

## Welcome to your CDP Climate Change Questionnaire 2022

### C0. Introduction

#### C0.1

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

We're a team of 7,000+ energy problem solvers working to move, generate and store the energy North America relies on. Today, we're taking action to make that energy more sustainable and more secure. We're innovating and modernizing to reduce emissions from our business. And, we're delivering new energy solutions – from natural gas and renewables to carbon capture and hydrogen – to help other businesses and industries decarbonize too. Along the way, we invest in the communities where we live and work to strengthen community resilience and build a stronger future, together.

We have three complementary energy infrastructure businesses:

**Natural Gas Pipelines** - Our 93,300-kilometre (58,000-mile) network of natural gas pipelines supplies more than 25 per cent of the daily clean-burning natural gas demand across North America. This pipeline network strategically connects growing supply in the most prolific basins on the continent to key markets across Canada, the U.S. and Mexico. In addition to our natural gas pipelines, we have regulated natural gas storage facilities in the U.S. with a total working gas capacity of 535 Bcf, making us one of the largest providers of natural gas storage and related services to key markets in North America.

**Liquids Pipelines** - Our 4,900-kilometre (3,000-mile) liquids pipeline system connects growing continental oil supplies to key markets and refineries. The Keystone Pipeline System, our largest liquids pipeline asset, delivers approximately 20 per cent of western Canadian exports to the U.S. Midwest and Gulf Coast, where it is converted into fuel and other useful petroleum products.

**Power and Storage** - We own or have interests in seven power generation facilities with combined capacity of approximately 4,300 megawatts (MW) – enough to power more than four million homes. Approximately 75% of our power capacity is emission-less and we are leaders in the development and operation of high efficiency, natural gas-fired generating stations.

We also own and operate 118 Bcf of non-regulated natural gas storage capacity in Alberta. This business operates independently from our regulated natural gas transmission and U.S. storage businesses



For further details about our business, including additional details on the scope, size and strategy of our operations, please refer to our 2021 Annual Report. For more recent information about our business beyond the 2021 timeframe of this report, please review our subsequent quarterly filings (<https://www.tenergy.com/investors/reports-and-filings/>).

## 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
Reporting year	January 1, 2021	December 31, 2021	No

## C0.3

**(C0.3) Select the countries/areas in which you operate.**

- Canada
- Mexico
- 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 chosen approach for consolidating your GHG inventory.**

- Equity share

## C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

**Electric utilities value chain**

Electricity generation

**Other divisions**

Gas storage, transmission and distribution

## C-OG0.7

(C-OG0.7) Which part of the oil and gas value chain and other areas does your organization operate in?

Row 1

**Oil and gas value chain**

Midstream

**Other divisions**

Grid electricity supply from gas

## C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	CA87807B1076
Yes, a Ticker symbol	TRP.NYSE and TRP.TSX

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, a SEDOL code	BJMY6G0 and BJMY6F9

## 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) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.**

Position of individual(s)	Please explain
Board Chair	<p>The Chair of the Board is responsible for ensuring that the Board and Committees are organized properly, function effectively and meet its obligations and responsibilities. The Chair’s role includes coordinating the affairs of the Board, working with management (primarily the CEO), and ensuring effective relations with Board members, shareholders, other stakeholders and the public.</p> <p>The duties and responsibilities for the Chair of the Board include but is not limited to:</p> <ul style="list-style-type: none"> <li>• act as the principal sounding board, counselor and confidant for the CEO, including helping to review strategies, define issues, maintain accountability, and build relationships</li> <li>• at the request of the CEO, provide advice to the CEO on major policy issues</li> <li>• in co-operation with the CEO, assist in representing the Company in a general industry and community context</li> <li>• ensure the CEO is aware of concerns of the Board, shareholders, other stakeholders and the public</li> <li>• ensure the Board is aware of its obligations to the Company, shareholders, management, other stakeholders and to carry out such obligations pursuant to applicable law</li> <li>• ensure the Board receives adequate and regular updates from the CEO on all issues important to the welfare and future of the</li> </ul>

Position of individual(s)	Please explain
	<p>Company</p> <ul style="list-style-type: none"> <li>• maintain a liaison and communication with all directors and Committee Chairs to co-ordinate input from directors, and optimize the effectiveness of the Board and its committees</li> </ul> <p>The full Terms of Reference for Chair of the Board of Directors can be found within the following document:  <a href="https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-terms-of-reference-board-directors.pdf">https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-terms-of-reference-board-directors.pdf</a></p>
<p>Other, please specify</p> <p>Board of Directors (in its entirety)</p>	<p>Our Board provides oversight and direction in the strategic planning process to ensure we have a robust strategy that supports our vision of being North America’s premier energy infrastructure company today and in the future. As part of our annual strategic plan review, management includes an assessment of energy fundamentals, the competitive environment and the stakeholder landscape to identify opportunities and threats to our business strategy. This session informs our annual strategic priorities and executive performance measures. We also periodically test our strategy against a range of energy supply and demand outlooks to confirm our resilience. The Board reviews, discusses and approves the revised and extended five-year strategic plan during our strategic plan review.</p> <p>Our 2021 Board education program included four in-depth focus sessions covering several climate change-related topics including: global crude oil markets, natural gas fundamentals, power fundamentals and low carbon energy transition scenarios.</p>
<p>Chief Executive Officer (CEO)</p>	<p>The President and Chief Executive Officer (CEO) reports to the Board of Directors (BOD) and maintains open communication with the Board Chair. The President and CEO also sits on the Board as a non-independent director and while not a member of any of committees, is invited to attend committee meetings.</p> <p>The CEO provides overall leadership and vision in developing, in concert with the BOD, strategic direction, values, and tactics and business plans necessary to realize corporate objectives. Together, they are responsible for creating a tone and culture that ensures safe and efficient operation of the company and compliance with environment, health and safety policies and practices.</p> <p>The duties and responsibilities of the CEO includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Lead and manage the Company consistent with the approved strategic and business plans of the Company.</li> <li>• Develop and recommend strategic plans to the Board that ensure the Company's profitable growth and overall success. This includes updating and making changes as required and involving the Board in early stages of developing strategy.</li> <li>• Successfully implement the corresponding business and operational plans. Review and report regularly to the Board on overall progress and results against operating and financial objectives and initiate courses of action for improvement.</li> </ul>

Position of individual(s)	Please explain
	<ul style="list-style-type: none"> <li>• Keep the Board fully informed on all aspects of the Company's operational and financial affairs, and on all matters of significant relevance to the Company. This includes internal items and external items emanating from governments and regulators on issues such as fiscal, monetary and environment policies, legislation affecting operations and regulating oversight, etc.</li> <li>• Develop annual operating forecasts of revenue, expenditures, operational results and financial performance.</li> <li>• Authorize commitment of funds to capital projects included in budgets approved by the Board, and commitments and expenditures to \$200M max. for unbudgeted commitments and expenditures.</li> <li>• Ensure Company's assets are adequately safeguarded and optimized in the best interests of shareholders.</li> <li>• Ensure effective communications and appropriate relationships are maintained with shareholders and other stakeholders</li> </ul> <p>The full Terms of Reference for the CEO can be found here: <a href="https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-terms-of-reference-ceo.pdf">https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-terms-of-reference-ceo.pdf</a></p>
Board-level committee	<p>The Health, Safety, Sustainability and Environment (HSSE) committee of the Board oversees operational risk, occupational and process safety, sustainability, security of personnel, environmental and climate change related risks and monitors development and implementation of systems, programs and policies relating to health, safety, sustainability, security and environmental matters (HSSE matters) through regular reporting from management. An integrated management system that establishes a framework is used to manage these risks, and capture, organize, document, monitor and improve related policies, programs and procedures.</p> <p>This includes reviewing and monitoring the performance and activities of TC Energy's HSSE matters including developments in and compliance with applicable and proposed legislation, conformance with industry standards and best practices. It also includes reviewing reports on proposed climate change-related laws and regulations and their potential impact on TC Energy.</p> <p>The Committee also monitors the performance of actions and initiatives undertaken by TC Energy to prevent, mitigate and manage risks related to HSSE matters, including climate change-related risks and opportunities and any critical incidents respecting our assets, operations, personnel, and public safety. It also reviews and monitors significant regulatory audit findings, orders, reports and/or recommendations issued by or to TC Energy related to HSSE matters, incidents or issues, together with management's response.</p> <p>The HSSE Committee typically has three to four, 2.5-hour meetings each year, each of which includes, as a standing agenda item, an update from senior leadership on sustainability matters including reports and updates on company initiatives that support sustainability. As well, the update from senior leadership addresses risk management related to HSSE matters, including reports and updates on prevention, mitigation and management of risks related to HSSE matters, such as climate change or business interruption risks that may adversely impact TC Energy.</p>

Position of individual(s)	Please explain
	<p>The full charter for the Health, Safety, Sustainability and Environment committee can be found here: <a href="https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-health-safety-environment-committee-charter.pdf">https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-health-safety-environment-committee-charter.pdf</a></p>
Board-level committee	<p>The Governance Committee oversees the Enterprise Risk Management (ERM) program, policy and framework and meets with management annually to ensure there is proper Board and committee oversight according to the terms of their charters. The Governance Committee recommends, along with the respective committee (or executive) assigned responsibility for specific risks, any enhancements to our risk management program and policies to the Board. The Governance Committee also has accountability for overseeing the strategy development process and works with management to identify and discuss emerging strategic issues. Key strategic issues as identified by the Governance Committee, including climate issues and shareholder climate proposals, are elevated for discussion with the entire Board as part of the strategy development process.</p> <p>In 2021, the Committee also reviewed information on climate-related management and shareholder proposals and voting trends. The full charter for the Governance committee can be found here: <a href="https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-governance-committee-charter.pdf">https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-governance-committee-charter.pdf</a></p>
Board-level committee	<p>The Audit Committee is responsible for assisting the Board in overseeing the integrity of our financial statements, cyber risk, and our compliance with legal and regulatory requirements. The Committee oversees how management monitors compliance with market risk and counterparty credit risk management policies and procedures, discusses with management the Company’s material financial risk exposures and the steps management has taken to monitor and control such exposures, including the Company’s risk assessment and risk management policies and reviews climate change and sustainability inclusion in financial disclosure documents. Regarding market risk/commodity price risk, climate change specifically is addressed in our Annual Report/Consolidated Financial Statements.</p> <p>The full charter for the Governance committee can be found here: <a href="https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-audit-committee-charter.pdf">https://www.tcenergy.com/siteassets/pdfs/about/governance/tc-audit-committee-charter.pdf</a></p>

## 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 – all meetings	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding risk management policies</p> <p>Reviewing and guiding business plans</p> <p>Monitoring implementation and performance of objectives</p> <p>Overseeing major capital expenditures, acquisitions and divestitures</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>The Board's primary responsibility is to foster the long-term success and sustainability of the Company consistent with the Board's responsibility to act honestly and in good faith with a view to the best interests of our company.</p> <p>The Board provides oversight and direction in the strategic planning process to ensure we have a robust strategy that supports TC Energy's vision of being North America's premier energy infrastructure company today and in the future. In particular, the Board reviews, discusses and approves the revised and extended five-year strategic plan during our strategic plan review, which included approving capital commitment and expenditure budgets and related operating plans. The strategic plan review comprises an assessment of energy fundamentals, the competitive environment and the stakeholder landscape to identify opportunities and threats to our business strategy. This session informs our annual strategic priorities and executive performance measures including progress towards GHG reduction goals. We also periodically test our strategy against a range of energy supply and demand outlooks to confirm our resilience.</p> <p>The Board and its committees have responsibility for risk oversight as part of their existing mandate. On an annual basis, the Board reviews and approves the Enterprise Risk Register and on a quarterly basis reviews emerging risks and management responses.</p> <p>Our directors have a broad range of experience and skills in risk management and are highly engaged and qualified to participate in a meaningful discussion of risks with management.</p>

## C1.1d

**(C1.1d) Does your organization have at least one board member with competence on climate-related issues?**



	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	<p>While all our directors possess an extensive list of skills and experience, the Governance committee has determined that focusing on each director's top key expertise areas is a more effective way to assess director candidates and to ensure that our Board has a deep knowledge base available in each key expertise area.</p> <p>One of the key expertise areas the Governance committee assesses our Board members for is expertise in operations/health, safety, sustainability, and environment.</p> <p>This area of expertise is defined as expertise with operating assets in a cost effective, reliable and efficient manner with a mindset of continuous improvement, including expertise in assessing and managing health, safety and environmental compliance obligations. It also includes experience in overseeing sustainability in operations.</p> <p>Following our 2022 annual general meeting, eight of our directors were assessed to have this expertise.</p>

## C1.2

**(C1.2) Provide the highest management-level 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 Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Chief Risks Officer (CRO)	Both assessing and managing climate-related risks and opportunities	Quarterly
Other, please specify Corporate Health, Safety, Sustainability and Environment (HSSE) committee	Both assessing and managing climate-related risks and opportunities	Quarterly

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Risk committee	Both assessing and managing climate-related risks and opportunities	Quarterly

## 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 (do not include the names of individuals).**

The **President and CEO** position is the highest level of executive leadership with responsibility for climate-related risks and opportunities.

This position is responsible for the company’s overall leadership and vision in developing strategic direction, values and business plans, and includes overall responsibility for operating and growing our business while managing risk, including climate-related risks, to create long-term sustainable value for our shareholders.

The primary responsibilities of this role also include:

- i. managing the overall business to ensure strategic and business plans are effectively implemented within the authority limitations delegated by the Board, the results are monitored and reported to the Board, and financial and operational objectives are attained.
- ii. managing the business to create sustainable long-term shareholder value; and,
- iii. ensuring the identification and communication to the Board of all material risks along with mitigation plans and procedures.

The Chief Sustainability Officer (CSO) provides strategic leadership of sustainability-related issues such as climate change, energy and resource conservation, environmental stewardship, stakeholder issues and awareness at the highest level of TC Energy. The CSO is responsible for directing the coordination, communication and management of sustainability-related issues, including climate change, for TC Energy, particularly the intersection of risk, governance, environmental and social issues.

The **Chief Risk Officer** (CRO) centralizes a pragmatic approach to facilitating the annual enterprise risk assessment and management of the enterprise risk register. The CRO is focused on prioritizing risks, clarifying roles and responsibilities, improving Board and management oversight, and providing the Board with quarterly in-depth presentations on the Enterprise Risks including climate-related risks. The CRO is responsible for ensuring the Enterprise Risk Management Program governance model, framework, and processes are established, properly documented, and maintained in a manner that is suitable for our culture and operating model. The CRO also periodically reports Enterprise Risks and Emerging Risks to the Board and the Governance Committee and engages with the Board to obtain their insights for risk identification of Enterprise Risks.



The **Corporate Health, Safety, Sustainability and Environment (HSSE) committee**, comprised of management representatives from various departments, recommends strategic priorities relating to HSSE matters to the Chief Sustainability Officer, monitors HSSE developments and shapes communication strategy on HSSE matters. The Committee also ensures the adequacy and effectiveness of the Health, Safety and Environment (HSE) Management Programs and sub-programs that are part of our Operational Management System (TOMS). Chaired by the CRO, the Management Risk Committee is comprised of the ELT and is accountable for the management of enterprise risks including climate-related risks and implementation of enterprise risk mitigation plans. In addition to their primary oversight by the Board of Directors Governance Committee, the outputs of the Management Risk Committee are also reported to the full Board of Directors.

### C1.3

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

	<b>Provide incentives for the management of climate-related issues</b>	<b>Comment</b>
Row 1	No, not currently but we plan to introduce them in the next two years	In 2021, we did not have stand-alone climate-related issue targets included in the incentive structure, although risk reduction, as it relates to optimization and utilization of our existing asset base, and asset integrity, which considers leaks and spills which may contribute to climate-related impacts, are included as a Key Performance Area indicator in the 2021 Corporate Scorecard. Several of our AIC metrics are influenced by ESG-related elements. Safety and asset integrity metrics were weighted at 20% of overall performance in the AIC program, and risk reduction was considered in the annual assessment of our goal to optimize the value of our existing assets. For 2022, scorecard weightings, which have a direct impact on executive and all employees' compensation, are: 25% for progressing ESG priorities, including safety and employee diversity; 50% for delivering financial results and 25% for other key strategic priorities, including growth and energy transition.

## C2. Risks and opportunities

### C2.1

**(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?**

Yes

#### C2.1a

**(C2.1a) How does your organization define short-, medium- and long-term time horizons?**

	From (years)	To (years)	Comment
Short-term	1	2	Time horizons align with our risk practices including Enterprise Risk Management.
Medium-term	3	10	Time horizons align with our risk practices including Enterprise Risk Management.
Long-term	11	20	Time horizons align with our risk practices including Enterprise Risk Management.

#### C2.1b

**(C2.1b) How does your organization define substantive financial or strategic impact on your business?**

We examine risks holistically, seeking to understand the potential consequences of a risk event by examining it through different lenses. This enables a consistent risk analysis and furthermore informs the response to and treatment of risks. We have established criteria on risk impact, through our Enterprise Risk Matrix, including the impact of financial risks on our business and we use differing levels relating to damage/financial loss estimates (e.g., market risk, counterparty credit risk and potential impacts of policy changes on earnings, cashflows and ultimately, shareholder value).

### C2.2

**(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.**

**Value chain stage(s) covered**

Direct operations  
Upstream  
Downstream

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

More than once a year

**Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

**Description of process**

Enterprise Risk Management: Risk management is integral to the successful operation of our business. Our strategy is to ensure that our risks and related exposures are aligned with our business objectives and risk tolerance. We manage risk through a centralized enterprise risk management (ERM) program that identifies enterprise risks, including ESG-related risks, that could materially impact the achievement of our strategic objectives.

The program includes:

- enterprise risk register;
- enterprise risk heat map and report consisting of risk assessment and mitigation controls; and
- quarterly emerging risk reports.

The purpose of the ERM program is to address risks to, or yielding from, the execution of our strategy, as well as enabling practices that allow us to identify and monitor emerging risks, including climate-related risks. Specifically, the ERM program provides a framework and an end-to-end process for risk identification, analysis, evaluation and mitigation, and the ongoing monitoring and reporting to the Board, CEO and executive vice-presidents, including the Chief Risk Officer.

The core ERM principles are in alignment with international standards and guidelines, such as ISO 31000, the Committee of Sponsoring Organizations (COSO) and TCFD.

Our Board retains general oversight of all enterprise risks, as identified below, and specifically has direct oversight of reputation and relationships, regulatory uncertainty, capital allocation strategy, and execution and capital costs. The Board reviews the enterprise risk register annually and how these risks are being managed and mitigated in accordance with TC Energy's risk appetite and tolerances. The Board is informed quarterly on emerging risks and managements response to these risks. If an emerging risk rises to the level of an enterprise risk, then the Governance committee will review the mapping of such enterprise risk and the Governance committee chair will include the identified enterprise risk and the enterprise risk governance and execution owners in its report to the Board. Our executive leadership team is accountable for developing and implementing risk management plans and actions, and effective risk management is reflected in their compensation. Each identified enterprise risk has executive leadership team member(s) as the governance and execution owner(s) and they provide an in-depth review for the Board on an annual basis. The enterprise risk register establishes clear accountabilities of the Board, committees, and executives responsible for specific oversight of each enterprise risk. The following is a list of enterprise-wide risks with potential to affect our organization are continuously monitored.

- Business Interruption
- Reputation and relationships
- Access to capital at a competitive cost
- Capital allocation strategy
- Cyber security
- Climate change
- Political and regulatory
- Strategy and development
- Project execution and capital costs
- Talent attraction, retention, and succession planning

Our Corporate Governance Guidelines outlines that the Board is responsible for understanding the principal risks associated with the Company's business on an ongoing basis and for ensuring that management has implemented appropriate strategies to manage these risks. It is the responsibility of Management to assure that the Board and its Committees are kept well informed of these changing risks on a timely basis. It is important that the board understand and support the key risk decisions of management, which includes comprehending the appropriate balance between risks and benefits. The Governance Committee has been delegated the responsibility to oversee our ERM activities, which includes ensuring appropriate management systems are in place to identify and manage our risks, ensuring adequate Board oversight of our risk management policies, programs and practices.

**Value chain stage(s) covered**

Direct operations  
Upstream  
Downstream

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

More than once a year

**Time horizon(s) covered**

Short-term  
Medium-term  
Long-term

**Description of process**

Regulatory: We assess opportunities to develop and acquire energy infrastructure that complements our existing portfolio, considers future resilience, and diversifies access to attractive supply and market regions within our risk tolerance profile. This also includes assessment of decisions by regulators that can have a significant impact on the approval, construction, operation, commercial and financial performance of assets.

We manage these opportunities and risks by continuously monitoring regulatory and government developments and decisions to determine their possible impact on our business, by building scenario analysis into our strategic outlook, and by working closely with our stakeholders in the development and operation of our assets.

Changing environmental or climate-related requirements or revisions to the current regulatory process may adversely impact the timing or ability to obtain approvals for our assets and as such, we are an active participant in formal and informal regulatory proceedings.

Public opinion may also have an adverse impact on the regulatory process.

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**Value chain stage(s) covered**

Direct operations

**Risk management process**

Integrated into multi-disciplinary company-wide risk management process

**Frequency of assessment**

Annually

**Time horizon(s) covered**

Short-term

Medium-term

**Description of process**

Pipeline Integrity: While delivering energy, pipelines could potentially pose a risk to public in the event of a release, consequently as an operator TC Energy must make decisions every day affecting risk.

Our Project Delivery Standard (PDS) was established to drive consistent and predictable project outcomes. It ensures decision makers are provided relevant information at the right time to make effective investment decisions.

PDS defines the framework for planning, executing and assuring projects, and provides a consistent, disciplined approach to create new or replace, modify or add to existing operational assets throughout their project lifecycle.

PDS drives capital efficiency by matching the level of effort with the level of project maturity, and it articulates business objectives. PDS defines the approach to planning, executing, and assuring projects at TC Energy.

