

## C0. Introduction

---

### C0.1

---

**(C0.1) Give a general description and introduction to your organization.**

Canadian Pacific Railway Limited (CP), owns and operates a transcontinental freight railway in Canada and the United States. CP's diverse business mix includes bulk commodities, merchandise freight and intermodal traffic over a network of approximately 12,400 miles, serving the principal business centres of Canada from Montreal, Quebec, to Vancouver, British Columbia, and the U.S. Northeast and Midwest regions.

CP strives to be a rail industry leader in environmental management and protection. We are committed to conducting our rail operations in an environmentally responsible and sustainable manner. This practice is the collective responsibility of our employees who's daily decisions and work help support clean railway operations that benefit the land, water and air in the communities where we operate.

The transportation sector accounts for the second most greenhouse gas emissions in both Canada (28%) and the United States (26%). Railways move approximately 70% of all freight on a tonne-kilometre basis in Canada but only account for 3.9% of the greenhouse gas emissions from the transportation sector. Despite this inherent efficiency, CP recognizes the importance of continuing to strive for improvements in our operations to drive down emissions of greenhouse gases.

Through our environmental management programs we make considerable efforts to improve operational efficiencies and reduce our carbon footprint. We employ innovative solutions supported by technological advancements and work with industry partners and government to maintain our leadership in this space and to further advocate for responsible stewardship of resources. CP has made significant improvements to rail operations in particular locomotive fuel efficiency, resulting in increased fuel efficiencies and reduced corresponding GHG emissions.

### C0.2

---

**(C0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

### C0.3

---

**(C0.3) Select the countries/regions for which you will be supplying data.**

- Canada
- United States of America

### C0.4

---

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

- CAD

### C0.5

---

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.**

- Operational control

### C-TO0.7/C-TS0.7

---

**(C-TO0.7/C-TS0.7) For which transport modes will you be providing data?**

- Rail

## C1. Governance

---

### C1.1

---

**(C1.1) Is there board-level oversight of climate-related issues within your organization?**

- Yes

### C1.1a

---

**(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Director on board	CP's Board of Directors provides direction to management to support the long-term sustainable organizational growth. The Board's responsibilities include setting direction and reviewing progress on environmental issues including climate change.
Chief Executive Officer (CEO)	CP's President and CEO holds the highest level of responsibility for organizational management and performance related to all environmental matters including climate change. The President and CEO oversees all CP departments and functions including Corporate Risk.
Chief Risk Officer (CRO)	CP's Senior Vice President and Chief Risk Office is responsible for all corporate risk related functions including enterprise risk management, sustainability policy and performance, environmental affairs, community and organizational safety including climate related concerns. The SVP & CRO's scope includes regular communication with the President & CEO and Board of Directors regarding all areas of their responsibility. As key leader of CP's executive team, the SVP & CRO is uniquely positioned to influence and implement climate related action throughout the organization.

## C1.1b

**(C1.1b) Provide further details on the board's oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> <li>Reviewing and guiding major plans of action</li> <li>Reviewing and guiding risk management policies</li> <li>Reviewing and guiding annual budgets</li> <li>Reviewing and guiding business plans</li> <li>Monitoring implementation and performance of objectives</li> </ul>	<p>CP's Board of Director's regularly reviews and guides company strategy related to risks affecting the organization. Reviewed annually (at a minimum) by the Board of Directors and outlined in CP's annual report (<a href="https://s21.q4cdn.com/736796105/files/doc_financials/Annual-Report/2017/CPAR2017.pdf">https://s21.q4cdn.com/736796105/files/doc_financials/Annual-Report/2017/CPAR2017.pdf</a>), risks affecting rail operations including the impacts of climate change, severity and frequency of inclement weather, pricing of fuel products and disruptions to CP's supply chain are regularly monitored and discussed at the highest level of the organization.</p>

## C1.2

**(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Risks Officer (CRO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	Annually

## C1.2a

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.**

## **President & CEO**

CP's President & CEO holds the highest level of responsibility for organizational management and performance related to all environmental matters including climate change. This position oversees all CP corporate departments including the Corporate Risk function. The President & CEO is a member of CP's Board of Directors.

## **SVP & CRO**

As a member of CP's executive team and reporting directly to the President and CEO, the SVP & Chief Risk Officer oversees the Corporate Risk function at CP. Following an enterprise risk management framework, climate related issues that may impact the organization and operations are evaluated, monitored and communicated to the President & CEO, Board of Directors and throughout the organization as a part of the Corporate Risk portfolio. The Corporate Risk group includes several key disciplines with technical staff that are actively engaged in managing climate related matters including environmental programs, sustainability, technical training, operating rules/practices, health and safety, hazardous materials, emergency response, insurance and enterprise risk management. The SVP & CRO directly administrates each of these disciplines through a variety of program managers and staff to set program direction, monitor performance, and communicate expectations on climate related matters.

### **C1.3**

---

**(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?**

Yes

### **C1.3a**

---

**(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.**

**Who is entitled to benefit from these incentives?**

Corporate executive team

**Types of incentives**

Monetary reward

**Activity incentivized**

Efficiency target

**Comment**

As one of their performance objectives, members of the Operations department are measured against the annual fuel efficiency targets which are set by the organization. These targets represent 94% of the company's Scope 1 emissions.

---

**Who is entitled to benefit from these incentives?**

Management group

**Types of incentives**

Monetary reward

**Activity incentivized**

Efficiency target

**Comment**

As one of their performance objectives, members of the Operations department are measured against the annual fuel efficiency targets which are set by the organization. These targets represent 94% of the company's Scope 1 emissions.

---

**Who is entitled to benefit from these incentives?**

Other, please specify (Rail operations employees)

**Types of incentives**

Monetary reward

**Activity incentivized**

Efficiency target

**Comment**

As one of their performance objectives, members of the Operations department are measured against the annual fuel efficiency targets which are set by the organisation. These targets represent 94% of the company's Scope 1 emissions. Employees responsible for running trains are monitored for performance against specific operations practices such as the use of dynamic braking over power braking, fuel trip optimizer software, and automatic engine start/stop systems which all improve fuel efficiency in train operations. Monthly notices are issued on performance to ensure continued improvement.

---

**Who is entitled to benefit from these incentives?**

All employees

**Types of incentives**

Recognition (non-monetary)

**Activity incentivized**

Other, please specify (CEO Awards for Excellence)

**Comment**

CP's annual award program recognizes employees for passionate, service oriented, innovative actions, and displays of integrity and leadership in their work. While not exclusive to environmental improvements, the accomplishments recognized can include fuel efficiency initiatives and other operational improvements that can result in significant savings in greenhouse emissions and other positive community or environmental impacts.

---

**C2. Risks and opportunities**

---

## C2.1

---

**(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.**

	From (years)	To (years)	Comment
Short-term	0	1	
Medium-term	1	3	
Long-term	3	6	Typical strategic planning cycle for organization

## C2.2

---

**(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.**

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

### C2.2a

---

**(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.**

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	3 to 6 years	Due to the vast territories and geographical regions in which CP operates, potential climate related impacts to railway operations are regularly monitored for changes and subsequent seasonal impacts eg. fire pressure, flood forecasts, winter operations etc.

### C2.2b

---

**(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.**

Climate related risks are incorporated into CP's systemic enterprise risk management process. Climate related risks are first identified by subject matter experts (regulatory, operations, communications, environmental etc.) through out the organization. . Each identified organizational risk or opportunity including climate related issues is assessed and prioritized based on potential impact and likelihood, taking account of financial, environmental, impact to reputation, and existing management control. Significant risks are those deemed to have an unacceptable level of risk for a single risk factor or those identified as posing a risk to the organization across several areas of the business. Risk mitigation strategies are formulated to accept, treat, transfer, or eliminate the exposure to the identified events or to take advantage of noted opportunities.

A strategic risk assessment process is conducted with each of CP 's 28 departments and with results rolled into a single strategic risk assessment for the corporate level which includes senior level management and board of directors involvement/review.

