U.S. Tax Reform and a deferred income tax expense of $50 million ($0.07 per diluted share) resulting from the enactment of higher provincial corporate income tax rates;
- in the third quarter, a deferred income tax expense of $31 million ($0.04 per diluted share) resulting from the enactment of a higher state corporate income tax rate;
- in the second quarter, a deferred income tax recovery of $18 million ($0.02 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate; and
- in the first quarter, a deferred income tax recovery of $5 million ($0.01 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate.

For the year ended December 31, 2016, the Company reported adjusted net income of $3,581 million, or $4.59 per diluted share, which excludes a gain on disposal of track leading into Montreal's Central Station, together with the rail fixtures (collectively the "Viaduc du Sud"), of $76 million, or $66 million after-tax ($0.09 per diluted share) in the fourth quarter, and a deferred income tax expense of $7 million ($0.01 per diluted share) in the second quarter, resulting from the enactment of a higher provincial corporate income tax rate.

For the year ended December 31, 2015, the Company reported adjusted net income of $3,580 million, or $4.44 per diluted share, which excludes a deferred income tax expense of $42 million ($0.05 per diluted share) in the second quarter, resulting from the enactment of a higher provincial corporate income tax rate.

The following table provides a reconciliation of net income and earnings per share, as reported for the years ended December 31, 2017, 2016 and 2015 to the adjusted performance measures presented herein:

In millions, except per share data	*Year ended December 31,*	**2017**	2016	2015
Net income as reported		**$ 5,484**	$ 3,640	$ 3,538
Adjustments:				
Other income		**-**	(76)	-
Income tax expense (recovery)		**(1,706)**	17	42
Adjusted net income		**$ 3,778**	$ 3,581	$ 3,580
Basic earnings per share as reported		**$ 7.28**	$ 4.69	$ 4.42
Impact of adjustments, per share		**(2.26)**	(0.08)	0.05
Adjusted basic earnings per share		**$ 5.02**	$ 4.61	$ 4.47
Diluted earnings per share as reported		**$ 7.24**	$ 4.67	$ 4.39
Impact of adjustments, per share		**(2.25)**	(0.08)	0.05
Adjusted diluted earnings per share		**$ 4.99**	$ 4.59	$ 4.44

Constant currency

Financial results at constant currency allow results to be viewed without the impact of fluctuations in foreign currency exchange rates, thereby facilitating period-to-period comparisons in the analysis of trends in business performance. Measures at constant currency are considered non-GAAP measures and do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. Financial results at constant currency are obtained by translating the current period results denominated in US dollars at the foreign exchange rates of the comparable period of the prior year. The average foreign exchange rates were $1.30 and $1.33 per US$1.00, for the years ended December 31, 2017 and 2016, respectively.

On a constant currency basis, the Company's net income for the year ended December 31, 2017 would have been higher by $42 million ($0.06 per diluted share).

Revenues

In millions, unless otherwise indicated *Year ended December 31,*	2017	2016	% Change	% Change at constant currency
Rail freight revenues	**$ 12,293**	$ 11,326	9%	10%
Other revenues	**748**	711	5%	6%
Total revenues	**$ 13,041**	$ 12,037	8%	10%
Rail freight revenues				
Petroleum and chemicals	**$ 2,208**	$ 2,174	2%	3%
Metals and minerals	**1,523**	1,218	25%	27%
Forest products	**1,788**	1,797	(1%)	1%
Coal	**535**	434	23%	25%
Grain and fertilizers	**2,214**	2,098	6%	7%
Intermodal	**3,200**	2,846	12%	13%
Automotive	**825**	759	9%	10%
Total rail freight revenues	**$ 12,293**	$ 11,326	9%	10%
Revenue ton miles (RTMs) *(millions)*	**237,098**	214,327	11%	11%
Rail freight revenue/RTM *(cents)*	**5.18**	5.28	(2%)	(1%)
Carloads *(thousands)*	**5,737**	5,205	10%	10%
Rail freight revenue/carload *(dollars)*	**2,143**	2,176	(2%)	-

Revenues for the year ended December 31, 2017, totaled $13,041 million compared to $12,037 million in 2016. The increase of $1,004 million, or 8%, was mainly attributable to higher volumes of traffic in overseas intermodal, frac sand, coal and petroleum coke exports, and Canadian grain; freight rate increases; and higher applicable fuel surcharge rates; partly offset by the negative translation impact of a stronger Canadian dollar. Fuel surcharge revenues increased by $189 million in 2017, as a result of higher applicable fuel surcharge rates and higher freight volumes.

In 2017, RTMs, measuring the relative weight and distance of rail freight transported by the Company, increased by 11% relative to 2016. Rail freight revenue per RTM decreased by 2% in 2017 when compared to 2016, mainly driven by an increase in the average length of haul and the negative translation impact of a stronger Canadian dollar; partly offset by freight rate increases and higher applicable fuel surcharge rates.

Petroleum and chemicals

Year ended December 31,	2017	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 2,208**	$ 2,174	2%	3%
RTMs *(millions)*	**44,375**	43,395	2%	2%
Revenue/RTM *(cents)*	**4.98**	5.01	(1%)	1%
Carloads *(thousands)*	**614**	599	3%	3%

The petroleum and chemicals commodity group comprises a wide range of commodities, including chemicals and plastics, refined petroleum products, natural gas liquids, crude oil and sulfur. The primary markets for these commodities are within North America, and as such, the performance of this commodity group is closely correlated with the North American economy as well as oil and gas production. Most of the Company's petroleum and chemicals shipments originate in the Louisiana petrochemical corridor between New Orleans and Baton Rouge; in Western Canada, a key oil and gas development area and a major center for natural gas feedstock and world-scale petrochemicals and plastics; and in eastern Canadian regional plants.

For the year ended December 31, 2017, revenues for this commodity group increased by $34 million, or 2%, when compared to 2016, mainly due to higher volumes of refined petroleum products and propane; freight rate increases; and higher applicable fuel surcharge rates; partly offset by lower volumes of plastic pellets and condensate, and the negative translation impact of a stronger Canadian dollar.

Revenue per RTM decreased by 1% in 2017 when compared to 2016, mainly due to the negative translation impact of a stronger Canadian dollar, partly offset by freight rate increases and higher applicable fuel surcharge rates.

Percentage of commodity group revenues	**2017**	2016
Chemicals and plastics	**45%**	46%
Refined petroleum products	**36%**	33%
Crude and condensate	**15%**	17%
Sulfur	**4%**	4%

Metals and minerals

Year ended December 31,	**2017**	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 1,523**	$ 1,218	25%	27%
RTMs *(millions)*	**27,938**	20,233	38%	38%
Revenue/RTM *(cents)*	**5.45**	6.02	(9%)	(8%)
Carloads *(thousands)*	**995**	807	23%	23%

The metals and minerals commodity group consists primarily of materials related to oil and gas development, steel, iron ore, non-ferrous base metals and ores, construction materials and machinery and dimensional (large) loads. The Company provides unique rail access to base metals, iron ore and frac sand mining as well as aluminum and steel producing regions, which are among the most important in North America. This strong origin franchise, coupled with the Company's access to port facilities and the end markets for these commodities, has made CN a leader in the transportation of metals and minerals products. The key drivers for this market segment are oil and gas development, automotive production, and non-residential construction.

For the year ended December 31, 2017, revenues for this commodity group increased by $305 million, or 25%, when compared to 2016, mainly due to higher volumes of frac sand and drilling pipe resulting from increased oil and gas drilling activity along with higher frac sand usage per well; freight rate increases; and higher applicable fuel surcharge rates; partly offset by the negative translation impact of a stronger Canadian dollar.

Revenue per RTM decreased by 9% in 2017 when compared to 2016, mainly due to an increase in the average length of haul from higher volumes of frac sand and the negative translation impact of a stronger Canadian dollar, partly offset by freight rate increases and higher applicable fuel surcharge rates.

Percentage of commodity group revenues	**2017**	2016
Energy materials	**32%**	21%
Metals	**29%**	33%
Minerals	**23%**	27%
Iron ore	**16%**	19%

Forest products

Year ended December 31,	**2017**	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 1,788**	$ 1,797	(1%)	1%
RTMs *(millions)*	**30,510**	31,401	(3%)	(3%)
Revenue/RTM *(cents)*	**5.86**	5.72	2%	4%
Carloads *(thousands)*	**424**	440	(4%)	(4%)

The forest products commodity group includes various types of lumber, panels, paper, wood pulp and other fibers such as logs, recycled paper, wood chips, and wood pellets. The Company has extensive rail access to the western and eastern Canadian fiber-producing regions, which are among the largest fiber source areas in North America. In the U.S., the Company is strategically located to serve both the Midwest and southern U.S. corridors with interline connections to other Class I railroads. The key drivers for the various commodities are: for lumber and panels, housing starts and renovation activities primarily in the U.S.; for fibers (mainly wood pulp), the consumption of paper, pulpboard and tissue in North American and offshore markets; and for newsprint, advertising lineage, non-print media and overall economic conditions, primarily in the U.S.

For the year ended December 31, 2017, revenues for this commodity group decreased by $9 million, or 1%, when compared to 2016, mainly due to lower volumes of a broad range of forest products and the negative translation impact of a stronger Canadian dollar, partly offset by freight rate increases and higher applicable fuel surcharge rates.

Revenue per RTM increased by 2% in 2017 when compared to 2016, mainly due to freight rate increases and higher applicable fuel surcharge rates, partly offset by the negative translation impact of a stronger Canadian dollar.

Percentage of commodity group revenues	**2017**	2016
Lumber	**41%**	41%
Pulp	**30%**	31%
Paper	**17%**	16%
Panels	**12%**	12%

Coal

Year ended December 31,	**2017**	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 535**	$ 434	23%	25%
RTMs *(millions)*	**14,539**	11,032	32%	32%
Revenue/RTM *(cents)*	**3.68**	3.93	(6%)	(5%)
Carloads *(thousands)*	**303**	333	(9%)	(9%)

The coal commodity group consists of thermal grades of bituminous coal, metallurgical coal and petroleum coke. Canadian thermal and metallurgical coal are largely exported via terminals on the west coast of Canada to offshore markets. In the U.S., thermal coal is transported from mines served in southern Illinois, or from western U.S. mines via interchange with other railroads, to major utilities in the Midwest and Southeast U.S., as well as offshore markets via terminals in the Gulf of Mexico. Petroleum coke, a by-product of the oil refining process, is mainly exported to offshore markets via terminals on the west coast of Canada, while U.S. petroleum coke is focused on domestic markets. The key drivers for this market segment are weather conditions, environmental regulations, global supply and demand conditions, and for U.S. domestic coal, the price of natural gas.

For the year ended December 31, 2017, revenues for this commodity group increased by $101 million, or 23%, when compared to 2016. The increase was mainly due to increased exports of U.S. thermal coal via the Gulf Coast, higher metallurgical coal exports via west coast ports following the reopening of two mines in British Columbia, and increased exports of Canadian petroleum coke due to improved market conditions; as well as freight rate increases. These factors were partly offset by reduced volumes of U.S. domestic thermal coal to U.S. Midwest utilities, mainly due to the loss of a utility customer.

Revenue per RTM decreased by 6% in 2017 when compared to 2016, mainly due to a significant increase in the average length of haul, partly offset by higher volumes of Canadian metallurgical coal and freight rate increases.

Percentage of commodity group revenues	**2017**	2016
Canadian coal - export	**28%**	23%
U.S. coal - export	**27%**	23%
Petroleum coke	**26%**	22%
U.S. coal - domestic	**19%**	32%

Grain and fertilizers

Year ended December 31,	**2017**	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 2,214**	$ 2,098	6%	7%
RTMs *(millions)*	**56,123**	51,485	9%	9%
Revenue/RTM *(cents)*	**3.94**	4.07	(3%)	(2%)
Carloads *(thousands)*	**619**	602	3%	3%

The grain and fertilizers commodity group depends primarily on crops grown and fertilizers processed in Western Canada and the U.S. Midwest. The grain segment consists of wheat, oats, barley, peas, corn, ethanol, dried distillers grain, canola seed and canola products, soybeans and soybean products. Production of grain varies considerably from year to year, affected primarily by weather conditions, seeded and harvested acreage, the mix of grains produced and crop yields. Grain exports are sensitive to the size and quality of the crop produced, international market conditions and foreign government policy. The majority of grain produced in Western Canada and moved by CN is exported via the ports of Vancouver, Prince Rupert and Thunder Bay. These rail movements are subject to government regulation that establishes a maximum revenue entitlement that railways can earn. Although railway companies are free to set freight rates for western grain shipments, total revenue is limited based on a formula that takes into account tonnage, length of haul, and a specified price index. Shipments of grain that are exported to the U.S. are not regulated. In the U.S., grain grown in Illinois and Iowa is exported as well as transported to domestic processing facilities and feed markets. The Company also serves major producers of potash in Canada, as well as producers of ammonium nitrate, urea and other fertilizers across Canada and the U.S. The key drivers for fertilizers are input prices, demand, government policies, and international competition.

For the year ended December 31, 2017, revenues for this commodity group increased by $116 million, or 6%, when compared to 2016, mainly due to higher volumes of Canadian wheat to North American and export markets, higher export volumes of Canadian canola and barley, and higher export volumes of potash driven by strong offshore demand; freight rate increases; and higher applicable fuel surcharge rates; partly offset by lower export volumes of U.S. soybeans and the negative translation impact of a stronger Canadian dollar.

Revenue per RTM decreased by 3% in 2017 when compared to 2016, mainly due to an increase in the average length of haul and the negative translation impact of a stronger Canadian dollar; partly offset by freight rate increases and higher applicable fuel surcharge rates.

Percentage of commodity group revenues	**2017**	2016
Canadian grain - regulated	**39%**	38%
U.S. grain - domestic	**20%**	21%
Canadian grain - commercial	**14%**	14%
Fertilizers - potash	**12%**	11%
Fertilizers - other	**10%**	9%
U.S. grain - exports	**5%**	7%

Intermodal

Year ended December 31,	**2017**	2016	% Change	% Change at constant currency
Revenues *(millions)*	**$ 3,200**	$ 2,846	12%	13%
RTMs *(millions)*	**59,356**	53,056	12%	12%
Revenue/RTM *(cents)*	**5.39**	5.36	1%	1%
Carloads *(thousands)*	**2,514**	2,163	16%	16%

The intermodal commodity group includes rail and trucking services and is comprised of two segments: domestic and international. The domestic segment transports consumer products and manufactured goods, serving both retail and wholesale channels, within domestic Canada, domestic U.S., Mexico and transborder, while the international segment handles import and export container traffic, serving the major ports of Vancouver, Prince Rupert, Montreal, Halifax, New Orleans and Mobile. The domestic segment is driven by consumer markets, with growth generally tied to the economy. The international segment is driven by North American economic and trade conditions.

For the year ended December 31, 2017, revenues for this commodity group increased by $354 million, or 12%, when compared to 2016, mainly due to higher international container traffic via the ports of Vancouver and Prince Rupert; and higher applicable fuel surcharge rates; partly offset by the negative translation impact of a stronger Canadian dollar.

Revenue per RTM increased by 1% in 2017 when compared to 2016, mainly due to higher applicable fuel surcharge rates, partly offset by the negative translation impact of a stronger Canadian dollar.

Percentage of commodity group revenues	**2017**	2016
International	**66%**	63%
Domestic	**34%**	37%

Automotive

Year ended December 31,		2017		2016	% Change	% Change at constant currency
Revenues *(millions)*	**$**	**825**	$	759	9%	10%
RTMs *(millions)*		**4,257**		3,725	14%	14%
Revenue/RTM *(cents)*		**19.38**		20.38	(5%)	(3%)
Carloads *(thousands)*		**268**		261	3%	3%

The automotive commodity group moves both domestic finished vehicles and parts throughout North America, providing service to certain vehicle assembly plants in Ontario, Michigan and Mississippi. The Company also serves vehicle distribution facilities in Canada and the U.S., as well as parts production facilities in Michigan and Ontario. The Company serves shippers of finished vehicle imports via the ports of Halifax and Vancouver, and through interchange with other railroads. CN's broad network of auto compounds is used to facilitate distribution of vehicles throughout Canada and the U.S. Midwest. The primary drivers for this market are automotive production and sales in North America, the average age of vehicles in North America, and the price of fuel.

For the year ended December 31, 2017, revenues for this commodity group increased by $66 million, or 9%, when compared to 2016, mainly due to higher volumes of finished vehicle imports via the Port of Vancouver resulting from new business, and higher volumes of domestic finished vehicle traffic; higher applicable fuel surcharge rates; and freight rate increases; partly offset by the negative translation impact of a stronger Canadian dollar.

Revenue per RTM decreased by 5% in 2017 when compared to 2016, mainly due to a significant increase in the average length of haul and the negative translation impact of a stronger Canadian dollar, partly offset by higher applicable fuel surcharge rates and freight rate increases.

Percentage of commodity group revenues	**2017**	2016
Finished vehicles	**94%**	93%
Auto parts	**6%**	7%

Other revenues

Year ended December 31,		2017		2016	% Change	% Change at constant currency
Revenues *(millions)*	**$**	**748**	$	711	5%	6%

Other revenues are largely derived from non-rail services that support CN's rail business including vessels and docks, warehousing and distribution, automotive logistic services, freight forwarding and transportation management; as well as other revenues including commuter train revenues.

For the year ended December 31, 2017, Other revenues increased by $37 million, or 5%, when compared to 2016, mainly due to higher revenues from vessels and docks and automotive logistic services, partly offset by the negative translation impact of a stronger Canadian dollar.

Percentage of other revenues	**2017**	2016
Vessels and docks	**50%**	50%
Other non-rail services	**40%**	39%
Other revenues	**10%**	11%

Operating expenses

Operating expenses for the year ended December 31, 2017, amounted to $7,483 million compared to $6,725 million in 2016. The increase of $758 million, or 11%, was mainly due to higher costs from increased volumes and higher fuel prices, partly offset by the positive translation impact of a stronger Canadian dollar.

In millions	*Year ended December 31,*	**2017**	2016	% Change	% Change at constant currency
Labor and fringe benefits		**$ 2,221**	$ 2,119	(5%)	(6%)
Purchased services and material		**1,769**	1,592	(11%)	(12%)
Fuel		**1,362**	1,051	(30%)	(32%)
Depreciation and amortization		**1,281**	1,225	(5%)	(5%)
Equipment rents		**418**	375	(11%)	(14%)
Casualty and other		**432**	363	(19%)	(21%)
Total operating expenses		**$ 7,483**	$ 6,725	(11%)	(13%)

Labor and fringe benefits

Labor and fringe benefits expense includes wages, payroll taxes, and employee benefits such as incentive compensation, including stock-based compensation; health and welfare; and pension and other postretirement benefits. Certain incentive and stock-based compensation plans are based on financial and market performance targets and the related expense is recorded in relation to the attainment of such targets.

Labor and fringe benefits expense increased by $102 million, or 5%, in 2017 when compared to 2016. The increase was primarily due to higher headcount and overtime costs due to increased volumes of traffic, general wage increases, increased U.S. health and welfare rates and higher incentive-based compensation, partly offset by a lower pension expense and the positive translation impact of a stronger Canadian dollar.