The Engineering Design Procedures under PDS support projects in ensuring assets are fit for purpose, comply with regulatory requirements, and adhere to our engineering standards that define requirements for engineering design, drafting, construction and commissioning of new or modified assets. These processes and standards ensure assets are designed and constructed with consideration of physical risks.

Our System Wide Risk Assessment (SWRA) provides the critical risk information as quantitative and integrated risk projections. It is used by pipeline integrity functions and leadership, to thoroughly quantify risks in support of the Integrity Management Program and optimize asset management decisions. Completed annually, SWRA utilizes algorithms to predict the likelihood of a release by incorporating integrity assessment data, SME expertise, and failure history. It then combines the likelihood with understanding of a consequence to the affected public by considering nearby structures and populated areas and their proximity to the pipeline. The output is risk, reported using two measures: Individual Risk (IR) - Risk to an individual presumed to be present on the pipeline right of way, and Societal Risk (SR) - Risk to people living and working nearby a pipeline.



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**Value chain stage(s) covered**

Direct operations

**Risk management process**

A specific climate-related risk management process

**Frequency of assessment**

More than once a year

**Time horizon(s) covered**

Short-term

Medium-term

**Description of process**

Integrated Operational Management System: We are committed to be an industry leader in the safe and reliable delivery of energy. At the foundation of this commitment is the effective identification and management of risk as it is instrumental in achieving our safety, reliability, economic, social and environmental objectives. TOMS, our integrated operational management system based on global best practices is comprised of elements and mandated programs to realize these objectives.

The mandated programs set requirements, driven by specific risk areas, internal objectives, industry best practices and regulatory requirements, and include, but are not limited to, the following areas which incorporate climate-related risks:

- Environment: we are committed to managing our environmental and climate-related effects and protecting the environment through the complete life-cycle of our assets. We understand our ability to have strong environmental stewardship, protection and performance has a direct impact on the communities where we work and our ability to competitively build and operate our assets.
- Asset (Facility and Pipeline) Integrity: maintaining the integrity of our assets is one of our guiding principles that helps prevent unplanned releases that could result in a major incident. Such incidents can result in serious injuries to personnel or the public, property damage, the loss of production and environmental impacts. This includes threat management related to weather and other outside forces.

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**Value chain stage(s) covered**

Direct operations

Upstream

Downstream

**Risk management process**

A specific climate-related risk management process

**Frequency of assessment**

Annually

**Time horizon(s) covered**

Long-term

**Description of process**

Scenario Analysis: Scenario planning against several demand outlooks and monitoring of key signposts is also considered as part of the Company's long-term corporate strategic planning process.

We recognize the future energy system will evolve. As part of our annual strategic planning process, management includes an assessment of energy fundamentals and market scenarios, the competitive environment, and the stakeholder landscape, to identify opportunities and threats to our business strategy – in other words, how well we tolerate and adapt to external changes that may affect our ability to meet long-term goals and remain effective.

We also periodically test our strategy against a range of energy supply and demand outlooks to confirm our resilience.

We continuously develop mitigation strategies to enhance our resiliency and monitor signposts, such as technology shifts and policy changes, to gauge the direction of the energy sector to help inform our capital allocation decisions. Scenarios consider the uncertainty and complexity of the energy system to identify a range of energy futures. By examining outcomes within this broad hypothetical context, we gain perspective on the impact of energy system changes on our current portfolio and uncover potential growth opportunities.

**C2.2a**

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>Our assets in specific geographies are currently subject to GHG regulations and we expect that the number of our assets subject to GHG regulations will continue to increase over time across our footprint. In 2021, we incurred \$59 million (2020 – \$64 million) of expenses under existing carbon pricing programs. Changes in regulations may result in higher operating costs, other expenses or capital expenditures to comply with possible new regulations.</p> <p>Operating our assets also requires obtaining and complying with a wide variety of environmental registrations, licenses, permits and other approvals and requirements. Failure to comply could result in administrative, civil or criminal penalties, remedial requirements, or orders affecting future operations. Through the implementation of our Environment Program, we continually monitor our facilities for compliance with all material legal and regulatory environmental requirements across all jurisdictions where we operate. We also comply with all material legal and regulatory permitting requirements in our project routing and development.</p>
Emerging regulation	Relevant, always included	<p>Across North America, there are a variety of new and evolving initiatives and policies in development at the federal, regional, state and provincial level aimed at reducing GHG emissions.</p> <p>We routinely monitor proposed changes to environmental policy, legislation and regulation and submit comments to regulators as these new and evolving initiatives are developed and policies implemented. Where the risks are uncertain or have the potential to affect our ability to effectively operate our business, we comment on proposals independently or through industry associations.</p> <p>Regulatory decisions can have a significant impact on the approval, construction, operation, commercial and financial performance of our assets. Shifts in government policy by existing bodies or following changes in government can impact our ability to grow our business. Public opinion, particularly in light of climate change concerns, may also have an adverse impact on the regulatory process. Changing environmental requirements or revisions to the current regulatory process may adversely impact the timing or ability to obtain approvals for our assets. We manage these risks by continuously monitoring regulatory and government developments and decisions to determine their possible impact on our business by building scenario analysis into our strategic outlook and by working closely with our stakeholders in the development and operation of our assets. We support transparent climate change policies that promote sustainable and economically responsible natural resource development.</p> <p>As part of our ongoing ERM program, we identify emerging risks on a variety of topics that may affect our business, including political, regulatory, and government policy risks. We believe our mitigation plans to address emerging regulations</p>

	Relevance & inclusion	Please explain
		will help maintain the competitiveness of our business noting shifts in existing government decisions and evolving policies by regulators and other government authorities, including changes in regulation, can have an impact on the approval, timing, construction, operation, growth opportunities, and financial performance of our natural gas and liquids pipeline assets.
Technology	Relevant, always included	<p>Looking forward, as demand grows and technology evolves, we are poised to play a vital role in the energy transition currently unfolding. We are confident in our ability to deliver sustainable shareholder returns by capturing investment opportunities that will arise with increased demand for energy and the move to a lower-carbon future.</p> <p>Future investments will alter our business mix as energy transition unfolds with anticipated shifts in capital allocation such as measured investment in new technology without taking significant commodity price or volumetric risk.</p> <p>With our decades of experience in the energy infrastructure business, a disciplined approach to project management and a proven capital allocation model result in a solid competitive position as we remain focused on our purpose; to deliver the energy people need today and in the future, safely, responsibly, collaboratively and with integrity.</p> <p>Uncertainty around traditional and energy transition technology development and deployment is relevant to our operations and growth, including energy efficiency, electrification (in transportation, heating, etc.), industrial decarbonization, renewable and alternative energy sources, batteries and other electricity storage, low-carbon fuels (such as renewable natural gas (RNG) and hydrogen), and digitalization.</p> <p>Developing and deploying new technologies and new products inherently involves a degree of financial risk associated with escalating costs, uncertain outcomes and delays to anticipated in-service schedules.</p> <p>Our assets will also play a role in energy transition by enabling new technologies to develop and flourish to help our customers achieve their targeted emission reductions. This was demonstrated last year as we progressed numerous energy transition growth initiatives, including opportunities in renewables, hydrogen, and carbon capture, utilization and storage (CCUS). As we grow each business, we do so strategically and with close consideration of the changing global context.</p>
Legal	Relevant, always included	<p>We own assets and have business interests in several regions subject to greenhouse gas (GHG) emissions regulations and there are a variety of new and evolving initiatives aimed at reducing GHG emissions that could affect our business.</p> <p>Increasing climate-related concerns could result in an increased risk of associated litigation.</p>

	Relevance & inclusion	Please explain
		<p>Our Legal Requirements Monitoring Process, part of the Compliance Element in our Operational Management System (TOMS), is the corporate process for identifying and monitoring compliance with applicable legal requirements including those related to GHG emissions, carbon pricing and other climate-related legislation. The process is required by the Canadian Energy Regulator and Mexican Comisión Reguladora de Energía and is currently offered on an elective "opt-in" basis for our corporate functions, Power and Storage business and U.S. business.</p>
Market	Relevant, always included	<p>Our existing extensive footprint offers significant in-corridor growth opportunities. This includes possible future opportunities to deploy low-emissions infrastructure technologies such as renewables, hydrogen and carbon capture, which will help reduce our and our customers' carbon footprint and also supports extending the longevity of our existing assets. We also assess opportunities to develop and acquire energy infrastructure that complements our existing portfolio, enhances future resilience under a changing energy mix, and diversifies access to attractive supply and market regions within our risk preferences.</p> <p>Our low-risk and enduring business model offers the scale and presence to provide essential and highly competitive infrastructure services that enable us to maximize the full-life value of our long-life assets and commercial positions throughout all points of the business cycle. Our portfolio of assets support transporting both molecules and electrons, providing us flexibility to allocate capital towards electrification or other emerging low-carbon technologies in support of any energy transition scenario.</p> <p>We view commodity price and volume risk being the primary market risk related to climate change.</p> <p>We are exposed to market risk and counterparty credit risk and have strategies, policies and limits in place to manage the impact of these risks on our earnings, cash flows and, ultimately, shareholder value.</p> <p>Emerging decarbonization policies or could affect North American energy consumption patterns and preferences, affecting long-term energy supply and demand trajectories.</p> <p>We construct and invest in energy infrastructure projects, purchase and sell commodities, issue short- and long-term debt, including amounts in foreign currencies, and invest in foreign operations. Certain of these activities expose us to market risk from changes in commodity prices, foreign exchange rates and interest rates, which may affect our earnings, cash flows and the value of our financial assets and liabilities. We assess contracts used to manage market risk to determine whether all, or a portion, meet the definition of a derivative.</p>

	Relevance & inclusion	Please explain
		Extreme temperature and weather can also affect market demand for power and natural gas and can lead to significant price volatility and can also restrict the availability of natural gas and power if demand is higher than supply.
Reputation	Relevant, always included	<p>Our operations and growth prospects require us to have strong relationships with rightsholders and stakeholders such as customers, Indigenous communities, local communities, landowners, suppliers, investors, governments and government agencies, and environmental non-governmental organizations.</p> <p>Inadequately managing stakeholder expectations and concerns, including those related to climate change, can have a significant impact on our operations and projects, infrastructure development and overall reputation. It could also affect our ability to operate and grow, and our access to and cost of capital.</p> <p>Constructing and operating our pipelines to ensure transportation services are provided safely and reliably is essential to the success of our business. Interruptions in our pipeline operations impacting throughput capacity may result in reduced revenues and can affect corporate reputation as well as customer and public confidence in our operations. We manage this by investing in a highly skilled workforce, hiring third-party inspectors during construction, operating prudently, monitoring our pipeline systems continuously, using risk-based preventive maintenance programs and making effective capital investments.</p>
Acute physical	Relevant, always included	<p>Significant changes in temperature and weather, including the potential impacts of climate change, have many effects on our business, ranging from the impact on demand, availability and commodity prices, to efficiency and output capability.</p> <p>Extreme temperature and weather can affect market demand for power and natural gas and can lead to significant price volatility. Extreme weather can also restrict the availability of natural gas and power if demand is higher than supply.</p> <p>Seasonal changes in temperature can reduce the efficiency and production of our natural gas-fired power plants.</p> <p>Business interruption caused by physical changes to our environment which could result in a decrease in revenues and increase in operating costs, legal proceedings or regulatory actions, or other expenses, all of which could reduce our earnings.</p> <p>Losses not recoverable through tolls or contracts or covered by insurance could have an adverse effect on operations, cash flow and financial position. Designed to complement normal operations, its operational business units, and the current Emergency Response Plans (ERP), our Crisis Management Program (CMP) is a strategic system that sets out a framework and a management structure to effectively manage a crisis event, including adverse weather conditions, which has the</p>

	Relevance & inclusion	Please explain
		<p>potential to greatly affect the operations and credibility of a company. Crisis management includes anticipating, preventing, preparing for and responding to a crisis which falls outside the normal company management structure.</p> <p>Our Business Continuity Program plans for, and responds to, the impact of business disruptions through determination of critical functions and development of resumption plans. Business Continuity Planning identifies an organization’s critical functions via a Business Impact Analysis, key dependencies of those functions, and then facilitates the development of loss strategies, in collaboration with our internal service providers, to resume operations.</p>
Chronic physical	Relevant, always included	All relevant chronic physical risk considerations are included in our response to captured in our description for monitoring and mitigating acute physical risks.

## 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 & Primary climate-related risk driver**

Market

Other, please specify

changing customer behaviours, uncertainty in market signals and increased cost of raw materials

**Primary potential financial impact**

Other, please specify

increased indirect operating costs and decreased asset value or asset useful life leading to write-off, asset impairment or early retirement of existing assets

**Company-specific description**

RISK 1 - Market Risk

We construct and invest in energy infrastructure projects, purchase, and sell commodities, issue short- and long-term debt, including amounts in foreign currencies, and invest in foreign operations. Certain of these activities expose us to market risk from changes in commodity prices, foreign exchange rates and interest rates, which may affect our earnings, cash flows and the value of our financial assets and liabilities. We assess contracts used to manage market risk to determine whether all, or a portion, meet the definition of a derivative. We require substantial amounts of capital in the form of debt and equity to finance our portfolio of growth projects and maturing debt obligations at costs that are sufficiently lower than the returns on our investments.

**Time horizon**

Medium-term

**Likelihood**

Unlikely

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**



**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Significant deterioration in market conditions for an extended period of time and changes in investor and lender sentiment could affect our ability to access capital at a competitive cost, which could negatively impact our ability to deliver an attractive return on our investments or inhibit our growth. Extreme temperature and weather can also affect market demand for power and natural gas and can lead to significant price volatility with tangible bottom line implications to our business.

**Cost of response to risk**

**Description of response and explanation of cost calculation**

Our capital allocation decision making process considers our GHG targets and other ESG priorities. We conduct analyses to identify resilient supply sources as part of our energy fundamentals and strategic development reviews.

**Comment**

This summary of potential climate-related risk event that may affect our company is a subset of the risks identified through our enterprise risk management program which are continuously monitored and revised annually. The financial impact has been determined following our annual enterprise risk assessments where both risks to, and opportunities from, TC strategy are considered. Risks specific to each operating business segment can be found in each business segment discussion of the Annual Report and the climate-related risks listed may not be material under securities laws.

We operate within our financial means and risk tolerances, maintain a diverse array of funding levers and also utilize portfolio management as an important component of our financing program. In addition, we have candid and proactive engagement with the investment community, including credit rating agencies, with the objective of hearing their feedback and keeping them apprised of developments in our business and factually communicating our prospects, risks and challenges as well as ESG-related updates. We also conduct research around the evolving ESG preferences of our investors and financial partners which we consider in our decision making.

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**Identifier**

Risk 2

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

Direct operations

**Risk type & Primary climate-related risk driver**

Acute physical

Other, please specify

significant temperature or weather changes including, but not limited to, cyclones, hurricanes, typhoons, floods, landslides, storms, tornadoes, and wildfires

**Primary potential financial impact**

Other, please specify

increased (indirect) operating costs and increased insurance claims liability

**Company-specific description**

RISK 2 - Acute Physical; significant temperature or weather changes

As a leading energy infrastructure company in North America, our assets could be impacted by extreme weather events like floods seen in British Columbia and winter storms in Texas. Seasonal changes in temperature can also reduce the efficiency and production of our natural gas-fired power plants.

**Time horizon**

Short-term

**Likelihood**

About as likely as not

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Business interruption caused by physical changes to our environment could result in a minimal financial impact for our pipeline assets given toll and contractual structures and may result in an increase to operational costs, legal proceedings or regulatory actions, or other expenses, all of which could reduce our earnings.

**Cost of response to risk**

**Description of response and explanation of cost calculation**

We conduct comprehensive risk assessments including the evaluation of acute physical climate impacts to our assets through our ERM program to ensure leadership has visibility to the broader perspective, and that treatments are applied in a holistic and consistent manner.

**Comment**

This summary of potential climate-related risk event that may affect our company are a subset of the risks identified through our enterprise risk management program which are continuously monitored and revised annually. The financial impact has been determined following our annual enterprise risk assessments where both risks to, and opportunities from, TC strategy are considered. Risks specific to each operating business segment can be found in each business segment discussion of the Annual Report and the climate-related risks listed may not be material under securities laws.

In addition to evaluation through our ERM program, our engineering standards, used to design and construction are assets, are also regularly reviewed to ensure assets continue to be designed and operated to withstand the potential impacts of climate change. If an event did occur,

then our Emergency Management Program (within TOMS) would manage our response to natural disasters, which include catastrophic events such as forest fires, tornadoes, earthquakes, floods, volcanic eruptions, and hurricanes. We also have a comprehensive insurance program to mitigate a certain portion of these risks, but insurance does not cover all events in all circumstances.

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**Identifier**

Risk 3

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

Direct operations

**Risk type & Primary climate-related risk driver**

Reputation

Increased stakeholder concern or negative stakeholder feedback

**Primary potential financial impact**

Decreased revenues due to reduced demand for products and services

**Company-specific description**

RISK 3 - Reputation and relationships

Our operations and growth prospects require us to have strong relationships with key stakeholders including customers, Indigenous communities, landowners, suppliers, investors, governments and government agencies and environmental non-governmental organizations.

**Time horizon**

Short-term

**Likelihood**

More likely than not

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

**Cost of response to risk**

**Description of response and explanation of cost calculation**

Inadequately managing stakeholder expectations and concerns, including those related to climate change, can have a significant impact on our operations and projects, infrastructure development and overall reputation. It could also affect our ability to operate and grow.

Our core values – safety, responsibility, collaboration, integrity and innovation – guide us in building and maintaining our key relationships as well as our interactions with stakeholders. We are proud of the strong relationships we have built with stakeholders and rightsholders across our geographies, who include customers, Indigenous communities, landowners, suppliers, investors, governments and government agencies, and environmental nongovernmental organizations. We are continuously seeking ways to strengthen these relationships. Beyond our core values, we have specific stakeholder programs and policies that shape our interactions, clarify expectations, assess risks and facilitate mutually beneficial outcomes. Specific stakeholder and rightsholder programs and policies shape our interactions, clarify expectations, assess risks and facilitate mutually beneficial outcomes. We strive to be transparent in how we communicate our progress on ESG matters and how relevant information is woven throughout our reporting. Our ESG directory (<https://www.tcenergy.com/investors/esg/esg-directory/>) acts as a central hub to provide our stakeholders with details of our comprehensive management and performance of relevant sustainability and ESG issues.

**Comment**

This risk is identified and managed through our enterprise risk management (ERM) program which are continuously monitored and revised annually. The financial impact has been determined following our annual enterprise risk assessments where both risks to, and opportunities from, TC strategy are considered. Risks specific to each operating business segment can be found in each business segment discussion of the Annual Report and the climate-related risk listed may not be material under securities laws.

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**Identifier**

Risk 4

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

Direct operations

**Risk type & Primary climate-related risk driver**

Current regulation

Other, please specify

current and emerging climate-related regulations and policy

**Primary potential financial impact**

Other, please specify

increased capital expenditures and decreased asset value or asset useful life leading to write-offs, asset impairment or early retirement of existing assets

**Company-specific description**

RISK 4 - Regulatory uncertainty

We own assets and have business interests in several regions subject to GHG emissions regulations including GHG emissions management and carbon pricing policies. Across North America, there are a variety of new and evolving regulatory requirements and initiatives aimed at reducing GHG emissions that could affect our business.

Increasing climate-related concerns could result in an increased risk of associated litigation and resulting financial impacts.

Our ability to construct and operate energy infrastructure requires regulatory approvals and is dependent on evolving policies and regulations by

government authorities. This includes changes in regulation that may affect timing of our projects and operations and affect the financial performance of our assets.

**Time horizon**

Medium-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-low

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Shifts in existing government decisions and evolving policies by regulators and other government authorities, including changes in regulation, can impact the approval, timing, construction, operation, growth opportunities, and financial performance of our assets.

**Cost of response to risk**

**Description of response and explanation of cost calculation**

Adverse impacts on competitive geographic and business positions could result in the inability to meet our growth targets through missed or lost organic, greenfield and brownfield opportunities. Financial impacts of denied or delayed projects could include lost development costs, loss of investor confidence and potential legal costs from litigation. For example, delayed or unfavourable regulatory and policy decisions could also adversely impact construction through higher costs, extended in-service dates, anticipated revenues, and the opportunity to further invest in our systems.

We monitor regulatory and government developments and decisions to analyze their possible impact on our businesses. We build scenario analysis into our strategic outlook and work closely with our rightsholders and stakeholders in the development and operation of our assets. We identify emerging risks and signposts including customer, regulatory and government decisions as well as innovative technology development, and report on our management of these risks quarterly through the ERM program to the Board. We also use this information to inform our capital allocation strategy and adapt to changing market conditions.

Emerging policies could affect North American energy consumption patterns and preferences and we expect headwinds and tailwinds for our existing infrastructure and growth plan. Broadly, decarbonization policies will affect long-term energy supply and demand trajectories and influence capital investment decisions. Investors and customers are watching, using ESG factors to differentiate between energy companies.

**Comment**

Risks specific to each operating business segment can be found in each business segment discussion of the Annual Report. The climate-related risks listed may not be material under securities laws.

**Identifier**

Risk 5

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

Direct operations

**Risk type & Primary climate-related risk driver**

Technology

Transitioning to lower emissions technology

**Primary potential financial impact**



Decreased revenues due to reduced demand for products and services

**Company-specific description**

RISK 5 – Technology and customer demand changes

To be competitive, we must offer integral energy infrastructure services in supply and demand areas, and in forms of energy that are attractive to customers. This includes energy transition opportunities such as: energy efficiency, electrification, renewable and alternative energy sources, batteries and other electricity storage, and low-carbon infrastructure to support renewable natural gas (RNG), carbon capture and sequestration and hydrogen.