### C2.2c

---

**(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?**

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Railway sector is subject to many current and emerging regulations that impact operating practices. Specific to climate related issues include locomotive emissions standards, carbon levy's, taxes and cap and trade programs. Risks associated with climate related regulations are managed by the most appropriate discipline at CP. For instance regulatory compliance (planning, tracking, reporting, auditing etc.) related to locomotive emissions are managed by CP's Locomotive Engineering Team.
Emerging regulation	Relevant, always included	Railway sector is subject to many current and emerging regulations that impact operating practices. Specific to climate related issues include locomotive emissions standards, carbon levy's, taxes and cap and trade programs. Emerging regulations are reviewed by CP's regulatory affairs staff with engagement by the most appropriate discipline. Programs are developed and implemented to assure ongoing regulatory compliance. For instance, development of compliance programs related emerging Cap and Trade programs in Ontario and Quebec have involved a multi-discipline working group to review and understand legal requirements (legal), assure appropriate tracking programs are in place (fuel group), prepare and submit regulatory reports and facilitate audits (environmental), source and submit required carbon allowances (treasury) and implement programs to equitably assess costs to various customer freight shipments (strategy).
Technology	Relevant, always included	Technology is often considered and adopted to mitigate climate related risks. As an example CP utilizes leading edge environmental management information systems to track and management disparate sustainability data systems including greenhouse gas emissions calculations.
Legal	Relevant, always included	Legal requirements are critical in evaluating resumption of duties, services and recovery planning. eg. Legal requirements were thoroughly reviewed during the implementation of internal compliance programs to support Cap and Trade response for CP.
Market	Relevant, sometimes included	Effects to customers are key consideration in any climate related risk evaluation. The market place is regularly informed of risks and subsequent mitigation plans. Climate related impacts to the rail sector tend to result in disruption of service impacting core operations for the company and adversely impacting our customers and supply chain. Significant cold weather in January/February posed significant operating issues in the Canadian prairies creating challenges in meeting customer expectations for movement raw agricultural commodities to market. For example in January and February of 2018 CP faced significant challenges related to avalanches and network outages compounded with a reduction of cars spotted at elevators in the country, resulting in several service disruptions in our western corridor due in part to comparatively severe winter (46 percent colder system-wide as compared to last year and a 167 percent increase in days below -25 C). In British Columbia and Alberta we experienced snowfall records for the entire month of February shattered by the middle of the month, in one event early in February a track section received 50 cm of snow over a 30-hour period leading to challenges for the entire transportation supply chain. Adverse weather during this period impacted the entire supply chain, including significant highway closures (in addition to rail closures) all through BC's mountain passes for avalanches and avalanche control.
Reputation	Relevant, always included	Effects to customers are key consideration in any climate related risk evaluation. The market place is regularly informed of risks and subsequent mitigation plans. Climate related impacts to the rail sector tend to result in disruption of service impacting core operations for the company and adversely impacting our customers and supply chain. Significant cold weather in January/February posed significant operating issues in the Canadian prairies creating challenges in meeting customer expectations for movement raw agricultural commodities to market. For example in January and February of 2018 CP faced significant challenges related to avalanches and network outages compounded with a reduction of cars spotted at elevators in the country, resulting in several service disruptions in our western corridor due in part to comparatively severe winter (46 percent* colder system-wide as compared to last year and a 167 percent* increase in days below -25 C). In British Columbia and Alberta we experienced snowfall records for the entire month of February shattered by the middle of the month, in one event early in February a track section received 50 cm of snow over a 30-hour period leading to challenges for the entire transportation supply chain. Adverse weather during this period impacted the entire supply chain, including significant highway closures (in addition to rail closures) all through BC's mountain passes for avalanches and avalanche control.
Acute physical	Relevant, always included	Climate related impacts to the rail sector tend to result in disruption of service and are typically acute in nature. Significant cold weather in January/February posed significant operating issues in the Canadian prairies creating challenges in meeting customer expectations for movement raw agricultural commodities to market. For example in January and February of 2018 CP faced significant challenges related to avalanches and network outages compounded with a reduction of cars spotted at elevators in the country, resulting in several service disruptions in our western corridor due in part to comparatively severe winter (46 percent* colder system-wide as compared to last year and a 167 percent* increase in days below -25 C). In British Columbia and Alberta we experienced snowfall records for the entire month of February shattered by the middle of the month, in one event early in February a track section received 50 cm of snow over a 30-hour period leading to challenges for the entire transportation supply chain. Adverse weather during this period impacted the entire supply chain, including significant highway closures (in addition to rail closures) all through BC's mountain passes for avalanches and avalanche control.
Chronic physical	Relevant, not included	Risk evaluation maintain an awareness of long term concerns for climate related issues. However, evaluations tend to focus on acute risks to the rail network and business operations. not included in immediate risk evaluation
Upstream	Relevant, always included	As a transportation company, upstream and downstream impacts regarding climate related risks are critical to our risk assessment model. Suppliers to the rail sector include steel manufacturing which may be impacted by changing availability of raw materials including fossil fuels and coal.
Downstream	Relevant, sometimes included	As a transportation company, upstream and downstream impacts regarding climate related risks are critical to our risk assessment model. As a critical component of many supply chains, downstream impacts of disrupted service can create cascading impacts for our customers and their customers. Disruption in the delivery of goods via rail freight to downstream customers can create unexpected shortages or disruption to manufacturing operations.

**(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.**

Following the strategic risk assessment process, high priority climate related risks and opportunities are addressed through long and short term planning. In the short term, regional planning and preparedness exercises are seasonally implemented to address acute climate related impacts including cold weather operations planning, avalanche preparedness, flood and forest fire planning. Preparedness planning includes the identification of response contractors and the staging of equipment a tools at strategic locations along the network. Plans are adjusted and materials shifted based on prioritized need across the rail network.

In the long term, CP's most important tool for managing climate related risks and opportunities is to build capacity and resiliency into our railway network and operations. A resilient network allows CP to mitigate the overall impact of climate related events and dramatically shorten recovery time that climate related events pose to our operation while remaining flexible to changes in market demand.

Example 1:

Managing Physical Climate Related Risks:

Climate related impacts are addressed through major ongoing investment in bridges and crossings which support flood mitigation. Track inspections and renewal programs provide network robustness to improve performance during cold weather operations and vegetation management programs reduce network exposure to outages related to grass and forest fires. For example, since 2015 spending on maintaining and improving track and roadway infrastructure has ranged from \$900M-1.1 B per year at CP. Additional costs include regular inspections and upgrades to our 3,000+ bridges with CP has investing \$382 million on upgrading bridges across the network since 2010.

Example 2:

Managing Transitional Climate Related Opportunity:

CP works proactively with our customers and partners to quickly adjust railway operations to meet current and future needs. For example, in 2017 CP invested in new transload and upgraded intermodal operations to support new business opportunities supporting freight movements by rail that may have previously shipped via highway truck. As of the end of 2017 CP is connecting service to 14 new high-throughput grain elevators being built or recently completed, with a potential for more than 60 elevator expansions to handle larger 8,500-foot unit trains, capable of handling 20% more grain per train.

**C2.3**

---

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

**C2.3a**

---

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

---

**Identifier**

Risk 1

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

**Type of financial impact driver**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

**Company- specific description**

Changes in precipitation extremes affecting railway operations. Extremes in precipitation and rapid snow melt events present a significant operational risk for CP. These events can happen throughout the network but are focused primarily in floodplains or in areas that present unique risks such as snow avalanche, landslide, and track base water erosion. CP's rail network passes through the Rocky Mountain regions of Alberta and British Columbia and is particularly prone to these climate related events.

**Time horizon**

Current

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

25000000

**Explanation of financial impact**

Using past floods as a predictor of future potential cost, without adaptive measures to manage this risk, major outages on the main line due to flooding can significantly affect revenues. In 2013 significant flooding events in Western Canada resulted in a decline in revenues in the affected quarter of 2% (\$25M), which serves as an estimate for future floods. Impact of these type of events is highly variable due to severity and length of event and network impact. Emergency preparedness can mitigate the impact of these costs.

**Management method**

Improvements to infrastructure design and emergency preparedness planning are used to mitigate the potential risks posed by weather events. The Company maintains flood plans, winter operating plans, an avalanche risk management program and geotechnical monitoring of slope stability. Numerous slope and bridge assessment and improvement projects take place annually across our network to improve flood resistance and decrease the chance of slope failures or bridge scour. The chance of and location of anticipated flooding is reviewed as the flood season approaches. Notifications are sent to the field to mobilize response resources, increase track and structure inspection frequencies and to move equipment out of flood-prone areas in advance as part of CP's flood plan.

**Cost of management**

1000000000

**Comment**

Upgrading the network rail infrastructure is the most significant cost associated with this particular risk. Since 2015 spending on track and roadway infrastructure has ranged from \$900M-1.1 B per year. Additional costs include regular inspections and upgrades to our 3,000+ bridges. Since 2010 CP has invested \$382 million on upgrading bridges across the network.

---

**Identifier**

Risk 2

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Transition risk

**Primary climate-related risk driver**

Policy and legal: Increased pricing of GHG emissions

### **Type of financial impact driver**

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

### **Company- specific description**

Carbon taxation systems are evolving at the provincial and federal levels in Canada. As of 2017, tax based systems are in place in British Columbia and Alberta. Cap and Trade systems are in place in Quebec and Ontario (2017). Paying costs associated with carbon taxes and cap and trade programs increases CP's operating costs related to fuel consumption. It is anticipated that these compliance costs will increase in the future as markets develop and additional Provinces implement a carbon taxation program to meet Canadian federal requirements by 2019. Currently CP's US based operations are not subject to carbon pricing programs.

### **Time horizon**

Current

### **Likelihood**

Virtually certain

### **Magnitude of impact**

High

### **Potential financial impact**

### **Explanation of financial impact**

Based on CP's normal annual fuel consumption within affected regions of Canada costs to comply with carbon tax and cap and trade programs increase the price of locomotive fuel. Any potential increase in these charges would result in an increase in costs for fuel purchased for CP's operations. This risk currently impacts CP's operations in Alberta, British Columbia, Ontario and Quebec.