Purchased services and material

Purchased services and material expense primarily includes the cost of services purchased from outside contractors; materials used in the maintenance of the Company's track, facilities and equipment; transportation and lodging for train crew employees; utility costs; and the net costs of operating facilities jointly used by the Company and other railroads.

Purchased services and material expense increased by $177 million, or 11%, in 2017 when compared to 2016. The increase was mainly due to higher costs of services purchased from outside contractors and higher materials and repairs and maintenance costs resulting from increased volumes of traffic, partly offset by the positive translation impact of a stronger Canadian dollar.

Fuel

Fuel expense includes fuel consumed by assets, including locomotives, vessels, vehicles and other equipment as well as federal, provincial and state fuel taxes.

Fuel expense increased by $311 million, or 30%, in 2017 when compared to 2016. The increase was primarily due to higher fuel prices and increased volumes of traffic, partly offset by the positive translation impact of a stronger Canadian dollar.

Depreciation and amortization

Depreciation expense is affected by capital additions, railroad property retirements from disposal, sale and/or abandonment and other adjustments including asset impairments.

Depreciation and amortization expense increased by $56 million, or 5%, in 2017 when compared to 2016. The increase was mainly due to net capital additions, partly offset by the positive translation impact of a stronger Canadian dollar.

Equipment rents

Equipment rents expense includes rental expense for the use of freight cars owned by other railroads (car hire) or private companies and for the short- or long-term lease of freight cars, locomotives and intermodal equipment, net of rental income from other railroads for the use of the Company's cars (car hire) and locomotives.

Equipment rents expense increased by $43 million, or 11%, in 2017 when compared to 2016. The increase was primarily due to higher car hire expense resulting from increased volumes of traffic, partly offset by lower car and equipment lease expense and the positive translation impact of a stronger Canadian dollar.

Casualty and other

Casualty and other expense includes expenses for personal injuries, environmental, freight and property damage, insurance, bad debt, operating taxes, and travel expenses.

Casualty and other expense increased by $69 million, or 19%, in 2017 when compared to 2016. The increase was mainly due to higher legal and personal injury expenses, incident costs and worker's compensation expense, partly offset by lower bad debt expense and the positive translation impact of a stronger Canadian dollar.

Other income and expenses

Interest expense

In 2017, interest expense was $481 million compared to $480 million in 2016. The increase was mainly due to a higher average level of debt, partly offset by the positive translation impact of a stronger Canadian dollar.

Other income

In 2017, the Company recorded other income of $12 million compared to $95 million in 2016. Included in Other income for 2016 was a gain on disposal of the Viaduc du Sud of $76 million.

Income tax recovery (expense)

The Company recorded an income tax recovery of $395 million for the year ended December 31, 2017, compared to an income tax expense of $1,287 million in 2016. Included in the 2017 figure was a net deferred income tax recovery of $1,706 million consisting of a deferred income tax recovery of $1,764 million recorded in the fourth quarter, resulting from the enactment of the U.S. Tax Reform, deferred income tax expenses of $50 million recorded in the fourth quarter and $31 million recorded in the third quarter, resulting from the enactment of higher provincial corporate income tax rates and a higher state corporate income tax rate, respectively, and deferred income tax recoveries of $18 million recorded in the second quarter and $5 million recorded in the first quarter, both resulting from the enactment of lower provincial corporate income tax rates. Included in the 2016 figure was a deferred income tax expense of $7 million recorded in the second quarter, resulting from the enactment of a higher provincial corporate income tax rate.

The effective tax rate for 2017 was (7.8%) compared to 26.1% in 2016. Excluding the aforementioned deferred income tax recoveries and expenses, the effective tax rate for 2017 was 25.8% compared to 26.0% in 2016. The variance in the effective tax rate was mainly attributable to a lower proportion of the Company's pre-tax income being earned in higher tax rate jurisdictions, and the impact of a higher excess tax benefit resulting from the settlement of equity settled awards in 2017 compared to 2016.

For 2018, the Company anticipates the estimated annual effective tax rate to be approximately 25.0%. The anticipated decrease is attributable to the enactment of the U.S. Tax Reform. Any future regulations and interpretations issued by U.S. authorities could further impact the Company's estimated annual effective tax rate. Please refer to the section of this MD&A entitled *Strategy overview – 2017 Highlights – U.S. Tax Cuts and Jobs Act* for additional information about the U.S. Tax Reform.

2016 compared to 2015

Net income for the year ended December 31, 2016 was $3,640 million, an increase of $102 million, or 3%, when compared to 2015, with diluted earnings per share rising 6% to $4.67.

Operating income for the year ended December 31, 2016 increased by $46 million, to $5,312 million. The operating ratio, defined as operating expenses as a percentage of revenues, was 55.9% in 2016, compared to 58.2% in 2015, a 2.3-point improvement.

Revenues for the year ended December 31, 2016, totaled $12,037 million compared to $12,611 million in 2015. The decrease of $574 million, or 5%, was mainly attributable to lower volumes of crude oil, coal, and frac sand; as well as lower applicable fuel surcharge rates. These factors were partly offset by the positive translation impact of the weaker Canadian dollar and freight rate increases.

Operating expenses for the year ended December 31, 2016 amounted to $6,725 million compared to $7,345 million in 2015. The decrease of $620 million, or 8%, was mainly due to lower costs resulting from operating productivity gains, including cost-management initiatives and decreased volumes of traffic, lower pension expense, and lower fuel prices, partly offset by the negative translation impact of a weaker Canadian dollar.

Constant currency

Financial results at constant currency allow results to be viewed without the impact of fluctuations in foreign currency exchange rates, thereby facilitating period-to-period comparisons in the analysis of trends in business performance. Measures at constant currency are considered non-GAAP measures and do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. Financial results at constant currency are obtained by translating the current period results denominated in US dollars at the foreign exchange rates of the comparable period of the prior year. The average foreign exchange rates were $1.33 and $1.28 per US$1.00, for the years ended December 31, 2016 and 2015, respectively.

On a constant currency basis, the Company's net income for the year ended December 31, 2016 would have been lower by $85 million ($0.11 per diluted share).

Revenues

In millions, unless otherwise indicated	*Year ended December 31,*	2016	2015	% Change	% Change at constant currency
Rail freight revenues		$ 11,326	$ 11,905	(5%)	(7%)
Other revenues		711	706	1%	(1%)
Total revenues		$ 12,037	$ 12,611	(5%)	(7%)
Rail freight revenues					
Petroleum and chemicals		$ 2,174	$ 2,442	(11%)	(13%)
Metals and minerals		1,218	1,437	(15%)	(17%)
Forest products		1,797	1,728	4%	1%
Coal		434	612	(29%)	(30%)
Grain and fertilizers		2,098	2,071	1%	-
Intermodal		2,846	2,896	(2%)	(3%)
Automotive		759	719	6%	3%
Total rail freight revenues		$ 11,326	$ 11,905	(5%)	(7%)
Revenue ton miles (RTMs) *(millions)*		214,327	224,710	(5%)	(5%)
Rail freight revenue/RTM *(cents)*		5.28	5.30	-	(2%)
Carloads *(thousands)*		5,205	5,485	(5%)	(5%)
Rail freight revenue/carload *(dollars)*		2,176	2,170	-	(2%)

Revenues for the year ended December 31, 2016, totaled $12,037 million compared to $12,611 million in 2015. The decrease of $574 million, or 5%, was mainly attributable to lower volumes of crude oil, coal, and frac sand; as well as lower applicable fuel surcharge rates. These factors were partly offset by the positive translation impact of the weaker Canadian dollar and freight rate increases. Fuel surcharge revenues decreased by $316 million in 2016, mainly as a result of lower applicable fuel surcharge rates.

In 2016, RTMs declined by 5% relative to 2015. Rail freight revenue per RTM remained flat when compared to 2015, mainly driven by lower applicable fuel surcharge rates and an increase in the average length of haul; offset by the positive translation impact of a weaker Canadian dollar and freight rate increases.

Petroleum and chemicals

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 2,174	$ 2,442	(11%)	(13%)
RTMs *(millions)*	43,395	51,103	(15%)	(15%)
Revenue/RTM *(cents)*	5.01	4.78	5%	2%
Carloads *(thousands)*	599	640	(6%)	(6%)

For the year ended December 31, 2016, revenues for this commodity group decreased by $268 million, or 11%, when compared to 2015. The decrease was mainly due to lower shipments of crude oil due to increased pipeline capacity, and reduced shipments of sulfur; as well as lower applicable fuel surcharge rates. These factors were partly offset by the positive translation impact of a weaker Canadian dollar; higher volumes of refined petroleum products; and freight rate increases.

Revenue per RTM increased by 5% in 2016, mainly due to a decrease in the average length of haul, the positive translation impact of a weaker Canadian dollar, and freight rate increases, partly offset by lower applicable fuel surcharge rates.

Metals and minerals

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 1,218	$ 1,437	(15%)	(17%)
RTMs *(millions)*	20,233	21,828	(7%)	(7%)
Revenue/RTM *(cents)*	6.02	6.58	(9%)	(11%)
Carloads *(thousands)*	807	886	(9%)	(9%)

For the year ended December 31, 2016, revenues for this commodity group decreased by $219 million, or 15%, when compared to 2015. The decrease was mainly due to decreased shipments of energy-related commodities including frac sand, drilling pipe, and semi-finished steel products; and lower applicable fuel surcharge rates, partly offset by the positive translation impact of a weaker Canadian dollar.

Revenue per RTM decreased by 9% in 2016, mainly due to an increase in the average length of haul and lower applicable fuel surcharge rates, partly offset by the positive translation impact of a weaker Canadian dollar.

Forest products

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 1,797	$ 1,728	4%	1%
RTMs *(millions)*	31,401	30,097	4%	4%
Revenue/RTM *(cents)*	5.72	5.74	-	(3%)
Carloads *(thousands)*	440	441	-	-

For the year ended December 31, 2016, revenues for this commodity group increased by $69 million, or 4%, when compared to 2015. The increase was mainly due to higher shipments of lumber and panels to the U.S. due to continued improvement in the U.S. housing market; freight rate increases; and the positive translation impact of a weaker Canadian dollar. These factors were partly offset by lower applicable fuel surcharge rates and decreased shipments of paper products amidst weak market conditions.

Revenue per RTM remained flat in 2016, mainly due to lower applicable fuel surcharge rates and an increase in the average length of haul, offset by the positive translation impact of a weaker Canadian dollar and freight rate increases.

Coal

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 434	$ 612	(29%)	(30%)
RTMs *(millions)*	11,032	15,956	(31%)	(31%)
Revenue/RTM *(cents)*	3.93	3.84	2%	1%
Carloads *(thousands)*	333	438	(24%)	(24%)

For the year ended December 31, 2016, revenues for this commodity group decreased by $178 million, or 29%, when compared to 2015. The decrease was mainly due to lower volumes of thermal coal to U.S. coal-fired utilities, continued global oversupply impacting export shipments of thermal coal via the U.S. Gulf Coast and metallurgical coal via west coast ports; as well as lower applicable fuel surcharge rates. These factors were partly offset by freight rate increases and the positive translation impact of a weaker Canadian dollar.

Revenue per RTM increased by 2% in 2016, mainly due to a decrease in the average length of haul, freight rate increases, and the positive translation impact of a weaker Canadian dollar, partly offset by lower applicable fuel surcharge rates.

Grain and fertilizers

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 2,098	$ 2,071	1%	-
RTMs *(millions)*	51,485	50,001	3%	3%
Revenue/RTM *(cents)*	4.07	4.14	(2%)	(3%)
Carloads *(thousands)*	602	607	(1%)	(1%)

For the year ended December 31, 2016, revenues for this commodity group increased by $27 million, or 1%, when compared to 2015. The increase was mainly due to higher volumes of Canadian oilseeds and oilseed products, and higher export volumes of U.S. soybeans and corn; the positive translation impact of a weaker Canadian dollar; and freight rate increases. These factors were partly offset by lower volumes of Canadian wheat and lower applicable fuel surcharge rates.

Revenue per RTM decreased by 2% in 2016, mainly due to an increase in the average length of haul and lower applicable fuel surcharge rates, partly offset by the positive translation impact of a weaker Canadian dollar and freight rate increases.

Intermodal

Year ended December 31,	2016	2015	% Change	% Change at constant currency
Revenues *(millions)*	$ 2,846	$ 2,896	(2%)	(3%)
RTMs *(millions)*	53,056	52,144	2%	2%
Revenue/RTM *(cents)*	5.36	5.55	(3%)	(5%)
Carloads *(thousands)*	2,163	2,232	(3%)	(3%)

For the year ended December 31, 2016, revenues for this commodity group decreased by $50 million, or 2%, when compared to 2015. The decrease was mainly due to lower applicable fuel surcharge rates and decreased international volumes via the Port of Vancouver. These factors were partly offset by increased international volumes via the Port of Halifax, and higher domestic retail volumes in the industrial and grocery products segments; freight rate increases; and the positive translation impact of a weaker Canadian dollar.

Revenue per RTM decreased by 3% in 2016, mainly due to lower applicable fuel surcharge rates, partly offset by the positive translation impact of a weaker Canadian dollar and freight rate increases.

Automotive

Year ended December 31,		2016		2015	% Change	% Change at constant currency
Revenues *(millions)*	$	759	$	719	6%	3%
RTMs *(millions)*		3,725		3,581	4%	4%
Revenue/RTM *(cents)*		20.38		20.08	1%	(1%)
Carloads *(thousands)*		261		241	8%	8%

For the year ended December 31, 2016, revenues for this commodity group increased by $40 million, or 6%, when compared to 2015. The increase was mainly due to higher volumes of domestic finished vehicle traffic and increased finished vehicle imports via the Port of Halifax; the positive translation impact of a weaker Canadian dollar; and freight rate increases. These factors were partly offset by lower applicable fuel surcharge rates.

Revenue per RTM increased by 1% in 2016, mainly due to a decrease in the average length of haul, the positive translation impact of a weaker Canadian dollar and freight rate increases, partly offset by lower applicable fuel surcharge rates.

Other revenues

Year ended December 31,		2016		2015	% Change	% Change at constant currency
Revenues *(millions)*	$	711	$	706	1%	(1%)

For the year ended December 31, 2016, Other revenues increased by $5 million, or 1%, when compared to 2015, mainly due to higher revenues from automotive logistic services and the positive translation impact of a weaker Canadian dollar, partly offset by lower revenues from freight forwarding and docks.

Operating expenses

Operating expenses for the year ended December 31, 2016 amounted to $6,725 million compared to $7,345 million in 2015. The decrease of $620 million, or 8%, in 2016 was mainly due to lower costs resulting from operating productivity gains, including cost-management initiatives and decreased volumes of traffic; lower pension expense; and lower fuel prices, partly offset by the negative translation impact of a weaker Canadian dollar on US dollar-denominated expenses.

In millions Year ended December 31,		2016		2015	% Change	% Change at constant currency
Labor and fringe benefits	$	2,119	$	2,406	12%	13%
Purchased services and material		1,592		1,729	8%	9%
Fuel		1,051		1,285	18%	20%
Depreciation and amortization		1,225		1,158	(6%)	(4%)
Equipment rents		375		373	(1%)	3%
Casualty and other		363		394	8%	11%
Total operating expenses	$	6,725	$	7,345	8%	10%

Labor and fringe benefits

Labor and fringe benefits expense decreased by $287 million, or 12%, in 2016 when compared to 2015. The decrease was primarily a result of a lower average headcount due to lower volumes of traffic and increased productivity, and lower pension expense, partly offset by the negative translation impact of the weaker Canadian dollar.

Purchased services and material

Purchased services and material expense decreased by $137 million, or 8%, in 2016 when compared to 2015. The decrease was mainly due to lower repairs and maintenance costs, resulting from lower volumes of traffic and cost-management initiatives, as well as favorable winter conditions in the first quarter, and lower accident costs. The decrease was partly offset by the negative translation impact of the weaker Canadian dollar.

Fuel

Fuel expense decreased by $234 million, or 18%, in 2016 when compared to 2015. The decrease was primarily due to lower fuel prices, lower volumes of traffic, and productivity gains, partly offset by the negative translation impact of the weaker Canadian dollar.

Depreciation and amortization

Depreciation and amortization expense increased by $67 million, or 6%, in 2016 when compared to 2015. The increase was mainly due to net capital additions and the negative translation impact of the weaker Canadian dollar, partly offset by the net favorable impact of depreciation studies.

Equipment rents

Equipment rents expense increased by $2 million, or 1%, in 2016 when compared to 2015. The increase was primarily due to higher costs for the use of locomotives from other railroads, and the negative translation impact of the weaker Canadian dollar, partly offset by lower car and equipment lease expenses.

Casualty and other

Casualty and other expense decreased by $31 million, or 8%, in 2016 when compared to 2015. The decrease was mainly due to lower accident costs, and the favorable impacts of a legal settlement and an insurance recovery, partly offset by a bad debt provision related to the bankruptcy of an international intermodal customer, an increase in U.S. personal injury and other claims pursuant to a recent actuarial study, an increase in property taxes and the negative translation impact of the weaker Canadian dollar.

Other income and expenses

Interest expense

In 2016, interest expense was $480 million compared to $439 million in 2015. The increase was mainly due to a higher level of debt and the negative translation impact of the weaker Canadian dollar on US dollar-denominated interest expense.

Other income

In 2016, the Company recorded other income of $95 million compared to $47 million in 2015. Included in Other income for 2016 was a gain on disposal of the Viaduc du Sud of $76 million.

Income tax expense

The Company recorded income tax expense of $1,287 million for the year ended December 31, 2016, compared to $1,336 million in 2015. Included in the 2016 figure was deferred income tax expense of $7 million resulting from the enactment of a higher provincial corporate income tax rate. Included in the 2015 figure was a deferred income tax expense of $42 million resulting from the enactment of a higher provincial corporate income tax rate.

The effective tax rate for 2016 was 26.1% compared to 27.4% in 2015. Excluding the net deferred income tax expense of $7 million and $42 million in 2016 and 2015, respectively, the effective tax rate for 2016 was 26.0% compared to 26.5% in 2015. The decrease in the effective tax rate was primarily due to the impact of a lower proportion of the Company's pre-tax income being earned in higher tax rate jurisdictions.