Investing in large infrastructure projects involves substantial capital commitments and associated execution risks based on the assumption that these assets will deliver an attractive return on investment in the future.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

## Cost of response to risk

### Description of response and explanation of cost calculation

Looking forward, as demand grows and technology evolves, TC Energy is poised to play a vital role in the energy transition currently unfolding. We are confident in our ability to deliver sustainable shareholder returns by capturing investment opportunities that will arise with increased demand for energy and the move to a lower carbon future.

Should alternative lower-carbon forms of energy result in decreased demand for our services on an accelerated timeline versus our pace of depreciation, the value of our long-lived energy infrastructure assets could be negatively impacted. In addition, developing and deploying new technologies and new products inherently involves a degree of financial risk associated with escalating costs, uncertain outcomes and delays to anticipated in-service schedules.

### Comment

This is a subset of the risks identified through our enterprise risk management (ERM) program which are continuously monitored and revised annually. The financial impact has been determined following our annual enterprise risk assessments where both risks to, and opportunities from, TC strategy are considered. Risks specific to each operating business segment can be found in each business segment discussion of the Annual Report. The climate-related risks listed may not be material under securities laws.

## 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**

Resilience

**Primary climate-related opportunity driver**

Other, please specify

continued adoption of energy-efficiency measures, lower-emission technologies and participant in carbon market

**Primary potential financial impact**

Other, please specify

less sensitivity to current and emerging climate-related regulations

**Company-specific description**

OPPORTUNITY 1 - Resiliency to current and emerging climate-related regulation and policy

We view current and emerging climate-related regulation and policy development as an opportunity to contribute to the development of strong and sound policy, as well as providing the regulatory certainty required to attract capital, facilitate timely, meaningful, and cost-effective emissions reductions, maintain and encourage the North American energy sector competitiveness, recognize and account for early and/or voluntary actions and support market-based policies to promote industry innovation.

Our current assets will also play a role in energy transition by enabling new technologies to develop and flourish to help our customers achieve their targeted emission reductions. This was demonstrated last year as we progressed numerous energy transition growth initiatives, including opportunities in renewables, hydrogen, and carbon capture, utilization and storage (CCUS). As we grow each business, we do so strategically and with close consideration of the changing global context.

We know that strong climate change policy will take a collective effort among industry, governments, communities, and consumers to see true

change in actions against climate change, and we will continue to advance our efforts to work with policy makers and industry peers to help our industry fully participate in the North American climate change discussion.

**Time horizon**

Short-term

**Likelihood**

Likely

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Effective policy development is an opportunity for government and industry to partner in driving timely, cost-effective emission reductions. Well-designed policy can provide the regulatory certainty required to attract capital and maintain North American energy sector competitiveness, incent research and innovation, and recognize and account for early and/or voluntary actions.

Climate legislation also drives opportunities such as increasing market demand for natural gas, customer requirements and technology evolution.

**Cost to realize opportunity**

**Strategy to realize opportunity and explanation of cost calculation**

TC Energy has the proven ability to adapt. We have a long track record of turning policy and technology changes into opportunities – for example, re-entering Mexico when the country shifted from fuel oil to natural gas, reversing pipeline flows in response to the shale gas revolution and re-purposing the underutilized Canadian Mainline pipeline capacity from natural gas to crude oil service. We also proactively manage emissions through asset-level efficiency improvements and installations, and by taking an industry-leading role in carbon markets across North America.

In a capital and carbon-constrained world, the long-term viability of natural gas in part depends on its ability to play the role of the cleaner fossil fuel of the future and as such, minimizing emissions is essential to ensuring natural gas provides climate and public health benefits going forward.

In support of our GHG emissions reduction targets, our value optimization strategy of our existing Liquids Pipelines assets includes taking significant steps to source renewable power for our operations. The strategy addresses scope two emissions, which are primarily generated by the consumption of electricity used to power our liquids pipelines. While challenging, we support a price on carbon as providing a more direct signal to consumers and the economy to reduce emissions compared to other policies and a predictable price trajectory which will help the company better evaluate decarbonization pathways. We also agree that for carbon pricing policies to be effective, they must be founded on a legislative and regulatory framework that establishes clearly defined, predictable and transparent pricing signals over the long-term.

Our dedicated public policy and advocacy teams' mandates include ensuring we present policy proposals that build positive outcomes for our business, rightsholders and stakeholders, including governments.

**Comment**

We support broad-based, economy-wide carbon pricing and believe that an effective carbon pricing structure must:

- Facilitate meaningful emissions reductions;
- Balance economic, environmental, and energy security needs;
- Provide the regulatory certainty required to attract capital;
- Consider the role of natural gas in the timely transition to a low-carbon economy;
- Maintain and encourage the North American energy sector competitiveness;
- Support market-based policies to promote industry innovation;
- Ensure compliance flexibility and support for carbon offsets;
- Recognize and account for early and/or voluntary actions; and,
- Harmonize policy frameworks and avoids duplication.

When such principles inform public policy, they minimize overall societal costs and allow markets to determine the technologies that will be most successful.

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**Identifier**

Opp2

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

Direct operations

**Opportunity type**

Products and services

**Primary climate-related opportunity driver**

Other, please specify

Development and/or expansion of low emission goods and services responding to shift in consumer preferences

**Primary potential financial impact**

Other, please specify

Increased revenues resulting from increased demand for products and services, and through access to new and emerging markets

**Company-specific description**

OPPORTUNITY 2 - Changing customer and consumer demand

Transporting natural gas in our pipelines continues to support the significant shift away from coal-fired power generation occurring in North America and beyond, including through exporting LNG. Natural gas is a critical part of our clean-energy future and provides immediate, practical solutions to reducing emissions. As natural gas is a flexible, lower-emission fuel compared to other hydrocarbons such as coal, natural gas can be an ideal partner for renewable energy sources like wind and solar power since it can quickly provide power to the national grid when renewable energy sources are not available. Natural gas provides an opportunity to reduce emissions by switching from traditional fuels used for heating and power generation and align with regulatory-driven climate change or GHG emission policy ambitions.

In N. America there is still opportunity for more coal-to-gas conversions. And we can help facilitate this transition overseas with our expanding role in developing N. America's LNG export industry with several pipeline projects in the U.S. and Canada. The growing supply of natural gas

has resulted in relatively low natural gas prices in North America which has supported increased demand, particularly in the following areas: natural gas-fired electric-power generation, petrochemical and industrial facilities, Alberta oil sands, exports to Mexico to fuel power generation and other industrial facilities.

Natural gas producers continue to progress opportunities to sell natural gas to global markets which involves connecting natural gas supplies to LNG export terminals, both operating and proposed, along the U.S. Gulf Coast; the west coast of N. America; and the east coast of Canada. Responding to the changing flow patterns of natural gas, as well as the demand created by the addition of these new markets, creates opportunities for us to build new pipeline infrastructure and to increase throughput on our existing pipelines.

Our Canadian natural gas storage business helps balance seasonal and short-term supply and demand while also adding flexibility to the delivery of natural gas to markets in Alberta and the rest of North America.

Global crude oil and liquids demand is projected to increase, driven generally by the transportation and industrial sectors. Our strategic focus is to pursue emerging growth opportunities to add incremental value to our business to proactively address these anticipated demands.

**Time horizon**

Medium-term

**Likelihood**

More likely than not

**Magnitude of impact**

Low

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Even the widest ranging scenarios show the world will continue to rely upon large quantities of natural gas and oil for the foreseeable future. As we look ahead, it is from our irreplaceable footprint, and our continued execution of our approximately \$24 billion secured capital program, which is 78 per cent natural gas pipeline projects and 18 percent power and storage projects including \$4.4b towards refurbishing Bruce Power which supplies ~30% of Ontario's market with emission-less electricity, that we will grow our energy offerings as we participate in the energy transition.

These are early days, but we recognize the energy landscape is evolving. We continue to anticipate, adapt and position to be the premier energy infrastructure company in North America, now and in the future, with each of these areas playing a critical role in meeting the transportation requirements for supply of and demand for natural gas in North America.

**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation**

Changes in supply and demand levels and locations have resulted in increased competition to provide transportation services throughout North America. Our well-distributed footprint of natural gas pipelines, particularly in the low-cost WCSB and the Appalachian basin, both of which are connected to key North American demand centres positions use very competitively. Incumbent pipelines benefit from the connectivity and economies of scale afforded by the base infrastructure as well as existing right-of-way and operational synergies given the increasing challenges of siting and permitting new pipeline construction and expansions. We have and will continue to offer competitive services to capture growing supply and North American demand that now includes access to global markets through LNG exports.

**Comment**

Our pipelines deliver the natural gas that millions of individuals and businesses across North America rely on for their energy needs. We are focused on capturing opportunities resulting from growing natural gas supply and connecting new markets while satisfying increasing demand for natural gas within existing markets. We are also focused on adapting our existing assets to the changing natural gas flow dynamics. In 2022, some of our key focus areas will be the continued execution of our existing capital program that includes further investment in the NGTL System, continued construction of Coastal GasLink as well as the completion and initiation of new pipeline projects in the U.S. and Mexico. We will also continue to pursue the next wave of growth opportunities. Our goal is to place all of our projects into service on time and on budget while ensuring the safety of our people, of the environment and general public impacted by the construction and operation of these facilities. Specific to our liquids pipeline assets, we will continue optimizing the value of our existing Liquids Pipelines assets by expanding and leveraging



our existing infrastructure.

Our key areas of focus include, accessing and delivering growing North American liquids supply to key markets by expanding our crude oil pipelines infrastructure to deliver directly from supply regions seamlessly along a contiguous path to market, maximizing the value from our current operating assets and securing organic growth around these assets, and expanding transportation service offerings to other areas of the liquids value chain including ancillary services such as short-term and long-term storage of liquids, which complement our pipeline transportation infrastructure.

This will position our Liquids Pipelines business segment development activities to identify and capture attractive organic growth and acquisition opportunities consistent with our risk preferences and expand transportation service offerings to other areas of the liquids value chain including ancillary services such as short-term and long-term storage of liquids, which complement our pipeline transportation infrastructure.

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**Identifier**

Opp3

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

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Other, please specify

use of lower-emission sources of energy, use of supportive policy incentives, and use of new technologies.

**Primary potential financial impact**

Returns on investment in low-emission technology

**Company-specific description**

OPPORTUNITY 3 - Technological Innovation

Technological innovation is a critical opportunity for TC Energy to contribute to managing the complex and inter-related issues surrounding climate-related risk. With demand for low-emissions natural gas and electricity climbing, the industry, including upstream and downstream

partners and industry peers, must continuously seek out new technologies to improve system, process and resource efficiencies, products and services and markets, while limiting the release of emissions.

For over half a century, we have pioneered innovative technology and practices to enhance efficiency and reduce emissions at our facilities. We continually look for opportunities to enhance existing technologies, and advance new ones, in the areas of design, prevention, monitoring and leak detection to keep our pipeline safe. We see it as our duty to work with innovators, researchers, regulators and our industry peers to drive safety and reliability performance to new levels.

We also know that the world is looking to us and other members of the energy sector to help society make the transition to a lower-carbon future, so we are investing in alternative energy and promising innovative technologies to support that change.

The energy industry has leveraged advanced technologies for many years. The transition to a lower-carbon future will require the continued adoption of new and innovative solutions at a much faster rate.

**Time horizon**

Long-term

**Likelihood**

Likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

Developing and deploying new technologies and new products inherently involves a degree of financial risk associated with escalating costs, uncertain outcomes and delays to anticipated schedules. Technologies such as CCUS or biofuels at scale also requires financial structures at regional levels that support economic feasibility of new technologies.

For all opportunities, we seek to understand the implications for our assets and stakeholders. We will not compromise our commitment to being thoughtful, deliberate and disciplined in every investment decision we make.

**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation**

Our energy transition strategy includes reducing our GHG emissions across each of the short-, medium-, and long-term horizons, while simultaneously taking advantage of the growth opportunities presented by low-carbon fuels and infrastructure, including investing in a world-scale carbon transportation and sequestration system, purchasing power from new renewables coming into service and seeking wind, solar and battery storage capacity to electrify parts of our natural gas pipelines.

Our existing assets will remain essential to future energy systems and create a sustainable competitive advantage. We are building collaborative partnerships within industry to further explore and develop commercially viable decarbonization projects. In 2021, progress included:

- Signed agreements with both Nikola Corporation and Hyzon Motors to explore the co-development of hydrogen hubs in the U.S. and Canada
- Announced agreement with Irving Oil focused on decarbonizing current assets and deploying emerging technologies to reduce overall emissions
- Announced plans with Pembina Pipeline Corporation to jointly develop the Alberta Carbon Grid, a world-scale CCUS system

In 2021 we also became a founding member of the Emerging Fuels Institute, established by the Pipeline Research Council International (PRCI). Our track record of implementing innovative solutions to meet customer needs spans over 60 years, and we continue to conduct significant R&D in support of our responsibility to safety, community, and the environment. Over the past decade, the R&D program (centrally managed by the Technology and Innovation Management Office (TIMO)), has invested approximately \$158 million in R&D projects across North America delivering a 9:1 value creation ratio over the last 5 years. This strong focus on technological innovation is a significant part of TC Energy's competitive advantage.

In 2021, our people were involved in more than 100 projects focused on technical innovation that improves pipeline safety and reliability and enhances our operational and environmental performance. These include 68 projects conducted internally through our TIMO Technical

Innovation Portfolio and in 35 collaborative PRCI projects with participation from our peers and external stakeholders. Our innovation efforts span a diverse range of technologies, from emission reduction pilots, machine learning and advanced analytics for optimized processes to hydrogen blending feasibility studies and drones.

**Comment**

Concepts as innovative as predictive maintenance or remote-control capabilities don't happen overnight, with key milestones completed in 2021 and further efforts reaching into next year. Our innovation efforts span a diverse range of technologies, from emission reduction pilots, machine learning and advanced analytics for optimized processes to hydrogen blending feasibility studies and drones. We continue investing in R&D because it makes our operations and assets safer, more efficient, and more environmentally responsible. Every R&D dollar we spend is guided by our corporate values and aligned with our portfolio's value drivers. These drivers, which focus on technical and engineering innovation, ensure our portfolio remains strong and sustainable.

**Identifier**

Opp4

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

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Other, please specify

use of lower sources of energy, use of new technologies and shift towards decentralized energy generation

**Primary potential financial impact**

Other, please specify

increased revenues through access to new and emerging markets, increased diversification of financial assets, and returns on investment in low-emission technology.

**Company-specific description**

OPPORTUNITY 4 - Diversification of Energy Sources (emerging technologies)

The world will need all forms of energy in the future to support growing global population and the continued advancement of human prosperity. We are optimistic of the energy transition to a lower carbon economy and the prospect of new investment opportunities it brings. Emerging technologies will take time and require cooperation among all stakeholders along with billions of dollars in new investment to shift to a low-carbon economy.

We have all the right ingredients to be agile and to prosper in a changing energy landscape whatever pace or direction energy transition ultimately take. It's in our existing asset base, the technical capabilities of our people, our commitment to innovation and our enviable financial strength.

**Time horizon**

Long-term

**Likelihood**

Very likely

**Magnitude of impact**

Medium-high

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact figure**

We continue to look at all forms of energy to balance energy demand with global emission reduction goals and we continue to demonstrate commitment to sustainable energy across our footprint. This includes examining the potential of blending hydrogen into our existing natural gas pipelines to reduce the carbon intensity of delivered energy or adding dedicated hydrogen assets along our footprint. This builds on what we've learned since first transporting renewable natural gas (RNG) in our gas transmission system in 2002. We also support electrification where it optimizes environmental performance while ensuring safe, resilient energy transmission service. For all opportunities, we must understand the implications for our assets and stakeholders.

We believe natural gas and oil will remain critical to the global fuel mix for decades to come. Their efficiency, reliability and affordability are necessary to support our standard of living and backstop the intermittency of some lower-emission fuel sources. While we continue to watch for signposts and test the resiliency of our asset base against various energy outlooks, we will adhere to our tried-and-tested risk tolerances.

While the types of energy we deliver may change, how we continue to invest, and grow will be very familiar. We continue to watch for signposts and test the resiliency of our asset base against various energy outlooks (see below) and maintain adherence to our tried-and-tested risk tolerances. We are confident that our future opportunity set, combined with our capabilities, will continue to deliver superior risk-adjusted total shareholder returns well into the future. Our Strategy, Energy Transition, and business teams collaborate to assess how the pace, scale and types of change in the energy system introduce opportunities for us.

Whatever pace it takes, the energy transition requires expertise and billions of investment dollars. We have both.

Looking forward, we believe we will be opportunity-rich and need to carefully allocate our capital to build out an ever more modern, robust and responsible energy system.

## **Cost to realize opportunity**

### **Strategy to realize opportunity and explanation of cost calculation**

We are uniquely and well-positioned to capture energy source transition opportunities, advancing our approximately \$24B secured capital program, through a compelling suite of investment prospects aligned with established capabilities, risk preferences and return requirements through the following:

- \$19.3 billion of Natural Gas Pipelines projects, reinforced by cost-of-service regulation and/or long-term, take-or-pay contracts
- \$4.4 billion of Power and Storage projects, dedicated to emission-less energy, and underpinned by a contract with the Ontario Independent Electricity System Operator (IESO) that extends to 2064
- \$0.4 billion of Liquids Pipelines projects, supported by a 25-year take-or-pay contract

We are also well positioned to deliver decarbonization solutions beyond our existing capital program and are currently exploring opportunities to

extend our growth horizon including:

- Electrification of our pipeline network: Using renewables to power a portion of our pipeline network
- Other in-corridor growth: Capital-light investments and enhanced returns on existing assets
- Ontario and Canyon Creek pumped hydro storage: On-demand, flexible, clean energy
- Alberta Carbon Grid in partnership with Pembina: World-scale carbon transportation and sequestration system
- Irving Oil agreement: Joint development of clean energy projects
- Building hydrogen hubs under our agreements with Nikola and Hyzon, which if built will produce up to 150+ tonnes of hydrogen per day.

As renewable electricity demand grows across North America, new solar, wind and energy storage capacity will be needed to meet that growing demand and facilitate a shift in the energy mix.

We have secured approximately 400 MW of wind and solar generation Power Purchase Agreements (PPAs) and associated environmental attributes in Alberta as of December 31, 2021. These PPAs allow us to generate incremental earnings while also contributing to the reduction of our operational GHG intensity and allowing us to offer renewable power products to our customers.

TC Energy continues to review other opportunities to add renewable power resources via PPAs, joint ventures and asset acquisitions. This is an example of how TC Energy can lead in an increasingly competitive and changing environment with innovative solutions and collaborate to advance our collective objectives.

### **Comment**

Outside of our diverse businesses in natural gas, power and oil, we have partnered in the liquefied natural gas (LNG) industry and have invested in several new solar projects, and hydro energy pump storage projects. We continue our investments in the Bruce Power project in Ontario, which provides emission-less energy to roughly one-third of Ontario.

We are also actively building our customer-focused origination platform across North America, providing commodity products and energy services to help customers address the challenges of energy transition. Our existing network of assets, customers and suppliers provide a mutual opportunity in which we can tailor solutions to meet their clean energy needs. Although we may adopt a custom-tailored strategy for each of our partnerships, the core underpinning remains consistent, which is that every opportunity we undertake will ultimately be driven by customer needs allowing us to complement each other's capabilities, diversify risk and share learnings as we navigate the energy transition.

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### **Identifier**

Opp5

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

Direct operations

**Opportunity type**

Energy source

**Primary climate-related opportunity driver**

Use of lower-emission sources of energy

**Primary potential financial impact**

Increased revenues resulting from increased production capacity

**Company-specific description**

In 2021, Bruce Power launched Project 2030 with a goal of achieving a site peak output of 7,000 MW by 2033 in support of climate change targets and future clean energy needs. Project 2030 will focus on continued asset optimization, innovation and leveraging new technology, which could include integration with storage and other forms of energy, to increase the site peak output.

**Time horizon**

Long-term

**Likelihood**

Virtually certain

**Magnitude of impact**

Medium

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**



**Potential financial impact figure – maximum (currency)****Explanation of financial impact figure**

Bruce Power will continually put the Major Component Replacement (MCR) program, and Project 2030 capital into service over the coming years, all aligned with historical returns in the low double digits.

**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation**

As part of the life extension and refurbishment agreement, Bruce Power receives a uniform contract price for all units which includes certain flow-through items such as fuel and lease expense recovery. The contract also provides for payment if the IESO requests a reduction in Bruce Power's generation to balance the supply of, and demand for, electricity and/or manage other operating conditions of the Ontario power grid. The amount of the reduction is considered deemed generation, for which Bruce Power is paid the contract price. The contract price is subject to adjustments for the return of and on capital invested at Bruce Power under the Asset Management and MCR programs, along with various other pricing adjustments that allow for a better matching of revenues and costs over the long term. As part of the amended agreement, Bruce Power is also required to share operating cost efficiencies with the IESO for better than planned performance. These efficiencies are reviewed every three years and paid out monthly over the subsequent three-year period.

**Comment**

Bruce Power is a global supplier of Cobalt-60, a medical isotope used in the sterilization of medical equipment and to treat certain types of cancer. Cobalt-60 is produced during Bruce Power's generation of electricity, harvested during certain planned maintenance outages and provided for medical use in the treatment of brain tumours and breast cancer. In addition, Bruce Power continues to advance a project to expand isotope production from its reactors with a focus on Lutetium-177, another medical isotope used in the treatment of prostate cancer and neuroendocrine tumours. This project is being undertaken with a Canadian-based nuclear medicine partnership and the Saugeen Ojibway Nation, on whose traditional territory the Bruce Power facilities are located.