### **Management method**

Canadian Pacific has created a tariff based system to address the impacts of carbon tax programs on operating costs. Through CP's tariff program, we require freight customers to pay a carbon tax surcharge per mile or container for movements within the applicable province. Any increase in operating costs related to operations within this region are allocated to our customers based on CP's Tariff 9800. Tariff 9800 applies to all shipments (i.e. all contract and tariff authorities). Specifically, the surcharges in the tariff will apply to all shipments moving through British Columbia, Alberta, Ontario or Québec. Should other governments implement environmental taxes or levies, surcharges to pass through such fees will be added to the tariff. GHG emissions surcharges are applied to every shipment moving through these provinces and appears as a separate line item on invoices for freight charges. Each surcharge is calculated for equitable application to every car and container moving through BC, AB, ON and PQ to recover the incremental expense associated with environmental taxes or levies. The surcharge amounts are calculated to recover this projected expense and CP monitors to ensure it is not over-recovered. CP continues to monitor any regulatory developments with respect to an increase in the carbon tax and potential developments in other provinces. Including recent changes in Ontario, Manitoba and Saskatchewan.

### **Cost of management**

### **Comment**

The cost of management involves the manpower, consultant fees, technical support and IT costs to calculate and collect the carbon tax surcharge as outlined as well as monitoring regulatory changes.

---

### **Identifier**

Risk 3

### **Where in the value chain does the risk driver occur?**

Direct operations

### **Risk type**

Physical risk

### **Primary climate-related risk driver**

Acute: Increased severity of extreme weather events such as cyclones and floods

### **Type of financial impact driver**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

### **Company- specific description**

Much of CP's rail network spans vast territories of northern boreal and mountainous forest regions. These regions are subject to regular periods of intense wild fire. Wildfire can lead to significant service disruptions and extensive property damage of sensitive rail structures and bridges.

### **Time horizon**

Current

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Potential financial impact**

**Explanation of financial impact**

Impact of these type of events is highly variable due to severity and length of event and overall network impact. Emergency preparedness can mitigate the impact of these costs. Impact costs are highly variable and difficult to attribute specifically to climate related events.

**Management method**

Improvements to infrastructure design and emergency preparedness planning are used to mitigate the potential risks posed by wildfire events. The Company maintains emergency preparedness response plans for instances of fire. The chance of and location of anticipated fire events are continuously reviewed during the forest fire season. Notifications are sent to the field to mobilize response resources, increase track and structure inspection frequencies and to move equipment into fire-prone areas in advance as part of CP's fire management operations. CP works closely with local and provincial agencies and authorities in addressing wild fire concerns. To minimize the potential impacts related to wildfire, CP implements a network wide annual program to manage vegetation growth along the right-of-way. As an example, the close proximity of Parry Sound wild fire 33 in summer of 2018 to CP's right of way, resulted in 24 km of main line track, associated controls, communications equipment and 3 high value water crossings being threatened with fire damage, loss and potential service disruptions. CP initiated our wildfire response program involving the deployment of incident response experts and equipment to monitor track condition, protect equipment, evaluated fire threat/exposure and protect valuable crossing with fire suppression equipment. While the fire threat did not materialize into physical network/equipment damage, management and response costs are significant to CP.

**Cost of management**

**Comment**

**Identifier**

Risk 4

**Where in the value chain does the risk driver occur?**

Direct operations

**Risk type**

Physical risk

**Primary climate-related risk driver**

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

**Type of financial impact driver**

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

**Company- specific description**

Extreme temperatures including cold winter conditions represent a climate related risk to railway infrastructure at CP. Track buckling, unacceptable levels of rail movement, increased frequency of broken rails, frozen switches and resulting need to replace track and equipment more frequently are all possible outcomes. Several of these can result in derailments or other incidents requiring shutdown of portions of the network exposing the company to financial risks.

**Time horizon**

Short-term

**Likelihood**

Very likely

**Magnitude of impact**

High

**Potential financial impact**

**Explanation of financial impact**

The most likely financial implication due to extreme temperatures is due to the increased risk of derailments which carry the cost of recovery and clean-up as well as disruption of operations and impact on reputation. In 2017, CP experienced instances of extreme temperatures on portions of the network in western and central Canada. Impact costs are highly variable and difficult to attribute

specifically to climate related events.

**Management method**

Track infrastructure is monitored on a regular basis both visually by our track inspection personnel but also through newer scanning technology that we have been acquiring over the last number of years. Such technology includes track evaluation cars, hi-rail trucks that measure track geometry and rail wear and ultrasonic rail detection. This technology identifies defects prior to in-service failure. Other wayside technology has been acquired and installed to identify issues at the point of the wheel/rail interaction. Hotbox detectors along the rail network also record the ambient temperature at the rail surface. Work is underway to allow this information to be used more centrally in train operations planning. Extreme weather plans (Winter/Summer Plans) are built around the worst case scenarios for each season. They include potential changes to train design and infrastructure inspections which are communicated to all applicable operational staff.

**Cost of management**

1000000000

**Comment**

Upgrading the network rail infrastructure is the most significant cost associated with this particular risk. Since 2015 spending on track and roadway infrastructure has ranged from \$900M-1.1 B per year.

---

C2.4

---

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

C2.4a

---

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

**Identifier**

Opp1

**Where in the value chain does the opportunity occur?**

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Shift in consumer preferences

**Type of financial impact driver**

Increased revenue through demand for lower emissions products and services

**Company- specific description**

We consider our inherent carbon intensity advantage over other surface modes such as long-haul truck to be a significant opportunity to increase revenues in particular portions of the business, most notably intermodal services. A significant amount of national greenhouse gas emissions in Canada comes from the transportation sector (roughly 28%), however freight rail only contributes 1% of that sector as a whole, despite moving a large amount of surface freight. According to an independent study by the Federal Railroad Administration, moving freight by rail is on average four times more efficient than transport by highway traffic with approximately 75 percent less greenhouse gas (GHG) emissions. Customers are continually looking at ways to improve on their carbon footprint in their supply chain which provides an advantage to CP through an increased demand for our freight service.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

---

**Potential financial impact**

13000000

**Explanation of financial impact**

Based on 2017 revenues, Each 1% increase in intermodal business could contribute \$13M in additional revenues for the company. In 2017, intermodal services accounted for 21% of CP's \$6.6B revenue.

**Strategy to realize opportunity**

This opportunity is managed through a renewed approach to marketing and sales within the company. Efforts have been made to improve efficiency for intermodal routes and to reduce the cycle times as a means of making the service more attractive to potential customers. Commissions for sales staff are provided as an incentive to increase sales. CP also maintains access to an online GHG calculator tool for customer use in determining the potential for greenhouse gas savings in switching freight shipping from long-haul trucking to intermodal by rail services. In 2017 CP made significant investments in new transload operations (facility purpose built to transfer bulk materials between highway truck and rail) in Vancouver and Montreal. Our new Vancouver Transload facility was constructed to connect regional pulp and lumber customers to new export markets in Asia, while simultaneously providing a facility to transload incoming finished goods for more efficient transportation to domestic markets. Built on a large footprint, CP's Vancouver Transload has the potential to grow into a large-scale multi-commodity facility, linking customers to even more overseas markets. Our transload facility is also the only transload in Vancouver providing rail service for intermodal containers to the ports, where others would have to use trucks.

**Cost to realize opportunity****Comment**

Main costs associated with the opportunity include multi-million dollar improvements to intermodal facilities across the network and improvements in IT systems to provide better tools for existing and potential customers. In 2017, intermodal services accounted for 21% of CP's \$6.6B revenue.

---

**Identifier**

Opp2

**Where in the value chain does the opportunity occur?**

Supply Chain

**Opportunity type**

Markets

**Primary climate-related opportunity driver**

Access to new markets

**Type of financial impact driver**

Increased revenues through access to new and emerging markets (e.g., partnerships with governments, development banks)

**Company- specific description**

The emergence of a proposed federal clean fuel standard in Canada may present an opportunity for the movement of renewable products fuels on rail for CP which will increase demand for CP's services or potentially create demand for new business. CP is uniquely positioned to access 10% of ethanol production facilities in the United States which will be a major source for renewable fuel products.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium

**Potential financial impact****Explanation of financial impact**

The increased demand for renewable fuel materials due to regulatory requirements has led to an increased demand for freight rail services to transport biofuel products. In 2017, biofuel revenues for CP were approximately \$193M.

**Strategy to realize opportunity**

CP Marketing and Sales proactively works with potential biofuel customers on a regular basis and we have strategically located personnel in key regions.

**Cost to realize opportunity**

**Comment**

There are no significant costs associated with managing this opportunity.

---

**Identifier**

Opp3

**Where in the value chain does the opportunity occur?**

Customer

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of supportive policy incentives

**Type of financial impact driver**

Reduced exposure to GHG emissions and therefore less sensitivity to changes in cost of carbon

**Company- specific description**

Climate change legislation that aims to set a price on carbon emissions through direct taxation or cap and trade measures presents an opportunity for CP to provide a lower cost service than more greenhouse gas emissions intensive modes of transport including the trucking sector. We consider our inherent carbon intensity advantage over other surface modes such as long-haul truck to be a significant opportunity to increase revenues in particular portions of the business, most notably intermodal services. A significant amount of national greenhouse gas emissions in Canada comes from the transportation sector (roughly 28%), however freight rail only contributes 1% of that sector as a whole, despite moving a large amount of surface freight. According to an independent study by the Federal Railroad Administration, moving freight by rail is on average four times more efficient than transport by highway traffic with approximately 75 percent less greenhouse gas (GHG) emissions. Customers are continually looking at ways to improve on their carbon footprint in their supply chain which provides an advantage to CP through an increased demand for our freight service.