Summary of quarterly financial data

	2017 Quarters				2016 Quarters			
In millions, except per share data	**Fourth (1)**	**Third (2)**	**Second (3)**	**First (4)**	Fourth (5)	Third	Second (6)	First
Revenues	**$ 3,285**	**$ 3,221**	**$ 3,329**	**$ 3,206**	$ 3,217	$ 3,014	$ 2,842	$ 2,964
Operating income	**$ 1,301**	**$ 1,459**	**$ 1,495**	**$ 1,303**	$ 1,395	$ 1,407	$ 1,293	$ 1,217
Net income	**$ 2,611**	**$ 958**	**$ 1,031**	**$ 884**	$ 1,018	$ 972	$ 858	$ 792
Basic earnings per share	**$ 3.50**	**$ 1.28**	**$ 1.36**	**$ 1.16**	$ 1.33	$ 1.26	$ 1.10	$ 1.01
Diluted earnings per share	**$ 3.48**	**$ 1.27**	**$ 1.36**	**$ 1.16**	$ 1.32	$ 1.25	$ 1.10	$ 1.00
Dividends per share	**$ 0.4125**	**$ 0.4125**	**$ 0.4125**	**$ 0.4125**	$ 0.3750	$ 0.3750	$ 0.3750	$ 0.3750

(1) Included in Net income was a deferred income tax recovery of $1,764 million that resulted from the enactment of the U.S. Tax Reform and a deferred income tax expense of $50 million that resulted from the enactment of higher provincial corporate income tax rates.

(2) Included in Net income was a deferred income tax expense of $31 million that resulted from the enactment of a higher state corporate income tax rate.

(3) Included in Net income was a deferred income tax recovery of $18 million that resulted from the enactment of a lower provincial corporate income tax rate.

(4) Included in Net income was a deferred income tax recovery of $5 million that resulted from the enactment of a lower provincial corporate income tax rate.

(5) Included in Net income was a gain on disposal of the Viaduc du Sud of $76 million, or $66 million after-tax, which was recorded in Other income.

(6) Included in Net income was a deferred income tax expense of $7 million that resulted from the enactment of a higher provincial corporate income tax rate.

Revenues generated by the Company during the year are influenced by seasonal weather conditions, general economic conditions, cyclical demand for rail transportation, and competitive forces in the transportation marketplace (see the section entitled *Business risks* of this MD&A). Operating expenses reflect the impact of freight volumes, seasonal weather conditions, labor costs, fuel prices, and the Company's productivity initiatives. Fluctuations in the Canadian dollar relative to the US dollar have also affected the conversion of the Company's US dollar-denominated revenues and expenses and resulted in fluctuations in net income in the rolling eight quarters presented above.

Summary of fourth quarter 2017

Fourth quarter 2017 net income was $2,611 million, an increase of $1,593 million, or 156%, when compared to the same period in 2016, and diluted earnings per share increased by 164% to $3.48. The increase was mainly due to a deferred income tax recovery of $1,764 million ($2.35 per diluted share) resulting from the enactment of the U.S. Tax Reform.

Operating income for the quarter ended December 31, 2017 decreased by $94 million, or 7%, to $1,301 million, when compared to the same period in 2016. The decrease mainly reflects higher costs from increased volumes and higher fuel prices, which were partly offset by increased revenues from higher volumes, freight rate increases and higher applicable surcharge rates. The operating ratio was 60.4% in the fourth quarter of 2017 compared to 56.6% in the fourth quarter of 2016. Higher fuel prices had a 1.0-point impact on the increase for the quarter.

Revenues for the fourth quarter of 2017 increased by $68 million, or 2%, to $3,285 million, when compared to the same period in 2016. The increase was mainly attributable to higher international container traffic via the ports of Prince Rupert and Vancouver, and increased volumes of frac sand; freight rate increases; and higher applicable fuel surcharge rates. These factors were partly offset by the negative translation impact of a stronger Canadian dollar; lower export volumes of U.S. soybeans and reduced shipments of crude oil. Fuel surcharge revenues increased by $52 million in the fourth quarter of 2017, mainly due to higher applicable fuel surcharge rates.

Operating expenses for the fourth quarter of 2017 increased by $162 million, or 9%, to $1,984 million, when compared to the same period in 2016. The increase was primarily due to higher costs from increased volumes, challenging operating conditions, including harsh early winter weather, and higher fuel prices, partly offset by the positive translation impact of a stronger Canadian dollar.

Financial position

The following tables provide an analysis of the Company's balance sheet as at December 31, 2017 as compared to 2016. Assets and liabilities denominated in US dollars have been translated to Canadian dollars using the foreign exchange rate in effect at the balance sheet date. As at December 31, 2017 and 2016, the foreign exchange rates were $1.2571 and $1.3427 per US$1.00, respectively.

In millions *December 31,*	2017	2016	Foreign exchange impact	Variance excluding foreign exchange	Explanation of variance, other than foreign exchange impact
Total assets	**$ 37,629**	$ 37,057	$ (1,104)	$ 1,676	
Variance mainly due to:					
Properties	**34,189**	33,755	(1,053)	1,487	Increase primarily due to gross property additions of $2,703 million, partly offset by depreciation of $1,281 million.
Pension asset	**994**	907	-	87	Increase primarily due to higher actual returns partly offset by the decrease in the year-end discount rate from 3.81% in 2016 to 3.51% in 2017.
Total liabilities	**$ 20,973**	$ 22,216	$ (910)	$ (333)	
Variance mainly due to:					
Deferred income taxes	**6,953**	8,473	(312)	(1,208)	Decrease primarily due to deferred income tax recovery of $1,195 million, recorded in Net income, mostly attributable to the U.S. Tax Reform, partly offset by deferred income tax expense on new temporary differences generated during the year.
Pension and other postretirement benefits	**699**	694	(12)	17	Increase primarily due to the decrease in the year-end discount rate from 3.81% in 2016 to 3.51% in 2017.
Total long-term debt, including the current portion	**10,828**	10,937	(609)	500	Increase primarily due to issuance of notes of $493 million, proceeds from accounts receivable securitization program of $423 million and net issuance of commercial paper of $379 million, partly offset by repayment of notes of $635 million and debt related to capital leases of $206 million.

In millions *December 31,*	2017	2016	Variance	Explanation of variance
Total shareholders' equity	**$ 16,656**	$ 14,841	$ 1,815	
Variance mainly due to:				
Additional paid-in capital	**242**	364	(122)	Decrease primarily due to the settlement of equity settled awards.
Accumulated other comprehensive loss	**(2,784)**	(2,358)	(426)	Increase in comprehensive loss due to after-tax amounts of $264 million from net foreign exchange losses, and $162 million resulting from actuarial loss arising during the year and amortization of net actuarial loss and prior service costs for the Company's defined benefit pension and other postretirement benefit plans.
Retained earnings	**15,586**	13,242	2,344	Increase due to current year net income of $5,484 million, partly offset by share repurchases of $1,898 million and dividends paid of $1,239 million.

Liquidity and capital resources

The Company's principal source of liquidity is cash generated from operations, which is supplemented by borrowings in the money markets and capital markets. To meet its short-term liquidity needs, the Company has access to various financing sources, including an unsecured revolving credit facility, commercial paper programs, and an accounts receivable securitization program. In addition to these sources, the Company can issue debt securities to meet its longer-term liquidity needs. The strong focus on cash generation from all sources gives the Company increased flexibility in terms of meeting its financing requirements.

The Company's primary uses of funds are for working capital requirements, including income tax installments, pension contributions, and contractual obligations; capital expenditures relating to track infrastructure and other; acquisitions; dividend payouts; and share repurchases. The Company sets priorities on its uses of available funds based on short-term operational requirements, expenditures to continue to operate a safe railway and pursue strategic initiatives, while also considering its long-term contractual obligations and returning value to its shareholders; and as part of its financing strategy, the Company regularly reviews its optimal capital structure, cost of capital, and the need for additional debt financing.

The Company has a working capital deficit, which is considered common in the rail industry because it is capital-intensive, and not an indication of a lack of liquidity. The Company maintains adequate resources to meet daily cash requirements, and has sufficient financial capacity to manage its day-to-day cash requirements and current obligations. As at December 31, 2017 and 2016, the Company had Cash and cash equivalents of $70 million and $176 million, respectively; Restricted cash and cash equivalents of $483 million and $496 million, respectively; and a working capital deficit of $1,793 million and $901 million, respectively. The working capital deficit increased by $892 million in 2017 as accounts receivable securitization and commercial paper borrowings along with higher Accounts payable and other increased Total current liabilities, partly offset by higher Accounts receivable in Total current assets. The cash and cash equivalents pledged as collateral for a minimum term of one month pursuant to the Company's bilateral letter of credit facilities are recorded as Restricted cash and cash equivalents. There are currently no specific requirements relating to working capital other than in the normal course of business as discussed herein.

The Company's U.S. and other foreign subsidiaries maintain sufficient cash to meet their respective operational requirements. If the Company should require more liquidity in Canada than is generated by its domestic operations, the Company could decide to repatriate funds associated with undistributed earnings of its foreign operations, including its U.S. and other foreign subsidiaries. The impact on liquidity resulting from the repatriation of funds held outside Canada would not be significant as such repatriation of funds would not cause significant tax implications to the Company under the tax laws of Canada and the U.S. and other foreign tax jurisdictions, and the tax treaties currently in effect between them.

The Company expects cash from operations and its various sources of financing to be sufficient to meet its ongoing obligations. The Company is not aware of any trends or expected fluctuations in its liquidity that would impact its ongoing operations or financial condition as of the date of this MD&A.

Available financing sources

Shelf prospectus and registration statement

On January 24, 2018, the Company filed a preliminary shelf prospectus with Canadian securities regulators, pursuant to which CN may issue up to an aggregate amount of $6.0 billion of debt securities over a 25-month period. The final shelf prospectus and the corresponding U.S. registration statement are expected to be filed in early February 2018, and will replace CN's existing shelf prospectus and registration statement that expire on February 6, 2018. CN expects to use net proceeds from the sale of debt securities under the shelf prospectus and registration statement for general corporate purposes, including the redemption and refinancing of outstanding indebtedness, share repurchases, acquisitions, and other business opportunities.

On August 1, 2017, under its existing shelf prospectus and registration statement, the Company issued $500 million of debt securities in the Canadian capital markets. The Company's existing shelf prospectus and registration statement have remaining capacity of $3,966 million.

The Company's access to long-term funds in the debt capital markets depends on its credit ratings and market conditions. The Company believes that it continues to have access to the long-term debt capital markets. If the Company were unable to borrow funds at acceptable rates in the long-term debt capital markets, the Company could borrow under its revolving credit facility, draw down on its accounts receivable securitization program, raise cash by disposing of surplus properties or otherwise monetizing assets, reduce discretionary spending or take a combination of these measures to assure that it has adequate funding for its business.

Revolving credit facility

On March 15, 2017, the Company's revolving credit facility agreement was amended to extend the maturity date of the credit facility by one year. The credit facility of $1.3 billion consists of a tranche for $420 million maturing on May 5, 2020 and a tranche for $880 million maturing on May 5, 2022. The credit facility agreement includes an accordion feature, which provides for an additional $500 million subject to the consent of individual lenders. The credit facility is available for general corporate purposes, including backstopping the Company's commercial paper programs.

As at December 31, 2017 and December 31, 2016, the Company had no outstanding borrowings under its revolving credit facility and there were no draws during the years ended December 31, 2017 and 2016.

Commercial paper

The Company has a commercial paper program in Canada and in the U.S. Both programs are backstopped by the Company's revolving credit facility, enabling it to issue commercial paper up to a maximum aggregate principal amount of $1.3 billion, or the US dollar equivalent, on a combined basis. The commercial paper programs, which are subject to market rates in effect at the time of financing, provide the Company with a flexible financing alternative at a low cost, and can be used for general corporate purposes. The cost of commercial paper and access to the commercial paper market in Canada and the U.S. are dependent on credit ratings and market conditions. If the Company were to lose access to its commercial paper program for an extended period of time, the Company could rely on its $1.3 billion revolving credit facility to meet its short-term liquidity needs.

As at December 31, 2017, the Company had total commercial paper borrowings of US$760 million ($955 million) (2016 - US$451 million ($605 million)) presented in Current portion of long-term debt on the Consolidated Balance Sheets.

Accounts receivable securitization program

The Company has an agreement to sell an undivided co-ownership interest in a revolving pool of accounts receivable to unrelated trusts for maximum cash proceeds of $450 million expiring on February 1, 2019. The trusts are multi-seller trusts and the Company is not the primary beneficiary. Funding for the acquisition of these assets is customarily through the issuance of asset-backed commercial paper notes by the unrelated trusts.

The Company has retained the responsibility for servicing, administering and collecting the receivables sold. The average servicing period is approximately one month and is renewed at market rates in effect. Subject to customary indemnifications, each trust's recourse is limited to the accounts receivable transferred.

The Company is subject to customary credit rating requirements, which if not met, could result in termination of the program. The necessary credit rating requirements have been met as of the date of this MD&A. The Company is also subject to customary reporting requirements for which failure to perform could also result in termination of the program. The Company monitors the reporting requirements and is currently not aware of any trends, events or conditions that could cause such termination.

The accounts receivable securitization program provides the Company with readily available short-term financing for general corporate use. In the event the program is terminated before its scheduled maturity, the Company expects to meet its future payment obligations through its various sources of financing including its revolving credit facility and commercial paper program, and/or access to capital markets.

As at December 31, 2017, the Company had accounts receivable securitization borrowings of $421 million (2016 - $nil), consisting of $320 million and US$80 million ($101 million), presented in Current portion of long-term debt on the Consolidated Balance Sheets. These borrowings are secured by and limited to $476 million of accounts receivable.

Bilateral letter of credit facilities

The Company has a series of committed and uncommitted bilateral letter of credit facility agreements. On March 15, 2017, the Company extended the maturity date of the committed bilateral letter of credit facility agreements to April 28, 2020. The agreements are held with various banks to support the Company's requirements to post letters of credit in the ordinary course of business. Under the agreements, the Company has the option from time to time to pledge collateral in the form of cash or cash equivalents, for a minimum term of one month, equal to at least the face value of the letters of credit issued.

As at December 31, 2017, the Company had outstanding letters of credit of $394 million (2016 - $451 million) under the committed facilities from a total available amount of $437 million (2016 - $508 million) and $136 million (2016 - $68 million) under the uncommitted facilities.

As at December 31, 2017, included in Restricted cash and cash equivalents was $400 million (2016 - $426 million) and $80 million (2016 - $68 million) which were pledged as collateral under the committed and uncommitted bilateral letter of credit facilities, respectively.

Additional information relating to the Company's financing sources is provided in *Note 10 – Long-term debt* to the Company's 2017 Annual Consolidated Financial Statements.

Credit ratings

The Company's ability to access funding in the debt capital markets and the cost and amount of funding available depends in part on its credit ratings. Rating downgrades could limit the Company's access to the capital markets, or increase its borrowing costs.

The following table provides the credit ratings that CN has received from credit rating agencies as of the date of this MD&A:

	Long-term debt rating	Commercial paper rating
Dominion Bond Rating Service	A	R-1 (low)
Moody's Investors Service	A2	P-1
Standard & Poor's	A	A-1

These credit ratings are not recommendations to purchase, hold, or sell the securities referred to above. Ratings may be revised or withdrawn at any time by the credit rating agencies. Each credit rating should be evaluated independently of any other credit rating.

Cash flows

In millions *Year ended December 31,*		**2017**		2016		Variance
Net cash provided by operating activities	$	**5,516**	$	5,202	$	314
Net cash used in investing activities [(1)]		**(2,738)**		(2,682)		(56)
Net cash used in financing activities		**(2,895)**		(2,539)		(356)
Effect of foreign exchange fluctuations on US dollar-denominated cash, cash equivalents, restricted cash, and restricted cash equivalents		**(2)**		15		(17)
Net increase in cash, cash equivalents, restricted cash, and restricted cash equivalents [(1)]		**(119)**		(4)		(115)
Cash, cash equivalents, restricted cash, and restricted cash equivalents, beginning of period [(1)]		**672**		676		(4)
Cash, cash equivalents, restricted cash, and restricted cash equivalents, end of period [(1)]	$	**553**	$	672	$	(119)

(1) The Company adopted Accounting Standards Update 2016-18 in the first quarter of 2017 on a retrospective basis. Comparative balances have been reclassified to conform to the current presentation. Additional information is provided in the section of this MD&A entitled Recent accounting pronouncements.

Operating activities

Net cash provided by operating activities increased by $314 million in 2017 due to favorable changes in operating assets and liabilities mainly as a result of an increase in Accounts payable and other.

Pension contributions

The Company's contributions to its various defined benefit pension plans are made in accordance with the applicable legislation in Canada and the U.S. and such contributions follow minimum and maximum thresholds as determined by actuarial valuations. Pension contributions for the year ended December 31, 2017 and 2016 of $115 million and $162 million, respectively, primarily represent contributions to the CN Pension Plan, for the current service cost as determined under the Company's current actuarial valuations for funding purposes and voluntary contributions to the U.S. qualified defined benefit plans. The Company expects to make total cash contributions of approximately $120 million for all pension plans in 2018.

See the section of this MD&A entitled *Critical accounting estimates – Pensions and other postretirement benefits* for additional information pertaining to the funding of the Company's pension plans. Additional information relating to the pension plans is provided in *Note 12 – Pensions and other postretirement benefits* to the Company's 2017 Annual Consolidated Financial Statements.

Income tax payments

The Company is required to make scheduled installment payments as prescribed by the tax authorities. In Canada, the Company's domestic jurisdiction, tax installments in a given year are generally based on the prior year's taxable income whereas in the U.S., the Company's predominant foreign jurisdiction, they are based on forecasted taxable income of the current year.

In 2017, net income tax payments were $712 million (2016 - $653 million). The increase was mainly due to higher required U.S. instalments in 2017.

In 2018, the Company's net income tax payments are expected to be approximately $750 million. Income tax payments in Canada are expected to be higher, whereas U.S. income tax payments are expected to be lower as a result of the enactment of the U.S. Tax Reform. Future regulations and interpretations issued by U.S. authorities could further impact the Company's estimated income tax payments. Please refer to the section of this MD&A entitled *Strategy overview – 2017 Highlights – U.S. Tax Cuts and Jobs Act* for additional information about the U.S. Tax Reform.

Investing activities

Net cash used in investing activities increased by $56 million in 2017, mainly as a result of less proceeds received from the disposal of property in the current year, partly offset by lower property additions.

Property additions

In millions *Year ended December 31,*	2017	2016
Track and roadway (1)	$ **1,927**	$ 1,834
Rolling stock	**226**	494
Buildings	**70**	85
Information technology	**290**	176
Other	**190**	163
Gross property additions	**2,703**	2,752
Less: Capital leases	**30**	57
Property additions (2)	$ **2,673**	$ 2,695

(1) In 2017, approximately 80% (2016 - 80%) of the Track and roadway property additions were incurred to renew the basic infrastructure. Costs relating to normal repairs and maintenance of Track and roadway properties are expensed as incurred, and amounted to approximately 12% of the Company's total operating expenses in 2017 (2016 - 13%).

(2) Includes $417 million and $313 million associated with the U.S. federal government legislative PTC implementation in 2017 and 2016, respectively.

2018 Capital expenditure program

The Company expects to invest approximately $3.2 billion in its capital program, which will be financed with cash generated from operations, as outlined below:

- $1.6 billion on track and railway infrastructure maintenance to support safe and efficient operations; including the replacement of rail and ties, bridge improvements, as well as other general track maintenance;
- $0.8 billion on initiatives to increase capacity and enable growth, such as track infrastructure expansion; investments in yards and intermodal terminals; and on information technology to improve safety performance, operational efficiency and customer service;
- $0.4 billion associated with the U.S. federal government legislative PTC implementation; and
- $0.4 billion on equipment capital expenditures, allowing the Company to tap growth opportunities and improve the quality of the fleet, and in order to handle expected traffic increase and improve operational efficiency, CN expects to take delivery of 60 new high-horsepower locomotives.