## C3. Business Strategy

### C3.1

**(C3.1) Does your organization’s strategy include a transition plan that aligns with a 1.5°C world?**

Row 1

**Transition plan**

No, our strategy has been influenced by climate-related risks and opportunities, but we do not plan to develop a transition plan within two years

**Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future**

Positioning to achieve net zero by 2050 is our target as of today. Because there is no clear path to net zero, we are taking steps to ensure we are flexible and prudent in supporting net-zero by 2050 despite the unknowns about how global energy transition may unfold. To support this endeavour, we have five focus areas which make up the critical elements of our road to 2050. This includes modernizing our assets, decarbonizing our energy consumption, developing digital solutions and technologies, investing in low carbon energy infrastructure and the consideration of carbon offsets and credits.

We believe the targets we have set are achievable and will position us well for energy transition into the future. We understand they will require hard work and dedication to achieve them.

### C3.2

**(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?**

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

## C3.2a

**(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.**

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA NZE 2050	Company-wide		<p>We recognize that future energy systems will evolve &amp; we continue to evaluate the resilience of our asset portfolio over a range of potential energy supply &amp; demand outcomes as part of our strategic planning. In this context, resilience refers to our ability to tolerate disruptions &amp; adapt to external changes/uncertainties that may affect our ability to meet long-term goals &amp; remain effective under most situations and conditions. We monitor pace &amp; magnitude of energy transition through various signposts &amp; look for material shifts that pose threats or create opportunities. We evaluate scenarios to gain perspective on the implications for our footprint, growth opportunities and portfolio optimization; it also plays a critical part in understanding how we can manage several of our key enterprise risks. Scenarios make assumptions about future trends, including impact of climate policies on the energy mix, rate of technological change for energy systems &amp; supply &amp; demand changes for O&amp;G (both domestic and global). Scenarios offer alternative outlooks for the energy future but do not describe what will or should happen, we do not assign probabilities to the scenarios &amp; investors should not rely on them to make investment decisions. While the impacts of COVID-19 have yet to unfold, recent geopolitical &amp; rising energy inflationary pressures have added to the changing energy supply &amp; demand dynamics. In 2021, we analysed the impact to TCE under two scenarios:</p> <ul style="list-style-type: none"> <li>• Primary Scenario- looked at evolutionary change in technologies, efficiencies, environmental policies &amp; an intense fuel competition for new opportunities. Politics &amp; fiscal challenges constrain governments &amp; inhibit cooperation. The energy transition accelerates but moves along different paths, at varying speeds, globally.</li> <li>• Accelerated Transition Scenario-looked at resilience of our portfolio in an accelerated energy transition scenario that sustains global temperature rise to below 2°C by 2050. Drivers of this scenario include concerted effort to reach climate ambitions, policy &amp; tax mandates providing sustained incentives for significant private investment. Differentiating factors between these 2 scenarios are: pace of change,</li> </ul>

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
			role of consumer choice & behaviours, role of government & private sector, impact of geopolitical cooperation, and differentiated long-term economic effects on select markets. Additional transition scenarios referenced: IEA SDS, IEA STEPS & BNEF NEO. Additional temperature alignment of scenario: 1.6°C–2°C

### C3.2b

**(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.**

**Row 1**

**Focal questions**

Evaluate climate-related scenarios to gain perspective on the implications for our footprint, growth opportunities and portfolio optimization; understand how we can manage several of our key enterprise risks.

**Results of the climate-related scenario analysis with respect to the focal questions**

TC Energy’s portfolio remains resilient over the long-term across considered scenarios. Supported by TC Energy’s positioning in the lowest cost gas basins, and outlook for strengthening support of North American liquefied natural gas (LNG) growth, our asset base continues to support our business strategy in both the Primary Scenario and the Accelerated Transition Scenario. We remain observant of the future dependence on LNG exports as North American demand for gas-fired generation could decline post 2030. Existing Canadian oil sands production remains resilient, but future growth may stall. Our existing liquids pipelines are expected to maintain value given their direct access and competitive toll structures. Our current Power and Storage business, centered around Bruce Power, is not materially impacted in either scenario. The need for new forms of clean energy is expected to generate investment opportunities in the future. New growth prospects include either leveraging our existing infrastructure (e.g., for hydrogen or RNG) or capitalizing on our capability to execute complex and capital-intensive projects (e.g., in carbon capture and storage). We also see the opportunity to participate in the growing electrification movement through our Power and Storage business, which can support modernization of our pipeline assets and reduce emissions from our existing operations, thus

enhancing the resiliency of our businesses.

Bringing it all together, we recognize there are multiple pathways in how the energy transition could unfold and our strategies are built to ensure we deliver enduring value no matter the future direction.

TC Energy operates under a low-risk business model that maximizes the value of our long-life assets and commercial positions through all points in the business cycle. We have a demonstrated track record in responding to a constantly evolving external environment and our three major lines of business provide diversification as the energy future unfolds, allowing us to allocate capital to various opportunities across the energy infrastructure sector, within our risk preferences, as signposts indicate.

### C3.3

**(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.**

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	<p>Leveraging key components of our strategy, we have decades of experience managing our portfolio to capitalize on opportunities &amp; mitigate risks related to our products &amp; services. We strive to cultivate a focused portfolio of high-quality development &amp; investment options through assessment of opportunities to develop &amp; acquire energy infrastructure that complements our existing portfolio, considers future resilience, and diversifies access to attractive supply &amp; market regions within our risk tolerance profile. We also monitor trends specific to energy supply &amp; demand fundamentals, in addition to analyzing how our portfolio performs under different energy scenarios considering TCFD. These results contribute to the identification of opportunities to maintain our resilience, mitigate risks, strengthen our asset base or seek diversification.</p> <p>Our energy transition strategy includes reducing our emissions while simultaneously taking advantage of the growth opportunities presented by low-carbon fuels and infrastructure. The need for new forms of clean energy is expected to generate future investment opportunities. New growth prospects include leveraging our existing assets (hydrogen) or capitalizing on capability to execute complex &amp; capital-intensive projects (CCS). We see the opportunity to participate in the growing electrification movement through our Power and Storage business, which can support modernization of our pipeline assets &amp;</p>

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		<p>reduce emissions from existing operations. Our existing assets will remain essential to future energy systems &amp; create sustainable competitive advantage. We are building collaborative partnerships within industry to explore &amp; develop commercially viable decarbonization projects.</p> <p>Highlights of 2021 progress:</p> <ul style="list-style-type: none"> <li>• modernizing our existing systems and assets: sanctioned Virginia Reliability (VR) &amp; Wisconsin Reliability (WR) projects which will reduce emissions, increase throughput &amp; improve the reliability of certain compressor stations on our Columbia Gas and ANR U.S. pipeline systems.</li> <li>•Decarbonizing our energy consumption: launched request for proposal process to identify renewable energy sources to power the U.S. Keystone Pipeline System.</li> <li>•Developing renewable energy and storage solutions: executed a 15yr PPA for 100% of output from the 297MW Sharp Hills Wind Farm in Alberta with EDP Renewables</li> <li>• Exploring low-carbon projects with our partners</li> </ul>
Supply chain and/or value chain	Yes	<p>With the climate change discussion growing globally, we understand that this sets the stage for promoting innovative thought internally and externally. We know we have an important role to play in managing GHG emissions while balancing the need to provide safe and reliable energy to our customers and community through our suppliers.</p> <p>Regarding overall supply chain engagement, we have requirements within our existing Contractor Code of Conduct, which sets expectations for all contractors, including suppliers, to share our commitment to the highest standard of business conduct, focusing on the areas of environmental stewardship, social responsibility, inclusion and diversity and responsible business behaviour. We have also adopted several aspects of ISNet’s refreshed evaluation services, focused on ESG-related activities, which allows us to prioritize sourcing with suppliers that pursue and/or endorse activities such as emission reduction.</p> <p>We are engaged with our customers, formally and informally, to find synergies and find solutions to reduce GHG emissions together, with the goal of sharing ideas, information and resources to better understand reduction technologies. As we shift to a low-carbon future, we will work more with our</p>

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		<p>customers to learn about new technologies and explore ways to reduce our carbon footprint while delivering reliable energy to meet the need of our customers and community.</p> <p>We are also developing high quality, long-life assets under our current capital program, comprised of approximately \$24 billion of secured projects, as well as our projects under development which represent commercially supported, committed projects that are either under construction or are in or preparing to commence the permitting stage.</p> <p>This includes approximately \$6.5 billion that are expected to enter service in 2022, of which \$4.4 billion is dedicated to emission-less energy. These investments will contribute incremental earnings and cash flows as they are placed in service and will complement our existing extensive footprint, which offers replenishable growth opportunities.</p> <p>Our expertise in project development, managing construction risks and maximizing capital productivity ensures a disciplined approach to reliability, cost and schedule, resulting in superior service for our customers and returns to shareholders.</p>
Investment in R&D	Yes	<p>TCE’s track record of implementing innovative solutions to meet customer needs spans over 60 years, and we continue to conduct significant research and development (R&amp;D) in support of our responsibility to safety, community, and the environment. TCE’s innovation efforts span a diverse range of technologies, from emission reduction pilots, machine learning, advanced analytics for optimized processes, hydrogen blending feasibility studies and drones.</p> <p>In 2021, Energy Transition (transitioning TCE to a lower carbon energy future) became one of 3 strategic research priorities in alignment with that priority TCE invested a total of \$1.77 million CAD dollars in support of multiple sustainability projects, capturing aspects such as GHG emission reduction and hydrogen-related initiatives. This also includes the \$320,000 invested in Emerging Fuel Institute (EFI) with Pipeline Research Council International (PRCI).</p> <p>The EFI will provide PRCI members the opportunity to execute the research needed to ensure the safe transportation and storage of the next generation of energy, such as hydrogen, renewable natural gas</p>

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		(RNG), and other potential gas and liquid fuel sources that will help meet the world's energy needs while reducing the impact to the environment.
Operations	Yes	<p>Climate-related risks and opportunities are considered in the business strategy approach around our current assets and operations.</p> <p>As we look to the future, TC Energy's asset map showcases the company's unique value proposition. Our well-connected network of North American assets generates sustainable returns across five business lines and three geographies. We move natural gas and oil from some of the continent's lowest-cost supply basins to its highest-demand markets, and we own seven power generation facilities producing 75 per cent emission-less electricity. Within North America, TC Energy is uniquely situated at the intersection of molecules and electrons.</p> <p>Last year we placed \$4.1 billion of assets into service and sanctioned \$7 billion in new projects. These projects will modernize and expand our base businesses which will be used and useful for decades to come.</p> <p>Our assets will also play a role in energy transition by enabling new technologies to develop and flourish to help our customers achieve their targeted emission reductions. This was demonstrated last year as we progressed numerous energy transition growth initiatives, including opportunities in renewables, hydrogen, and carbon capture, utilization and storage (CCUS). As we grow each business, we do so strategically and with close consideration of the changing global context.</p> <p>One such innovative example is the partnership between our Liquids and Power business units to source renewable energy to power our pump stations along our Keystone Pipeline system - our largest liquids pipeline asset delivering approximately 20 per cent of western Canadian exports to the U.S. Midwest and Gulf Coast - with the goal of achieving a 99% Net Zero Emissions target by 2025 (Scope 2 emissions).</p> <p>Another such innovative example is Zero Emission Vacuum and Compressor (ZEVAC), a technology that offers a net zero alternative to traditional venting and flaring by conserving and transferring gas that</p>



	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		would have been otherwise emitted to atmosphere. This technology was piloted on TC Energy projects in 2021 and is currently under evaluation for broader implementation across our system.

### C3.4

**(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	<p>Our exposure to climate change risk and resulting policy changes, which presents a potential financial impact to commodity prices, volumes and taxes, is managed through our business model based on a long-term, low-risk strategy whereby most of our earnings are underpinned by regulated cost-of-service arrangements and long-term contracts. Scenario planning against several demand outlooks is also considered in our long-term corporate strategic planning process. Other factors may cause actual results to differ materially from those indicated in any forward-looking statement. Business interruption related to operational risks (including equipment malfunctions and breakdowns, pandemic and other catastrophic events including those related to climate change, acts of terror, sabotage and third-party excavations on our right of way) could result in decreased revenues and increases in operating costs, legal proceedings or regulatory actions, or other expenses which could reduce our earnings.</p> <p>To be competitive, we must offer energy infrastructure services in supply and demand areas, and for forms of energy that are attractive to customers. Should alternative lower-carbon forms of energy result in decreased demand for our current services, the value of our long-lived energy infrastructure assets could be negatively impacted. We have a diverse portfolio of assets and use portfolio management to divest of non-strategic assets, effectively rotating capital while adhering to risk preferences and focus on per share metrics. We conduct analyses to identify resilient supply sources as part of our energy fundamentals and strategic development reviews. We recover depreciation through regulated pipeline rates; an important lever to accelerate or decelerate return of capital from a substantial portion of our assets. We also</p>

Financial planning elements that have been influenced	Description of influence
	<p>monitor signposts including customer, regulatory and government decisions, and innovative tech. development to inform our capital allocation strategy and adapt to changing market conditions.</p> <p>Beyond our secured capital program, we expect to sanction an addtl \$5B of new projects/year throughout the decade, including recoverable maintenance capital. We expect progressing our slate of secured projects and various other growth initiatives will support long-term growth in comparable EBITDA, comparable earnings and cash flow/share.</p> <p>A key component of our corporate strategy includes cultivating a focused portfolio of high-quality development and investment options. We assess opportunities to develop and acquire energy infrastructure that complements our existing portfolio, enhances future resilience under a changing energy mix, and diversifies access to attractive supply and market regions within our risk preferences, focus on commercially regulated and/or long-term contracted growth initiatives in core regions of America and prudently manage development costs, minimizing capital at risk in a project's early stages, advance selected opportunities, including energy transition growth initiatives, to full development and construction when market conditions are appropriate and project risks and returns are acceptable, and monitor trends specific to energy supply and demand fundamentals, in addition to analyzing how our portfolio performs under different energy mix scenarios considering TCFD. These results contribute to the identification of opportunities that contribute to our resilience, strengthen our asset base or improve diversification.</p> <p>We are exposed to market risk and counterparty credit risk and have strategies, policies and limits to manage the impact of risks on earnings, cash flows and, ultimately, shareholder value. Risk management strategies, policies and limits are designed to ensure our risks and related exposures are in line with our business objectives and risk tolerance. Market risk and counterparty credit risk are managed within limits that are established by our Board, implemented by senior management, and monitored by risk management, internal audit, and business segment groups. Our Board Audit Committee oversees how management monitors compliance with market risk and counterparty credit risk management policies and procedures and oversees management's review of the adequacy of the risk management framework.</p> <p>We review long-lived assets, such as plant, property and equipment, equity investments, goodwill and capital projects in development, for impairment whenever events or changes in circumstances lead us to believe we might not be able to recover an asset's carrying value. Factors we consider in our assessment of the recoverability of long-lived assets include, macroeconomic conditions, changes in the industries and markets in which we operate, our ability to renew</p>



Financial planning elements that have been influenced	Description of influence
	<p>contracts, and the financial performance and prospects of our assets. If the total of the undiscounted future cash flows that we estimate for an asset within property, plant and equipment, or the estimated selling price of any long-lived asset is less than its carrying value, we consider its fair value to be less than its carrying value and record an impairment loss to recognize this. For goodwill, if the fair value of the reporting unit determined using discounted cash flows is less than its carrying value, including goodwill, we consider it to be impaired.</p> <p>We maintain an Environment Program to minimize potentially adverse environmental impacts. This program identifies our requirements to proactively and systematically manage environmental hazards and risks throughout the lifecycle of our assets.</p> <p>Our assets are subject to federal, state, provincial and local environmental statutes and regulations governing environmental protection, including GHG emissions. Operating our assets requires obtaining and complying with a wide variety of environmental registrations, licenses, permits and other approvals and requirements. Failure to comply could result in administrative, civil, or criminal penalties, remedial requirements, or orders affecting future operations. Through the implementation of our Environment Program, we continually monitor our facilities for compliance with all material legal and regulatory environmental requirements across all jurisdictions where we operate. We also comply with all material legal and regulatory permitting requirements in our project routing and development. We routinely monitor proposed changes to environmental policy, legislation, and regulation. Where risks are uncertain or have potential to affect our ability to effectively operate our business, we comment on proposals independently or through industry associations.</p> <p>In 2021, we established a dedicated energy transition team to assess relevant technologies and opportunities to support business resiliency irrespective of the pace or direction of energy transition. This team worked cross functionally to set our enterprise-wide goal of 30% reduction of GHG emission intensity from our operations by 2030 which positions us to achieve net-zero emissions from our operations by 2050, using a 2019 baseline year.</p>

## C4. Targets and performance

### C4.1

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

Absolute target

Intensity target

### C4.1a

**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

---

**Target reference number**

Abs 1

**Year target was set**

2021

**Target coverage**

Business division

**Scope(s)**

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Base year**

2019

**Base year Scope 1 emissions covered by target (metric tons CO2e)**

**Base year Scope 2 emissions covered by target (metric tons CO2e)**

**Base year Scope 3 emissions covered by target (metric tons CO2e)**

**Total base year emissions covered by target in all selected Scopes (metric tons CO2e)**

**Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1**

**Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2**

**Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)**

**Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes**

**Target year**

2025

**Targeted reduction from base year (%)**

99

**Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]**

**Scope 1 emissions in reporting year covered by target (metric tons CO2e)**

**Scope 2 emissions in reporting year covered by target (metric tons CO2e)**

**Scope 3 emissions in reporting year covered by target (metric tons CO2e)**

**Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)**

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

Underway

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

No, and we do not anticipate setting one in the next 2 years

**Target ambition**

**Please explain target coverage and identify any exclusions**

Our Liquids Pipelines assets can underpin our de-carbonization goals and present opportunities to create partnerships with Indigenous communities. Our GHG reduction strategy in Liquids Pipelines is to competitively source renewable energy to power our base operating systems and reduce our carbon footprint with a goal of reducing 99 per cent of our liquids pipelines' scope two GHG emissions from our operations by 2025 and achieving net-zero emissions by 2030. We also seek to develop partnerships with Indigenous communities that will create value and further enable participation in energy infrastructure by those partners.

**Plan for achieving target, and progress made to the end of the reporting year**

Supported by partnerships, we plan to investigate Grand Rapids pipelines alternative sources of power such as wind, solar and hydro. Discussions, and agreements reached between partners, continue in an effort to find viable alternatives. Other initiatives under investigation with the Grand Rapid pipeline partnership include identifying if battery storage coupled with zero-emission power generation is possible.

**List the emissions reduction initiatives which contributed most to achieving this 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

**Year target was set**

2021

**Target coverage**

Company-wide

**Scope(s)**

Scope 1

Scope 2

**Scope 2 accounting method**

Location-based

**Scope 3 category(ies)**

**Intensity metric**

Metric tons CO<sub>2</sub>e per unit of production

**Base year**

2019

**Intensity figure in base year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.000964

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

100

**Target year**

2030



**Targeted reduction from base year (%)**

30

**Intensity figure in target year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity) [auto-calculated]**

0.0006748

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

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

**Intensity figure in reporting year for Scope 1 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 2 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO<sub>2</sub>e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO<sub>2</sub>e per unit of activity)**

0.001

**% of target achieved relative to base year [auto-calculated]**

-12.4481327801

**Target status in reporting year**

Underway

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

No, and we do not anticipate setting one in the next 2 years

## Target ambition

### Please explain target coverage and identify any exclusions

Our targets address Scope 1 and 2 emissions, relative to a 2019 baseline year, adjusted for material changes in our asset portfolio and quantified with an operational control boundary.

Production data from our business segments has been converted to a common unit of measure, GJ.

Our targets focus on reduction of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrogen oxide (N<sub>2</sub>O) emissions, which are generated predominately from fuel combustion at our natural gas pipeline assets.

Scope 3 emissions are excluded from our targets.

### Plan for achieving target, and progress made to the end of the reporting year

We intend to work towards our goals through a variety of strategies across our business units.

Through 2021 we actively explored and evaluated abatement technologies that will allow us to reduce our future compliance costs obligations, while supporting our GHG Emissions Reduction Plan and corporate intensity target. Work is on-going to develop short and medium-term technology implementation plans that will primarily target vented emissions from equipment and blowdown activities and will also pursue opportunities to reduce combustion emissions through optimizing the operating efficiency of our equipment.

Like everything we do at TC Energy, our plan is built with a disciplined approach that upholds the safety, reliability and integrity of our people and systems. Technical and commercial experts from each of our business units contributed ideas, insight and support for our enterprise-wide goals and plans. We are targeting five focus areas to reduce the emissions intensity of our operations, while also capturing growth opportunities that meet the energy needs of the future:

1. Modernize our existing systems and assets
2. Decarbonize our energy consumption
3. Invest in low-carbon energy and infrastructure
4. Drive digital solutions and technologies
5. Leverage environmental attributes such as carbon offset credits and/or renewable energy certificates (RECs)

The five focus areas which make up the critical elements of our roadmap to 2050 will play varying roles over the lifetime of our emissions reduction plan. This includes modernizing our assets, decarbonizing our energy consumption, developing digital solutions and technologies, investing in low carbon energy infrastructure and the consideration of carbon offsets and credits. We are making progress towards our goals to reduce GHG emission intensity from our operations by 30% by 2030.