**Time horizon**

Current

**Likelihood**

Likely

**Magnitude of impact**

Unknown

**Potential financial impact**

13000000

**Explanation of financial impact**

Based on 2017 revenues, Each 1% increase in intermodal business could contribute \$13M in additional revenues for the company. In 2017, intermodal services accounted for 21% of CP's \$6.6B revenue.

**Strategy to realize opportunity**

This opportunity is managed through a renewed approach to marketing and sales within the company. Efforts have been made to improve efficiency for intermodal routes and to reduce the cycle times as a means of making the service more attractive to potential customers. Commissions for sales staff are being increased in frequency from bi-annual to quarterly to monthly in an attempt to incentivize increasing sales. CP also maintains an online GHG calculator tool for customer use in determining the potential for greenhouse gas savings in switching freight shipping from long-haul trucking to intermodal by rail services.

**Cost to realize opportunity****Comment**

Main costs associated with the opportunity include multi-million dollar improvements to intermodal facilities across the network and improvements in IT systems to provide better tools for existing and potential customers. In 2017, intermodal services accounted for 21% of CP's \$6.6B revenue.

---

**C2.5**

---

**(C2.5) Describe where and how the identified risks and opportunities have impacted your business.**

	Impact	Description
Products and services	Impacted	Loss of service impacts revenues and operational reputation.
Supply chain and/or value chain	Impacted	Loss of service or delays can create a cascading effect for our customers and downstream product consumers
Adaptation and mitigation activities	Impacted	Greater demand for intermodal and transload freight services has required CP to make physical changes to our operation to meet customer expectations.
Investment in R&D	Impacted	Subject matter experts at CP work closely with technical service providers to monitor weather conditions and alter operating practices based on conditions eg. monitoring antecedent soil moisture level in mountainous areas of Eastern British Columbia.
Operations	Impacted	Operational impacts associated with climate related risks are a paramount concern during the strategic risk assessment process.
Other, please specify	Please select	

**C2.6**

**(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.**

	Relevance	Description
Revenues	Impacted	Identified climate related risks can directly influence both company revenues due to service disruptions and operating costs associated with system damages and repairs.
Operating costs	Impacted	Identified climate related risks can directly influence both company revenues due to service disruptions and operating costs associated with system damages and repairs.
Capital expenditures / capital allocation	Impacted	Repairs and recovery related expenditures related to emergency response and mitigation of climate related risks.
Acquisitions and divestments	Not yet impacted	
Access to capital	Impacted	Potential for capital funds earmarked for mitigation projects or recovery from climate related events is not available for other important rail system improvement projects.
Assets	Impacted	Potential for increased costs due to property damage incidents related to climate driven events.
Liabilities	Impacted	Potential for increased environmental clean up costs due to incidents related to climate driven events.
Other	Please select	

**C3. Business Strategy**

**C3.1**

**(C3.1) Are climate-related issues integrated into your business strategy?**

Yes

**C3.1a**

**(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?**

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

---

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)  
Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

---

**(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.**

CP's philosophy is that effective governance involves more than policies, procedures and protocols; it must be integrated into the everyday business practices of all those who work for CP. We believe that corporate sustainability creates shareholder value. It is a part of everything we do. Information on climate related issues is identified by different groups within the company and then communicated as required.

Examples of how the business strategy has been influenced by climate change include: The Environmental Risk group monitors climate change related policy and regulatory developments and communicates these to senior management in potentially affected departments including Operations, Marketing and Sales, Finance and Taxation. Engineering is responsible for evaluating changes to infrastructure and the related environmental factors such as water levels, avalanche risk, storm potentials, etc. This information is then relayed to planning teams that factor in capital upgrade requirements and operating strategies. The company has a multi-year fuel intensity target that reflects 94% of our Scope 1 greenhouse gas emissions. This target is one of our corporate key performance indicators and is based on extensive analysis including the information discussed above.

C3.1d

---

**(C3.1d) Provide details of your organization's use of climate-related scenario analysis.**

Climate-related scenarios	Details
Other, please specify (national weather service - ECCC)	Annual long term (i.e. seasonal) climate forecasting tools provided by the national weather service - Environment and Climate Change Canada are relied upon when establishing annual program priorities surrounding weather related contingency plans in particular cold weather operations in Canada. These forecast models are reviewed prior to winter season when planning for cold weather operations. Models are regularly reviewed throughout the season and adjustments are made to cold weather contingency plans based on the output of forecast models and on the ground operational needs. These models are most accurate for short seasonal duration and are relied upon by CP to assist in directing on the ground response to prepare for cold weather operations.

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

---

**(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e)**  
**Disclose details of your organization's low-carbon transition plan.**

Railways are currently the most efficient and low-carbon intensive form of transporting all forms goods and freight over long distance by land. CP is a critical component of the North American sustainable supply chain. Our continued investment in optimizing our rail network coupled with locomotive fleet improvements has allowed us sustain a leadership position as one of the most fuel efficient freight railways in North America. As a sector railways are on average rail is 3-4 times more fuel efficient than truck which offers shippers an opportunity to move their products with less greenhouse gas emissions. We continue to emphasize the need to improve our operational efficiency which will allow us to maintain this advantage into the future. This involves a continual review of operational plans, locomotive fleet sizing and renewal, setting a fuel efficiency target and exploring the potential for alternative fuels such as liquefied natural gas in our locomotive fleet.

We report on our progress, challenges and future plans involving climate change through our sustainability report, as well as through our company website, [www.cpr.ca](http://www.cpr.ca). Our website also includes a carbon footprint calculator that allows shippers to understand the difference in greenhouse gas emission between long haul truck and rail movements. To present a low carbon intensive option to remain competitive with other modes of transportation

## C4. Targets and performance

---

### C4.1

---

**(C4.1) Did you have an emissions target that was active in the reporting year?**

Intensity target

### C4.1b

---

**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

**Target reference number**

Int 1

**Scope**

Scope 1

**% emissions in Scope**

94

**% reduction from baseline year**

7.2

**Metric**

Grams CO<sub>2</sub>e per kilometer\*

*target for railway sector is based on kg CO<sub>2</sub>e/ 1,000 Revenue Ton Kilometer*

**Base year**

2010

**Start year**

2011

**Normalized baseline year emissions covered by target (metric tons CO<sub>2</sub>e)**

3207000

**Target year**

2017

**Is this a science-based target?**

No, but we anticipate setting one in the next 2 years

**% achieved (emissions)**

100

**Target status**

Underway

**Please explain**

This target represents a multi-year (7 total) greenhouse gas intensity reduction initiative. For CP this target only includes scope 1 emissions however, locomotive emissions account for greater than 94% of all CP emissions. Canadian Pacific has made a significant contribution to environmental sustainability in the past and it is well positioned to play an important role in the future. In an effort to proactively manage locomotive emissions, the Rail Association of Canada and its member railways (including Canadian Pacific) entered into a Memorandum of Understanding with Transport Canada and Environment Canada. Under this agreement, the rail industry committed to greenhouse gas (GHG) reduction targets, on an intensity basis as well as efforts to reduce emissions of criteria air contaminants. First executed in 2005, the latest agreement covered the period of 2011 to 2015, and has been extended until the end of 2017. The GHG emissions target outlined in the MOU requires Class 1 railways to reduce Locomotive GHG emissions intensity by 7.2% from 2010 levels by the end of 2017. The target emission intensity for the end of 2017 is 15.2 kg CO<sub>2</sub>e/1,000 Revenue ton-kilometers. CP remains committed to the objectives of the MOU and continues to demonstrate leadership in operating one of the most fuel efficient Class 1 freight railways in North America. According to the Association of American Railroads annual Railroads Facts (2017 edition), the average freight carrying fuel efficiency for the US freight rail sector is 468 revenue ton-miles per gallon fuel consumed. During the same time frame CP trains averaged 571 revenue ton-miles per gallon of fuel consumed, 22% better than industry average. Annual reports regarding the progress of industry in achieving the established targets are prepared by a 3rd party consultant and reviewed by a joint industry -government agency technical working group. Annual reports (up to the end of 2015 ) on the progress of this initiative can be found here: <https://www.railcan.ca/wp-content/uploads/2017/12/2015-LEM-Report.pdf>

**% change anticipated in absolute Scope 1+2 emissions**

-7

**% change anticipated in absolute Scope 3 emissions**

0

---

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

### C4.3

---

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

### C4.3a

---

(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation		0
To be implemented*	60	5376
Implementation commenced*	80	7168
Implemented*	30	2688
Not to be implemented		0

### C4.3b

---

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

**Activity type**

Process emissions reductions

**Description of activity**

Other, please specify (Locomotive Retrofit Program)

**Estimated annual CO2e savings (metric tonnes CO2e)**

2688

**Scope**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in CC0.4)**

**Investment required (unit currency – as specified in CC0.4)**

60000000

**Payback period**

Please select

**Estimated lifetime of the initiative**

16-20 years

**Comment**

This project is part of a multi-year locomotive fleet renewal program at CP. During the period of 2017 through to 2019 CP will upgrade and retrofit up to 170 locomotives to meet operational needs. This investment includes technology upgrades, advanced diesel engines, enhanced cooling and improved traction systems. All units will be equipped with GE Trip Optimizer and Distributed Power which are both EPA certified fuel/emissions reduction technologies. Improvements made directly influence locomotive fuel efficiency and corresponding greenhouse gas emissions resulting in a 2.7% improvement guarantee. 30 locomotives were upgraded in this process in 2017 extending the useful life of this equipment an additional 20 years. A conservative estimate of emissions reductions associated with this project have been calculated based on a fuel efficiency guarantee of 2.7% as provided by our equipment vendor. It is anticipated that the combined effect of locomotive upgrades coupled with installed fuel saving technology will result in realized fuel savings beyond 2.7% CP has intentionally left financial details related to ROI and annual savings blank in the section for reasons of confidentiality.