In order to complete the implementation of PTC, the Company expects to continue incurring significant implementation costs beyond 2018. The Company now estimates that total PTC capital expenditures will be approximately US$1.4 billion, of which US$0.8 billion had been spent as of December 31, 2017. See the section of this MD&A entitled *Business risks – Safety regulation – U.S.* for additional information relating to PTC.

Disposal of property

In 2017, there were no significant disposals of property. In 2016, cash flows included cash proceeds of $85 million before transaction costs from the disposal of the Viaduc du Sud. Additional information relating to disposals of property is provided in *Note 3 – Other income* to the Company's 2017 Annual Consolidated Financial Statements.

Financing activities

Net cash used in financing activities increased by $356 million in 2017, due to lower long-term debt issuances in the current year and an increase in dividend payments, partly offset by a higher net issuance of commercial paper.

Debt financing activities

Debt financing activities in 2017 included the following:

- On November 15, 2017, repayment of US$250 million ($318 million) 5.85% Notes due 2017 upon maturity;
- On November 14, 2017, repayment of US$250 million ($317 million) Floating Rate Notes due 2017 upon maturity;
- On August 1, 2017, issuance of $500 million 3.60% Notes due 2047 in the Canadian capital markets, which resulted in net proceeds of $493 million;
- Proceeds from the accounts receivable securitization program of $423 million;
- Net issuance of commercial paper of $379 million; and
- Repayment of debt related to capital leases of $206 million.

Debt financing activities in 2016 included the following:

- On December 15, 2016, repayment of US$300 million ($398 million) 1.45% Notes due 2016 upon maturity;
- On August 2, 2016, issuance of US$650 million ($848 million) 3.20% Notes due 2046 in the U.S. capital markets, which resulted in net proceeds of $832 million;
- On June 1, 2016, repayment of US$250 million ($328 million) 5.80% Notes due 2016 upon maturity;
- On February 23, 2016, issuance of US$500 million ($686 million) 2.75% Notes due 2026 in the U.S. capital markets, which resulted in net proceeds of $677 million;
- Repayment of debt related to capital leases of $229 million; and
- Net issuance of commercial paper of $137 million.

Cash obtained from the issuance of debt in 2017 and 2016 was used for general corporate purposes, including the redemption and refinancing of outstanding indebtedness and share repurchases. Additional information relating to the Company's outstanding debt securities is provided in *Note 10 – Long-term debt* to the Company's 2017 Annual Consolidated Financial Statements.

Repurchase of common shares

The Company may repurchase shares pursuant to a Normal Course Issuer Bid (NCIB) at prevailing market prices plus brokerage fees, or such other prices as may be permitted by the Toronto Stock Exchange. Under its current NCIB, the Company may repurchase up to 31.0 million common shares between October 30, 2017 and October 29, 2018. The Company's NCIB notice may be found online on SEDAR at www.sedar.com and on the SEC's website at www.sec.gov through EDGAR. A printed copy may be obtained by contacting the Corporate Secretary's Office.

Previous NCIBs allowed for the repurchase of up to 33.0 million common shares between October 30, 2016 and October 29, 2017, and up to 33.0 million common shares between October 30, 2015 and October 29, 2016.

The following table provides the information related to the share repurchases for the years ended December 31, 2017, 2016 and 2015:

In millions, except per share data	*Year ended December 31,*	**2017**	2016	2015	**Total program**
October 2017 - October 2018 NCIB					
Number of common shares (1)		**2.9**	N/A	N/A	2.9
Weighted-average price per share (2)		**$ 102.40**	N/A	N/A	$ 102.40
Amount of repurchase		**$ 293**	N/A	N/A	$ 293
October 2016 - October 2017 NCIB					
Number of common shares (1)		**17.5**	3.5	N/A	21.0
Weighted-average price per share (2)		**$ 97.60**	$ 84.06	N/A	$ 95.35
Amount of repurchase		**$ 1,707**	$ 293	N/A	$ 2,000
October 2015 - October 2016 NCIB					
Number of common shares (1)		**N/A**	22.9	5.8	28.7
Weighted-average price per share (2)		**N/A**	$ 74.60	$ 70.44	$ 73.76
Amount of repurchase		**N/A**	$ 1,707	$ 410	$ 2,117
Total for the year					
Number of common shares (1)		**20.4**	26.4	23.3 (4)	
Weighted-average price per share (2)		**$ 98.27**	$ 75.85	$ 75.20 (4)	
Amount of repurchase (3)		**$ 2,000**	$ 2,000	$ 1,750 (4)	

(1) Includes repurchases of common shares in the first and second quarters of 2017, each quarter of 2016 and the first, third and fourth quarters of 2015, pursuant to private agreements between the Company and arm's-length third-party sellers.

(2) Includes brokerage fees where applicable.

(3) Includes settlements in subsequent periods.

(4) Includes 2015 repurchases from the October 2014 - October 2015 NCIB, which consisted of 17.5 million common shares, a weighted-average price per share of $76.79 and an amount of repurchase of $1,340 million.

Share Trusts

The Company's Employee Benefit Plan Trusts ("Share Trusts") purchase common shares on the open market, which are used to deliver common shares under the Share Units Plan. Additional information relating to the share purchases and share settlements by Share Trusts is provided in *Note 13 – Share capital* to the Company's 2017 Annual Consolidated Financial Statements.

The following table provides the information related to the share purchases and settlements by Share Trusts for the years ended December 31, 2017, 2016 and 2015.

In millions, except per share data	*Year ended December 31,*	**2017**	2016	2015
Share purchases by Share Trusts				
Number of common shares		**0.5**	0.7	1.4
Weighted-average price per share [1]		**$ 102.17**	$ 84.99	$ 73.31
Amount of purchase		**$ 55**	$ 60	$ 100
Share settlements by Share Trusts				
Number of common shares		**0.3**	0.3	-
Weighted-average price per share		**$ 77.99**	$ 73.31	$ -
Amount of settlement		**$ 24**	$ 23	$ -

(1) Includes brokerage fees where applicable.

Dividends paid

During 2017, the Company paid quarterly dividends of $0.4125 per share amounting to $1,239 million compared to $1,159 million, at the rate of $0.3750 per share, in 2016. For 2018, the Company's Board of Directors approved an increase of 10% to the quarterly dividend to common shareholders, from $0.4125 per share in 2017 to $0.4550 per share in 2018.

Contractual obligations

In the normal course of business, the Company incurs contractual obligations. The following table sets forth the Company's contractual obligations for the following items as at December 31, 2017:

In millions	**Total**	2018	2019	2020	2021	2022	2023 & thereafter
Debt obligations [1]	**$ 10,670**	$ 2,036	$ 684	$ -	$ 747	$ 308	$ 6,895
Interest on debt obligations	**7,040**	430	382	363	360	342	5,163
Capital lease obligations [2]	**241**	52	17	21	12	7	132
Operating lease obligations	**561**	139	109	77	59	38	139
Purchase obligations [3]	**2,170**	1,164	364	287	84	84	187
Other long-term liabilities [4]	**725**	73	41	63	48	38	462
Total contractual obligations	**$ 21,407**	**$ 3,894**	**$ 1,597**	**$ 811**	**$ 1,310**	**$ 817**	**$ 12,978**

(1) Presented net of unamortized discounts and debt issuance costs and excludes capital lease obligations.

(2) Includes $158 million of minimum lease payments and $83 million of imputed interest at rates ranging from 1.0% to 6.8%.

(3) Includes fixed price commitments for locomotives, rail, railroad ties, other equipment and services, as well as outstanding information technology service contracts and licenses. Also includes variable commitments for wheels based on forecasted volumes and fuel based on forecasted market prices.

(4) Includes expected payments for workers' compensation, postretirement benefits other than pensions, net unrecognized tax benefits, environmental liabilities and pension obligations that have been classified as contractual settlement agreements.

Free cash flow

Management believes that free cash flow is a useful measure of liquidity as it demonstrates the Company's ability to generate cash for debt obligations and for discretionary uses such as payment of dividends, share repurchases, and strategic opportunities. The Company defines its free cash flow measure as the difference between net cash provided by operating activities and net cash used in investing activities; adjusted for the impact of major acquisitions, if any. Free cash flow does not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of net cash provided by operating activities as reported for the years ended December 31, 2017, 2016 and 2015, to free cash flow:

In millions *Year ended December 31,*	**2017**	2016	2015
Net cash provided by operating activities	$ **5,516**	$ 5,202	$ 5,140
Net cash used in investing activities [1]	**(2,738)**	(2,682)	(2,767)
Free cash flow	$ **2,778**	$ 2,520	$ 2,373

(1) As a result of the retrospective adoption of Accounting Standards Update 2016-18, in the first quarter of 2017, changes in restricted cash and cash equivalents are no longer classified as investing activities within the Consolidated Statement of Cash Flows and are no longer included as an adjustment in the Company's definition of free cash flow. There is no impact to free cash flow.

Adjusted debt-to-adjusted EBITDA multiple

Management believes that the adjusted debt-to-adjusted earnings before interest, income taxes, depreciation and amortization (EBITDA) multiple is a useful credit measure because it reflects the Company's ability to service its debt and other long term obligations. The Company calculates the adjusted debt-to-adjusted EBITDA multiple as adjusted debt divided by adjusted EBITDA. These measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of debt and net income to the adjusted measures presented below, which have been used to calculate the adjusted debt-to-adjusted EBITDA multiple:

In millions, unless otherwise indicated *As at and for the year ended December 31,*	**2017**	2016	2015
Debt	$ **10,828**	$ 10,937	$ 10,427
Adjustment: Present value of operating lease commitments [1]	**478**	533	607
Adjusted debt	$ **11,306**	$ 11,470	$ 11,034
Net income	$ **5,484**	$ 3,640	$ 3,538
Interest expense	**481**	480	439
Income tax expense (recovery)	**(395)**	1,287	1,336
Depreciation and amortization	**1,281**	1,225	1,158
EBITDA	**6,851**	6,632	6,471
Adjustments:			
Other income	**(12)**	(95)	(47)
Deemed interest on operating leases	**22**	24	29
Adjusted EBITDA	$ **6,861**	$ 6,561	$ 6,453
Adjusted debt-to-adjusted EBITDA multiple (times)	**1.65**	1.75	1.71

(1) The operating lease commitments have been discounted using the Company's implicit interest rate for each of the periods presented.

All forward-looking statements discussed in this section are subject to risks and uncertainties and are based on assumptions about events and developments that may not materialize or that may be offset entirely or partially by other events and developments. See the section of this MD&A entitled *Forward-looking statements* for a discussion of assumptions and risk factors affecting such forward-looking statements.

Off balance sheet arrangements

Guarantees and indemnifications

In the normal course of business, the Company, including certain of its subsidiaries, enters into agreements that may involve providing guarantees or indemnifications to third parties and others, which may extend beyond the term of the agreements. These include, but are not limited to, residual value guarantees on operating leases, standby letters of credit, surety and other bonds, and indemnifications that are customary for the type of transaction or for the railway business. As at December 31, 2017, the Company has not recorded a liability with respect to guarantees and indemnifications. Additional information relating to guarantees and indemnifications is provided in *Note 16 – Major commitments and contingencies* to the Company's 2017 Annual Consolidated Financial Statements.

Outstanding share data

As at January 31, 2018, the Company had 740.7 million common shares and 5.0 million stock options outstanding.

Financial instruments

Risk management

In the normal course of business, the Company is exposed to various risks from its use of financial instruments. To manage these risks, the Company follows a financial risk management framework, which is monitored and approved by the Company's Finance Committee, with a goal of maintaining a strong balance sheet, optimizing earnings per share and free cash flow, financing its operations at an optimal cost of capital and preserving its liquidity. The Company has limited involvement with derivative financial instruments in the management of its risks and does not hold or issue them for trading or speculative purposes.

Credit risk

Credit risk arises from cash and temporary investments, accounts receivable and derivative financial instruments. To manage credit risk associated with cash and temporary investments, the Company places these financial assets with governments, major financial institutions, or other creditworthy counterparties; and performs ongoing reviews of these entities. To manage credit risk associated with accounts receivable, the Company reviews the credit history of each new customer, monitors the financial condition and credit limits of its customers, and keeps the average daily sales outstanding within an acceptable range. The Company works with customers to ensure timely payments, and in certain cases, requires financial security, including letters of credit. CN also obtains credit insurance for certain high risk customers. Although the Company believes there are no significant concentrations of customer credit risk, economic conditions can affect the Company's customers and can result in an increase to the Company's credit risk and exposure to business failures of its customers. A widespread deterioration of customer credit and business failures of customers could have a material adverse effect on the Company's results of operations, financial position or liquidity. The Company considers the risk due to the possible non-performance by its customers to be remote.

The Company has limited involvement with derivative financial instruments, however from time to time, it may enter into derivative financial instruments to manage its exposure to interest rates or foreign currency exchange rates. To manage the counterparty risk associated with the use of derivative financial instruments, the Company enters into contracts with major financial institutions that have been accorded investment grade ratings. Though the Company is exposed to potential credit losses due to non-performance of these counterparties, the Company considers this risk remote.

Liquidity risk

Liquidity risk is the risk that sufficient funds will not be available to satisfy financial obligations as they come due. In addition to cash generated from operations, which represents its principal source of liquidity, the Company manages liquidity risk by aligning other external sources of funds which can be obtained upon short notice, such as a revolving credit facility, commercial paper programs, and an accounts receivable securitization program. As well, the Company can issue debt securities in the Canadian and U.S. capital markets under its shelf prospectus and registration statement. The Company's access to long-term funds in the debt capital markets depends on its credit ratings and market conditions. The Company believes that its investment grade credit ratings contribute to reasonable access to capital markets. See the section of this MD&A entitled *Liquidity and capital resources* for additional information relating to the Company's available financing sources and its credit ratings.

Foreign currency risk

The Company conducts its business in both Canada and the U.S. and as a result, is affected by currency fluctuations. Changes in the exchange rate between the Canadian dollar and the US dollar affect the Company's revenues and expenses. To manage foreign currency risk, the Company designates US dollar-denominated long-term debt of the parent company as a foreign currency hedge of its net investment in foreign operations. As a result, from the dates of designation, foreign exchange gains and losses on translation of the Company's US dollar-denominated long-term debt are recorded in Accumulated other comprehensive loss, which minimizes volatility of earnings resulting from the conversion of US dollar-denominated long-term debt into the Canadian dollar.

The Company also enters into foreign exchange forward contracts to manage its exposure to foreign currency risk. As at December 31, 2017, the Company had outstanding foreign exchange forward contracts with a notional value of US$887 million (2016 - US$1,035 million). Changes in the fair value of foreign exchange forward contracts, resulting from changes in foreign exchange rates, are recognized in Other income in the Consolidated Statements of Income as they occur. For the year ended December 31, 2017, the Company recorded a loss of $72 million (2016 - loss of $1 million; 2015 - gain of $61 million), related to foreign exchange forward contracts. These losses or gains were largely offset by the re-measurement of US dollar-denominated monetary assets and liabilities recognized in Other income. As at December 31, 2017, Other current assets included an unrealized gain of $nil (2016 - $19 million) and Accounts payable and other included an unrealized loss of $19 million (2016 - $1 million), related to the fair value of outstanding foreign exchange forward contracts.

The estimated annual impact on net income of a one-cent change in the Canadian dollar relative to the US dollar is approximately $30 million.

Interest rate risk

The Company is exposed to interest rate risk, which is the risk that the fair value or future cash flows of a financial instrument will vary as a result of changes in market interest rates. Such risk exists in relation to the Company's long-term debt. The Company mainly issues fixed-rate debt, which exposes the Company to variability in the fair value of the debt. The Company also issues debt with variable interest rates, which exposes the Company to variability in interest expense.

To manage interest rate risk, the Company manages its borrowings in line with liquidity needs, maturity schedule, and currency and interest rate profile. In anticipation of future debt issuances, the Company may use derivative instruments such as forward rate agreements. The Company does not currently hold any significant derivative instruments to manage its interest rate risk.

The estimated annual impact on net income of a one-percent change in the interest rate on floating rate debt is approximately $8 million.

Commodity price risk

The Company is exposed to commodity price risk related to purchases of fuel and the potential reduction in net income due to increases in the price of diesel. Fuel prices are impacted by geopolitical events, changes in the economy or supply disruptions. Fuel shortages can occur due to refinery disruptions, production quota restrictions, climate, and labor and political instability.

The Company manages fuel price risk by offsetting the impact of rising fuel prices with the Company's fuel surcharge program. The surcharge applied to customers is determined in the second calendar month prior to the month in which it is applied, and is generally calculated using the average monthly price of On-Highway Diesel, and to a lesser extent West-Texas Intermediate crude oil.

While the Company's fuel surcharge program provides effective coverage, residual exposure remains given that fuel price risk cannot be completely managed due to timing and given the volatility in the market. As such, the Company may enter into derivative instruments to manage such risk when considered appropriate.

Fair value of financial instruments

The following table provides the valuation methods and assumptions used by the Company to estimate the fair value of financial instruments and their associated level within the fair value hierarchy:

Level 1 **Quoted prices for identical instruments in active markets**	The carrying amounts of Cash and cash equivalents and Restricted cash and cash equivalents approximate fair value. These financial instruments include highly liquid investments purchased three months or less from maturity, for which the fair value is determined by reference to quoted prices in active markets.
Level 2 **Significant inputs (other than quoted prices included in Level 1) are observable**	The carrying amounts of Accounts receivable, Other current assets, and Accounts payable and other approximate fair value. The fair value of these financial instruments is not determined using quoted prices, but rather from market observable information. The fair value of derivative financial instruments used to manage the Company’s exposure to foreign currency risk and included in Other current assets and Accounts payable and other is measured by discounting future cash flows using a discount rate derived from market data for financial instruments subject to similar risks and maturities. The carrying amount of the Company’s debt does not approximate fair value. The fair value is estimated based on quoted market prices for the same or similar debt instruments, as well as discounted cash flows using current interest rates for debt with similar terms, company rating, and remaining maturity. As at December 31, 2017, the Company’s debt had a carrying amount of $10,828 million (2016 - $10,937 million) and a fair value of $12,164 million (2016 - $12,084 million).
Level 3 **Significant inputs are unobservable**	The carrying amounts of investments included in Intangible and other assets approximate fair value, with the exception of certain cost investments for which significant inputs are unobservable and fair value is estimated based on the Company’s proportionate share of the underlying net assets. As at December 31, 2017, the Company’s investments had a carrying amount of $73 million (2016 - $68 million) and a fair value of $225 million (2016 - $220 million).