Further details of our emission management reduction goals may be found in our GHG Emissions Reduction Plan:  
<https://www.tcenergy.com/sustainability/ghg-emissions-reduction-plan/>

**List the emissions reduction initiatives which contributed most to achieving this target**

---

**Target reference number**

Int 2

**Year target was set**

2017

**Target coverage**

Business activity

**Scope(s)**

Scope 1

**Scope 2 accounting method**

**Scope 3 category(ies)**

**Intensity metric**

Other, please specify  
% methane

**Base year**

2017

**Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)**

0.108

**Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)**

**Intensity figure in base year for Scope 3 (metric tons CO2e per unit of activity)**

**Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)**

0.108

**% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure**

**% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure**

**% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure**

**% of total base year emissions in all selected Scopes covered by this intensity figure**

**Target year**

2025

**Targeted reduction from base year (%)**

0.31

**Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]**

0.1076652

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

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

**Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)**

0.118

**Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)**

**Intensity figure in reporting year for Scope 3 (metric tons CO2e per unit of activity)**

**Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)**

0.118

**% of target achieved relative to base year [auto-calculated]**

-2,986.8578255675

**Target status in reporting year**

Achieved

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

**Target ambition**

**Please explain target coverage and identify any exclusions**

Our Nation's Energy Future (ONE Future) is a coalition of 51 natural gas companies representing the natural gas value chain focused on implementing an innovative, performance-based approach to the management of methane emissions directed toward a concrete goal of one

percent (or less) of total produced natural gas by 2025. The coalition is comprised of some of the largest Natural Gas Production, Gathering & Boosting, Processing, Transmission & Storage and Distribution companies in the U.S. and represents approximately 19% of the total U.S. natural gas value production in CY 2020. ONE Future members operate in 16 out of the 38 production basins and have distribution operations in 36 of 50 states, other segments of the value chain operate in multiple regions of the country as well. Therefore, ONE Future's data represent a geographically diverse and material share of the U.S. natural gas supply chain.

TCE's assets are reported under the "Transmission and Storage" (T&S) Industry Segment, comprised of high pressure, large diameter pipelines that transport natural gas from production and processing to natural gas distribution systems or large-volume consumers such as power plants or chemical plants. This includes interstate and intrastate facilities. Storage facilities, such as underground storage in expended gas reservoirs are used by transmission companies to hold gas and allow for seasonal demand differences. The USEPA combines T&S into one segment since many of the storage facilities are owned and operated by transmission companies, and since, in some cases the surface facilities (compression at underground storage, for example) are similar to other transmission facilities. Compression of natural gas is a significant operation for the T&S sector, and therefore emissions from compressors, including fugitive components, components designed to vent gas, and compressor exhaust play a larger role in methane emissions.

ONE Future's approach is science-based and goal-oriented, but flexible in that member companies choose how they can cost-effectively and efficiently achieve their methane emissions intensity goal for their particular assets – whether by deploying an innovative technology, modifying a work practice, or in some cases replacing or retrofitting high emitting equipment. No target ambition has been declared by ONE Future.

### **Plan for achieving target, and progress made to the end of the reporting year**

#### **List the emissions reduction initiatives which contributed most to achieving this target**

ONE Future's methane intensity value for T&S reflects the implementation of some of the following methane reduction activities by the ONE Future companies with T&S operations:

- Implemented voluntary LDAR programs to identify and fix equipment leaks at aboveground sites.
- Implemented performance-based monitoring and replacement for reciprocating compressor rod packing.
- Used dry seals over wet seals for centrifugal compressor installations.
- Replaced two-stroke lean burn engines with more efficient turbines that have lower methane slip rates.
- Replaced gas-fired engine compressors with electric motors.
- Reduced maintenance blowdown emissions by operating practice changes (such as increasing the length of pressurized hold times on compressors to reduce number of compressor unit blowdowns to atmosphere).

- Reduced blowdown emissions by implementing pipeline pump-down techniques that lowered the pipeline pressure prior to transmission pipeline blowdowns and conducted regulatory required Emergency Shutdown tests (ESDs) utilizing “vents blocked” tests.
- Used sleeves and composite wraps to repair pipelines, eliminating the need to blowdown the pipeline. Used pipeline isolation systems and hot taps to make new connections, eliminating the need to blowdown the pipeline.
- Replaced or repaired high emitting pneumatic devices with low or no-bleed devices.
- Used cathodically protected pipe

## C4.2

**(C4.2) Did you have any other climate-related targets that were active in the reporting year?**

Net-zero target(s)

Other climate-related target(s)

## C4.2b

**(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.**

---

**Target reference number**

Oth 1

**Year target was set**

2016

**Target coverage**

Site/facility

**Target type: absolute or intensity**

Absolute

**Target type: category & Metric (target numerator if reporting an intensity target)**

Methane reduction target

Other, please specify

% reduction

**Target denominator (intensity targets only)**

**Base year**

2019

**Figure or percentage in base year**

**Target year**

2025

**Figure or percentage in target year**

45

**Figure or percentage in reporting year**

20

**% of target achieved relative to base year [auto-calculated]**

**Target status in reporting year**

Underway

**Is this target part of an emissions target?**

In 2016, Canada committed to reduce methane emissions by 40-45 per cent below 2012 levels by 2025 from the oil and gas sector. The federal (ECCC) methane regulations (Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)) came into force in January 2020. The regulations are part of Canada's larger mandate to address climate change and are anticipated to reduce the country's greenhouse gas emissions by about 20 Mt per year. The methane reduction commitment



was reaffirmed in the 2016 Pan-Canadian Framework on Clean Growth and Climate Change and again in the 2020 Canadian climate plan, A Healthy Environment, and a Healthy Economy.

This commitment was expressed by both Canada and the United States in a 2016 joint statement of coordinated action on climate change, specifically the Joint Statement on Climate, Energy, and Arctic Leadership.

**Is this target part of an overarching initiative?**

Other, please specify

Canada's climate action plan, A Healthy Environment, and a Healthy Economy

**Please explain target coverage and identify any exclusions**

The methane regulations are applicable to upstream oil and gas facilities that extract, process and/or transport natural gas. For TC Energy's Canada Gas, these regulations apply to compressor and meter stations. Stand-alone valve sites are excluded. The regulations are designed to eliminate fugitive emissions and limit vented emissions. The first phase of requirements took effect January 2020 and additional requirements will come into force January 2023.

The government target base year is based on 2012; however, internally TC Energy uses a 2019 baseline year, which is aligned with the baseline year used for our corporate GHG emissions reduction targets.

The 2020 requirements require each company to implement a Leak Detection and Repair (LDAR) Program to eliminate fugitive emissions and an annual compressor vent testing to ensure venting is below specified limits depending on the compressor size and date of installation. The LDAR Program involves completing leak inspections at each facility three times a year and all leaks identified must be repaired within 30 days of inspection or, depending on the leak's severity or repair requirements, during the next planned outage.

Our Canada Gas 2021 reported methane emissions decreased by 20% from 2019. We anticipate additional reductions in vented emissions once we implement the 2023 regulatory requirements that address vented emissions.

The 2023 requirements specify a facility-level venting limit and requires the use of low or no-bleed pneumatic devices.

**Plan for achieving target, and progress made to the end of the reporting year**

In 2020, in response to new Canadian methane reduction regulations, we began implementing an enhanced approach to managing and reducing fugitive emissions from routine operations on our Canadian Natural Gas Pipelines with the implementation of a regulatory Leak Detection and Repair (LDAR) Program. We have digitized our processes and created a unique-in-Canada Emissions Management Application (EMA), improving our ability to plan maintenance activities. The EMA application enables us to capture emissions data from field surveys, pinpoint leak locations with precise GPS coordinates, and rapidly triage required maintenance and repair work on pipeline and compressor station valves and other components.

Compressor vent testing occurs during the leak inspections and we continue to observe venting below the regulatory limits. The regulations also offer the option to capture or destroy compressor venting. To better understand the technology available to meet that option of the regulation, we successfully installed and piloted Canada’s first vent capture and reinjection skid to collect vented emissions at a compressor station in 2021. Additional pilot projects were conducted to explore the use of other technology applications for handling compressor and station venting to meet or exceed the methane regulation requirements. For more details, please refer to question C-OG4.6.

In anticipation of the 2023 requirements, work was initiated in late 2021 and continues through 2022 to convert pneumatic devices to low or no-bleed where required and to build the requirement digital solution to enable monthly facility venting record keeping.

The regulatory Leak Detection and Repair Program has contributed most to reducing Canadian Natural Gas Pipelines methane emissions and TC Energy’s portion of Canada’s oil and gas sector emissions.

**List the actions which contributed most to achieving this target**

**C4.2c**

**(C4.2c) Provide details of your net-zero target(s).**

---

**Target reference number**

NZ1

**Target coverage**

Company-wide

**Absolute/intensity emission target(s) linked to this net-zero target**

Int1

**Target year for achieving net zero**

2050

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

No, and we do not anticipate setting one in the next 2 years

**Please explain target coverage and identify any exclusions**

Our targets address Scope 1 and 2 emissions, relative to a 2019 baseline year, adjusted for material changes in our asset portfolio and quantified with an operational control boundary. Our targets focus on reduction of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrogen oxide (N<sub>2</sub>O) emissions, which are generated predominately from fuel combustion at our natural gas pipeline assets. Scope 3 emissions are excluded from our net zero target.

**Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?**

Unsure

**Planned milestones and/or near-term investments for neutralization at target year**

**Planned actions to mitigate emissions beyond your value chain (optional)**

We intend to work towards our goals through a variety of strategies across our business units. Like everything we do at TC Energy, our plan is built with a disciplined approach that upholds the safety, reliability and integrity of our people and systems. Technical and commercial experts from each of our business units contributed ideas, insight and support for our enterprise-wide goals and plans. We are targeting five focus areas to reduce the emissions intensity of our operations, supported by specific abatement tactics with quantifiable emissions reductions while also capturing growth opportunities that meet the energy needs of the future:

1. Modernize our existing systems and assets
2. Decarbonize our energy consumption
3. Invest in low-carbon energy and infrastructure
4. Drive digital solutions and technologies
5. Leverage carbon credits and offsets

In the next decade, most of our identified reductions come from decarbonizing our own energy consumption. That includes reducing fuel consumption in our natural gas compressor fleet and sourcing renewable electricity to power our liquids pipelines. Activities to modernize are also vital to reducing fugitive emissions, leaks, venting and flaring, and improving overall operational efficiency. These two levers address over 80 per cent of our Scope 1 and 2 emissions, and work is already underway.

Further details of our emission management reduction goals may be found in our GHG Emissions Reduction Plan:

<https://www.tcenergy.com/siteassets/pdfs/sustainability/ghg-plan/2021/tc-ghg-emissions-reduction-plan.pdf>

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**Target reference number**

NZ2

**Target coverage**

Business division

**Absolute/intensity emission target(s) linked to this net-zero target**

Abs1

**Target year for achieving net zero**

2030

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

No, and we do not anticipate setting one in the next 2 years

**Please explain target coverage and identify any exclusions**

Our GHG reduction strategy in Liquids Pipelines is to competitively source renewable energy to power our base operating systems and reduce our carbon footprint with a goal of reducing 99 per cent of our liquids pipelines' scope two GHG emissions from our operations by 2025 and achieving net-zero emissions by 2030.

**Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?**

Unsure

**Planned milestones and/or near-term investments for neutralization at target year**

**Planned actions to mitigate emissions beyond your value chain (optional)**

## C-OG4.2d

**(C-OG4.2d) Indicate which targets reported in C4.1a/b incorporate methane emissions, or if you do not have a methane-specific emissions reduction target for your oil and gas activities, please explain why not and forecast how your methane emissions will change over the next five years.**

We support objectives to reduce methane emissions to help meet local, federal, & global climate change targets, & we are a signatory to the Methane Guiding Principles. These principles focus on action priority areas towards reduction of methane emissions across the natural gas value chain. New/emerging methane-related regulations/initiatives will ensure focus on methane reduction over the next 5yrs. All targets reported in C4.1a/b incorporate and/or include methane emissions, as part of overarching targets.

We are committed to minimizing the environmental impact of pipelines throughout the entire pipeline lifecycle & have actively engaged in reducing methane emissions for several decades as a driving force in the pipeline industry on developing/implementing new practices/technologies to reduce fugitive emissions during routine ops & maintenance.

During maintenance, use of pull-down compressors helps capture/recycle methane emissions and hot tap procedures enable us to prevent blowdown emissions. During ops, our fugitive emissions inspection & leak repair program helps us identify leaks on pipeline and compressor station valves and other components to help reduce releases of natural gas.

We also invest in new tech in ops to improve tracking of our natural gas pipeline fugitive emissions data at valve sites/meter stations/compressor stations. The technology will improve ops and regulatory reporting resulting in improved ability to plan maintenance activities.

**In Canada**, we adhere to methane regulations designed to reduce O&G industry emissions 40-45% by 2025. The regs detail requirements to reduce fugitive and vented methane emissions including transmission modifications. Requirements are being phased-in; 1st stage in 2020, rest in 2023. Compliance will involve equip. retrofits and/or replacements, LDAR program and measurements to quantify emission reductions with associated reporting. The regulations are applicable to Canada Gas compressor stations and meter stations. Power facilities are not affected by the federal Methane Reduction Regulation. Non-regulated gas storage facilities in AB are regulated under provincial methane emission rules; AER Directive 60. ECCO committed to developing a plan to reduce O&G sector methane emissions by at least 75% by 2030. We will assess the potential implications through 2022.

**The U.S.** Senate passed the PHMSA reauthorization bill, the PIPES Act, which included methane regs requiring pipeline owners/operators to implement methane LDAR programs, deploy advanced leak detection technology and incorporate LDAR surveys in inspection/ maintenance plans. If the House supports inclusion, PHMSA will join USEPA as another federal regulator of GHGs. The expected impact to our assets is still being evaluated.

The USEPA released proposed rulemaking to reduce methane from both new/existing sources in oil/natural gas industry. The proposed rule is expected to impact any new projects that begin in 2022 and beyond. The guidelines for existing emission sources may impact all our existing facilities in the future.

Department of Transportation (DOT) emergency shutdown (ESD) annual compliance tests are conducted at 93% of U.S. compressor stations in lieu of full-scale blowdowns to atmosphere.

In addition to the rulemakings noted above, new pipeline safety legislation was signed into law in December 2020 that reauthorized PHMSA pipeline safety programs that expired under the 2016 Pipeline Safety Act at the end of September 2019. We are assessing the impacts associated which include self-directed mandates to nat. gas transmission operations requiring targeted reduction of methane releases.

We are a member of ONE Future, a coalition of 51 natural gas companies focused on implementing an innovative, performance-based approach to management of methane emissions directed toward a concrete goal of 1% (or less) of total produced natural gas by 2025.

We remain actively involved with USEPA Natural Gas STAR Program, which provides framework for partner companies with U.S. O&G ops to implement methane reducing tech and practices and document voluntary emission reduction activities.

The Environmental Partnership (TEP) is a coalition of U.S. natural gas/oil production/ processing/transmission companies. The first initiative is focused to further reduce emissions, including methane & VOCs associated with natural gas and oil production/processing/ transmission.

**In Mexico**, companies are required to prepare a *Program for the Comprehensive Prevention and Control of Methane Emissions* (PPCIEM) which includes identification of sources of methane, quantification of baseline emissions and an estimate of the expected emission reductions from prevention and control activities. This regulation requires the PPCIEM to determine a reduction goal that must be met within a period not exceeding six calendar years from the delivery of the PPCIEM. New projects and/or modifications in facilities must contain equipment and adhere to the guidelines.

## 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 initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	23	
To be implemented*	0	0
Implementation commenced*	4	90,000
Implemented*	2	2,234
Not to be implemented	0	

### C4.3b

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

**Initiative category & Initiative type**

Other, please specify

Other, please specify

Compressor Dry Gas Seal Capture and Reinjection Skid; vented emissions

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

234

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

**Investment required (unit currency – as specified in C0.4)**

**Payback period**

**Estimated lifetime of the initiative**

>30 years

**Comment**

This project was the first of its kind in Canada and was installed at an existing compressor. We are using learnings from this project to evaluate the potential to install and pilot similar technology from different compressor and dry gas seal vendors at other facilities

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**Initiative category & Initiative type**

Other, please specify

Other, please specify

Use of incineration for pipeline blowdowns; vented emissions

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

2,000

**Scope(s) or Scope 3 category(ies) where emissions savings occur**

Scope 1

**Voluntary/Mandatory**

Voluntary

**Annual monetary savings (unit currency – as specified in C0.4)**

**Investment required (unit currency – as specified in C0.4)**



**Payback period**

**Estimated lifetime of the initiative**

>30 years

**Comment**

Incineration can be used to reduce the emissions intensity from planned pipeline blowdown events. TC Energy is currently testing various types of incinerators for operability, safety, and cost. The intent is to incorporate incineration into pipeline blowdown activities. This estimated annual tonnes CO2e savings is for the use of incineration for a single pilot project that occurred in 2021 and is a function of the size and length of pipeline to be evacuated, as well as the starting and end pressures of the gas. As the use of incinerators for pipeline blowdowns is increased, emissions savings will also increase.

**C4.3c**

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

Method	Comment
Compliance with regulatory requirements/standards	<p>We own assets and have business interests in several regions subject to GHG emissions regs, including emissions management/carbon pricing policies. Across N. America, there are a variety of new/evolving initiatives/policies in development at the federal, regional, state and provincial level aimed at reducing GHG emissions. We actively monitor/submit comments to regulators as these new/evolving initiatives are undertaken &amp; policies implemented. Refer to our 2021 Annual report (p.99-101) for an overview of existing/anticipated policies/ changes to environmental assessment legislation, which drive emission reduction activities. These include, but are not limited to, Canadian Methane Regs which detail requirements to reduce methane emissions through operational and capital modifications, Canadian OBPS reg to impose carbon pricing for large industrial facilities and set federal benchmarks for GHG emissions for various industry sectors, state (CA, PA, MD &amp; NY(in 2023)) LDAR program requiring owners/operators of O&amp;G facilities to monitor/repair methane leaks.</p> <p>Additional regs/voluntary initiatives, not listed in our Annual Report which are considered drivers for emission</p>

Method	Comment
	<p>reduction activities include: methane reductions with EPA Natural Gas STAR reporting (equipment leaks, pipeline replacement, pipeline pump-downs, use of turbines) including pipeline “pump downs” during construction/pipeline integrity digs to reduce methane blown to atmosphere, installation of cathodically-protected pipe replacing unprotected pipe to reduce methane leakage; electric driven compressors are also evaluated for new U.S. gas ops installations to reduce combustion CO2.</p> <p>In Mexico, the Climate Change Law sets 50% GHG target by 2050 .This target has not been achieved and the current gov’t does not seem to be inclined to adopt actions to meet GHG targets. The gov’t also has a target for 35% of nation's energy output to come from renewable or low-carbon sources by 2024.</p> <p>There are currently no laws establishing a mandatory emissions trading scheme in Mexico. In August 2016, the Mexican Stock Exchange and SEMARNAT unveiled a pilot programme to develop a carbon market in Mexico so that the private sector may reduce its GHG emissions and remain competitive in a global environment. This pilot programme has not yet started and so at this time is only a virtual exercise among the parties involved.</p>
Financial optimization calculations	<p>Within our Canadian Natural Gas Pipelines business unit, we conduct financial optimization analyses on capital investment decisions to ensure resources are allocated efficiently and in alignment with our long-term strategy. These analyses encompass investments in system expansions, equipment retrofits, and emissions reduction initiatives. Net present value is used as the basis of decision on capital investments. It is important to note that depending on the project type, the timespan or lifecycle applied can vary. Particularly, emissions reduction projects consistent with a pathway to net zero are evaluated over a longer time horizon (i.e., 25 years or more), whereas incremental efficiency improvements to gas-fired facilities are analysed over a short timeframe. This provides a more favourable net present value for net zero pathway projects, giving preference to them over projects that reduce emissions but still rely on fossil fuels.</p>
Other carbon pricing	<p>We consider carbon pricing to be a key factor in determining the financial viability of a project and include it in our business case modelling for Canadian projects. The Government of Canada has confirmed its previously announced plan to accelerate climate action in Canada, titled “A Healthy Environment and a Healthy Economy” which proposes an increasing cost on carbon to \$170 per tonne in 2030. To reach that level, the price imposed on carbon will rise from the 2022 rate of \$50 per tonne by \$15 per tonne each year. While the scope of the Clean Fuel Standard is limited to liquid fuels, there will be opportunities to generate credits for the gaseous fuel stream to incentivize emission reduction</p>

Method	Comment
	<p>opportunities.</p> <p>The effective price of carbon represents the actual carbon rate applied to each tonne of incurred emissions. The effective price of carbon differs from the carbon price in some systems (baseline-and-credit) where pricing applies to only a percentage of emissions.</p> <p>To understand the future impacts of an internal carbon price on our business decisions, including investment in emission reduction activities and operating costs, we currently use an evolving price of carbon of \$40-95/tonne for projects in Canada, and \$31.52-\$42 for projects in California. The internal cost of carbon is also applied to all our potential growth projects and strategies to assess the viability of the projects over the long term, under both our base and stress cases.</p>
<p>Other</p> <p>Dedicated Technical R&amp;D Budget is leveraged for low-carbon R&amp;D</p>	<p>Internally, TCE has invested over \$900K in technical R&amp;D projects focused on investigating transportation of hydrogen and hydrogen gas blends as well as GHG emissions reduction. These projects were prudently funded through the existing annual R&amp;D funding as these projects are aligned with TCE's Strategic Research Priorities.</p> <p>We have committed over \$50 million across multiple funds managed by Energy Impact Partners, a venture capital fund that invests in innovative technologies, services and products to help optimize energy consumption and improve sustainable energy generation. These investments have facilitated the development of advanced real time, leak detection technologies with the potential to drive significant reductions in GHG emissions.</p> <p>We have also been an active member of the international R&amp;D efforts, and as one of the founding members of the PRCI's Emerging Fuels Institute, we have contributed US\$250k in 2021 to the R&amp;D in the areas of hydrogen and RNG pipeline transportation and storage alongside our industry peers globally, currently jointly driving over US\$2M of annual investment in this space.</p>
<p>Partnering with governments on technology development</p>	<p>We advance business objectives by identifying issues, opportunities, and risks within the local, provincial, and federal government political arenas in which we do business or would like to do business. We also continuously build, cultivate and leverage positive and constructive relationships with government officials and other stakeholders through project advocacy and education, and identifying and addressing stakeholder issues, concerns, values and needs.</p> <p>This allows us to gain trust and respect in the public sector, obtain government and community support for its activities and initiatives, and to contribute to and collaborate with the communities where the company operates, which includes technology development.</p>

Method	Comment
	<p>We actively participate in several government, industry and academic collaborations dedicated to improving field research and adoption of emissions detection, quantification, mitigation, conservation and conversation technologies. The outcomes of these collaborations and pilot projects will inform our selection of practices and technologies to reduce emissions, while meeting safety and reliability requirements.</p> <p>TCE is engaged with research organizations across the globe which collaborate and share research and development advancements with government stakeholders with respect to pipeline safety and sustainability. As mentioned above TCE is one of four founding members of the Emerging Fuels Institute (EFI) formed through PRCI. The EFI focuses on addressing challenges in the storage and transportation of hydrogen and hydrogen blends. The goal of EFI is to develop a hydrogen pipeline guide to be used as a framework to safely convert and operate natural gas pipeline systems to hydrogen blend service.</p>
<p>Other Operational excellence and effectiveness</p>	<p>Our focus on operational excellence and effectiveness increases efficiency, thereby reducing emissions, while our drive for continual improvement including aligning metrics, improving information accessibility, and completing integration activities, extends through our integrated business, applying consistent stringent standards and practices to improve overall performance. The use of a disciplined approach to capital allocation supports our ability to maximize value over the short, medium and long term.</p>

## C4.5

**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?**

Yes

## C4.5a

**(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.**

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**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

Other, please specify

Paris Agreement compliant (compatible with a 1.5°C degree decarbonization trajectory per Climate Bonds Taxonomy)

**Type of product(s) or service(s)**

Power

Other, please specify

Nuclear generation facility; power plant

**Description of product(s) or service(s)**

Bruce Power is a nuclear power generation facility located near Tiverton, Ontario and is comprised of eight nuclear power units with a combined capacity of approximately 6,550 MW. Bruce Power leases the facilities from OPG, has no spent fuel risk and will return the facilities to OPG for decommissioning at the end of the lease. We hold a 48.4 per cent ownership interest in Bruce Power.