**C4.3c**

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Financial optimization calculations	CP's continues to focus on strategic operational changes, infrastructure improvements and equipment upgrades to drive operational efficiencies and improvements in locomotive fuel economy resulting in significant reductions in greenhouse gas emissions.

**C4.5**

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**C4.5a**

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

**Level of aggregation**

Company-wide

**Description of product/Group of products**

Freight by rail services - freight rail service remain the most fuel efficient mode of long distance overland freight transport. Transport of freight by rail allows out customers to avoid downstream and upstream greenhouse gas emissions associated with utilizing truck transport over the same distance.

**Are these low-carbon product(s) or do they enable avoided emissions?**

Avoided emissions

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**

Other, please specify (Comparison of long term fuel consumption)

**% revenue from low carbon product(s) in the reporting year**

100

**Comment**

The transportation sector accounts for the second most greenhouse gas emissions in both Canada (28%) and the United States (26%). Railways move approximately 70% of all freight on a tonne-kilometre basis in Canada but only account for 3.9% of the greenhouse gas emissions from the transportation sector. Despite this inherent efficiency, CP recognizes the importance of continuing to strive for improvements in our operations to drive down emissions of greenhouse gases. Our focus on climate change through improvements in locomotive fuel efficiency has allowed us to present a low carbon intensive option to remain competitive with other modes of transportation. According the Association of American Railroads, movement of freight by rail is an average 3-4 times more fuel efficient than truck transport which offers shippers an opportunity to move their products with less greenhouse gas emissions. We continue to emphasize the need to improve our operational efficiency which will allow us to maintain this advantage into the future.

---

**C5. Emissions methodology**

---

**C5.1**

---

**(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).**

**Scope 1**

**Base year start**

January 1 2012

**Base year end**

December 31 2012

**Base year emissions (metric tons CO2e)**

3376582.9

**Comment**

From 2013 CDP submission

**Scope 2 (location-based)**

**Base year start**

January 1 2012

**Base year end**

December 31 2012

**Base year emissions (metric tons CO2e)**

307978

**Comment**

From 2013 CDP submission

**Scope 2 (market-based)**

**Base year start**

**Base year end**

**Base year emissions (metric tons CO2e)**

**Comment**

**C5.2**

---

**(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.**

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

**C6. Emissions data**

---

**C6.1**

---

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?**

**Row 1**

**Gross global Scope 1 emissions (metric tons CO2e)**

2882534

**End-year of reporting period**

<Not Applicable>

**Comment**

## C6.2

---

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

**Row 1**

**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

**Comment**

## C6.3

---

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO<sub>2</sub>e?**

**Row 1**

**Scope 2, location-based**

48305

**Scope 2, market-based (if applicable)**

<Not Applicable>

**End-year of reporting period**

<Not Applicable>

**Comment**

## C6.4

---

**(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?**

Yes

## C6.4a

---

**(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.**

**Source**

Purchased electricity in leased space

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why the source is excluded**

Data not available. Emissions are anticipated to account for less than 1% of total Scope 2 emissions.

---

**Source**

Halocarbon emission from US Operations

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why the source is excluded**

Data not currently being collected as part of US operations, emissions are anticipated to account for less than 0.001% of total Scope 1 emissions.

---

**Source**

Propane consumption from US operations.

**Relevance of Scope 1 emissions from this source**

Emissions are not relevant

**Relevance of location-based Scope 2 emissions from this source**

Emissions are not relevant

**Relevance of market-based Scope 2 emissions from this source (if applicable)**

Emissions are not relevant

**Explain why the source is excluded**

Data was unreliable and therefore excluded. It is anticipated to reflect less than 0.1% of total Scope 1 emissions.

---

## C6.5

---

**(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.**

**Purchased goods and services**

**Evaluation status**

Relevant, not yet calculated

**Metric tonnes CO2e**

**Emissions calculation methodology**

**Percentage of emissions calculated using data obtained from suppliers or value chain partners**

**Explanation**

Information is not collected in a form that allows for calculation of emissions at this time.

---

## Capital goods

### Evaluation status

Relevant, not yet calculated

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

Information is not collected in a form that allows for calculation of emissions at this time.

## Fuel-and-energy-related activities (not included in Scope 1 or 2)

### Evaluation status

Relevant, not yet calculated

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

Information is not collected in a form that allows for calculation of emissions at this time.

## Upstream transportation and distribution

### Evaluation status

Relevant, not yet calculated

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

Information is not collected in a form that allows for calculation of emissions at this time.

## Waste generated in operations

### Evaluation status

Relevant, not yet calculated

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

Information is not collected in a form that allows for calculation of emissions at this time.

## Business travel

### Evaluation status

Relevant, calculated

### Metric tonnes CO2e

16056.1

### Emissions calculation methodology

Air Travel: Data on flight lengths are obtained from a 3rd party travel booking provider. This information is then classified into domestic, short and long haul and corresponding emission factors from the UK Department for Environment, Food and Rural Affairs (2015) are used to calculate the total GHG emissions. Air Travel (2017): 1643.7 metric tonnes of CO2e. Car Rentals: The total mileage of each class of rental vehicle is provided by our third party travel management company. Then using the average km/L for that class, the litres of fuel consumed is derived and multiplied by the corresponding country emission factor for road gasoline. Car Rentals (2017): 1482.6 metric tonnes of CO2e. Hotel Accommodations: Total hotel nights are obtained from our third party travel management company and then multiplied by an average emission factor for all hotel types obtained from "Hotel Energy and Carbon Efficiency Report, Brighter Planet (2012). Hotel Accommodations (2017): 12,089 metric tonnes of CO2e.

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

### Explanation

## Employee commuting

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

The contribution of this item is expected to be insignificant in comparison to other Scope 3 emissions such as business travel.

## Upstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP does not have any relevant upstream leased assets.

## Downstream transportation and distribution

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

Canadian Pacific is a freight rail service provider and is a part of transportation sector. Downstream emissions associated with transportation and distribution of customer goods is not associated with the operation of the rail network and is therefore considered not relevant to CP.

## Processing of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP is a railway freight service provider and does not sell any products.

## Use of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP is a railway freight service provider and does not sell any products.

## End of life treatment of sold products

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP is a railway freight service provider and does not sell any products.

## Downstream leased assets

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP does not have any relevant downstream leased assets.

## Franchises

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO<sub>2</sub>e

### Emissions calculation methodology

### Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

CP does not own or operate any franchises.

## Investments

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

No material items in this category

## Other (upstream)

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

No material items in this category

## Other (downstream)

### Evaluation status

Not relevant, explanation provided

### Metric tonnes CO2e

### Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

### Explanation

No material items in this category

## C6.7

---

**(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?**

No

## C6.10

---

**(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

**Intensity figure**

447

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

2930839

**Metric denominator**

unit total revenue

*revenue in millions of dollars (CAD)*

**Metric denominator: Unit total**

6554

**Scope 2 figure used**

Location-based

**% change from previous year**

2.2

**Direction of change**

Decreased

**Reason for change**

Directly related to continued improvements in operational and network efficiencies. CP was able to maintain a flat fuel efficiency rate between 2016 and 2017 while simultaneously increasing average train weight by 2% and revenue ton-miles by 4.8%.

---

**Intensity figure**

242

**Metric numerator (Gross global combined Scope 1 and 2 emissions)**

2930839

**Metric denominator**

full time equivalent (FTE) employee

**Metric denominator: Unit total**

12122

**Scope 2 figure used**

Please select

**% change from previous year**

1.6

**Direction of change**

Decreased

**Reason for change**

Improvement is directly related to continued improvements in operational and network efficiencies. CP also added 470 FTE positions in 2017. CP was able to maintain a flat fuel efficiency rate between 2016 and 2017 while simultaneously increasing average train weight by 2% and revenue ton-miles by 4.8%.