Recent accounting pronouncements

The following recent Accounting Standards Update (ASU) issued by the Financial Accounting Standards Board (FASB) was adopted by the Company during the current year:

Standard	Description	Impact
ASU 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash	Requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents.	The Company elected to early adopt the amendments of this ASU in the first quarter of 2017 on a retrospective basis. As a result of the adoption of this ASU, changes in restricted cash and cash equivalents are no longer classified as investing activities, and the Company’s Consolidated Statements of Cash Flows now explain the change during the period in the total of cash, cash equivalents, restricted cash, and restricted cash equivalents.

The following recent ASUs issued by FASB have an effective date after December 31, 2017 and have not been adopted by the Company:

Standard [1]	Description	Impact	Effective date [2]
ASU 2017-07 Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost	Requires employers that sponsor defined benefit pension plans and/or other postretirement benefit plans to report the service cost component in the same line item or items as other compensation costs. The other components of net periodic benefit cost are required to be presented in the statement of income separately from the service cost component and outside a subtotal of income from operations. The new guidance allows only the service cost component to be eligible for capitalization. The guidance must be applied retrospectively for the presentation of the service cost component and other components of net periodic benefit cost in the statement of income and prospectively for the capitalization of the service cost component of net periodic benefit cost.	The amendments will affect the classification of the components of pension and postretirement benefit costs other than service cost which will be shown outside of income from operations in a separate caption in the Company's Consolidated Statements of Income. Had the ASU been applicable for the year ended December 31, 2017, Operating income would have been reduced by approximately $315 million (2016 - $280 million; 2015 - $111 million) with a corresponding increase presented in a new caption below Operating income with no impact on Net income. The guidance allowing only the service cost component to be eligible for capitalization is not expected to have a significant impact on the Company's Consolidated Financial Statements. CN will adopt the requirements of the ASU effective January 1, 2018.	December 15, 2017. Early adoption is permitted.
ASU 2016-02, Leases (Topic 842)	Requires a lessee to recognize a right-of-use asset and a lease liability on the balance sheet for all leases greater than twelve months. The lessor accounting model under the new standard is substantially unchanged. The new standard also requires additional qualitative and quantitative disclosures. The guidance must be applied using the modified retrospective method.	The Company is evaluating the effects that the adoption of the standard will have on its Consolidated Financial Statements and related disclosures, systems, processes and internal controls. The Company is implementing a new lease management system and has identified and begun implementing changes to processes and internal controls necessary to meet the reporting and disclosure requirements. The Company is assessing contractual arrangements to see if they qualify as leases under the new standard and has already reviewed a significant portion of its commitments under operating leases. The Company expects that the standard will have a significant impact on its Consolidated Balance Sheets due to the recognition of new right-of-use assets and lease liabilities for leases currently classified as operating leases with a term over twelve months. CN expects to adopt the requirements of the ASU effective January 1, 2019.	December 15, 2018. Early adoption is permitted.

Standard (1)	Description	Impact	Effective date (2)
ASU 2014-09, Revenue from Contracts with Customers (Topic 606) and related amendments	The basis of the new standard is that an entity recognizes revenue to represent the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Additional disclosures will be required to assist users of financial statements understand the nature, amount, timing and uncertainty of revenues and cash flows arising from an entity's contracts. The guidance can be applied using either the retrospective or modified retrospective transition method.	The Company completed its reviews of freight and other revenue contracts with customers and has concluded that there will be no impact on its Consolidated Financial Statements resulting from adoption of the new standard, other than for the new disclosure requirements. The Company is finalizing required disclosures and has implemented changes to processes and internal controls necessary to meet the reporting and disclosure requirements. The Company will adopt the new standard effective January 1, 2018, using the modified retrospective transition method applied to its contracts that were not completed as of that date.	December 15, 2017. Early adoption is permitted.

(1) *Other recently issued ASUs required to be applied for periods beginning on or after January 1, 2018 have been evaluated by the Company and will not have a significant impact on the Company's Consolidated Financial Statements.*

(2) *Effective for annual and interim reporting periods beginning after the stated date.*

Critical accounting estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent assets and liabilities at the date of the financial statements. On an ongoing basis, management reviews its estimates based upon available information. Actual results could differ from these estimates. The Company's policies for income taxes, depreciation, pensions and other postretirement benefits, personal injury and other claims and environmental matters, require management's more significant judgments and estimates in the preparation of the Company's consolidated financial statements and, as such, are considered to be critical. The following information should be read in conjunction with the Company's 2017 Annual Consolidated Financial Statements and Notes thereto.

Management discusses the development and selection of the Company's critical accounting policies, including the underlying estimates and assumptions, with the Audit Committee of the Company's Board of Directors. The Audit Committee has reviewed the Company's related disclosures.

Income taxes

The Company follows the asset and liability method of accounting for income taxes. Under the asset and liability method, the change in the net deferred income tax asset or liability is included in the computation of Net income or Other comprehensive income (loss). Deferred income tax assets and liabilities are measured using enacted income tax rates expected to apply to taxable income in the years in which temporary differences are expected to be recovered or settled. As a result, a projection of taxable income is required for those years, as well as an assumption of the ultimate recovery/settlement period for temporary differences. The projection of future taxable income is based on management's best estimate and may vary from actual taxable income.

On an annual basis, the Company assesses the need to establish a valuation allowance for its deferred income tax assets, and if it is deemed more likely than not that its deferred income tax assets will not be realized, a valuation allowance is recorded. The ultimate realization of deferred income tax assets is dependent upon the generation of future taxable income during the periods in which those temporary differences become deductible. Management considers the scheduled reversals of deferred income tax liabilities, the available carryback and carryforward periods, and projected future taxable income in making this assessment. As at December 31, 2017, in order to fully realize all of the deferred income tax assets, the Company will need to generate future taxable income of approximately $1.8 billion, and, based upon the level of historical taxable income, projections of future taxable income over the periods in which the deferred income tax assets are deductible, and reversal of taxable temporary differences, management believes it is more likely than not that the Company will realize the benefits of these deductible differences. Management has assessed the impacts of the current economic environment, including the impacts of the U.S. Tax Reform enacted on December 22, 2017, and concluded there are no significant impacts to its assertions for the realization of deferred income tax assets. Please refer to the section of this MD&A entitled *Strategy overview – 2017 Highlights – U.S. Tax Cuts and Jobs Act* for additional information about the U.S. Tax Reform.

In addition, Canadian, or domestic, tax rules and regulations, as well as those relating to foreign jurisdictions, are subject to interpretation and require judgment by the Company that may be challenged by the taxation authorities upon audit of the filed income tax returns. Tax benefits are recognized if it is more likely than not that the tax position will be sustained on examination by the taxation authorities. As at December 31, 2017, the total amount of gross unrecognized tax benefits was $74 million before considering tax treaties and other arrangements between taxation authorities. The amount of net unrecognized tax benefits as at December 31, 2017 was $69 million. If recognized, $26 million of the net unrecognized tax benefits as at December 31, 2017 would affect the effective tax rate. The Company believes that it is reasonably possible that approximately $7 million of the net unrecognized tax benefits as at December 31, 2017 related to various federal, state, and provincial income tax matters, each of which are individually insignificant, may be recognized over the next twelve months as a result of settlements and a lapse of the applicable statute of limitations.

The Company's deferred income tax assets are mainly composed of temporary differences related to the pension liability, accruals for personal injury claims and other reserves, other postretirement benefits liability, and net operating losses and tax credit carryforwards. The Company's deferred income tax liabilities are mainly composed of temporary differences related to properties. These deferred income tax assets and liabilities are recorded at the enacted tax rates of the periods in which the related temporary differences are expected to reverse. As a result, fiscal budget changes and/or changes in income tax laws that affect a change in the timing, the amount, and/or the income tax rate at which the temporary difference components will reverse, could materially affect deferred income tax expense as recorded in the Company's results of operations. The reversal of temporary differences is expected at future-enacted income tax rates which could change due to fiscal budget changes and/or changes in income tax laws. As a result, a change in the timing and/or the income tax rate at which the components will reverse, could materially affect deferred income tax expense as recorded in the Company's results of operations. From time to time, the federal, provincial, and state governments enact new corporate income tax rates resulting in either lower or higher tax liabilities. A one-percentage-point change in the Canadian and U.S. statutory federal tax rate would have the effect of changing the deferred income tax expense by $156 million and $127 million in 2017, respectively.

The Company's estimates and assumptions are based on its analysis of the U.S. Tax Reform. Given the significant complexity of the U.S. Tax Reform, and the anticipated regulations and interpretive guidance from the U.S. authorities, the Company's estimates and assumptions used in calculating its income tax provisions may be impacted.

For the year ended December 31, 2017, the Company recorded an income tax recovery of $395 million, of which $1,195 million was a deferred income tax recovery. The deferred income tax recovery included a net recovery of $1,706 million resulting from the enactment of the U.S. Tax Reform, and changes to provincial and state corporate income tax rates. For the year ended December 31, 2016, the Company recorded total income tax expense of $1,287 million, of which $704 million was a deferred income tax expense which included a deferred income tax expense of $7 million resulting from the enactment of a higher provincial corporate income tax rate. For the year ended December 31, 2015, the Company recorded total income tax expense of $1,336 million, of which $600 million was a deferred income tax expense which included an income tax expense of $42 million resulting from the enactment of a higher provincial corporate income tax rate. The Company's net deferred income tax liability as at December 31, 2017 was $6,953 million (2016 - $8,473 million). Additional disclosures are provided in *Note 4 – Income taxes* to the Company's 2017 Annual Consolidated Financial Statements.

Depreciation

Properties are carried at cost less accumulated depreciation including asset impairment write-downs. The cost of properties, including those under capital leases, net of asset impairment write-downs, is depreciated on a straight-line basis over their estimated service lives, measured in years, except for rail and ballast which are measured in millions of gross tons. The Company follows the group method of depreciation whereby a single composite depreciation rate is applied to the gross investment in a class of similar assets, despite small differences in the service life or salvage value of individual property units within the same asset class. The Company uses approximately 40 different depreciable asset classes.

For all depreciable assets, the depreciation rate is based on the estimated service lives of the assets. Assessing the reasonableness of the estimated service lives of properties requires judgment and is based on currently available information, including periodic depreciation studies conducted by the Company. The Company's U.S. properties are subject to comprehensive depreciation studies as required by the Surface Transportation Board (STB) and are conducted by external experts. Depreciation studies for Canadian properties are not required by regulation and are conducted internally. Studies are performed on specific asset groups on a periodic basis. Changes in the estimated service lives of the assets and their related composite depreciation rates are implemented prospectively.

The studies consider, among other factors, the analysis of historical retirement data using recognized life analysis techniques, and the forecasting of asset life characteristics. Changes in circumstances, such as technological advances, changes to the Company's business strategy, changes in the Company's capital strategy or changes in regulations can result in the actual service lives differing from the Company's estimates.

A change in the remaining service life of a group of assets, or their estimated net salvage value, will affect the depreciation rate used to amortize the group of assets and thus affect depreciation expense as reported in the Company's results of operations. A change of one year in the composite service life of the Company's fixed asset base would impact annual depreciation expense by approximately $49 million.

Depreciation studies are a means of ensuring that the assumptions used to estimate the service lives of particular asset groups are still valid and where they are not, they serve as the basis to establish the new depreciation rates to be used on a prospective basis. In the fourth quarter of 2017, the Company completed depreciation studies for equipment properties and as a result, the Company changed the estimated service lives for various types of equipment assets and their related composite depreciation rates. The results of these depreciation studies did not materially affect the Company's annual depreciation expense.

Given the nature of the railroad and the composition of its network which is made up of homogeneous long lived assets, it is impractical to maintain records of specific properties at their lowest unit of property.

Retirements of assets occur through the replacement of an asset in the normal course of business, the sale of an asset or the abandonment of a section of track. For retirements in the normal course of business, generally the life of the retired asset is within a reasonable range of the expected useful life, as determined in the depreciation studies, and, as such, no gain or loss is recognized under the group method. The asset's cost is removed from the asset account and the difference between its cost and estimated related accumulated depreciation (net of salvage proceeds), if any, is recorded as an adjustment to accumulated depreciation and no gain or loss is recognized. The historical cost of the retired asset is estimated by using deflation factors or indices that closely correlate to the properties comprising the asset classes in combination with the estimated age of the retired asset using a first-in, first-out approach, and applying it to the replacement value of the asset.

In each depreciation study, an estimate is made of any excess or deficiency in accumulated depreciation for all corresponding asset classes to ensure that the depreciation rates remain appropriate. The excess or deficiency in accumulated depreciation is amortized over the remaining life of the asset class.

For retirements of depreciable properties that do not occur in the normal course of business, the historical cost, net of salvage proceeds, is recorded as a gain or loss in income. A retirement is considered not to be in the normal course of business if it meets the following criteria: (i) it is unusual, (ii) it is significant in amount, and (iii) it varies significantly from the retirement pattern identified through depreciation studies. A gain or loss is recognized in Other income for the sale of land or disposal of assets that are not part of railroad operations.

For the year ended December 31, 2017, the Company recorded total depreciation expense of $1,279 million (2016 - $1,223 million; 2015 - $1,156 million). As at December 31, 2017, the Company had Properties of $34,189 million, net of accumulated depreciation of $12,680 million (2016 - $33,755 million, net of accumulated depreciation of $12,412 million). Additional disclosures are provided in *Note 7 – Properties* to the Company's 2017 Annual Consolidated Financial Statements.

GAAP requires the use of historical cost as the basis of reporting in financial statements. As a result, the cumulative effect of inflation, which has significantly increased asset replacement costs for capital-intensive companies such as CN, is not reflected in operating expenses. Depreciation charges on an inflation-adjusted basis, assuming that all operating assets are replaced at current price levels, would be substantially greater than historically reported amounts.

Pensions and other postretirement benefits

The Company's plans have a measurement date of December 31. The following table provides the Company's pension asset, pension liability and other postretirement benefits liability as at December 31, 2017, and 2016:

In millions	*December 31,*	**2017**	2016
Pension asset		**$ 994**	$ 907
Pension liability		**$ 455**	$ 442
Other postretirement benefits liability		**$ 261**	$ 270

The descriptions in the following paragraphs pertaining to pensions relate generally to the Company's main pension plan, the CN Pension Plan, unless otherwise specified.

Calculation of net periodic benefit cost (income)

In accounting for pensions and other postretirement benefits, assumptions are required for, among other things, the discount rate, the expected long-term rate of return on plan assets, the rate of compensation increase, health care cost trend rates, mortality rates, employee early retirements, terminations and disability. Changes in these assumptions result in actuarial gains or losses, which are recognized in Other comprehensive income (loss). The Company generally amortizes these gains or losses into net periodic benefit cost (income) over the expected average remaining service life of the employee group covered by the plans only to the extent that the unrecognized net actuarial gains and losses are in excess of the corridor threshold, which is calculated as 10% of the greater of the beginning-of-year balances of the projected benefit obligation or market-related value of plan assets. The Company's net periodic benefit cost (income) for future periods is dependent on demographic experience, economic conditions and investment performance. Recent demographic experience has revealed no material net gains or losses on termination, retirement, disability and mortality. Experience with respect to economic conditions and investment performance is further discussed herein.

For the years ended December 31, 2017, 2016 and 2015, the consolidated net periodic benefit cost (income) for pensions and other postretirement benefits were as follows:

In millions	*Year ended December 31,*	**2017**	2016	2015
Net periodic benefit cost (income) for pensions		**$ (190)**	$ (161)	$ 34
Net periodic benefit cost for other postretirement benefits		**$ 7**	$ 7	$ 10

As at December 31, 2017 and 2016, the projected pension benefit obligation and accumulated other postretirement benefit obligation were as follows:

In millions	*December 31,*	**2017**	2016
Projected pension benefit obligation		**$ 18,025**	$ 17,366
Accumulated other postretirement benefit obligation		**$ 261**	$ 270

Discount rate assumption

The Company's discount rate assumption, which is set annually at the end of each year, is determined by management with the aid of third-party actuaries. The discount rate is used to measure the single amount that, if invested at the measurement date in a portfolio of high-quality debt instruments with a rating of AA or better, would provide the necessary cash flows to pay for pension benefits as they become due. For the Canadian pension and other postretirement benefit plans, future expected benefit payments are discounted using spot rates based on a derived AA corporate bond yield curve for each maturity year. A year-end discount rate of 3.51% based on bond yields prevailing at December 31, 2017 (2016 - 3.81%) was considered appropriate by the Company.

In 2016, the Company adopted the spot rate approach to measure current service cost and interest cost for all defined benefit pension and other postretirement benefit plans on a prospective basis as a change in accounting estimate. In 2015 and in prior years, these costs were determined using the discount rate used to measure the projected benefit obligation at the beginning of the period.

The spot rate approach enhances the precision to which current service cost and interest cost are measured by increasing the correlation between projected cash flows and spot discount rates corresponding to their maturity. Under the spot rate approach, individual spot discount rates along the same yield curve used in the determination of the projected benefit obligation are applied to the relevant projected cash flows for current service cost at the relevant maturity. More specifically, current service cost is measured using the cash flows related to benefits expected to be accrued in the following year by active members of a plan and interest cost is measured using the projected cash flows making up the projected benefit obligation multiplied by the corresponding spot discount rate at each maturity. Use of the spot rate approach does not affect the measurement of the projected benefit obligation.

In 2016, the adoption of the spot rate approach increased net periodic benefit income by approximately $130 million compared to the approach applicable in 2015 and prior years.

For the year ended December 31, 2017, a 0.25% decrease in the 3.51% discount rate used to determine the projected benefit obligation would have resulted in a decrease of approximately $530 million to the funded status for pensions and would result in a decrease of approximately $25 million to the 2018 projected net periodic benefit income. A 0.25% increase in the discount rate would have resulted in an increase of approximately $500 million to the funded status for pensions and would result in an increase of approximately $20 million to the 2018 projected net periodic benefit income.

Expected long-term rate of return assumption

The expected long-term rate of return is determined based on expected future performance for each asset class and is weighted based on the investment policy. Consideration is taken of the historical performance, the premium return generated from an actively managed portfolio, as well as current and future anticipated asset allocations, economic developments, inflation rates and administrative expenses. Based on these factors, the rate is determined by the Company. For 2017, the Company used a long-term rate of return assumption of 7.00% on the market-related value of plan assets to compute net periodic benefit cost (income). The Company has elected to use a market-related value of assets, whereby realized and unrealized gains/losses and appreciation/depreciation in the value of the investments are recognized over a period of five years, while investment income is recognized immediately. In 2018, the Company will maintain the expected long-term rate of return on plan assets at 7.00% to reflect management's current view of long-term investment returns.

The assets of the Company's various plans are primarily held in separate trust funds ("Trusts") which are diversified by asset type, country and investment strategies. Each year, the CN Board of Directors reviews and confirms or amends the Statement of Investment Policies and Procedures ("SIPP") which includes the plans' target asset allocation ("Policy") and related benchmark indices. This Policy is based on a long-term forward-looking view of the world economy, the dynamics of the plans' benefit obligations, the market return expectations of each asset class and the current state of financial markets. In 2017, the Policy was: 3% cash and short-term investments, 40% bonds and mortgages, 42% equities, 4% real estate, 7% oil and gas and 4% infrastructure and private debt investments.