Bruce Power recently launched Project 2030 with the goal of achieving a site peak output of 7,000 MW by 2033 in support of climate change targets and future clean energy needs. Project 2030 will focus on continued asset optimization, innovation and leveraging new technology, which could include integration with storage and other forms of energy, to increase the site peak output at Bruce Power. Project 2030 is arranged in three stages with the first two stages fully approved for execution. Stage 1 started in 2019 and is expected to add 150 MW of output and Stage 2, which commenced early 2022, is targeting another 200 MW. Both stages are expected to increase output in multiple steps ending in 2033.

“Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year” includes revenue from Storage assets and may overestimate slightly.

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

No

**Methodology used to calculate avoided emissions**

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

**Functional unit used**

**Reference product/service or baseline scenario used**

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

**Explain your calculation of avoided emissions, including any assumptions**

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

3.07

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**Level of aggregation**

Product or service

**Taxonomy used to classify product(s) or service(s) as low-carbon**

Other, please specify

Renewable Natural Gas (RNG) Technology Roadmap Steering Committee with support from Government of Canada

**Type of product(s) or service(s)**

Other

Other, please specify

Renewable natural gas

**Description of product(s) or service(s)**

% revenue from low carbon product(s) in the reporting year is unknown.

Our experience in transporting renewable natural gas dates back to 2002, connecting a landfill site in Canada to our TQM pipeline.

We are seeing more commercial interest in RNG projects, especially in QC given the government's commitment to flowing 5% RNG by 2025. In the U.S., our pipeline system has been transporting RNG since 2005 with our Davison RNG Project in MI.

Our portfolio now encompasses 12 interconnects across QC, MI, KY, MO, OR and WI, with 11 RNG interconnect projects in-service and 8 projects under construction.

Our RNG capability is expanding with new interconnects being added each year and commercial discussions in progress as many of our customers are interested in the carbon-neutral energy opportunity. We expect to continue to grow our RNG interconnect footprint in the coming years, as this technology becomes more accessible and awareness of RNG is increased.

This year, we joined the RNG Coalition at the leadership level. TC Energy is also a sponsor for RNG Works, an industry conference to educate on, demonstrate, and promote industry best practices for RNG.

In April 2022, we announced strategic collaboration to explore development of a network of natural gas transportation hubs, including RNG.

These hubs would provide centralized access to existing energy transportation infrastructure for renewable natural gas sources, such as farms, wastewater treatment facilities and landfills

**Have you estimated the avoided emissions of this low-carbon product(s) or service(s)**

No

**Methodology used to calculate avoided emissions**

**Life cycle stage(s) covered for the low-carbon product(s) or services(s)**

**Functional unit used**

**Reference product/service or baseline scenario used**

**Life cycle stage(s) covered for the reference product/service or baseline scenario**

**Estimated avoided emissions (metric tons CO<sub>2</sub>e per functional unit) compared to reference product/service or baseline scenario**

**Explain your calculation of avoided emissions, including any assumptions**

**Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year**

## **C-EU4.6**

**(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.**

For over half a century, we have pioneered innovative technology and practices to enhance efficiency and reduce emissions at our facilities, and we maintain a robust corporate research and development program, with a focus on improving the efficiency of our operations.

Through continued development of world-class technologies, we are working hard to reduce the GHG intensity of our operations and reduce energy use on our power and storage facilities. Across North America there are a variety of new and evolving policies and initiatives in development at the federal, regional, state and provincial level aimed at reducing GHG emissions, including methane emissions.

Adherence to these programs inherently drives us to reduce emissions (through innovation, technology or other practices/procedures), or accept increased financial obligations.

We also continue to implement practices to enhance our management of fugitive methane emissions from our power generation activities. For example, our power generation facilities perform fugitive emission inspections on an annual frequency. Leaks are tagged if they cannot be repaired immediately, and the repair activity is recorded for that piece of equipment.

## **C-OG4.6**

**(C-OG4.6) Describe your organization's efforts to reduce methane emissions from your activities.**



We fully support objectives to reduce methane emissions and engage with regulators, contributing to development of voluntary and mandatory methane emission reduction programs to meet federal and provincial targets. We are also a signatory to the Methane Guiding Principles (MGP). These principles focus on priority areas for action towards the reduction of methane emissions across the natural gas value chain.

In 2021, we hosted an industry-wide Methane Masterclass for Canadian upstream, midstream, downstream and utility peers as part of MGP's 2021 Global Outreach Program and as a means to learnings on methane mitigation across industry. We are committed to minimizing the environmental impact of pipelines throughout the entire pipeline lifecycle and have been actively engaged in reducing methane emissions for several decades as a driving force in the pipeline industry on developing and implementing new practices and technologies to reduce fugitive emissions during routine operations and maintenance. For instance, the use of transfer compressors has been a long-standing application to save gas and reduce emissions from pipeline blowdowns. In Canada, regulatory requirements have also contributed to our emissions reductions. Through our regulatory LDAR Program, we have identified equipment prone to fugitive methane emissions and implemented Canada-wide programs to replace such equipment. Findings from the LDAR Program have also provided additional justification to increase gas to air pneumatic conversions. Please refer to question **C-OG4.2d** for details regarding our commitment to methane reduction emissions.

We also participate in Pipeline Research Council International (PRCI), Petroleum Technology Alliance Canada (PTAC)/Canadian Emissions Reductions Innovation Consortium (CanERIC) consortium and Canadian Energy Pipeline Association (CEPA) committees which emphasize industry sharing of best practices with focus on methane, and shared response to government agencies regarding upcoming regulations. We are also members of the Canadian Energy Partnership for Environmental Innovation (CEPEI), which is hosted by the Canadian Gas Association. CEPEI is focused on collecting emissions data, conducting air research projects, and tracking emerging environmental issues for over 25yrs. Our engagement with CEPEI has allowed us to understand our proportional contribution to methane emissions in the transmission sector, while maintaining visibility to commitments, research and opportunities across Canada, the U.S and internationally. Historical and current CEPEI projects are used for addressing the gaps and uncertainties around emissions from transmission and distribution sectors in Canada and help provide better data for regulatory compliance and voluntary reporting purposes.

Initiatives to reduce methane emissions continues, including a pilot project for remote Tecno Plug®, non-intrusive technology that provides fail-safe isolation with 2 independent energization systems on pipeline isolation. Tecno Plug® uses differential pressure acting on the tool to energize the locks and seals, referred to as self-energization. When the isolation plug is self-energized, the isolation is maintained independent of the control system, though backed up by the hydraulic control system, which maintains the isolation when the differential pressure is below the self-energization threshold. Results from the pilot were promising, achieving methane emissions savings of 28 MMcf without pulldown and 7 MMcf using pulldown. Other pilot projects have also been successfully completed with support from gov't grants. These include the new application of existing tech that convert methane into water vapour and CO<sub>2</sub>. We tested 2 Enclose Vapour Combustor (EVC) units on a compressor dry gas seal vent and pneumatic device. The test revealed the technology is at least 99.6% efficient, and reduced methane emissions up to 7 times. We also tested mobile incinerators on a pipeline blowdown in AB. For that particular case, results indicated a reduction of ~2,000 tCO<sub>2</sub>e.

Finally, we trialed Zero Emissions Vacuum and Compressor (ZEVAC®), a portable device that can transfer gas that would have otherwise been released to atmosphere during inline inspection projects. Further work is on-going to develop a blowdown management plan that will rely on technology and operational practices to further reduce methane emissions.

Also, during 2021, we installed 400m of new above-ground small diameter piping at one of our compressor stations to capture natural gas that would otherwise be released during planned unit blowdown and transfer it to the adjacent unit onsite. Final tie-ins for this project were completed in spring 2022 ready to capture blowdown gas at the next unit outage.

Outcomes from these pilots inform decisions on the short and medium-term implementation of abatement solutions to fulfil our GHG Emissions Reduction Plan and, in some cases, exceed regulatory requirements.

## C-OG4.7

**(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?**

Yes

### C-OG4.7a

**(C-OG4.7a) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.**

We do not own/operate upstream oil and gas production assets. We own/operate interstate natural gas transport pipelines, associated metering/valve sites, & compressor facilities along the pipelines in the O&G sector and have proactively undertaken LDAR for years.

Regulatory rules require leak tests at selected compressor stations and/or metering/valve sites in the following jurisdictions:

- Canada-wide - *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)*
- AB – AER Directive 060
- BC - Greenhouse Gas Industrial Reporting and Control Act
- ON - EPA: O. Reg. 52/09: GHG Emissions Reporting,
- QC - Regulation Respecting Mandatory Reporting of Certain Emissions of Contaminants into the Atmosphere,

- U.S. Federal: 40 CFR Part 98 GHGRP Subpart W (M12) and 40 CFR Part 60 Subpart OOOOa Oil and Natural Gas Emission Standards for New, Reconstructed and Modified Sources
- U.S. state-based programs include leak detection and repair in CA and PA and GHG survey in MD.
- Mexico Federal: NOM-007-SECRE-2010, NOM-007-ASEA-2016 and the General Administrative Provisions (DAG); which establish the “*Guidelines for the prevention and comprehensive control of methane emissions from the Hydrocarbons Sector*”.

**In Canada**, we complete LDAR surveys at compressor stations annually and meter stations every 3yrs. Starting in 2020, survey frequencies increased to 3x/year using optical-gas imaging cameras for both the compressor & the meter stations per federal and provincial methane regulation requirements. While valves are excluded from this initiative, we have continued this best practice of inspecting valve fugitive emissions surveys every two years. As of 2022 onwards, we will increase the frequency of inspecting fugitive emissions at valves sites to once a year and use the same detection equipment utilized in our LDAR Program.

Our in-house developed Emissions Management Application within SAP (EMA-SAP Tool) supports our Canadian natural gas pipeline assets LDAR program to automatically extract all necessary leak survey data (pictures, video, text descriptions) into EMA/SAP for triage. We use this tool to evaluate all leaks and automate the generation of work orders to ops departments for repair, within 2 business days. This rapid assessment sets up our field personnel for success by giving them as much time as possible to complete repairs within regulatory required timelines (within 30 days or, depending on the leak’s severity or repair requirements, at the next planned shutdown if equipment must be depressurized to safely repair the leak).

In our U.S. ops, we have been completing annual leak measurements at ~70% of the compressor stations in compliance with the EPA’s mandatory GHGRP under 40 CFR 98 Subpart W for reportable facilities and performs voluntary “as found” GHG surveys for non-reportable facilities. The leak measurements are made using a combination of Optical Gas Imaging (OGI) cameras and flow measuring devices.

~20% of the compressor stations are currently subject to the fugitive leak methane emissions monitoring and repair requirements under 40 CFR 60 Subpart OOOOa regulations. Each affected facility fugitive components are monitored quarterly using an optical gas imaging (OGI) camera. Currently ~5% of compressor stations in U.S. Ops are subject to state LDAR programs (in CA, MD, and PA). The pipe fugitive components are monitored once annually or quarterly depending on the state regulations using EPA Method 21 instrument or OGI camera.

**In Mexico**, we complete gas leak detection on the equipment and accessories on a semi-annual basis, at both the stations and the pipeline, in accordance with regulations and applicable internal procedures.

**Enterprise-wide**, we’ve matured our compliance LDAR programs to survey beyond regulated assets. As carbon price is forecasted to increase, we are making efforts to move away from emission factor and estimation methods (of GHG inventory quantification) and shift to direct measurement. As we mature our LDAR programs and continue to invest/develop Alt-LDAR tech using satellites, aerial and continuous monitoring we will continue to shift from use of emission factors, increase surveillance frequency and overall reduce our mean time to leak found, and in turn the mean time to repair leaks.

We are getting better understanding/learning of our vents and are using machine learning to compare varying vent rates observed throughout the year

to our operational configs of our system to apply machine learning to map the ontology of vented emissions with operational plans and consider emissions with efficiency, reliability and availability of our compression units when operating.

## C-OG4.8

**(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization’s efforts to reduce flaring, including any flaring reduction targets.**

While we do not own or operate any upstream oil and gas production assets, we use flares at the gas storage operations at a minimal capacity for process safety purposes. Where practical and safe, flaring is also used as part of the Canadian natural gas pipelines to combust the methane releases from pipeline blowdowns during maintenance activities in specific situation, and on dehydration skids at our U.S. gas operations, however, some thermal oxidizers exist as an alternative to flares.

Our Mexico operating systems do not have flaring destruction systems and it is not being contemplated; our main activity is to reduce venting frequency and durations.

## C5. Emissions methodology

### C5.1

**(C5.1) Is this your first year of reporting emissions data to CDP?**

No

### C5.1a

**(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?**

Row 1

---

**Has there been a structural change?**

Yes, a divestment



Yes, a merger

**Name of organization(s) acquired, divested from, or merged with**

TC PipeLines, LP  
Northern Courier Pipeline

**Details of structural change(s), including completion dates**

In December 2020, TC Energy Corporation announced it had entered into a definitive agreement and plan of merger to acquire all the outstanding common units of TC PipeLines, LP not beneficially owned by TC Energy or its affiliates in exchange for TC Energy common shares. On March 3, 2021 we announced we had completed the previously announced merger pursuant to an Agreement and Plan of Merger dated December 14, 2020. The Merger resulted in TC Energy acquiring all of the outstanding publicly-held common units of TC PipeLines, LP and TC PipeLines, LP becoming an indirect, wholly owned subsidiary of TC Energy. The acquisition of TC PipeLines, LP provides the opportunity to consolidate our ownership interest in eight FERC regulated natural gas pipelines that are an integral part of our overall North American network. On September 16, 2021, we announced that Astisiy Limited Partnership, comprised of Suncor and eight Indigenous communities in the Regional Municipality of Wood Buffalo (RMWB), would acquire TC Energy’s remaining 15 per cent equity interest in the Northern Courier Pipeline. On November 30, 2021, we received \$35 million in proceeds from the monetization of our remaining 15 per cent equity interest in Northern Courier to Astisiy Limited Partnership.

**C5.1b**

**(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?**

	<b>Change(s) in methodology, boundary, and/or reporting year definition?</b>	<b>Details of methodology, boundary, and/or reporting year definition change(s)</b>
Row 1	Yes, a change in boundary	Previously, TC Energy had only been reporting Scope 1 and Scope 2 emissions (voluntarily) using the equity share reporting boundary. Starting in 2022, TC Energy will be reporting Scope 1 and Scope 2 emissions using the operational control boundary. Historical 2019 and 2020 Scope 1 and Scope 2 emissions data will be recalculated for publication in the 2022 ESG Data Sheet using both equity share and operational control reporting boundaries.

## C5.1c

**(C5.1c) Have your organization’s base year emissions been recalculated as result of the changes or errors reported in C5.1a and C5.1b?**

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	Yes	Historical 2019 and 2020 Scope 1 and Scope 2 emissions data will be recalculated for publication in the 2022 ESG Data Sheet using both equity share and operational control reporting boundaries. The 2019 and 2020 emissions were also recalculated to account for structural changes associated with the divestment of assets as previously stated. Additional emissions sources identified and included in the 2021 calculated emissions were also included in the recalculated emissions for 2019 and 2020.

## C5.2

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

### Scope 1

**Base year start**

January 1, 2019

**Base year end**

December 31, 2019

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

18,283,785

**Comment**

We calculate GHG emissions using a combination of methods mandated by various regulations in the different jurisdictions we operate.

We report our emissions to British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, Environment and Climate Change Canada,

the U.S. Environmental Protection Agency, California, Oregon, Washington, and Mexico's Ministry of Environment and Natural Resources (SEMARNAT). These methods can include, but are not limited to, direct measurement and use of emission factors in conjunction with operating conditions. We report gross emissions emitted to the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions. For increased transparency, consistency and completeness between regulatory jurisdictions, the 2021 corporate GHG emissions reported within this questionnaire response include emission sources considered below reporting thresholds under regulatory reporting regimes.

The base year emissions for Scope 1 reported here are based on the operational control reporting boundary.

## Scope 2 (location-based)

---

### Base year start

January 1, 2019

### Base year end

December 31, 2019

### Base year emissions (metric tons CO<sub>2</sub>e)

2,131,847

### Comment

We calculate GHG emissions using a combination of methods mandated by various regulations in the different jurisdictions where we operate. Scope 2 emissions are not required in many of the jurisdictional reporting regulations, however, TC Energy records and reports Scope 2 emissions from all applicable operational assets using both location-based reporting methods.

The methods used to inform the methodology for Scope 2 emissions utilizes direct measurement or acceptable missing data procedures to inform the amount of energy consumed. The calculation of Scope 2 emissions from the energy consumed using the location-based method of reporting references regional or sub-regional emission factors for the generation of power from national government sources:

- Canada – ECCC, National Inventory Reporting (annual publication);
- US – EPA, eGRID (bi-annual publication);
- Mexico - Registro Nacional de Emisiones

We report gross scope 2 emissions emitted to the atmosphere before accounting for offsets, credits, or other similar mechanisms that have

reduced or compensated for emissions.

The Scope 2 emissions reported for the base year (2019) are based on the operational control reporting boundary.

### **Scope 2 (market-based)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

We do not report Scope 2 emissions using market-based figures.

### **Scope 3 category 1: Purchased goods and services**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

### **Scope 3 category 2: Capital goods**

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**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)**

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**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 4: Upstream transportation and distribution**

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**Base year start**

**Base year end**



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

**Comment**

**Scope 3 category 5: Waste generated in operations**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 6: Business travel**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 7: Employee commuting**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 8: Upstream leased assets**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 9: Downstream transportation and distribution**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 10: Processing of sold products**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 11: Use of sold products**

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**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 12: End of life treatment of sold products**

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**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 13: Downstream leased assets**

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**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3 category 14: Franchises**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 15: Investments**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3: Other (upstream)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

**Scope 3: Other (downstream)**

---

**Base year start**

**Base year end**

**Base year emissions (metric tons CO<sub>2</sub>e)**

**Comment**

## **C5.3**

**(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.**

The Climate Registry: General Reporting Protocol

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

US EPA Mandatory Greenhouse Gas Reporting Rule

US EPA Emissions & Generation Resource Integrated Database (eGRID)

Other, please specify

WCI, USPEA40CFRPart 98, Alberta TIER, CEPEI, Clearstone Engineering Ltd., API Compendium of GHG Methodologies, GREET, Climate Registry, Canada NIR, and memos from Registro Nacional de Emisiones (Mexico).

- Scope 1: 2011 Western Climate Initiative (WCI) quantification methods in combination with the 2012 and 2013 amendments, USPEA 40 CFR Part 98, Alberta Technology, Innovation, and Emission Reduction Reporting Methodology, Canadian Energy Partnership for Environmental Innovation (CEPEI), Methodology Manual: Estimation of Air Emissions from the Canadian Natural Gas Transmission, Storage and Distribution System, prepared by Clearstone Engineering Ltd., 2022, American Petroleum Institute Compendium of GHG Methodologies for the Natural Gas and Oil Industry, 2021
- Scope 2: GREET via the WRI/WBSCD – Greenhouse Gas Protocol, The Climate Registry, 2021 Climate Registry Default Emission Factors [May 2021], National Inventory Report Greenhouse Gas Sources and Sinks in Canada 1990-2020, Canada 2022 National Inventory Report – Part 3, and memos released by the Registro Nacional de Emisiones (Mexico).

## C6. Emissions data

### C6.1

**(C6.1) What were your organization’s gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?**

**Reporting year**

**Gross global Scope 1 emissions (metric tons CO<sub>2</sub>e)**

19,352,227

**Comment**

Gross global Scope 1 emissions are calculated as per jurisdictional regulatory reporting program guidance, including equity share reporting boundary, emission category, calculation methodology and global warming potentials. In instances where regulatory reporting program guidance does not align across jurisdictions, we have attempted to align the emission calculation methodology consistently across all legal entities, including those outside minimum regulatory reporting thresholds. As detailed in Question C5.2, additional emission sources have been included, informed by considerations including transparency, external reputation, resource availability and impact, and future-use initiatives. Gross emissions provided are based on the equity share reporting boundary.