---

C-TS6.15

---

**(C-TS6.15) What are your primary intensity (activity-based) metrics that are appropriate to your emissions from transport activities in Scope 1, 2, and 3?**

**Rail**

**Scopes used for calculation of intensities**

Report just Scope 1

**Intensity figure**

11

**Metric numerator: emissions in metric tons CO2e**

2770964

**Metric denominator: unit**

t.mile

**Metric denominator: unit total**

252195

**% change from previous year**

0

**Please explain any exclusions in your coverage of transport emissions in selected category, and reasons for change in emissions intensity.**

No change in metric from previous year. This metric only includes locomotive fuel consumption and excludes all facility related scope 1 and scope 2 emissions. This is the most appropriate indicator of emissions related to transport activities as locomotive fuel emissions accounts for 94 % of all CP greenhouse gas emissions in 2017.

**ALL**

**Scopes used for calculation of intensities**

Report just Scope 1

**Intensity figure**

11

**Metric numerator: emissions in metric tons CO2e**

2770964

**Metric denominator: unit**

t.mile

**Metric denominator: unit total**

252195

**% change from previous year**

0

**Please explain any exclusions in your coverage of transport emissions in selected category, and reasons for change in emissions intensity.**

CP only operates rail based transportation services .

---

**C7. Emissions breakdowns**

---

**C7.1**

---

**(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?**

Yes

---

**C7.1a**

---

**(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).**

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	2628253	IPCC Fifth Assessment Report (AR5 – 100 year)
CH4	4139	IPCC Fifth Assessment Report (AR5 – 100 year)
N2O	249820	IPCC Fifth Assessment Report (AR5 – 100 year)
HFCs	37	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify (CO2e from renewable fuels)	285	IPCC Fifth Assessment Report (AR5 – 100 year)

## C7.2

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
Canada	2133243
United States of America	749290

## C7.3

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

By activity

### C7.3c

**(C7.3c) Break down your total gross global Scope 1 emissions by business activity.**

Activity	Scope 1 emissions (metric tons CO2e)
Freight Rail Service - locomotive fuel	2770964

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

**(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.**

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	2770964	<Not Applicable>	includes only emissions from combustion of locomotive fuel

**C7.5**

**(C7.5) Break down your total gross global Scope 2 emissions by country/region.**

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Canada	31963		151442	0
United States of America	16342		33356	0

**C7.6**

**(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.**

By activity

**C7.6c**

**(C7.6c) Break down your total gross global Scope 2 emissions by business activity.**

Activity	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Freight rail services	48305	

**C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7**

**(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-TS7.7) Break down your organization’s total gross global Scope 2 emissions by sector production activity in metric tons CO2e.**

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	48305		The emissions associated with purchased electricity are attributable to facility use in rail yards, maintenance operations and office related functions.

**C7.9**

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Increased

**C7.9a**

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.**

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change		
Other emissions reduction activities		<Not Applicable>		
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	79923	Increased	2.8	CP's locomotive fuel efficiency rate remained flat at 0.98 us gallons/1,000 gross ton-miles between 2016 and 2017. During the same time frame CP increased our total gross ton-miles of freight moved by 3.9%. The increased freight movements is offset by an 11.7% decrease in energy use (heating fuels and purchased electricity recorded at our facilities across the network).
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

## C7.9b

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Location-based

## C8. Energy

### C8.1

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 15% but less than or equal to 20%

### C8.2

**(C8.2) Select which energy-related activities your organization has undertaken.**

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

**C8.2a**

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	1094	10572015	10573109
Consumption of purchased or acquired electricity	<Not Applicable>	0	184797	184797
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	1094	10756812	10757906

**C8.2b**

**(C8.2b) Select the applications of your organization's consumption of fuel.**

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

**C8.2c**

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

**Fuels (excluding feedstocks)**

Diesel

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

10306482

**MWh fuel consumed for the self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

<Not Applicable>

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Fuel Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

137553

**MWh fuel consumed for the self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

<Not Applicable>

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Biodiesel

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

96

**MWh fuel consumed for the self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

<Not Applicable>

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Biogasoline

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

---

**MWh fuel consumed for the self-generation of electricity**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of heat**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self- cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

---

**Fuels (excluding feedstocks)**

Natural Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

109695

**MWh fuel consumed for the self-generation of electricity**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of heat**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self- cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

---

**Fuels (excluding feedstocks)**

Propane Gas

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

18268

**MWh fuel consumed for the self-generation of electricity**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of heat**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of steam**

&lt;Not Applicable&gt;

**MWh fuel consumed for self-generation of cooling**

&lt;Not Applicable&gt;

**MWh fuel consumed for self- cogeneration or self-trigeneration**

&lt;Not Applicable&gt;

---

**Fuels (excluding feedstocks)**

Compressed Natural Gas (CNG)

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

16

**MWh fuel consumed for the self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

<Not Applicable>

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

**Fuels (excluding feedstocks)**

Fuel Oil Number 2

**Heating value**

HHV (higher heating value)

**Total fuel MWh consumed by the organization**

1085

**MWh fuel consumed for the self-generation of electricity**

<Not Applicable>

**MWh fuel consumed for self-generation of heat**

<Not Applicable>

**MWh fuel consumed for self-generation of steam**

<Not Applicable>

**MWh fuel consumed for self-generation of cooling**

<Not Applicable>

**MWh fuel consumed for self- cogeneration or self-trigeneration**

<Not Applicable>

---

C8.2d

**(C8.2d) List the average emission factors of the fuels reported in C8.2c.**

**Biodiesel**

**Emission factor**

2.534

**Unit**

kg CO2e per liter

**Emission factor source**

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-12: Emission Factors for Energy Mobile Combustion Sources

**Comment**

## Biogasoline

### Emission factor

1.518

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-12: Emission Factors for Energy Mobile Combustion Sources

### Comment

## Compressed Natural Gas (CNG)

### Emission factor

0.00217

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-12: Emission Factors for Energy Mobile Combustion Sources - Natural Gas

### Comment

## Diesel

### Emission factor

2.95

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-12: Emission Factors for Energy Mobile Combustion Sources - Railways - Diesel Train

### Comment

## Fuel Gas

### Emission factor

2.317

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-12: Emission Factors for Energy Mobile Combustion Sources - Light-duty Gasoline Vehicles (LDGVs) - Tier 2

### Comment

## Fuel Oil Number 2

### Emission factor

2.761

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-4: Emission Factors for Refined Petroleum Products - Light Fuel Oil - Industrial

### Comment

Heating fuel oil

## Natural Gas

### Emission factor

0.5626

### Unit

kg CO2e per GJ

### Emission factor source

NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-2: CH4 and N2O Emission Factors for Natural Gas

### Comment

## Propane Gas

### Emission factor

1.544

### Unit

kg CO2e per liter

### Emission factor source

Source: NIR 2018 - National Inventory Report 1990-2016: Greenhouse Gas Sources and Sinks in CANADA Part 2 - Table A6-3: Emission Factors for Natural Gas Liquids - Propane Residential

### Comment

## C8.2f

---

**(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.**

### Basis for applying a low-carbon emission factor

No purchases or generation of low-carbon electricity, heat, steam or cooling accounted with a low-carbon emission factor

### Low-carbon technology type

<Not Applicable>

### MWh consumed associated with low-carbon electricity, heat, steam or cooling

<Not Applicable>

### Emission factor (in units of metric tons CO2e per MWh)

<Not Applicable>

### Comment

---

## C-TS8.2h

---

**(C-TS8.2h) Provide details on the average emission factor used for all transport movements per mode that directly source energy from the grid.**

Category	Emission factor unit	Average emission factor: unit value	Comment
Rail	Please select		CP does not move materials using electrical energy sourced from the grid. CP has zero emissions associated with this source.

## C-TS8.4

---

**(C-TS8.4) Provide any efficiency metrics that are appropriate for your organization's transport products and/or services.**

**Activity**

Rail

**Metric figure**

0.0037

**Metric numerator**

Liters of fuel

**Metric denominator**

t.mile

**Metric numerator: Unit total**

939246062

**Metric denominator: Unit total**

252195000000

**% change from last year**

0

**Please explain**

This metric represents the fuel efficiency value used by CP. Fuel efficiency remained flat from 2016 through 2017

---

**C9. Additional metrics**

---

**C9.1**

---

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

**C-TO9.3/C-TS9.3**

---

**(C-TO9.3/C-TS9.3) Provide tracking metrics for the implementation of low-carbon transport technology over the reporting year.**

**C-TO9.6/C-TS9.6**

---

**(C-TO9.6/C-TS9.6) What is your investment in research and development (R&D), equipment, products and services and which part of it would you consider a direct investment in the low-carbon transition?**

**C10. Verification**

---

**C10.1**

---

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

**C10.1a**

---

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.**

**Scope**

Scope 1

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

078384-RPT-10-Verification Report - Canadian Pacific.pdf

078384CP-7-Assurance Report (LF).pdf

**Page/ section reference**

p. 2 of 3.... auditor's note: The purpose of this verification was to have an independent third party assess CP's 2017 GHG Report, calculations and compliance with the requirements of the ISO Standard 14064 The verification was completed to a reasonable level of assurance. Based on our verification, the GHG statement is, in all material aspects, in accordance with the verification criteria and is free of material misstatements.