Annually, the CN Investment Division ("Investment Manager"), a division of the Company created to invest and administer the assets of the plans, proposes an investment strategy ("Strategy") for the coming year, which is expected to differ from the Policy, because of current economic and market conditions and expectations. The Pension and Investment Committee of the Board of Directors ("Committee") regularly compares the actual asset allocation to the Policy and Strategy and compares the actual performance of the Company's pension plan assets to the performance of the benchmark indices.

The Committee's approval is required for all major investments in illiquid securities. The SIPP allows for the use of derivative financial instruments to implement strategies, hedge and adjust existing or anticipated exposures. The SIPP prohibits investments in securities of the Company or its subsidiaries. During the last 10 and 15 years ended December 31, 2017, the CN Pension Plan earned an annual average rate of return of 5.53% and 7.66%, respectively.

The actual, market-related value and expected rates of return on plan assets for the last five years were as follows:

	2017	2016	2015	2014	2013
Actual	**9.2%**	4.4%	5.5%	10.1%	11.2%
Market-related value	**9.1%**	8.2%	7.0%	7.6%	7.3%
Expected	**7.00%**	7.00%	7.00%	7.00%	7.00%

The Company's expected long-term rate of return on plan assets reflects management's view of long-term investment returns and the effect of a 1% variation in such rate of return would result in a change to the net periodic benefit cost (income) of approximately $95 million. Management's assumption of the expected long-term rate of return is subject to risks and uncertainties that could cause the actual rate of return to differ materially from management's assumption. There can be no assurance that the plan assets will be able to earn the expected long-term rate of return on plan assets.

Net periodic benefit income for pensions for 2018

In 2018, the Company expects net periodic benefit income to be approximately $140 million (2017 - $190 million) for all its defined benefit pension plans. The decrease compared to 2017 is primarily due to higher current service cost, interest cost and amortization of actuarial loss, resulting from the decrease in the year-end discount rate from 3.81% in 2016 to 3.51% in 2017.

Plan asset allocation

Based on the fair value of the assets held as at December 31, 2017, the assets of the Company's various plans are comprised of 4% in cash and short-term investments, 35% in bonds and mortgages, 37% in equities, 2% in real estate, 6% in oil and gas, 5% in infrastructure and private debt, 9% in absolute return investments, and 2% in risk-factor allocation investments. See *Note 12 - Pensions and other postretirement benefits* to the Company's 2017 Annual Consolidated Financial Statements for information on the fair value measurements of such assets.

A significant portion of the plans' assets are invested in publicly traded equity securities whose return is primarily driven by stock market performance. Debt securities also account for a significant portion of the plans' investments and provide a partial offset to the variation in the pension benefit obligation that is driven by changes in the discount rate. The funded status of the plan fluctuates with market conditions and impacts funding requirements. The Company will continue to make contributions to the pension plans that as a minimum meet pension legislative requirements.

Rate of compensation increase

The rate of compensation increase is determined by the Company based upon its long-term plans for such increases. For 2017, a basic rate of compensation increase of 2.75% was used to determine the projected benefit obligation and the net periodic benefit cost (income).

Mortality

The Canadian Institute of Actuaries (CIA) published in 2014 a report on Canadian Pensioners' Mortality ("Report"). The Report contained Canadian pensioners' mortality tables and improvement scales based on experience studies conducted by the CIA. The CIA's conclusions were taken into account in selecting management's best estimate mortality assumption used to calculate the projected benefit obligation as at December 31, 2017, 2016 and 2015.

Funding of pension plans

The Company's main Canadian defined benefit pension plan, the CN Pension Plan, accounts for approximately 93% of the Company's pension obligation and can produce significant volatility in pension funding requirements, given the pension fund's size, the many factors that drive the plan's funded status, and Canadian statutory pension funding requirements. Adverse changes to the assumptions used to calculate the plan's funding status, particularly the discount rate used for funding purposes, as well as changes to existing federal pension legislation, regulation and guidance could significantly impact the Company's future contributions.

For accounting purposes, the funded status is calculated under generally accepted accounting principles for all pension plans. For funding purposes, the funded status is also calculated under going concern and solvency scenarios as prescribed under pension legislation and subject to guidance issued by the CIA and the Office of the Superintendent of Financial Institutions (OSFI) for all registered Canadian defined benefit pension plans. The Company's funding requirements are determined upon completion of actuarial valuations. Actuarial valuations are generally required on an annual basis for all Canadian plans, or when deemed appropriate by the OSFI. Actuarial valuations are also required annually for the Company's U.S. qualified pension plans.

The Company's most recently filed actuarial valuations for funding purposes for its Canadian registered pension plans conducted as at December 31, 2016 indicated a funding excess on a going concern basis of approximately $2.6 billion and a funding excess on a solvency basis of approximately $0.2 billion, calculated using the three-year average of the plans' hypothetical wind-up ratio in accordance with the *Pension Benefit Standards Regulations, 1985.* The federal pension legislation requires funding deficits, as calculated under current pension regulations, to be paid over a number of years. Alternatively, a letter of credit can be subscribed to fulfill required solvency deficit payments.

The Company's next actuarial valuations for funding purposes for its Canadian registered pension plans required as at December 31, 2017 will be performed in 2018. These actuarial valuations are expected to identify a funding excess on a going concern basis of approximately $3.0 billion, while on a solvency basis a funding excess of approximately $0.4 billion is expected.

Based on the anticipated results of these valuations, the Company expects to make total cash contributions of approximately $120 million for all of the Company's pension plans in 2018. The Company expects cash from operations and its other sources of financing to be sufficient to meet its 2018 funding obligations.

Information disclosed by major pension plan

The following table provides the Company's plan assets by category, projected benefit obligation at end of year, as well as Company and employee contributions by major defined benefit pension plan:

In millions — *December 31, 2017*	CN Pension Plan	BC Rail Pension Plan	U.S. and other plans	Total
Plan assets by category				
Cash and short-term investments	$ 784	$ 31	$ 21	$ 836
Bonds	5,915	306	147	6,368
Mortgages	94	2	1	97
Private debt	236	5	1	242
Equities	6,530	156	117	6,803
Real estate	400	9	1	410
Oil and gas	1,092	24	4	1,120
Infrastructure	665	14	3	682
Absolute return	1,554	37	6	1,597
Risk-factor allocation	335	8	2	345
Other (1)	49	3	12	64
Total plan assets	**$ 17,654**	**$ 595**	**$ 315**	**$ 18,564**
Projected benefit obligation at end of year	$ 16,721	$ 534	$ 770	$ 18,025
Company contributions in 2017	$ 75	$ -	$ 21	$ 96
Employee contributions in 2017	$ 56	$ -	$ -	$ 56

(1) Other consists of operating assets of $94 million and liabilities of $30 million required to administer the Trusts' investment assets and the plans' benefit and funding activities.

Additional disclosures are provided in *Note 12 – Pensions and other postretirement benefits* to the Company's 2017 Annual Consolidated Financial Statements.

Personal injury and other claims

In the normal course of business, the Company becomes involved in various legal actions seeking compensatory and occasionally punitive damages, including actions brought on behalf of various purported classes of claimants and claims relating to employee and third-party personal injuries, occupational disease and property damage, arising out of harm to individuals or property allegedly caused by, but not limited to, derailments or other accidents.

Canada

Employee injuries are governed by the workers' compensation legislation in each province whereby employees may be awarded either a lump sum or a future stream of payments depending on the nature and severity of the injury. As such, the provision for employee injury claims is discounted. In the provinces where the Company is self-insured, costs related to employee work-related injuries are accounted for based on actuarially developed estimates of the ultimate cost associated with such injuries, including compensation, health care and third-party administration costs. An actuarial study is generally performed at least on a triennial basis. For all other legal actions, the Company maintains, and regularly updates on a case-by-case basis, provisions for such items when the expected loss is both probable and can be reasonably estimated based on currently available information.

In 2017, 2016 and 2015 the Company recorded an increase of $2 million, and a decrease of $11 million and $12 million, respectively, to its provision for personal injuries and other claims in Canada as a result of actuarial valuations for employee injury claims as well as various other legal claims.

As at December 31, 2017, 2016 and 2015, the Company's provision for personal injury and other claims in Canada was as follows:

In millions	**2017**	2016	2015
Beginning of year	**$ 183**	$ 191	$ 203
Accruals and other	**38**	24	17
Payments	**(38)**	(32)	(29)
End of year	**$ 183**	$ 183	$ 191
Current portion - End of year	**$ 40**	$ 39	$ 27

The assumptions used in estimating the ultimate costs for Canadian employee injury claims include, among other factors, the discount rate, the rate of inflation, wage increases and health care costs. The Company periodically reviews its assumptions to reflect currently available information. Over the past three years, the Company has not significantly changed any of these assumptions. Changes in any of these assumptions could materially affect Casualty and other expense as reported in the Company's results of operations.

For all other legal claims in Canada, estimates are based on the specifics of the case, trends and judgment.

United States

Personal injury claims by the Company's employees, including claims alleging occupational disease and work-related injuries, are subject to the provisions of the *Federal Employers' Liability Act* (FELA). Employees are compensated under FELA for damages assessed based on a finding of fault through the U.S. jury system or through individual settlements. As such, the provision is undiscounted. With limited exceptions where claims are evaluated on a case-by-case basis, the Company follows an actuarial-based approach and accrues the expected cost for personal injury, including asserted and unasserted occupational disease claims, and property damage claims, based on actuarial estimates of their ultimate cost. An actuarial study is performed annually.

For employee work-related injuries, including asserted occupational disease claims, and third-party claims, including grade crossing, trespasser and property damage claims, the actuarial valuation considers, among other factors, the Company's historical patterns of claims filings and payments. For unasserted occupational disease claims, the actuarial valuation includes the projection of the Company's experience into the future considering the potentially exposed population. The Company adjusts its liability based upon management's assessment and the results of the study. On an ongoing basis, management reviews and compares the assumptions inherent in the latest actuarial valuation with the current claim experience and, if required, adjustments to the liability are recorded.

Due to the inherent uncertainty involved in projecting future events, including events related to occupational diseases, which include but are not limited to, the timing and number of actual claims, the average cost per claim and the legislative and judicial environment, the Company's future payments may differ from current amounts recorded.

In 2017, the Company recorded an increase of $15 million to its provision for U.S. personal injury and other claims attributable to non-occupational disease claims, third-party claims and occupational disease claims pursuant to the 2017 actuarial valuation. In 2016 and 2015, actuarial valuations resulted in an increase of $21 million and decrease of $5 million, respectively. The prior years' adjustments from the actuarial valuations were mainly attributable to occupational disease claims, non-occupational disease claims and third-party claims reflecting changes in the Company's estimates of unasserted claims and costs related to asserted claims. The Company has an ongoing risk mitigation strategy focused on reducing the frequency and severity of claims through injury prevention and containment; mitigation of claims; and lower settlements of existing claims.

As at December 31, 2017, 2016 and 2015, the Company's provision for personal injury and other claims in the U.S. was as follows:

In millions	**2017**	2016	2015
Beginning of year	**$ 118**	$ 105	$ 95
Accruals and other	**46**	51	22
Payments	**(41)**	(34)	(30)
Foreign exchange	**(7)**	(4)	18
End of year	**$ 116**	$ 118	$ 105
Current portion - End of year	**$ 25**	$ 37	$ 24

For the U.S. personal injury and other claims liability, historical claim data is used to formulate assumptions relating to the expected number of claims and average cost per claim for each year. Changes in any one of these assumptions could materially affect Casualty and other expense as reported in the Company's results of operations. A 5% change in the asbestos average claim cost or a 1% change in the inflation trend rate for all injury types would result in an increase or decrease in the liability recorded of approximately $2 million.

Environmental matters

Known existing environmental concerns

The Company has identified 150 sites at which it is or may be liable for remediation costs, in some cases along with other potentially responsible parties, associated with alleged contamination and is subject to environmental clean-up and enforcement actions, including those imposed by the U.S. federal *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA), also known as the Superfund law, or analogous state laws. CERCLA and similar state laws, in addition to other similar Canadian and U.S. laws, generally impose joint and several liability for clean-up and enforcement costs on current and former owners and operators of a site, as well as those whose waste is disposed of at the site, without regard to fault or the legality of the original conduct. The Company has been notified that it is a potentially responsible party for study and clean-up costs at 6 sites governed by the Superfund law (and analogous state laws) for which investigation and remediation payments are or will be made or are yet to be determined and, in many instances, is one of several potentially responsible parties.

The ultimate cost of addressing these known contaminated sites cannot be definitively established given that the estimated environmental liability for any given site may vary depending on the nature and extent of the contamination; the nature of anticipated response actions, taking into account the available clean-up techniques; evolving regulatory standards governing environmental liability; and the number of potentially responsible parties and their financial viability. As a result, liabilities are recorded based on the results of a four-phase assessment conducted on a site-by-site basis. A liability is initially recorded when environmental assessments occur, remedial efforts are probable, and when the costs, based on a specific plan of action in terms of the technology to be used and the extent of the corrective action required, can be reasonably estimated. The Company estimates the costs related to a particular site using cost scenarios established by external consultants based on the extent of contamination and expected costs for remedial efforts. In the case of multiple parties, the Company accrues its allocable share of liability taking into account the Company's alleged responsibility, the number of potentially responsible parties and their ability to pay their respective share of the liability. Adjustments to initial estimates are recorded as additional information becomes available.

The Company's provision for specific environmental sites is undiscounted and includes costs for remediation and restoration of sites, as well as monitoring costs. Environmental expenses, which are classified as Casualty and other in the Consolidated Statements of Income, include amounts for newly identified sites or contaminants as well as adjustments to initial estimates. Recoveries of environmental remediation costs from other parties are recorded as assets when their receipt is deemed probable.

As at December 31, 2017, 2016 and 2015, the Company's provision for specific environmental sites was as follows:

In millions		**2017**		2016		2015
Beginning of year	**$**	**86**	$	110	$	114
Accruals and other		**16**		6		81
Payments		**(23)**		(29)		(91)
Foreign exchange		**(1)**		(1)		6
End of year	**$**	**78**	$	86	$	110
Current portion - End of year	**$**	**57**	$	50	$	51

The Company anticipates that the majority of the liability at December 31, 2017 will be paid out over the next five years. Based on the information currently available, the Company considers its provisions to be adequate.

Unknown existing environmental concerns

While the Company believes that it has identified the costs likely to be incurred for environmental matters based on known information, the discovery of new facts, future changes in laws, the possibility of releases of hazardous materials into the environment and the Company's ongoing efforts to identify potential environmental liabilities that may be associated with its properties may result in the identification of additional environmental liabilities and related costs. The magnitude of such additional liabilities and the costs of complying with future environmental laws and containing or remediating contamination cannot be reasonably estimated due to many factors, including:

- the lack of specific technical information available with respect to many sites;
- the absence of any government authority, third-party orders, or claims with respect to particular sites;
- the potential for new or changed laws and regulations and for development of new remediation technologies and uncertainty regarding the timing of the work with respect to particular sites; and
- the determination of the Company's liability in proportion to other potentially responsible parties and the ability to recover costs from any third parties with respect to particular sites.

Therefore, the likelihood of any such costs being incurred or whether such costs would be material to the Company cannot be determined at this time. There can thus be no assurance that liabilities or costs related to environmental matters will not be incurred in the future, or will not have a material adverse effect on the Company's financial position or results of operations in a particular quarter or fiscal year, or that the Company's liquidity will not be adversely impacted by such liabilities or costs, although management believes, based on current information, that the costs to address environmental matters will not have a material adverse effect on the Company's financial position or liquidity. Costs related to any unknown existing or future contamination will be accrued in the period in which they become probable and reasonably estimable.

Future occurrences

In railroad and related transportation operations, it is possible that derailments or other accidents, including spills and releases of hazardous materials, may occur that could cause harm to human health or to the environment. As a result, the Company may incur costs in the future, which may be material, to address any such harm, compliance with laws and other risks, including costs relating to the performance of clean-ups, payment of environmental penalties and remediation obligations, and damages relating to harm to individuals or property.

Regulatory compliance

The Company may incur significant capital and operating costs associated with environmental regulatory compliance and clean-up requirements, in its railroad operations and relating to its past and present ownership, operation or control of real property. Environmental expenditures that relate to current operations are expensed unless they relate to an improvement to the property. Expenditures that relate to an existing condition caused by past operations and which are not expected to contribute to current or future operations are expensed. Operating expenses related to regulatory compliance activities for environmental matters for the year ended December 31, 2017 amounted to $20 million (2016 - $19 million; 2015 - $20 million). For 2018, the Company expects to incur operating expenses relating to environmental matters in the same range as 2017. In addition, based on the results of its operations and maintenance programs, as well as ongoing environmental audits and other factors, the Company plans for specific capital improvements on an annual basis. Certain of these improvements help ensure facilities, such as fueling stations and waste water and storm water treatment systems, comply with environmental standards and include new construction and the updating of existing systems and/or processes. Other capital expenditures relate to assessing and remediating certain impaired properties. The Company's environmental capital expenditures for the year ended December 31, 2017 amounted to $21 million (2016 - $15 million; 2015 - $18 million). For 2018, the Company expects to incur capital expenditures relating to environmental matters in the same range as 2017.

Business risks

In the normal course of business, the Company is exposed to various business risks and uncertainties that can have an effect on the Company's results of operations, financial position, or liquidity. While some exposures may be reduced by the Company's risk management strategies, many risks are driven by external factors beyond the Company's control or are of a nature which cannot be eliminated. The key areas of business risks and uncertainties described in this section are not the only ones that can affect the Company. Additional risks and uncertainties not currently known to management or that may currently not be considered material by management, could nevertheless also have an adverse effect on the Company's business.

Competition

The Company faces significant competition, including from rail carriers and other modes of transportation, and is also affected by its customers' flexibility to select among various origins and destinations, including ports, in getting their products to market. Specifically, the Company faces competition from Canadian Pacific Railway Company (CP), which operates the other major rail system in Canada and services most of the same industrial areas, commodity resources and population centers as the Company; major U.S. railroads and other Canadian and U.S. railroads; long-distance trucking companies, transportation via the St. Lawrence-Great Lakes Seaway and the Mississippi River and transportation via pipelines. In addition, while railroads must build or acquire and maintain their rail systems, motor carriers and barges are able to use public rights-of-way that are built and maintained by public entities without paying fees covering the entire costs of their usage.

Competition is generally based on the quality and the reliability of the service provided, access to markets, as well as price. Factors affecting the competitive position of customers, including exchange rates and energy cost, could materially adversely affect the demand for goods supplied by the sources served by the Company and, therefore, the Company's volumes, revenues and profit margins. Factors affecting the general market conditions for the Company's customers can result in an imbalance of transportation capacity relative to demand. An extended period of supply/demand imbalance could negatively impact market rate levels for all transportation services, and more specifically the Company's ability to maintain or increase rates. This, in turn, could materially and adversely affect the Company's business, results of operations or financial position.

The level of consolidation of rail systems in the U.S. has resulted in larger rail systems that are in a position to compete effectively with the Company in numerous markets.