### C6.2

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



**Row 1**

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**Scope 2, location-based**

We are reporting a Scope 2, location-based figure

**Scope 2, market-based**

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

**Comment**

Scope 2 emissions are considered an indirect emissions source (along with Scope 3), as the emissions are a consequence of activities of the reporting organization but occur at sources owned or controlled by another organization (e.g., an electricity generator or utility).

Our location-based Scope 2 emissions are calculated based on purchased electricity, steam/heat and regional or sub-regional emission factors (e.g., grid electricity emission factors).

**C6.3**

**(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?**

**Reporting year**

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**Scope 2, location-based**

2,082,222

**Comment**

Electricity emissions factors for location-based Scope 2 accounting are taken from the 2022 Canadian National Inventory Report (NIR), supplied by grid operators (where available), the USEPA Emissions & Generation Resource Integrated Database (eGRID), The Climate Registry (May 2021) Climate Registry Default Emission, and memos released by the Registro Nacional de Emisiones.

Gross emissions provided are based on the equity share reporting boundary.

## 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.**

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**Source**

Scope 2 emissions from small operating facilities and ancillary equipment (i.e., small power consumers such as valves, building/yard lighting).

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

Emissions are not relevant

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

Emissions are relevant but not yet calculated

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

Emissions are relevant but not yet calculated

**Explain why this source is excluded**

Data availability: we estimate this is not a significant source of emissions.

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

0

**Explain how you estimated the percentage of emissions this excluded source represents**

Missing Scope 2 emissions were based on the total cost of power consumption from utility invoices which was converted into an equivalent power (MWh) unit based on jurisdictional average pricing of power per unit. Estimated emissions were calculated using the regional grid power carbon factors.

Estimated percentage of total Scope 1+2 emissions this excluded source represents less than 0.5%.

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**Source**

Scope 1 emissions from corporate owned buildings (i.e., utility fuel for comfort heat and/or emergency power).

**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 this source is excluded**

Data availability: we estimate this is not a significant source of emissions.

**Estimated percentage of total Scope 1+2 emissions this excluded source represents**

0

**Explain how you estimated the percentage of emissions this excluded source represents**

Missing Scope 1 emissions were estimated based on the number of buildings with missing data and drawing comparable fuel usage information from buildings with known/available data.

Estimated percentage of total Scope 1+2 emissions this excluded source represents less than 0.5%.

## C6.5

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

#### Purchased goods and services

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##### Evaluation status

Relevant, not yet calculated

##### Please explain

We are evaluating opportunities to obtain an annual supply chain spend analysis to further quantify emissions from purchased goods and services, including, but not limited to, fuel feedstocks and professional and technical services.

Scope 3 emissions in this category are not currently quantified.

We anticipate utilizing the "GHG Protocol Quantis Scope 3 Evaluator" tool to assist in future quantification.

#### Capital goods

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##### Evaluation status

Relevant, not yet calculated

##### Please explain

We are evaluating opportunities to obtain an annual supply chain spend analysis to further categorize and quantify associated emissions from purchased capital goods, such as construction materials (concrete and steel) for capital projects.

Scope 3 emissions in this category are not currently quantified.

We anticipate utilizing the "GHG Protocol Quantis Scope 3 Evaluator" tool to assist in future quantification.

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

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##### Evaluation status

Relevant, calculated

##### Emissions in reporting year (metric tons CO<sub>2</sub>e)

3,115,217

**Emissions calculation methodology**

Fuel-based method

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

100

**Please explain**

Included in this Scope 3 category are emissions from purchased products used for operational purposes and/or business activities, which have not already been quantified as a direct (Scope 1) or indirect (Scope 2) emissions source and are located outside of operational boundaries.

This includes:

- Purchased Electricity
- Fuel Consumption (upstream extraction, processing and transport emissions that are outside our operational boundaries.)
- T&D Losses
- Aviation Fuel data

For the 2021 reporting year, this category represents approximately 98% of our reported Scope 3 emissions.

**Upstream transportation and distribution**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

Emissions previously reported in this category have been further evaluated and included in other categories.

Previously reported fleet leased vehicular travel has been included in Scope 1 – Corporate transportation emissions (based on guidance from USEPA GHG accounting reporting guidance), and rental vehicles and extensity travel emissions have been included in Category 6: Business Travel.

Emissions associated with transportation and distribution of services have been quantified in Scope 1 accounting.

**Waste generated in operations**

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**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

48,879

**Emissions calculation methodology**

Spend-based method

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

100

**Please explain**

Included in this Scope 3 category are emissions from spend on facility waste management as invoiced by our waste vendors across all jurisdictions.

For the 2021 reporting year, this category represents approximately 1.5% of our reported Scope 3 emissions.

**Business travel**

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**Evaluation status**

Relevant, calculated

**Emissions in reporting year (metric tons CO2e)**

4,042

**Emissions calculation methodology**

Distance-based method

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

100

**Please explain**

Emissions included in this Scope 3 category cover employee business-related travel activities. Included in this Scope 3 category:

- Domestic, continental and intercontinental air travel
- Rail travel
- Car Rental
- Extensity

For the 2021 reporting year, this category represents approximately 0.13% of our reported Scope 3 emissions profile.

### Employee commuting

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#### Evaluation status

Relevant, not yet calculated

#### Please explain

We are evaluating opportunities to obtain employee commuting information, via employee surveys, to further categorize and quantify associated.

Scope 3 emissions in this category are not currently quantified.

Owned and leased air and vehicular travel data is captured under Scope 1 emissions quantification.

### Upstream leased assets

---

#### Evaluation status

Relevant, calculated

#### Emissions in reporting year (metric tons CO<sub>2</sub>e)

9,643

#### Emissions calculation methodology

Average spend-based method

Fuel-based method

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

100

**Please explain**

Emissions included in this Scope 3 category include day-to-day operation of leased office space.

Included in this Scope 3 category:

- Leased office space electricity consumption
- Leased office space natural gas consumption

For the 2021 reporting year, this category represents approximately 0.3% of our reported Scope 3 emissions.

**Downstream transportation and distribution**

---

**Evaluation status**

Not relevant, explanation provided

**Please explain**

We do not take ownership of the natural gas and crude oil we transport, nor do we take ownership of the natural gas we store; we provide a service for the transport or storage of natural gas or crude oils for various shippers to other transmission pipelines, power plants and local distribution companies who deliver products to the end consumer.

As such, emissions relating to the operational activities of TC Energy are reported under Scope 1 and 2 emissions. Downstream emissions as defined in various Scope 3 categories are not relevant to our natural gas and liquids pipeline business.

Downstream electricity use, after generation from TC Energy facilities, is considered transmission and distribution (T&D) of electricity. There are typical losses from T&D and emissions have been quantified under 'Scope 3 - Fuel-and-energy-related activities (not included in Scope 1 or 2).

**Processing of sold products**

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**Evaluation status**

Not relevant, explanation provided

**Please explain**

We do not take ownership of the natural gas and crude oil we transport, nor do we take ownership of the natural gas we store; we transport or store it for various shippers to other transmission pipelines, power plants and local distribution companies who then bring it to the places where we work and live. As a result, quantification of GHG emissions relating to the processing of sold products is not relevant (if there is no product ultimately sold).



Relative to our Power entities, as electricity is not 'processed', quantification of GHG emissions relating to the processing of sold products (electricity) is null.

## Use of sold products

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### Evaluation status

Not relevant, explanation provided

### Please explain

We do not take ownership of the natural gas and crude oil we transport, nor do we take ownership of the natural gas we store; we transport or store it for various shippers to other transmission pipelines, power plants and local distribution companies who then bring it to the places where we work and live. As a result, quantification of GHG emissions relating to the use of sold products is not relevant (if there is no product ultimately sold).

Electricity produced from some of our power generation facilities are sent directly to the grid, from which industrial, commercial and residential (indirectly) customers procure, as needed. Purchases from the grid are completed on an as-needed basis and cannot be purchased from a specific electricity generator. As a result, quantification of these Scope 3 emissions is challenging, as we are unable to discern who purchases our generated electricity at any given time.

We are evaluating opportunities to obtain reported-emissions data from customers who purchase our generated electricity directly (through contracts) in which to quantify emissions from this category.

## End of life treatment of sold products

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### Evaluation status

Not relevant, explanation provided

### Please explain

We do not take ownership of the natural gas and crude oil we transport, nor do we take ownership of the natural gas we store; we transport or store it for various shippers to other transmission pipelines, power plants and local distribution companies who then bring it to the places where we work and live. As a result, quantification of GHG emissions relating to the end-of-life treatment of sold products is not relevant (if there is no product ultimately sold).

There is no end-of-life treatment required of electricity generated from power generation facilities.

## Downstream leased assets

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### Evaluation status

Not relevant, explanation provided

### Please explain

Emissions from this Scope 3 category are not relevant to our operations, as we are not aware of any downstream leased assets.

## Franchises

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### Evaluation status

Not relevant, explanation provided

### Please explain

Emissions from this Scope 3 category are not relevant to our operations as we do not operate franchises as defined in the GHG Scope 3 Accounting and Reporting Standard.

## Investments

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### Evaluation status

Relevant, not yet calculated

### Please explain

We are evaluating opportunities to obtain annual GHG emissions from sites that we have a financial or equity ownership percentage but are not the operator, to further categorize and quantify associated emissions.  
Scope 3 emissions in this category are not currently quantified.

## Other (upstream)

---

### Evaluation status

Not relevant, explanation provided

### Please explain

We do not have other upstream Scope 3 emissions to report.

**Other (downstream)**

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**Evaluation status**

Not relevant, explanation provided

**Please explain**

We do not have other downstream Scope 3 emissions to report.

**C6.7**

**(C6.7) Are carbon dioxide emissions from biogenic 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 CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.**

---

**Intensity figure**

0.001

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

21,992,258

**Metric denominator**

Other, please specify

GJ

**Metric denominator: Unit total**

21,908,668,299

**Scope 2 figure used**

Location-based

**% change from previous year**

4.2

**Direction of change**

Increased

**Reason for change**

This emission intensity metric is based on operational control reporting boundary.

TCE's emissions intensity is influenced by the Scope 1 and Scope 2 emissions generated from the operations required to provide reliable and affordable energy, safely to its customers.

Last year, as presented in TCE's inaugural GHG Emissions Reduction Plan, we set a target to reduce our emissions intensity by 2030 and to be positioned for net zero by 2050.

TCE's 2021 emissions intensity, like our baseline year we measure towards is based on an operational control approach. In 2021, our emissions intensity increased due in part to increased energy demand, resulting in increased throughput across our networks.

Given our GHG targets were set in the last half of 2021 and this report reflects 2021 activity, comparing the 2021 trend line of our emissions intensity or absolute emissions to our targets is premature. The data doesn't fully capture the magnitude of efforts underway within the company.

To drive operational GHG emissions reductions, we've created dedicated energy transition teams focused on establishing the foundational tools and capabilities and assessing relevant technologies and opportunities to support business resiliency.

TCE's decarbonization efforts are concentrated on five focus areas to reduce the emissions intensity of our operations, while also capturing growth opportunities that meet the energy needs of the future:

1. Modernize our existing systems and assets
2. Decarbonize our energy consumption
3. Invest in low-carbon energy and infrastructure
4. Drive digital solutions and technologies

5. Leverage environmental attributes such as carbon credit and offsets

We believe that being an energy problem solver means focusing on the energy needs of society both today and in the future. TCE remains committed to achieving its targets and we are excited about the opportunities that come with implementing our emissions reduction plan.

**Intensity figure**

1,176

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

9,980,445

**Metric denominator**

Other, please specify

billion cubic feet (Bcf) natural gas throughput

**Metric denominator: Unit total**

8,486

**Scope 2 figure used**

Location-based

**% change from previous year**

5.3

**Direction of change**

Increased

**Reason for change**

This metric is being reported using the equity share reporting boundary.

This metric is relevant to our natural gas pipelines in the U.S. and represents Scope 1 and 2 emissions only from those US facilities.

Calculated GHG emission intensities for our natural gas business segments are based on a throughput denominator measured in units of billion cubic feet (Bcf).

Throughput within each operational jurisdiction is calculated based on regionally or pipeline system distinct methodologies and definitions. The relationship between natural gas transmission pipeline GHG emissions and the volume of gas transported is complex. The nature of a transmission network, such as a single, long-haul pipeline with few connections or points where gas is added and removed from the system, requires different equipment and has a different emissions profile than highly integrated networks with a large number of “branches” over a smaller geographic area. In addition, the amount of GHGs released during operation does not have a linear relationship to the volume of gas that is transported on the system. Therefore, comparisons of emissions intensities between natural gas transmission pipeline systems and between jurisdictions, should consider the type of pipeline network and the service that it is providing.

The throughput volumes across the U.S. natural gas pipelines were higher in 2021, resulting in increased energy (i.e., fuel combustion) and associated Scope 1 emissions to transport the product to meet customer demand relative to 2020 resulting in a higher emission intensity in 2021.

**Intensity figure**

909

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)**

7,346,251

**Metric denominator**

Other, please specify

billion cubic feet (Bcf) natural gas throughput

**Metric denominator: Unit total**

8,081

**Scope 2 figure used**

Location-based

**% change from previous year**

2

**Direction of change**

Increased

**Reason for change**

This metric is being reported using the equity share reporting boundary.

This metric is relevant to our natural gas pipelines in Canada and represents Scope 1 and 2 emissions only from those facilities.

Calculated GHG emission intensities for our natural gas business segments are based on a throughput denominator measured in units of billion cubic feet (Bcf).

Throughput within each operational jurisdiction is calculated based on regionally or pipeline system distinct methodologies and definitions. The relationship between natural gas transmission pipeline GHG emissions and the volume of gas transported is complex. The nature of a transmission network, such as a single, long-haul pipeline with few connections or points where gas is added and removed from the system, requires different equipment and has a different emissions profile than highly integrated networks with a large number of “branches” over a smaller geographic area. In addition, the amount of GHGs released during operation does not have a linear relationship to the volume of gas that is transported on the system. Therefore, comparisons of emissions intensities between natural gas transmission pipeline systems and between jurisdictions, should consider the type of pipeline network and the service that it is providing.

The throughput volumes across the Canadian natural gas pipelines were higher in 2021, resulting in increased energy (i.e., fuel combustion) and associated Scope 1 emissions to transport the product to meet customer demand.

**Intensity figure**

155

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

81,813

**Metric denominator**

Other, please specify

billion cubic feet (Bcf) natural gas throughput

**Metric denominator: Unit total**

529

**Scope 2 figure used**

Location-based

**% change from previous year**

21.3

**Direction of change**

Decreased

**Reason for change**

This metric is being reported using the equity share reporting boundary.

This metric is relevant to our natural gas pipelines in Mexico and represents Scope 1 and 2 emissions only from those facilities.

Calculated GHG emission intensities for our natural gas business segments are based on a throughput denominator measured in units of billion cubic feet (Bcf).

Throughput within each operational jurisdiction is calculated based on regionally or pipeline system distinct methodologies and definitions. The relationship between natural gas transmission pipeline GHG emissions and the volume of gas transported is complex. The nature of a transmission network, such as a single, long-haul pipeline with few connections or points where gas is added and removed from the system, requires different equipment and has a different emissions profile than highly integrated networks with a large number of “branches” over a smaller geographic area. In addition, the amount of GHGs released during operation does not have a linear relationship to the volume of gas that is transported on the system. Therefore, comparisons of emissions intensities between natural gas transmission pipeline systems and between jurisdictions, should consider the type of pipeline network and the service that it is providing.

The variance from 2020 reported intensity is attributed to increased natural gas throughput in 2021. The demand for compression in 2021 was less than in 2020, however, which resulted in lower combustion GHG emissions.

**Intensity figure**

0.0913

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**



2,216,602

**Metric denominator**

megawatt hour generated (MWh)

**Metric denominator: Unit total**

24,283,977

**Scope 2 figure used**

Location-based

**% change from previous year**

18.8

**Direction of change**

Increased

**Reason for change**

This metric is being reported using the equity share reporting boundary.

Metric tonnes CO<sub>2</sub>e per MWh produced is relevant to our Power generation facilities and measures Scope 1 and 2 emissions only from those facilities.

Many of our electricity-generating facilities also generate a heat product, which is not currently accounted in our production metrics for CDP reporting. Therefore, an emissions intensity simply based on electricity generation is only partially representative of our 'true' emissions intensity of our cogeneration assets. While both electricity production and scope 1 GHG emissions from power facilities both increased in 2021 as compared to 2020, a greater relative increase in emissions resulted in a net overall intensity increase from the previous year.

**Intensity figure**

404

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

53,824

**Metric denominator**

Other, please specify

Total volume (Injected + Withdrawn) (BCF)

**Metric denominator: Unit total**

133

**Scope 2 figure used**

Location-based

**% change from previous year**

18

**Direction of change**

Decreased

**Reason for change**

This metric is being reported using the equity share reporting boundary.

Metric tonnes CO<sub>2</sub>e per total natural gas volume (Injected + Withdrawn) is relevant to our Canadian Gas Storage facilities and measures Scope 1 and 2 emissions only from those facilities.

When operating our gas storage assets, typically more GHGs are generated during withdrawal than injection. Injection processes use incremental electricity consumption to compress and push the gas into the subsurface storage reservoir. In 2021, slightly higher volumes of gas were injected into and withdrawn from our storage facilities than in 2020, while scope 1 and 2 emissions remained consistent. This resulted in a reduction in the overall intensity of storage operations.

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**Intensity figure**

0.0042

**Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO<sub>2</sub>e)**

1,659,758

**Metric denominator**

Other, please specify  
Throughput (NSV bbls)

**Metric denominator: Unit total**

391,585,185

**Scope 2 figure used**

Location-based

**% change from previous year**

16.6

**Direction of change**

Increased

**Reason for change**

This metric is being reported using the equity share reporting boundary.  
Metric tonnes CO<sub>2</sub>e per net standard volume (NSV) throughput is relevant to our Canadian and U.S.-based liquids pipeline entities and measures Scope 1 and 2 emissions only from those facilities. When compared to a 2020 intensity value, the intensity increased due to increases to the Scope 2 emissions and a decrease in volume throughput relative to 2020 operations.

## C-OG6.12

**(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO<sub>2</sub>e) per unit of hydrocarbon category.**

---

**Unit of hydrocarbon category (denominator)**

Other, please specify  
MWh of Natural Gas and Electricity

**Metric tons CO2e from hydrocarbon category per unit specified**

0

**% change from previous year**

0

**Direction of change**

No change

**Reason for change**

The increase in total Scope 1 emissions was offset by the increased throughput (utilization) across most pipeline entities and power generation assets resulting in a comparable intensity to 2020.

**Comment**

Metric tons CO2e from hydrocarbon category per unit specified is 0.004. Throughput in MMcf of natural gas for pipelines was converted to MWh and added to the MWh of electricity consumed from generated electricity within power generation facilities. The total CO2e emissions were then divided by MWh to obtain a corporate intensity for 2021.

**C-OG6.13**

**(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.**

**Oil and gas business division**

Midstream

**Estimated total methane emitted expressed as % of natural gas production or throughput at given division**

**Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division**

0.042

**Comment**

Total methane emissions from our Natural Gas Pipelines operations are based on measured and estimated sources including stationary combustion (i.e., combustion efficiency), vented emissions and fugitive emissions. Total hydrocarbon throughput was based on throughput data from all three natural gas pipeline business units (i.e., Canadian Gas Operations, US Natural Gas and Mexico Gas Operations).

## C7. Emissions breakdowns

### C7.1

**(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?**

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	15,365,892	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	3,916,709	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	69,625	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	0	IPCC Fourth Assessment Report (AR4 - 100 year)

#### C-EU7.1b

**(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.**

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Total gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	0.039	8.431	0	211	Fugitive emissions from our power generation facilities is attributed to natural gas lost that is used to fuel the turbine generator and afterburner equipment, if operational. The use and regeneration of SF6 products were not reported by operations in 2021.
Combustion (Electric utilities)	2,153,447	142	0	2,172,033	Combustion emissions are attributed to the gas turbine generators.
Combustion (Gas utilities)					
Combustion (Other)					
Emissions not elsewhere classified	0.171	33.62	0	841	Emissions disclosed in this category represent venting emission sources during the 2021 calendar year.

### C-OG7.1b

**(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.**

**Emissions category**

Combustion (excluding flaring)

**Value chain**

Midstream

**Product**

Gas

**Gross Scope 1 CO2 emissions (metric tons CO2)**

13,126,181

**Gross Scope 1 methane emissions (metric tons CH4)**

2,764

**Total gross Scope 1 emissions (metric tons CO2e)**

13,249,388

**Comment**

Data based on equity share reporting boundary

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**Emissions category**

Flaring

**Value chain**

Midstream

**Product**

Gas

**Gross Scope 1 CO2 emissions (metric tons CO2)**

22,226

**Gross Scope 1 methane emissions (metric tons CH4)**

133

**Total gross Scope 1 emissions (metric tons CO2e)**

25,581

**Comment**

Data based on equity share reporting boundary

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**Emissions category**

Venting

**Value chain**

Midstream

**Product**

Gas

**Gross Scope 1 CO2 emissions (metric tons CO2)**

2,152

**Gross Scope 1 methane emissions (metric tons CH4)**

66,831

**Total gross Scope 1 emissions (metric tons CO2e)**

1,704,428

**Comment**

Data based on equity share reporting boundary



**Emissions category**

Fugitives

**Value chain**

Midstream

**Product**

Gas

**Gross Scope 1 CO2 emissions (metric tons CO2)**

688

**Gross Scope 1 methane emissions (metric tons CH4)**

25,863

**Total gross Scope 1 emissions (metric tons CO2e)**

2,152,842

**Comment**

Data based on equity share reporting boundary

**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	9,467,623
United States of America	9,803,560
Mexico	81,044

### C7.3

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

By business division

#### C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Natural Gas Pipelines	17,131,802
Liquids Pipelines	437
Power and Storage	2,189,490
Corporate	30,498

### 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	Comment
Electric utility activities	2,112,647	The value reported here includes emissions from our electric power generation assets only. This total does not include emissions from our non-regulated Canadian Gas Storage entities, which do not meet the CDP definition of an "Electric Utility", however are included in our Power and Storage business segment. The Storage business in Canada operates independently from our regulated natural gas transmission and storage businesses.