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**Scope**

Scope 2 location-based

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Type of verification or assurance**

Reasonable assurance

**Attach the statement**

078384-RPT-10-Verification Report - Canadian Pacific.pdf

078384CP-7-Assurance Report (LF).pdf

**Page/ section reference**

p. 2 of 3.... auditor's note: The purpose of this verification was to have an independent third party assess CP's 2017 GHG Report, calculations and compliance with the requirements of the ISO Standard 14064 The verification was completed to a reasonable level of assurance. Based on our verification, the GHG statement is, in all material aspects, in accordance with the verification criteria and is free of material misstatements.

**Relevant standard**

ISO14064-3

**Proportion of reported emissions verified (%)**

100

---

**C10.1b**

---

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

**Scope**

Scope 3- at least one applicable category

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Complete

**Attach the statement**

078384-RPT-10-Verification Report - Canadian Pacific.pdf

078384CP-7-Assurance Report (LF).pdf

**Page/section reference**

p. 2 of 3.... auditor's note: The purpose of this verification was to have an independent third party assess CP's 2017 GHG Report, calculations and compliance with the requirements of the ISO Standard 14064 The verification was completed to a reasonable level of assurance. Based on our verification, the GHG statement is, in all material aspects, in accordance with the verification criteria and is free of material misstatements.

**Relevant standard**

ISO14064-3

---

**C10.2**

---

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

No, we do not verify any other climate-related information reported in our CDP disclosure

**C11. Carbon pricing**

---

**C11.1**

---

**(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?**

Yes

**C11.1a**

---

**(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.**

Alberta carbon tax

BC carbon tax

Ontario CaT

Québec CaT

**C11.1b**

---

**(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.**

## Ontario CaT

### % of Scope 1 emissions covered by the ETS

5.7

### Period start date

January 1 2017

### Period end date

December 31 2017

### Allowances allocated

0

### Allowances purchased

164477

### Verified emissions in metric tons CO2e

164477

### Details of ownership

Other, please specify (fuel imported from outside jurisdiction )

### Comment

As an importer of fuel from outside the jurisdiction for consumption within Ontario, CP is an obligated participant in the Ontario Cap and Trade program. Local sourced fuel supply is also subject to additional fees to cover any Cap and Trade obligations of the local vendor. The value above only reflects the direct program obligations to CP and not Cap and Trade costs associated with local fuel purchases. Based on CP's normal annual fuel consumption within the affected region costs to comply with carbon tax and cap and trade programs effectively increase the price of locomotive fuel and associated operating costs. Any increase in operating costs related to operations within this region are allocated to our customers based on CP's Tariff 9800. Tariff 9800 applies to all shipments (i.e. all contract and tariff authorities). Specifically, the surcharges in the tariff will apply to all shipments moving through British Columbia, Alberta, Ontario or Québec. Should other governments implement environmental taxes or levies, surcharges to pass through such fees will be added to the tariff. GHG Emissions Surcharges are applied to every shipment moving through these provinces and appears as a separate line item on invoices for freight charges. Each surcharge is calculated for equitable application to every car and container moving through BC, AB, ON and PQ to recover the incremental expense associated with environmental taxes or levies. The surcharge amounts are calculated to recover this projected expense and CP monitors to ensure it is not over-recovered.

## Québec CaT

### % of Scope 1 emissions covered by the ETS

0.07

### Period start date

January 1 2017

### Period end date

December 31 2017

### Allowances allocated

0

### Allowances purchased

2073

### Verified emissions in metric tons CO2e

2073

### Details of ownership

Other, please specify

### Comment

As an importer of fuel from outside the jurisdiction for consumption within Quebec, CP is an obligated participant in the Quebec Cap and Trade program. Local sourced fuel supply is also subject to additional fees to cover any Cap and Trade obligations of the local vendor. The value above only reflects the direct program obligations to CP and not Cap and Trade costs associated with local fuel purchases. Based on CP's normal annual fuel consumption within the affected region costs to comply with carbon tax and cap and trade programs effectively increase the price of locomotive fuel and associated operating costs. Any increase in operating costs related to operations within this region are allocated to our customers based on CP's Tariff 9800. Tariff 9800 applies to all shipments (i.e. all contract and tariff authorities). Specifically, the surcharges in the tariff will apply to all shipments moving through British Columbia, Alberta, Ontario or Québec. Should other governments implement environmental taxes or levies, surcharges to pass through such fees will be added to the tariff. GHG Emissions Surcharges are applied to every shipment moving through these provinces and appears as a separate line item on invoices for freight charges. Each surcharge is calculated for equitable application to every car and container moving through BC, AB, ON and PQ to recover the incremental expense associated with environmental taxes or levies. The surcharge amounts are calculated to recover this projected expense and CP monitors to ensure it is not over-recovered.

C11.1c

---

**(C11.1c) Complete the following table for each of the tax systems in which you participate.**

**Alberta carbon tax**

**Period start date**

January 1 2017

**Period end date**

December 31 2017

**% of emissions covered by tax**

14.7

**Total cost of tax paid**

**Comment**

Carbon taxes are based on CP's fuel consumption within Alberta. Costs to comply with carbon tax programs effectively increase the price of locomotive fuel and associated operating costs. Any increase in operating costs related to operations within this region are allocated to our customers based on CP's Tariff 9800. Tariff 9800 applies to all shipment. Specifically, the surcharges in the tariff will apply to all shipments moving through British Columbia, Alberta, Ontario or Québec. Should other governments implement environmental taxes or levies, surcharges to pass through such fees will be added to the tariff. GHG Emissions Surcharges are applied to every shipment moving through these provinces and appears as a separate line item on invoices for freight charges. Each surcharge is calculated for equitable application to every car and container moving through BC, AB, ON and PQ to recover the incremental expense associated with carbon taxes or levies. The surcharge amounts are calculated to recover this projected expense and CP monitors to ensure it is not over-recovered.

**BC carbon tax**

**Period start date**

January 1 2017

**Period end date**

December 31 2017

**% of emissions covered by tax**

25.4

**Total cost of tax paid**

**Comment**

Carbon taxes are based on CP's fuel consumption within Alberta. Costs to comply with carbon tax programs effectively increase the price of locomotive fuel and associated operating costs. Any increase in operating costs related to operations within this region are allocated to our customers based on CP's Tariff 9800. Tariff 9800 applies to all shipment. Specifically, the surcharges in the tariff will apply to all shipments moving through British Columbia, Alberta, Ontario or Québec. Should other governments implement environmental taxes or levies, surcharges to pass through such fees will be added to the tariff. GHG Emissions Surcharges are applied to every shipment moving through these provinces and appears as a separate line item on invoices for freight charges. Each surcharge is calculated for equitable application to every car and container moving through BC, AB, ON and PQ to recover the incremental expense associated with carbon taxes or levies. The surcharge amounts are calculated to recover this projected expense and CP monitors to ensure it is not over-recovere

**C11.1d**

---

**(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?**

CP has actively engaged in all carbon pricing programs that impact our operations. To assure compliance with these programs, CP has pulled together a cross functional team with participants from Treasury, Fuel Group, Commodity Taxation, Environmental Risk and Strategy and Policy groups. Subject matter experts have been assigned to regularly review program developments and implement appropriate compliance mechanisms. During 2017 this team met every two months to review progress to review program developments in Ontario, Quebec, Alberta and British Columbia. This team is responsible for all aspects of the maintaining compliance with each Province's program including: fuel use procurement, tracking, reporting, verification, sourcing required carbon allowances, internal/external communication and meeting regulatory deadlines.

**C11.2**

---

---

**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

**C11.3**

---

**(C11.3) Does your organization use an internal price on carbon?**

No, but we anticipate doing so in the next two years

**C12. Engagement**

---

**C12.1**

---

**(C12.1) Do you engage with your value chain on climate-related issues?**

Yes, our customers

**C12.1b**

---

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

**Type of engagement**

Education/information sharing

**Details of engagement**

Run an engagement campaign to education customers about your climate change performance and strategy

**Size of engagement**

100

**% Scope 3 emissions as reported in C6.5**

0

**Please explain the rationale for selecting this group of customers and scope of engagement**

CP engages with all of our many freight services customers to help them understand with the use of our services and the greenhouse gas emissions associated with their specific supply chain. Engagement includes regular customer one on one meetings, customer surveys, customer forums, CP external website resources and online tools such as customer station. Our rationale for sharing this information with all our customers to provide awareness of CP's strong performance in reducing GHG emissions and how they can further benefit from the use of our services in reducing the overall impact of their supply chains. CP further provides access to an online carbon calculator to allow customers to quickly evaluate the potential emissions impact of shipping materials from one destination to another using rail versus highway tractor services. Interested customers will often approach our customer account managers who in turn work with the Environmental Risk group to provide information on our climate change program and initiatives. Either a member of the Environmental Risk group or the customer account manager will also present the information directly to the customer at their offices. CP also responds directly to customer supply chain surveys and CDP questionnaires.

**Impact of engagement, including measures of success**

Successful engagement results in increased customer interest in our freight rail services for a variety of reasons including lower GHG emissions than other transport sectors. Success also entails increasing requests about CP's sustainability performance, engagement with our customers through CDP's supply chain tools and providing a timely response to survey inquiries. Several of our customers currently engage CP annually in determining emissions associated with the use of our freight services.