There can be no assurance that the Company will be able to compete effectively against current and future competitors in the transportation industry, and that further consolidation within the transportation industry and legislation allowing for more leniency in size and weight for motor carriers will not adversely affect the Company's competitive position. No assurance can be given that competitive pressures will not lead to reduced revenues, profit margins or both.

Environmental matters

The Company's operations are subject to numerous federal, provincial, state, municipal and local environmental laws and regulations in Canada and the U.S. concerning, among other things, emissions into the air; discharges into waters; the generation, handling, storage, transportation, treatment and disposal of waste, hazardous substances and other materials; decommissioning of underground and aboveground storage tanks; and soil and groundwater contamination. A risk of environmental liability is inherent in railroad and related transportation operations; real estate ownership, operation or control; and other commercial activities of the Company with respect to both current and past operations. As a result, the Company incurs significant operating and capital costs, on an ongoing basis, associated with environmental regulatory compliance and clean-up requirements in its railroad operations and relating to its past and present ownership, operation or control of real property.

While the Company believes that it has identified the costs likely to be incurred for environmental matters in the next several years based on known information, the discovery of new facts, future changes in laws, the possibility of releases of hazardous materials into the environment and the Company's ongoing efforts to identify potential environmental liabilities that may be associated with its properties may result in the identification of additional environmental liabilities and related costs.

In railroad and related transportation operations, it is possible that derailments or other accidents, including spills and releases of hazardous materials, may occur that could cause harm to human health or to the environment. In addition, the Company is also exposed to potential catastrophic liability risk, faced by the railroad industry generally, in connection with the transportation of toxic inhalation hazard materials such as chlorine and anhydrous ammonia, or other dangerous commodities like crude oil and propane that the Company may be required to transport as a result of its common carrier obligations. Therefore, the Company may incur costs in the future, which may be material, to address any such harm, compliance with laws or other risks, including costs relating to the performance of clean-ups, payment of environmental penalties and remediation obligations, and damages relating to harm to individuals or property.

The environmental liability for any given contaminated site varies depending on the nature and extent of the contamination; the available clean-up techniques; evolving regulatory standards governing environmental liability; and the number of potentially responsible parties and their financial viability. As such, the ultimate cost of addressing known contaminated sites cannot be definitively established. Also, additional contaminated sites yet unknown may be discovered or future operations may result in accidental releases.

While some exposures may be reduced by the Company's risk mitigation strategies (including periodic audits, employee training programs, emergency plans and procedures, and insurance), many environmental risks are driven by external factors beyond the Company's control or are of a nature which cannot be completely eliminated. Therefore, there can be no assurance, notwithstanding the Company's mitigation strategies, that liabilities or costs related to environmental matters will not be incurred in the future or that environmental matters will not have a material adverse effect on the Company's results of operations, financial position or liquidity, or reputation.

Personal injury and other claims

In the normal course of business, the Company becomes involved in various legal actions seeking compensatory and occasionally punitive damages, including actions brought on behalf of various purported classes of claimants and claims relating to employee and third-party personal injuries, occupational disease, and property damage, arising out of harm to individuals or property allegedly caused by, but not limited to, derailments or other accidents. The Company maintains provisions for such items, which it considers to be adequate for all of its outstanding or pending claims and benefits from insurance coverage for occurrences in excess of certain amounts. The final outcome with respect to actions outstanding or pending at December 31, 2017, or with respect to future claims, cannot be predicted with certainty, and therefore there can be no assurance that their resolution will not have a material adverse effect on the Company's results of operations, financial position or liquidity, in a particular quarter or fiscal year.

Labor negotiations

As at December 31, 2017, CN employed a total of 16,597 employees in Canada, of which 12,125, or 73%, were unionized employees and 7,348 employees in the U.S., of which 5,838, or 79%, were unionized employees. The Company's relationships with its unionized workforce are governed by, amongst other items, collective agreements which are negotiated from time to time. Disputes relating to the renewal of collective agreements could potentially result in strikes, slowdowns and loss of business. Future labor agreements or renegotiated agreements could increase labor and fringe benefits expenses. There can be no assurance that the Company will be able to renew and have its collective agreements ratified without any strikes or lockouts or that the resolution of these collective bargaining negotiations will not have a material adverse effect on the Company's results of operations or financial position.

Canadian workforce

The collective agreement with the Teamsters Canada Rail Conference (TCRC) governing approximately 3,000 train conductors and yard coordinators, was renewed for a three-year term, expiring on July 22, 2019, and was ratified by its members on August 4, 2017.

The collective agreement with the International Brotherhood of Electrical Workers (IBEW) governing approximately 700 signals and communications workers, was renewed for a five-year term, expiring on December 31, 2021, and was ratified by its members on April 26, 2017.

On September 1, 2017, the Company served notice to commence bargaining for the renewal of the collective agreements with the TCRC governing approximately 1,700 locomotive engineers, which expired on December 31, 2017. On January 12, 2018, the TCRC requested conciliation assistance from the Minister of Labour. On January 26, 2018, three conciliation officers were appointed by the Minister of Labour to assist the parties with their negotiations.

The collective agreement with the Canadian National Railway Police Association (CNRPA) governing approximately 70 police agents was renewed for a 6-year term, expiring on December 31, 2023, and was ratified by its members on January 21, 2018.

The Company's collective agreements remain in effect until the bargaining process outlined under the *Canada Labour Code* has been exhausted.

U.S. workforce

As of January 31, 2018, the Company had in place agreements with bargaining units representing the entire unionized workforce at Grand Trunk Western Railroad Company (GTW), companies owned by Illinois Central Corporation (ICC), companies owned by Wisconsin Central Ltd. (WC), Bessemer & Lake Erie Railroad Company (BLE) and The Pittsburgh and Conneaut Dock Company (PCD). Agreements in place have various moratorium provisions up to 2018, which preserve the status quo in respect of the given collective agreement during the terms of such moratoriums.

The general approach to labor negotiations by U.S. Class I railroads is to bargain on a collective national basis with the industry, which GTW, ICC, WC and BLE have agreed to participate in, for collective agreements covering non-operating employees. The National Carriers Conference Committee, (NCCC), representing the rail carriers, has reached a ratified agreement with a union coalition representing six bargaining units. This agreement resolves contract terms for CN's signal, dispatcher and fireman/oiler employees. A second tentative agreement with the coalition representing CN's machinist, electrician, clerical and carmen employees is subject to employee ratification that is expected to conclude in February of 2018. Bargaining continues under the direction of the National Mediation Board with the coalition representing CN's track laborer and sheet metal worker employee groups. Collective agreements covering operating employees at GTW, ICC, WC, BLE and all employees at PCD continue to be bargained on a local (corporate) basis. Fifteen of the sixteen collective agreements covering approximately 98% of the operating craft employees are currently under renegotiation.

Where negotiations are ongoing, the terms and conditions of existing agreements generally continue to apply until new agreements are reached or the processes of the *Railway Labor Act* have been exhausted.

Regulation

Economic regulation – Canada

The Company's rail operations in Canada are subject to economic regulation by the Canadian Transportation Agency ("Agency") under the *Canada Transportation Act,* which provides rate and service remedies, including final offer arbitration, competitive line rates and mandatory interswitching. It also regulates the maximum revenue entitlement for the movement of regulated grain, charges for railway ancillary services and noise-related disputes. In addition, various Company business transactions must gain prior regulatory approval, with attendant risks and uncertainties.

On May 29, 2014, the *Fair Rail for Grain Farmers Act* came into force, which provides authority to the Government of Canada to establish minimum volumes of grain to be moved by the Company and CP and penalties in the event that thresholds are not met. The Government has not imposed any minimum grain volume requirements since March 28, 2015. Under other provisions of this legislation, the Agency also extended the interswitching distance to 160 kilometers from the previous 30 kilometers limits for all commodities in the provinces of Manitoba, Saskatchewan and Alberta; and issued regulations defining what constitutes "operational terms" for the purpose of rail level of service arbitrations. In the event that a railway fails to fulfill its service level obligations, the *Fair Rail for Grain Farmers Act* also allows the Agency to order a railway company to pay shippers for expenses incurred. On June 15, 2016, the Government announced that the provisions introduced by the *Fair Rail for Grain Farmers Act*, which were set to expire on August 1, 2016, had been extended until August 2017. No further extension was adopted and the provisions of this act ceased to apply on August 1, 2017.

On May 16, 2017, the federal Minister of Transport (Minister) introduced Bill C-49, the *Transportation Modernization Act*, which proposes a series of amendments to various federal acts respecting transportation. In addition to reintroducing the provisions found in the *Fair Rail for Grain Farmers Act* respecting compensation for expenses incurred by shippers and the definition by the Agency of "operational terms" for the purpose of rail level of service arbitrations, Bill C-49 proposes to amend the *Canada Transportation Act* to, among other things:

- expand the Governor in Council's powers to make regulations requiring major railway companies to provide to the Minister and the Agency information relating to rates, service and performance;
- clarify the factors that must be applied in determining whether railway companies are fulfilling their service obligations;
- enable shippers to obtain terms in their contracts dealing with amounts to be paid in relation to a failure to comply with conditions related to railway companies' service obligations;
- create a new remedy for shippers who have access to the lines of only one railway company at the point of origin or destination of the movement of traffic in circumstances where interswitching is not available, also called "long-haul interswitching";
- change the process for the transfer and discontinuance of railway lines to, among other things, require railway companies to make certain information available to the Minister and the public and establish a remedy for non-compliance with the process; and
- change provisions respecting the maximum revenue entitlement for the movement of Western grain and require certain railway companies to provide to the Minister and the public information respecting the movement of grain.

On November 1, 2017, the House of Commons completed its review of Bill C-49, which is now before the Senate to complete the parliamentary process before enactment.

On June 18, 2016, the liability and compensation regime for rail under the *Safe and Accountable Rail Act* came into force. Under the regime, railway companies are strictly liable for damages resulting from accidents involving crude oil and are required to maintain minimum liability insurance coverage in respect of losses incurred as a result of a railway accident involving crude oil. The Act creates a fund, capitalized through levies payable by crude oil shippers, to compensate for losses exceeding the railway company's minimum insurance level. CN has provided the Agency with submissions respecting the adequacy of its insurance coverage and is collecting the levy on crude shipments. As a result of this legislation, the Agency also has jurisdiction to order railway companies to compensate municipalities for the costs incurred in responding to fires caused by railway operations.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the Canadian federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Economic regulation – U.S.

The Company's U.S. rail operations are subject to economic regulation by the Surface Transportation Board (STB). The STB serves as both an adjudicatory and regulatory body and has jurisdiction over certain railroad rate and service issues and rail restructuring transactions such as mergers, line sales, line construction and line abandonments. As such, various Company business transactions must gain prior regulatory approval and aspects of its pricing and service practices may be subject to challenge, with attendant risks and uncertainties. The STB has undertaken proceedings in the past few years in a number of significant matters that remain pending, as noted below.

On December 12, 2013, the STB instituted a proceeding on how to ensure its rate complaint procedures are accessible to grain shippers and provide effective protection against unreasonable grain rates, subsequent to which it received comments and replies. The STB held a hearing on these matters in 2015. On September 7, 2016, the STB issued an advance notice of proposed rulemaking seeking comments on procedures that could comprise a new rate reasonableness methodology for use in very small rate disputes that would be available to shippers of agricultural products and all other commodities.

On December 20, 2013, the STB instituted a proceeding to review how it determines the rail industry's cost of equity capital, and on April 2, 2014, joined it with a proceeding to explore its methodology for determining railroad revenue adequacy, as well as the revenue adequacy component used in judging the reasonableness of rail freight rates. The STB held hearings on these matters in 2015. On October 31, 2016, the STB determined to leave unchanged its method for determining the industry's cost of equity capital. On April 28, 2017, the STB denied a petition for reconsideration of its October 31, 2016 decision. Conclusions on the other portions of the joined proceedings remain pending.

On March 28, 2016, the STB issued a notice of proposed rulemaking to revoke previously granted exemptions of five commodities from regulatory oversight for crushed or broken stone, hydraulic cement, coke produced from coal, primary iron or steel products, and iron or steel scrap, wastes or tailings.

On August 3, 2016, the STB issued a notice of proposed rulemaking to adopt revised competitive access regulations to allow a party to seek a reciprocal switching prescription on the grounds that it is either practicable and in the public interest or necessary to provide competitive rail service.

Pursuant to the *Passenger Rail Investment and Improvement Act of 2008* (PRIIA), the U.S. Congress authorized the STB to investigate any railroad over whose track Amtrak operates that fails to meet heightened performance standards jointly promulgated by the Federal Railroad Administration (FRA) and Amtrak for Amtrak operations extending over two calendar quarters and to determine the cause of such failures. Should the STB commence an investigation and determine that a failure to meet these standards is due to the host railroad's failure to provide preference to Amtrak, the STB is authorized to assess damages against the host railroad. On January 19, 2012, Amtrak filed a complaint with the STB to commence such an investigation, including a request for damages for preference failures, for allegedly sub-standard performance of Amtrak trains on CN's ICC and GTW lines. On December 19, 2014, the STB granted Amtrak's motion to amend its complaint to limit the STB's investigation to a single Amtrak service on CN's ICC line. That case was held in abeyance for the STB's issuance of a final rule on July 28, 2016, defining intercity passenger on-time performance under Section 213 of PRIIA for purposes of triggering such investigations. The rail industry appealed the STB's final rule in the U.S. Court of Appeals for the Eighth Circuit. On July 12, 2017, the Eighth Circuit concluded that the STB exceeded its authority in adopting its final rule and vacated the STB's final rule. On November 9, 2017, Amtrak and some other passenger groups sought review from the United States Supreme Court. The Government did not seek review from the Supreme Court. In a separate case, the industry had previously challenged as unconstitutional Congress' delegation to Amtrak and the FRA of joint authority to promulgate the PRIIA performance standards. On March 23, 2017, the U.S. District Court for the District of Columbia concluded that Section 207 of PRIIA was void and unconstitutional and vacated the performance standards. The Government defendants are challenging this decision in the U.S. Court of Appeals for the District of Columbia, and an oral argument will be scheduled in 2018. Amtrak's complaint filed under Section 213 of PRIIA against CN for allegedly sub-standard performance of Amtrak trains on CN's ICC line is still pending.

On April 26, 2017, the STB denied a reopening petition filed by the Village of Barrington, Illinois and the Illinois Department of Transportation on January 10, 2017 seeking to have the STB extend its monitoring and oversight condition on CN's 2009 acquisition of the Elgin, Joliet and Eastern Railway (EJ&E) for two years beyond its scheduled January 23, 2017 expiration and for a grade separation condition at the intersection of U.S. Route 14 and the EJ&E line in Barrington at CN's expense. On May 16, 2017, the Village of Barrington filed a petition seeking reconsideration of the STB's April 26, 2017 decision concerning the request for the grade separation condition and filed a motion to supplement its petition on September 12, 2017. On October 30, 2017, the STB denied the petition for reconsideration of the grade separation condition. On December 19, 2017, the Village of Barrington petitioned the U.S. Court of Appeals, seeking review of the STB's October 30, 2017 decision.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the U.S. federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Safety regulation – Canada

The Company's rail operations in Canada are subject to safety regulation by the Minister under the *Railway Safety Act* as well as the rail portions of other safety-related statutes, which are administered by Transport Canada. The Company may be required to transport toxic inhalation hazard materials as a result of its common carrier obligations and, as such, is exposed to additional regulatory oversight in Canada. The *Transportation of Dangerous Goods Act,* also administered by Transport Canada, establishes the safety requirements for the transportation of goods classified as dangerous and enables the adoption of regulations for security training and screening of personnel working with dangerous goods, as well as the development of a program to require a transportation security clearance for dangerous goods and tracking of dangerous goods during transport.

Following a significant derailment involving a non-related short-line railroad in the town of Lac-Mégantic, within the province of Quebec on July 6, 2013, several measures have been taken by Transport Canada to strengthen the safety of the railway and transportation of dangerous goods systems in Canada. Amendments to the *Railway Safety Act* and *Transportation of Dangerous Goods Act* include requirements for classification and sampling of crude oil, the provision of yearly aggregate information on the nature and volume of dangerous goods the company transports by rail through designated municipalities, and new speed limit restrictions of 40 miles per hour for certain trains carrying dangerous commodities. Additional requirements were also introduced for railway companies to conduct route assessments for rail corridors handling significant volumes of dangerous goods, have an Emergency Response Assistance Plan in order to ship large volumes of flammable liquids, and provide municipalities and first responders with data on dangerous goods to improve emergency planning, risk assessment, and training.

In 2014, Transport Canada's new *Grade Crossings Regulations* under the *Railway Safety Act* came into force, which establish specific standards for new grade crossings and requirements that existing crossings be upgraded to basic safety standards by November 2021, as well as safety related data that must be provided by railway companies on an annual basis. The Company has complied with the information requirements by providing road authorities with specific information respecting public grade crossings.

In 2015, Transport Canada issued rules prohibiting the use of certain DOT-111 tank cars for the transportation of dangerous goods, and announced a new standard for tank cars transporting flammable liquid dangerous goods. The new standard, called TC-117, establishes enhanced construction specifications along with a phase out schedule for DOT-111 and CPC-1232 tank cars. On July 25, 2016, Transport Canada issued a Protective Direction which accelerated the phasing out of DOT-111 tank cars in crude oil service by November 1, 2016.

On June 1, 2016, the Minister made amendments to the *Transportation of Dangerous Goods Regulations* under the *Transportation of Dangerous Goods Act* to improve reporting requirements by carriers respecting shipments of dangerous goods to enhance public safety and improve local emergency response.

On April 26, 2017, the Minister initiated the review of the *Railway Safety Act,* which was initially scheduled for 2018, and a panel of three persons was appointed to proceed with the review. The Panel will provide a report with recommendations by May 2018.

On May 16, 2017, the Minister introduced Bill C-49 which, if enacted, in addition to the proposed amendments to federal acts already discussed, will amend the *Railway Safety Act* to prohibit a railway company from operating railway equipment unless the equipment is fitted with prescribed recording instruments and prescribed information is recorded using those instruments, collected and preserved. The enactment also specifies the circumstances in which the prescribed information that is recorded can be used and communicated by companies, the Minister and railway safety inspectors.

On June 9, 2017, Transport Canada's *Locomotive Emissions Regulations* under the *Railway Safety Act* came into force. The regulations seek to limit air pollution by establishing emission standards and test procedures for new locomotives, and align Canadian standards with U.S. regulations. The new regulations require railway companies to meet emission standards, undertake emission testing, and adhere to anti-idling provisions, in addition to requirements for labelling, testing, record keeping and reporting. CN's locomotives in service at this time are not required to meet the emission standards or the testing and labelling requirements, though when they are removed from service to be remanufactured, refurbished or upgraded, they must meet the new requirements before they are placed back into service.

On June 24, 2017, Transport Canada proposed new regulations aimed at lowering the risk of terrorism on the Canadian rail system, entitled *Transportation of Dangerous Goods by Rail Security Regulations*. The proposed regulations would require all rail carriers to proactively engage in security planning processes and manage security risks, by introducing security awareness training for employees, security plans that include measures to address assessed risks, and security plan training for employees with duties related to the security plan or security sensitive dangerous goods. Rail carriers would also have to conduct security inspections of certain railway vehicles containing dangerous goods, report potential security threats and concerns to the Canadian Transport Emergency Centre, and employ a rail security coordinator.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the Canadian federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Safety regulation – U.S.

The Company's U.S. rail operations are subject to safety regulation by the FRA under the *Federal Railroad Safety Act* as well as rail portions of other safety statutes, with the transportation of certain hazardous commodities also governed by regulations promulgated by the Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA requires carriers operating in the U.S. to report annually the volume and route-specific data for cars containing these commodities; conduct a safety and security risk analysis for each used route; identify a commercially practicable alternative route for each used route; and select for use the practical route posing the least safety and security risk. In addition, the Transportation Security Administration (TSA) requires rail carriers to provide upon request, within five minutes for a single car and 30 minutes for multiple cars, location and shipping information on cars on their networks containing toxic inhalation hazard materials and certain radioactive or explosive materials; and ensure the secure, attended transfer of all such cars to and from shippers, receivers and other carriers that will move from, to, or through designated high-threat urban areas.

On October 16, 2008, the U.S. Congress enacted the *Rail Safety Improvement Act of 2008, w*hich required all Class I railroads and intercity passenger and commuter railroads to implement a PTC system by December 31, 2015 on mainline track where intercity passenger railroads and commuter railroads operate and where toxic inhalation hazard materials of certain thresholds are transported. PTC is a collision avoidance technology designed to override locomotive controls and prevent train-to-train collisions, overspeed derailments, misaligned switch derailments, and unauthorized incursions onto established work zones. Pursuant to the *Positive Train Control Enforcement and Implementation Act of 2015* and the *FAST Act* of 2015, Congress extended the PTC installation deadline until December 31, 2018, with the option for a railroad carrier to complete full implementation by no later than December 31, 2020, provided certain milestones are met by the end of 2018. The Company is progressing its implementation of PTC pursuant to the law and is working with the FRA and other Class I railroads to satisfy the Congressionally mandated requirements. The implementation of PTC will result in additional capital expenditures and operating costs, and may result in reduced operational efficiency and service levels. In addition to potential service interruptions, noncompliance with these or other laws and regulations may subject the Company to fines and/or penalties.

In the aftermath of the July 2013 Lac-Mégantic derailment, the FRA issued Emergency Order No. 28, Notice No. 1 on August 2, 2013 directing that railroads take specific actions regarding unattended trains transporting specified hazardous materials, including securement of these trains. That same day, the FRA and PHMSA issued Safety Advisory 2013-06, which made recommendations to railroads on issues including crew staffing practices and operational testing to ensure employees' compliance with securement-related rules, as well as recommendations to shippers of crude oil to be transported by rail. In addition, the railroad industry has acted on its own to enhance rail safety in light of the Lac-Mégantic derailment and fire. Effective August 5, 2013, the Association of American Railroads (AAR) amended the industry's Recommended Railroad Operating Practices for Transportation of Hazardous Materials by expanding the definition of a "key train" (for which heightened operating safeguards are required).

On May 8, 2015, PHMSA issued a final rule in coordination with the FRA, containing new requirements for tank cars moving in high-hazard flammable trains (HHFTs) and related speed restrictions, as well as other requirements, including the use of electronically controlled pneumatic (ECP) brakes. To be used in an HHFT, new tank cars constructed after October 1, 2015 have to meet enhanced DOT-117 design or performance criteria, while existing tank cars will have to be retrofitted based on a DOT-prescribed schedule. On June 12, 2015, the AAR filed an administrative appeal with PHMSA challenging, among other matters, the agency's requirement for railroads to install ECP brakes on certain HHFTs. On November 6, 2015, PHMSA denied the AAR's administrative appeal. However, as part of the surface transportation reauthorization bill known as the *FAST Act,* which was enacted on December 4, 2015, Congress substituted certain modified requirements supported by the industry, and also provided for re-visitation of the ECP brake requirement through an 18-month independent study of the costs, benefits and operational impacts of ECP brakes to be conducted by the Government Accountability Office, in addition to further testing. On December 13, 2017, after completing its review of an updated regulatory impact analysis published by PHMSA in October of 2017, the Department of Transportation determined that the final rule's ECP brake requirements were not economically justified.

On March 15, 2016, the FRA issued a notice of proposed rulemaking establishing a requirement for a minimum of two crewmembers on most train movements, with the second crewmember needing to be physically located on the train, except in certain circumstances. The FRA will consider possible scenarios for use of a one person crew, but some element of a safety assessment will be involved with each scenario.

On July 13, 2016, in coordination with the FRA, PHMSA announced proposed regulations for oil spill response plans and information sharing for high-hazard flammable trains to improve oil spill response readiness and mitigate effects of oil-related rail incidents.

On January 10, 2017, PHMSA issued an advance notice of proposed rulemaking to consider whether to establish vapor pressure limits for unrefined petroleum-based products and other flammable liquid hazardous materials when transported by rail and other modes.

No assurance can be given that these and any other current or future regulatory or legislative initiatives by the U.S. federal government and agencies will not materially adversely affect the Company's results of operations or its competitive and financial position.

Other regulation – Canada

Bill C-49, introduced on May 16, 2017, proposes to amend the *CN Commercialization Act* to increase the maximum proportion of voting shares of CN that can be owned or controlled, directly or indirectly, by any one person together with his or her associates to 25%, up from the 15% limit imposed since CN became a public company in 1995.

Regulation – Vessels

The Company's vessel operations are subject to regulation by the U.S. Coast Guard and the Department of Transportation, Maritime Administration, which regulate the ownership and operation of vessels operating on the Great Lakes and in U.S. coastal waters. In addition, the Environmental Protection Agency has authority to regulate air emissions from these vessels.

The Federal Maritime Commission, which has authority over oceanborne transport of cargo into and out of the U.S., initiated a Notice of Inquiry in 2011 to examine whether the U.S. Harbor Maintenance Tax and other factors may be contributing to the diversion of U.S.-bound cargo to Canadian and Mexican seaports, which could affect CN rail operations. While legislative initiatives have been launched since then, no further action was taken in the Senate or the House of Representatives as of the date of this MD&A.

Security

The Company is subject to statutory and regulatory directives in the U.S. addressing homeland security concerns. In the U.S., safety matters related to security are overseen by the TSA, which is part of the U.S. Department of Homeland Security (DHS) and PHMSA, which, like the FRA, is part of the U.S. Department of Transportation. Border security falls under the jurisdiction of U.S. Customs and Border Protection (CBP), which is part of the DHS. In Canada, the Company is subject to regulation by the Canada Border Services Agency (CBSA). Matters related to agriculture-related shipments crossing the Canada/U.S. border also fall under the jurisdiction of the U.S. Department of Agriculture (USDA) and the Food and Drug Administration (FDA) in the U.S. and the Canadian Food Inspection Agency (CFIA) in Canada. More specifically, the Company is subject to:

- Border security arrangements, pursuant to an agreement the Company and CP entered into with the CBP and the CBSA.
- The CBP's Customs-Trade Partnership Against Terrorism (C-TPAT) program and designation as a low-risk carrier under CBSA's Customs Self-Assessment (CSA) program.
- Regulations imposed by the CBP requiring advance notification by all modes of transportation for all shipments into the U.S. The CBSA is also working on similar requirements for Canada-bound traffic.
- Inspection for imported fruits and vegetables grown in Canada and the agricultural quarantine and inspection (AQI) user fee for all traffic entering the U.S. from Canada.
- Gamma ray screening of cargo entering the U.S. from Canada, and potential security and agricultural inspections at the Canada/U.S. border.

The Company has worked with the AAR to develop and put in place an extensive industry-wide security plan to address terrorism and security-driven efforts by state and local governments seeking to restrict the routings of certain hazardous materials. If such state and local routing restrictions were to go into force, they would be likely to add to security concerns by foreclosing the Company's most optimal and secure transportation routes, leading to increased yard handling, longer hauls, and the transfer of traffic to lines less suitable for moving hazardous materials, while also infringing upon the exclusive and uniform federal oversight over railroad security matters.

While the Company will continue to work closely with the CBSA, CBP, and other Canadian and U.S. agencies, as described above, no assurance can be given that these and future decisions by the U.S., Canadian, provincial, state, or local governments on homeland security matters, legislation on security matters enacted by the U.S. Congress or Parliament, or joint decisions by the industry in response to threats to the North American rail network, will not materially adversely affect the Company's results of operations, or its competitive and financial position.

Transportation of hazardous materials

As a result of its common carrier obligations, the Company is legally required to transport toxic inhalation hazard materials regardless of risk or potential exposure or loss. A train accident involving the transport of these commodities could result in significant costs and claims for personal injury, property damage, and environmental penalties and remediation in excess of insurance coverage for these risks, which may materially adversely affect the Company's results of operations, or its competitive and financial position.

Economic conditions

The Company, like other railroads, is susceptible to changes in the economic conditions of the industries and geographic areas that produce and consume the freight it transports or the supplies it requires to operate. In addition, many of the goods and commodities carried by the Company experience cyclicality in demand. For example, the volatility in domestic and global energy markets could impact the demand for transportation services as well as impact the Company's fuel costs and surcharges. In addition, the volatility in other commodity markets such as coal and iron ore could have an impact on volumes. Many of the bulk commodities the Company transports move offshore and are affected more by global rather than North American economic conditions. Adverse North American and global economic conditions, or economic or industrial restructuring, that affect the producers and consumers of the commodities carried by the Company, including customer insolvency, may have a material adverse effect on the volume of rail shipments and/or revenues from commodities carried by the Company, and thus materially and negatively affect its results of operations, financial position, or liquidity.

Pension funding volatility

The Company's funding requirements for its defined benefit pension plans are determined using actuarial valuations. See the section of this MD&A entitled *Critical accounting estimates – Pensions and other postretirement benefits* for information relating to the funding of the Company's defined benefit pension plans. Adverse changes with respect to pension plan returns and the level of interest rates from the date of the last actuarial valuations as well as changes to existing federal pension legislation may significantly impact future pension contributions and have a material adverse effect on the funding status of the plans and the Company's results of operations. There can be no assurance that the Company's pension expense and funding of its defined benefit pension plans will not increase in the future and thereby negatively impact earnings and/or cash flow.

Reliance on technology and related cybersecurity risk

The Company relies on information technology in all aspects of its business. While the Company has business continuity and disaster recovery plans, as well as other security and mitigation programs in place to protect its operations, information and technology assets, a cybersecurity attack and significant disruption or failure of its information technology and communications systems could result in service interruptions, safety failures, security violations, regulatory compliance failures or other operational difficulties, leading to possible litigation and regulatory oversight. Security threats are evolving, and can come from nation states, organized criminals, hacktivists and others with malicious intent. A security incident could compromise corporate information and assets, as well as operations. If the Company is unable to restore service or to acquire or implement any needed new technology, it may suffer a competitive disadvantage, which could also have an adverse effect on the Company's results of operations, financial position or liquidity. The Company is investing to meet evolving network and data security expectations and regulations, in an effort to mitigate the impact a security incident might have on the Company's results of operations, financial position or liquidity. The final outcome of a potential security incident cannot be predicted with certainty, and therefore there can be no assurance that its resolution will not have a material adverse effect on the Company's reputation, goodwill, results of operations, financial position or liquidity, in a particular quarter or fiscal year.

Trade restrictions

Global as well as North American trade conditions, including trade barriers on certain commodities, may interfere with the free circulation of goods across Canada and the U.S. or the cost associated therewith. On October 12, 2015, the Softwood Lumber Agreement (SLA) between Canada and the U.S. expired. The SLA included a clause that prevented the U.S. from launching any trade action against Canadian producers for one year after the expiration date of the SLA. This moratorium period ended on October 12, 2016 and a new agreement still has not been entered into. On January 3, 2018, based on affirmative final determinations by both the U.S. Department of Commerce and the U.S. International Trade Commission, antidumping and countervailing duty orders were imposed on imports of Canadian softwood lumber to the U.S. based on a company-specific rate for mandatory respondents and a weighted-average rate for all others of 14.99% for countervailing duties and 6.04% for antidumping duties. Canada responded to the imposition by the U.S. of antidumping and countervailing duties, in connection with lumber and other commodities, by filing a complaint with the World Trade Organization.

The first six rounds of talks between Canada, the United States and Mexico to renegotiate the North American Free Trade Agreement (NAFTA) took place in the months of August 2017 to January 2018.

It is too early to assess the potential outcome of the NAFTA negotiations and as such, there can be no assurance that the outcome of such negotiations or other potential trade actions taken by the Canadian and U.S. federal governments and agencies will not materially adversely affect the volume of rail shipments and/or revenues from commodities carried by the Company, and thus materially and negatively impact earnings and/or cash flow.

Terrorism and international conflicts

Potential terrorist actions can have a direct or indirect impact on the transportation infrastructure, including railway infrastructure in North America, and can interfere with the free flow of goods. Rail lines, facilities and equipment could be directly targeted or become indirect casualties, which could interfere with the free flow of goods. International conflicts can also have an impact on the Company's markets. Government response to such events could adversely affect the Company's operations. Insurance premiums could also increase significantly or coverage could become unavailable.

Customer credit risk

In the normal course of business, the Company monitors the financial condition and credit limits of its customers and reviews the credit history of each new customer. Although the Company believes there are no significant concentrations of credit risk, economic conditions can affect the Company's customers and can result in an increase to the Company's credit risk and exposure to the business failures of its customers. A widespread deterioration of customer credit and business failures of customers could have a material adverse effect on the Company's results of operations, financial position or liquidity.

Liquidity

Disruptions in the financial markets or deterioration of the Company's credit ratings could hinder the Company's access to external sources of funding to meet its liquidity needs. There can be no assurance that changes in the financial markets will not have a negative effect on the Company's liquidity and its access to capital at acceptable rates.

Supplier concentration

The Company operates in a capital-intensive industry where the complexity of rail equipment limits the number of suppliers available. The supply market could be disrupted if changes in the economy caused any of the Company's suppliers to cease production or to experience capacity or supply shortages. This could also result in cost increases to the Company and difficulty in obtaining and maintaining the Company's rail equipment and materials. Since the Company also has foreign suppliers, international relations, trade restrictions and global economic and other conditions may potentially interfere with the Company's ability to procure necessary equipment. Widespread business failures of, or restrictions on suppliers, could have a material adverse effect on the Company's results of operations or financial position.

Availability of qualified personnel

The Company, like other companies in North America, may experience demographic challenges in the employment levels of its workforce. Changes in employee demographics, training requirements and the availability of qualified personnel, particularly locomotive engineers and trainmen, could negatively impact the Company's ability to meet demand for rail service. The Company expects that approximately 25% of its workforce will be eligible to retire or leave through normal attrition (death, termination, resignation) within the next five-year period. The Company monitors employment levels and seeks to ensure that there is an adequate supply of personnel to meet rail service requirements. However, the Company's efforts to attract and retain qualified personnel may be hindered by specific conditions in the job market. No assurance can be given that demographic or other challenges will not materially adversely affect the Company's results of operations or its financial position.

Fuel costs

The Company, like other railroads, is susceptible to the volatility of fuel prices due to changes in the economy or supply disruptions. Fuel shortages can occur due to refinery disruptions, production quota restrictions, climate, and labor and political instability. Increases in fuel prices or supply disruptions may materially adversely affect the Company's results of operations, financial position or liquidity.

Foreign exchange

The Company conducts its business in both Canada and the U.S. and as a result, is affected by currency fluctuations. Changes in the exchange rate between the Canadian dollar and other currencies (including the US dollar) make the goods transported by the Company more or less competitive in the world marketplace and thereby may adversely affect the Company's revenues and expenses.

Interest rates

The Company is exposed to interest rate risk relating to the Company's long-term debt. The Company mainly issues fixed-rate debt, which exposes the Company to variability in the fair value of the debt. The Company also issues debt with variable interest rates, which exposes the Company to variability in interest expense. Adverse changes to market interest rates may significantly impact the fair value or future cash flows of the Company's financial instruments. There can be no assurance that changes in the market interest rates will not have a negative effect on the Company's liquidity.

Transportation network disruptions

Due to the integrated nature of the North American freight transportation infrastructure, the Company's operations may be negatively affected by service disruptions of other transportation links such as ports and other railroads which interchange with the Company. A significant prolonged service disruption of one or more of these entities could have an adverse effect on the Company's results of operations, financial position or liquidity. Furthermore, deterioration in the cooperative relationships with the Company's connecting carriers could directly affect the Company's operations.

Severe weather

The Company's success is dependent on its ability to operate its railroad efficiently. Severe weather and natural disasters, such as extreme cold or heat, flooding, droughts, fires, hurricanes and earthquakes, can disrupt operations and service for the railroad, affect the performance of locomotives and rolling stock, as well as disrupt operations for both the Company and its customers. Business interruptions resulting from severe weather could result in increased costs, increased liabilities and lower revenues, which could have a material adverse effect on the Company's results of operations, financial condition or liquidity.

Climate change

Climate change, including the impact of global warming, has the potential physical risk of increasing the frequency of adverse weather events, which can disrupt the Company's operations, damage its infrastructure or properties, and could affect the markets for, or the volume of, the goods the Company carries or otherwise have a material adverse effect on the Company's results of operations, financial position or liquidity. Government action to address climate change could also affect CN. In October 2016, the Canadian federal government announced its planned approach to pricing carbon pollution. Under the new plan, all Canadian jurisdictions will be required to have carbon pricing in place by 2018, with the price on carbon pollution starting at a minimum of $10 per tonne in 2018, rising by $10 a year to reach $50 per tonne in 2022. Many Canadian jurisdictions have already introduced carbon pricing or other economic instruments such as cap and trade systems which set limits on emissions. In recent years, the U.S. Congress has considered various bills concerning climate change. Bills that would regulate greenhouse gas emissions have not received sufficient Congressional support for enactment, although some form of U.S. climate change legislation is possible in the future. While CN is continually focused on efficiency improvements, including by reducing its carbon footprint, caps, taxes, or other controls on emissions of greenhouse gasses increase the Company's capital and operating costs (and the company may not be able to offset such impact, including, for example, through higher freight rates). Climate change legislation and regulation could also affect CN's customers; make it difficult for CN's customers to produce products in a cost-competitive manner due to increased energy costs; and increase legal costs related to defending and resolving legal claims and other litigation related to climate change.

Controls and procedures

The Company's Chief Executive Officer and its Chief Financial Officer, after evaluating the effectiveness of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of December 31, 2017, have concluded that the Company's disclosure controls and procedures were effective.

During the fourth quarter ended December 31, 2017, there was no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

As of December 31, 2017, management has assessed the effectiveness of the Company's internal control over financial reporting using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control – Integrated Framework* (2013). Based on this assessment, management has determined that the Company's internal control over financial reporting was effective as of December 31, 2017, and issued Management's Report on Internal Control over Financial Reporting dated January 31, 2018 to that effect.