---

**C12.3**

---

---

**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

Trade associations

C12.3b

---

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

C12.3c

---

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

**Trade association**

Railway Association of Canada

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

From the RAC website: "Environmental policies in Canada, at federal and provincial levels of government, are being developed in response to public demands for improved air quality, reductions in greenhouse gas (GHG) emissions and increased energy efficiency. Overall, Canada is faced with the challenge of reducing emissions growth in a highly competitive global economy. At the same time, Canada's economic strength and community wellbeing must be assured. A key component in an environmental strategy must be the role the rail sector can play in reducing emissions associated with transportation activity. Currently, the transportation sector, the largest single source of GHGs, contributes 27 per cent of GHGs produced in Canada. Rail is well positioned as a solution to reducing GHG emissions associated with transportation activities. Canada's rail business moves 70 per cent of the surface freight on a tonne-kilometer basis but produces only 3 percent of transportation sector GHGs. Canadian rail is in a unique position to meet the challenge facing Canadian communities and industries by offering environmentally sustainable transportation today and into the future. Canada must encourage and enable an effective and sustainable transportation system to serve the nation and its regions. A system that enhances movement of freight and passengers by rail and continually strengthens Canada's and competitiveness is critical to our nation's economic well-being. Canada's Rail business has made a significant contribution to environmental sustainability in the past and it is well positioned to play an important role in the future. In an effort to management locomotive emissions, the RAC and its member railways entered into a Memorandum of Understanding with Transport Canada and Environment Canada. Under this agreement, the rail industry committed to greenhouse gas (GHG) reduction targets, on an intensity basis, for Class 1 freight railways, short line freight railways, intercity passenger rail, and commuter rail as well as efforts to reduce emissions of criteria air contaminants. The industry is ready to continue to work with governments, communities and other private sector partners to increase the sustainability of the Canadian economy."

**How have you, or are you attempting to, influence the position?**

Canadian Pacific is actively engaged as members of the following relevant committees of the Board of Directors: Environment Committee and the Safety and Operations Management Committee. Through our participation in these committees we are engaged directly with the association and support the position as described.

---

**Trade association**

Association of American Railroads

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association's position**

From the AAR website: "Expanded use of freight rail offers a simple, inexpensive, and immediate way to meaningfully reduce greenhouse gas emissions without harming the economy. On average, railroads are four times more fuel efficient than trucks. That means moving freight by rail instead of truck reduces greenhouse gas emissions by 75 percent. According to Environmental Protection Agency (EPA) data, freight railroads account for just 0.6 percent of U.S. greenhouse gas emissions from all sources and just 2.2 percent of emissions from transportation-related sources."

**How have you, or are you attempting to, influence the position?**

Canadian Pacific is actively engaged as a member of the Environmental Affairs Committee. Through our participation on this committee we are engaged directly with the association and support the position as described.

---

**C12.3f**

**(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Individuals that play a role in the engagement activities mentioned are responsible for communicating all actions and policy developments to senior management within the company. Activities are also reported to the Board of Directors to ensure consistency with the company's climate change strategy.

## C12.4

---

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

**Publication**

In voluntary sustainability report

**Status**

Complete

**Attach the document**

cp-csr-2016.pdf

**Content elements**

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Other metrics

---

**Publication**

In mainstream reports

**Status**

Complete

**Attach the document**

CPAR2017.pdf

**Content elements**

Governance

Strategy

Risks & opportunities

Other metrics

---

## C14. Signoff

---

### C-FI

---

**(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

For additional details regarding Canadian Pacific's climate related initiatives and performance including additional sustainability information please visit our website at:

<http://www.cpr.ca/en/about-cp/corporate-sustainability>  
cp-csr-2016.pdf

## C14.1

---

**(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	Job title	Corresponding job category
Row 1	SVP and Chief Risk Officer	Chief Risk Officer (CRO)

**SC. Supply chain module**

---

**SC0.0**

---

**(SC0.0) If you would like to do so, please provide a separate introduction to this module.**

Canadian Pacific Railway Limited (CP), owns and operates a transcontinental freight railway in Canada and the United States. CP's diverse business mix includes bulk commodities, merchandise freight and intermodal traffic over a network of approximately 12,400 miles, serving the principal business centres of Canada from Montreal, Quebec, to Vancouver, British Columbia, and the U.S. Northeast and Midwest regions.

CP strives to be a rail industry leader in environmental management and protection. We are committed to conducting our rail operations in an environmentally responsible and sustainable manner. This practice is the collective responsibility of our employees who's daily decisions and work help support clean railway operations that benefit the land, water and air in the communities where we operate.

The transportation sector accounts for the second most greenhouse gas emissions in both Canada (28%) and the United States (26%). Railways move approximately 70% of all freight on a tonne-kilometre basis in Canada but only account for 3.9% of the greenhouse gas emissions from the transportation sector. Despite this inherent efficiency, CP recognizes the importance of continuing to strive for improvements in our operations to drive down emissions of greenhouse gases.

Through our environmental management programs we make considerable efforts to improve operational efficiencies and reduce our carbon footprint. We employ innovative solutions supported by technological advancements and work with industry partners and government to maintain our leadership in this space and to further advocate for responsible stewardship of resources. CP has made significant improvements to rail operations in particular locomotive fuel efficiency, resulting in increased fuel efficiencies and reduced corresponding GHG emissions

**SC0.1**

---

**(SC0.1) What is your company's annual revenue for the stated reporting period?**

	Annual Revenue
Row 1	6554000000

**SC0.2**

---

**(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?**

Yes

**SC0.2a**

---

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	CA	1359231000

SC1.1

---

**(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.**

**Requesting member**

General Motors Company

**Scope of emissions**

Scope 1

**Emissions in metric tonnes of CO2e**

5093

**Uncertainty (±%)**

5

**Major sources of emissions**

Locomotive fuel consumption associated with the movement of General Motors Company products on the Canadian Pacific rail line. System data has been verified at a reasonable level.

**Verified**

Yes

**Allocation method**

Other, please specify (Revenue-ton-miles of traffic for GM)

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Based on an internal CP assessment of greenhouse gas sources at CP, locomotive operations are known to account for approximately 94% of total scope 1 greenhouse gas emissions. Other sources, while integral to railway operations, would have little direct relation to the movement of General Motor's products. The CP corporate average value for kilograms of CO2eq per unit RTM is then used along with the Revenue Ton Miles specific to General Motors to provide a value for CO2eq for the movement of General Motors' products. As the corporate average number includes all forms of movement on the system and in all geographic areas the value may over/under estimate the emissions as a result.

---

**Requesting member**

Kellogg Company

**Scope of emissions**

Scope 1

**Emissions in metric tonnes of CO2e**

1521

**Uncertainty (±%)**

5

**Major sources of emissions**

Locomotive fuel consumption associated with the movement of Kellogg Company products on the Canadian Pacific rail line. System data has been verified at a reasonable level.

**Verified**

Yes

**Allocation method**

Other, please specify (Revenue-ton-miles of traffic for Kellogg)

**Please explain how you have identified the GHG source, including major limitations to this process and assumptions made**

Based on an internal CP assessment of greenhouse gas sources at CP, locomotive operations are known to account for approximately 96% of total scope 1 greenhouse gas emissions. Other sources, while integral to railway operations, would have little direct relation to the movement of Kellogg's products. The CP corporate average value for kilograms of CO2eq per unit RTM is then used along with the Revenue Ton Miles specific to Kellogg to provide a value for CO2eq for the movement of Kellogg's products. As the corporate average number includes all forms of movement on the system and in all geographic areas the value may over/under estimate the emissions as a result.

---

## SC1.2

---

**(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).**

Published information is not used to allocate emissions to customers.

## SC1.3

---

**(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?**

Allocation challenges	Please explain what would help you overcome these challenges
Managing the different emission factors of diverse and numerous geographies makes calculating total footprint difficult	Our current allocation method used can over/under estimate the Scope 1 emissions associated with the movement of the customer's products due to the use of the overall corporate average emission factor for greenhouse gas emissions per revenue-ton mile. In order to obtain a more accurate value it would be necessary to refine this emission factor to reflect the nature of the movement, i.e. geographic areas for the movements as well as the type of railcars involved: intermodal, automotive, bulk, etc

## SC1.4

---

**(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?**

Yes

### SC1.4a

---

**(SC1.4a) Describe how you plan to develop your capabilities.**

We are working on the ability to provide a more specific emission factor for different movement types such as automotive, bulk, intermodal, etc which will help to improve the data provided.

## SC2.1

---

**(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.**

## SC2.2

---

**(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?**

No

## SC3.1

---

**(SC3.1) Do you want to enroll in the 2018-2019 CDP Action Exchange initiative?**

No

SC3.2

---

**(SC3.2) Is your company a participating supplier in CDP's 2017-2018 Action Exchange initiative?**

No

SC4.1

---

**(SC4.1) Are you providing product level data for your organization's goods or services, if so, what functionality will you be using?**

No, I am not providing data

SC4.2d

---

**(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?**

No

Submit your response

---

**In which language are you submitting your response?**

English

**Please confirm how your response should be handled by CDP**

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now

**Please confirm below**

I have read and accept the applicable Terms