	Gross Scope 1 emissions, metric tons CO2e	Comment
		Net Scope 1 is the same as gross we did not abate any emissions through environmental attributes such as offsets or REC's.
Oil and gas production activities (upstream)		
Oil and gas production activities (midstream)	17,132,239	The value reported here includes estimated emissions from our natural gas and liquids pipeline assets. Net Scope 1 is the same as gross we did not abate any emissions through environmental attributes such as offsets or REC's
Oil and gas production activities (downstream)		

### 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)
Canada	840,850	
United States of America	1,238,395	
Mexico	1,977	

### C7.6

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

By business division

## C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Natural Gas Pipelines	276,707	
Liquids Pipelines	1,659,322	
Power and Storage	145,194	

## 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
Oil and gas production activities (upstream)			
Oil and gas production activities (midstream)	1,936,029		The value reported here includes estimated emissions from our natural gas and liquid pipeline assets.
Oil and gas production activities (downstream)			

## 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				
Other emissions reduction activities				
Divestment	2,329	Decreased	0.01	Variance from previous year, related to divestment, was noted at the following: Liquids Business Unit divested the equity interest held in the Northern Courier pipeline and storage terminal assets in November 2021.
Acquisitions				
Mergers	1,779,449	Increased	22	Variance from previous year, related to mergers, was noted at the following: The US Natural Gas pipeline Business unit merged assets historically held under TC PipeLine LP in March 2021 resulting in increased equity held by TC Energy Corporation in numerous pipeline systems. Note, the change in emissions provided does not exclude changes due to differences in operational conditions (i.e., increased throughput due to increased customer demand) of the same assets between 2020 and 2021.
Change in output	1,178,986	Increased	5.5	Variance from previous year, related to changes in output, was noted at the following: Changes in output are attributed to increased fuel consumption to provide the

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
				necessary increase in natural gas and power demand from our customers relative to 2020.
Change in methodology	832,000	Increased	4.5	Variance from previous year, related to changes in methodology, was noted at the following: Sources of emissions, beyond the regulatory reporting requirements from the USNG pipelines were included in 2021 (e.g., emissions from sources with less than 25,000 tonnes CO2e/year) resulting in increased emissions of approx. 733,000 tonnes CO2e from historical metrics reported. Power generating facility is now including Scope 2 emissions from imported steam used to generate power resulting in increased emissions of approx. 99,000 tonnes CO2e per year – using the Location-based methodology.
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

### 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?**

Don't know

### C8.2

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
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	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

### 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 (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	82,048,947	82,048,947

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of purchased or acquired electricity		0	4,607,082	4,607,082
Consumption of purchased or acquired steam		0	440,427	440,427
Consumption of self-generated non-fuel renewable energy				
Total energy consumption		0	87,096,456	87,096,456

## 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	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

## C8.2c

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

**Sustainable biomass**

**Heating value**



**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Other biomass**

---

**Heating value**

**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Other renewable fuels (e.g. renewable hydrogen)**

---

**Heating value**

**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Coal**

---

**Heating value**

**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Oil**

---

**Heating value**

**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Gas**

---

**Heating value**

**Total fuel MWh consumed by the organization**

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

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

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

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

**Comment**

**Other non-renewable fuels (e.g. non-renewable hydrogen)**

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

82,048,946

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

11,891,347

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

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

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

11,444,171

**Comment**

Various emission factors were used based on type of fuel / electricity, source of fuel / electricity and whether emissions to be calculated were Scope 1, Scope 2, or Scope 3.

Scope 1 emissions factors are generally prescribed by the regulatory agencies, in jurisdictions where our assets are located.

Third-party verification of GHG calculations, including use of emission factors, are completed on several assets; please refer to Question C10.1a for further details.

Scope 2 and 3 emissions factors have been disclosed in our response to question C5.2.

Other non-renewable fuels include: diesel, kerosene, motor gasoline, natural gas, propane liquid

**Total fuel**

---

**Heating value**

HHV

**Total fuel MWh consumed by the organization**

82,048,946

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

11,891,347

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

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

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

11,444,171

**Comment**

Various emission factors were used based on type of fuel / electricity, source of fuel / electricity and whether emissions to be calculated were Scope 1, Scope 2, or Scope 3.

Scope 1 emissions factors are generally prescribed by the regulatory agencies, in jurisdictions where our assets are located.

Third-party verification of GHG calculations, including use of emission factors, are completed on several assets; please refer to Question C10.1a for further details.

Scope 2 and 3 emissions factors have been disclosed in our response to question C5.2.

Other non-renewable fuels include: diesel, kerosene, motor gasoline, natural gas, propane liquid

## **C8.2d**

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	24,283,977	1,391,410	0	0
Heat	7,357,807	0	0	0
Steam				
Cooling				

### C-EU8.2d

**(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.**

**Coal – hard**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO2e)**

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

**Comment**

**Lignite**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Oil**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**



**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Gas**

---

**Nameplate capacity (MW)**

1,088

**Gross electricity generation (GWh)**

3,883

**Net electricity generation (GWh)**

3,824

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

2,108,854

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

552

**Comment**

Nameplate capacity and gross electricity generation have been adjusted for asset ownership as at December 31, 2021.

**Sustainable biomass**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Other biomass**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Waste (non-biomass)**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Nuclear**

---

**Nameplate capacity (MW)**

3,170

**Gross electricity generation (GWh)**

20,460

**Net electricity generation (GWh)**

19,102

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

3,793

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

0.19

**Comment**

Nameplate capacity and gross electricity generation have been adjusted for asset ownership as at December 31, 2021.

Emissions associated with the Bruce Power Nuclear facility have been estimated based on asset owner publicly-available documentation and represent ownership as of December 31, 2021.

**Fossil-fuel plants fitted with CCS**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Geothermal**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Hydropower**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Wind**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Solar**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**



**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO2e)**

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

**Comment**

**Marine**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO2e)**

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

**Comment**

**Other renewable**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**

**Comment**

**Other non-renewable**

---

**Nameplate capacity (MW)**

**Gross electricity generation (GWh)**

**Net electricity generation (GWh)**

**Absolute scope 1 emissions (metric tons CO<sub>2</sub>e)**

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e per GWh)**



**Comment**

**Total**

---

**Nameplate capacity (MW)**

4,258

**Gross electricity generation (GWh)**

24,343

**Net electricity generation (GWh)**

22,926

**Absolute scope 1 emissions (metric tons CO2e)**

2,112,647

**Scope 1 emissions intensity (metric tons CO2e per GWh)**

92

**Comment**

Data reported reflects the equity share organizational reporting boundary.

**C8.2g**

**(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.**

---

**Country/area**

Canada

**Consumption of electricity (MWh)**

2,039,296

**Consumption of heat, steam, and cooling (MWh)**

440,427

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

2,479,723

---

**Country/area**

United States of America

**Consumption of electricity (MWh)**

2,563,112

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

2,563,112

---

**Country/area**

Mexico

**Consumption of electricity (MWh)**

4,674

**Consumption of heat, steam, and cooling (MWh)**

0

**Total non-fuel energy consumption (MWh) [Auto-calculated]**

4,674

## **C-EU8.4**

**(C-EU8.4) Does your electric utility organization have a transmission and distribution business?**

No

## **C9. Additional metrics**

### **C9.1**

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

### **C-EU9.5a**

**(C-EU9.5a) Break down, by source, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.**

**Coal – hard**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

### **Lignite**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

### **Oil**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Gas**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Sustainable biomass**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Other biomass**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Waste (non-biomass)**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Nuclear**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

4,400,000,000

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

18.64

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

Secured projects (CAPEX) plan from 2021 Annual Report.

The \$4.4B reflects our expected share of cash contributions for the Bruce Power Unit 6 Major Component Replacement (MCR) program, expected to be in service in 2023, amounts to be invested under the Asset Management program through 2027 as well as the incremental uprate initiative. In addition, it includes our expected share of cash contributions for the Unit 3 MCR, subject to IESO approval of the basis of estimate. We hold a 48.4 per cent ownership interest in Bruce Power.

We have several development-stages projects planned to include pumped storage projects, and we are evaluating proposals received from our 2021 Renewable Energy Request for Information (RFI); we expect to finalize contracts throughout the 2022 calendar year.

**Geothermal**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

#### **Hydropower**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

#### **Wind**

---



**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

#### **Solar**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

#### **Marine**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Fossil-fuel plants fitted with CCS**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Other renewable (e.g. renewable hydrogen)**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

**Other non-renewable (e.g. non-renewable hydrogen)**

---

**CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)**

**CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year**

**CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years**

**Explain your CAPEX calculations, including any assumptions**

## C-EU9.5b

**(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).**

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
Large-scale storage	<p>We are proposing and developing, three large-scale storage projects; Saddlebrook Solar and Storage (Alberta), Canyon Creek Pumped Storage (Alberta) and Ontario Pumped Storage (Ontario).</p> <p>We acquired 100 per cent ownership of the Canyon Creek pumped storage development project in 2021. Once in service, the facility will have initial generating capacity of 75 MW, expandable through future development to 400 MW, and will utilize existing site infrastructure from a decommissioned coal mine. The facility will provide up to 37 hours of on-demand, flexible, clean energy and ancillary services to the Alberta electricity grid. The project has received the approval of the Alberta Utilities Commission and the required approval of the Alberta Government for hydro projects under the Hydro Development Act.</p> <p>We are proposing to construct and operate the Saddlebrook Solar and Storage project, a solar and energy storage solution, which consists of a solar-generating facility located in Aldersyde, Alberta that will operate in conjunction with a battery energy storage system.</p> <p>We continue to progress the development of the Ontario Pumped Storage project, an energy storage facility located near Meaford, Ontario that would provide 1,000 MW of flexible, clean energy to Ontario’s electricity system using a process known as pumped hydro storage. Two key milestones on the Ontario Pumped Storage project</p>			

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
	<p>were reached in 2021. On July 28, 2021, the Federal Minister of National Defense granted long-term land access to the fourth Canadian Division Training Centre for development of the project on this site. On November 11, 2021, Ontario’s Minister of Energy instructed the IESO to progress the project to Gate 2 of the Unsolicited Proposals Process. Once in service, this project will store emission-free energy when available and provide that energy to Ontario during periods of peak demand, thereby maximizing the value of existing emissions-free generation in the province.</p>			
<p>Other, please specify wind, solar and power storage renewable energy projects</p>	<p>Leveraging our Power business as a platform for future growth and diversification, in 2021, we announced that we were seeking to identify potential contracts and/or investment opportunities in renewable energy projects that could generate up to 3.2 million MWh/year of zero carbon energy comprising of up to 620 MW of wind, 300 MW of solar and 100 MW of battery storage capacity to meet the electricity needs of the U.S. portion of the Keystone Pipeline System assets. We also identified meaningful origination opportunities to supply renewable energy products and services to industrial and oil and gas sectors proximate to our in-corridor demand. We received a significant number of responses to our RFI and are currently evaluating proposals; we expect to finalize contracts throughout the 2022 calendar year.</p> <p>These projects are not currently included in the current secured projects CAPEX plan but considered Projects Under Development; please refer to our 2022 First Quarter Report to Stakeholders: <a href="https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q1-quarterly-report.pdf">https://www.tcenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q1-quarterly-report.pdf</a></p>			
<p>Other, please specify</p>	<p>In June 2021, we announced a partnership with Pembina Pipeline Corporation to jointly develop a world-scale carbon transportation and sequestration system which,</p>			

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
<p>carbon transportation and sequestration system</p>	<p>when fully constructed, will be capable of transporting more than 20 million tonnes of carbon dioxide annually, thereby providing opportunities to retrofit existing assets and reduce our carbon footprint. By leveraging existing pipelines and a newly developed sequestration hub, the Alberta Carbon Grid (ACG) is expected to provide an infrastructure platform for Alberta-based industries to manage their emissions and contribute to a lower-carbon economy. Designed to be an open-access system, the ACG would connect the Fort McMurray, Alberta Industrial Heartland and Drayton Valley regions to key sequestration locations and delivery points across the province. We are also pursuing opportunities to leverage our existing systems in support of hydrogen production and transportation.</p> <p>In February 2022, we submitted an application to the Government of Alberta to build and operate a carbon storage hub and gathering lines in the industrial heartland near Edmonton. In March 2022, the Alberta Government confirmed that the ACG has been invited to move forward into the next stages of the province’s CCUS process to further evaluate the suitability of the proposed location for safely storing carbon from industrial emissions.</p> <p>We are excited about the opportunity to work alongside the Government of Alberta, collaborate with our industry peers, and connect with Indigenous communities and key stakeholders to advance this important work. This project is included in the current secured projects CAPEX plan, however, represents a significant development embracing the energy transition that is underway and contributing to a lower-carbon energy world.</p>			

**C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6**

**(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?**

	Investment in low-carbon R&D	Comment
Row 1	Yes	<p>In the last decade, our R&amp;D program has invested approximately \$158M on initiatives across N. America including tech. development/deployment/digital technologies targeting capital expenditure reduction of, lowering operating costs, increased reliability, toll competitiveness, &amp; improving environmental performance. In 2021, our people were involved in more than 100 projects focusing on tech innovation to improve pipeline safety/reliability and enhances our operational and enviro performance. These include 68 projects conducted internally through our TIMO Technical Innovation Portfolio and in 35 collaborative PRCI projects with participation from our peers and external stakeholders. Our innovation efforts span a diverse range of technologies, from emission reduction pilots, machine learning &amp; advanced analytics for optimized processes to hydrogen blending feasibility studies and drones. Indirectly increasing /modernization/technology/ innovation improvements on existing infrastructure may result in emission intensity reduction as a by-product. In 2021 we also became a founding member of the Emerging Fuels Institute, established by Prior investments also support internal research programs &amp; joint partnerships; an investment that pays off across the board. Our innovation programs are globally recognized for advancing the safety and efficiency of our industry. Our energy transition strategy includes reducing GHG emissions while simultaneously taking advantage of growth opportunities presented by low-carbon fuels &amp; infrastructure. Our existing assets will remain essential to future energy systems &amp; create sustainable competitive advantage. We are building collaborative partnerships within industry to further explore/develop commercially viable decarbonization projects.</p> <p>2021 progress highlights: sanctioned Virginia Reliability (VR) &amp; Wisconsin Reliability (WR) projects which will reduce emissions, increase throughput, and improve reliability, launched RFP process to identify renewable energy sources to power U.S. portion of Keystone Pipeline, executed 15-year PPA for 100% output from the 297MW Sharp Hills Wind Farm in AB, and reached an agreement with the Department of National Defence to advance development of the proposed Ontario Pumped Storage Project, signed agreements with both Nikola Corporation and Hyzon Motors to explore co-development of hydrogen hubs in U.S. and Canada.</p>

### C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other, please specify collaborative technical and engineering innovation through industry associations	Applied research and development	≤20%	104,000	<p>We work with industry standards organizations like Canadian Standards Association (CSA) and American Society of Mechanical Engineers (ASME) to incorporate our innovations in relevant codes and standards and ensure they are adopted and benefit the entire industry. TCE has been involved in the development and publishing of two CSA standards related to emissions in the past 2 years, specifically: CSA Z620.3:22 Flaring, incineration, and enclosed combustion and CSA Z620.2:20 Compressor seal vent gas flow rate testing and recording.</p> <p>To prepare TCE for a future in energy sustainability our teams are investigating hydrogen as an emerging fuel source. Hydrogen is a future clean fuel that has significant potential but also comes with technical and engineering challenges. In 2021, TCE became one of four founding members of the Emerging Fuels Institute (EFI) formed through PRCI. The EFI focuses on addressing challenges in the storage and transportation of hydrogen and hydrogen blends. The goal of EFI is to develop a hydrogen pipeline guide to be used as a framework to safely convert and operate natural gas pipeline systems to hydrogen</p>



Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
				<p>blend service.</p> <p>Internally, our R&amp;D teams collaboratively manage eight technical R&amp;D projects focus on investigating transportation of hydrogen and hydrogen gas blends as well as GHG emissions reduction projects.</p> <p>Over the last three years we invested 3.5% of our R&amp;D spend on technology relating to GHG reduction and Emerging Fuel. Our R&amp;D investment figure in the reporting year represents Canadian Energy Partnership for Environmental Innovation (CEPEI) program funding. CEPEI, which is hosted by the Canadian Gas Association, is focused on collecting emissions data, conducting air research projects, and tracking emerging environmental issues for over 25 years.</p>
Energy storage	Large scale commercial deployment			<p>We have introduced, or are currently developing, three large-scale storage projects; Saddlebrook Solar and Storage (Alberta), Canyon Creek Pumped Storage (Alberta) and Ontario Pumped Storage (Ontario). Please refer to question C-EU9.5b for additional details.</p>
Renewable energy	Large scale commercial deployment			<p>We executed a 15-year power purchase agreement for 100 per cent of the output – and all future attributes - from the 297-megawatt Sharp Hills Wind Farm in Alberta.</p> <p>The 297-MW Sharp Hills Wind Farm is anticipated to be operational in 2023 and will deliver economic benefits to the local project communities and the province of Alberta in the form</p>

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
				<p>of payments to local landowners and property tax revenue to the Special Area Board. Sharp Hills will also contribute to the increase in money spent at businesses in the vicinity of the wind farm. The project will create jobs with approximately 300 employment opportunities during the wind farm’s construction and 15-20 permanent, local jobs during the project’s operational life. The Sharp Hills Wind Farm will also generate enough electricity to annually power the equivalent of more than 164,000 average Alberta homes and will save approximately two billion litres of water per year.</p>
Renewable energy	Large scale commercial deployment			<p>In 2021, we announced that we were seeking to identify potential contracts and/or investment opportunities in wind, solar and power storage renewable energy projects. We requested up to 620 MW of wind energy projects, 300 MW of solar projects and 100 MW of energy storage projects to meet the electricity needs of the U.S. portion of the Keystone Pipeline System assets. We also identified meaningful origination opportunities to supply renewable energy products and services to industrial and oil and gas sectors proximate to our in-corridor demand. We received a significant number of responses to our RFI and are currently evaluating proposals; we expect to finalize contracts throughout the 2022 calendar year.</p> <p>We have also secured approximately 400 MW of wind and solar generation PPAs and associated environmental attributes in Alberta as of December 31, 2021. These PPAs allow us to</p>

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
				generate incremental earnings while also contributing to the reduction of our operational GHG intensity and allowing us to offer renewable power products to our customers.
Other, please specify Hydrogen production infrastructure and services	Large scale commercial deployment			<p>We have entered into two Joint Development Agreements (JDA), to support customer-driven hydrogen production for long-haul transportation, power generation, large industrials and heating customers across the United States and Canada. The first opportunity is a partnership with Nikola Corporation, a designer and manufacturer of zero-emission battery-electric and hydrogen-electric vehicles and related equipment, where Nikola will be a long-term anchor customer for hydrogen production infrastructure supporting hydrogen fuelled zero-emission heavy-duty trucks. The JDA with Nikola supports co-development of large-scale green and blue hydrogen production hubs, utilizing our power and natural gas infrastructure.</p> <p>Our second customer-driven opportunity is a partnership with Hyzon Motors, a leader in fuel cell electric mobility for commercial vehicles, to develop hydrogen production facilities focused on zero-to-negative carbon intensity hydrogen from renewable natural gas, biogas and other sustainable sources. The facilities will be located close to demand, supporting Hyzon's back-to-base vehicle deployments. Our significant pipeline, storage and power assets can potentially be leveraged to lower the cost and increase the speed of development of these hubs. This may include exploring the integration of</p>

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
				pipeline assets to enable hydrogen distribution and storage via pipeline and/or to deliver carbon dioxide to permanent sequestration sites to decarbonize the hydrogen production process.
Other, please specify Combustion optimization and modification, monitoring systems to reduce emissions, and process improvements	Applied research and development			TC Energy is supporting the development of international standards for new sensor technology to support interoperability and accelerate industry adoption through the Open Geospatial Consortium (UN Supported) <ul style="list-style-type: none"> <li>• Solution is to provide a cost-effective, accurate, end-to-end multi-sensor digital platform for methane detection, quantification, monitoring, reporting and prediction solution.</li> <li>• The technology front when it comes to methane detection has been a gold rush, and TC Energy is continuing to pilot and support technology development and collaborate with solution providers, industry peers and governments to accelerate development and adoption.</li> <li>• TC Energy collaborated with Solar Turbines to develop and deploy a first in its kind a capture and reinjection skid eliminating venting emissions from our compressor units.</li> <li>• Piloting incineration and evaluating existing business practices to support adoption of destruction of vented emissions for maintenance activities.</li> <li>• Awarded grants via CleanBC &amp; CRIN for advancing pilots and R&amp;D towards vent capture technology and methane monitoring equipment.</li> </ul>

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Methane detection and reduction	Pilot demonstration			<p>Our Canada Gas Operations teams have installed continuous emissions monitoring systems at a limited number of existing facilities to understand the potential of this technology category to support emissions management and real-time monitoring options.</p> <p>TC Energy is also a member of the Natural Gas Innovation Fund (NGIF) Clean Ventures, which provides investment support for technologies across the natural gas value chain. NIGF supports technologies for emissions monitoring and measurement, as well as emerging technologies to reduce methane venting, flaring and fugitive emissions.</p>

## 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	No third-party verification or assurance

## C10.1a

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

---

### 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

 Pages from rpt\_160925120\_ggerr\_2021\_NGTL\_bc-lfo\_20220526.pdf

 Pages from rpt\_160925118\_ggerr\_2021\_FHPL\_bc-lfo\_20220526\_rev1-3.pdf

### Page/ section reference

Page/section reference: entire document

Additional relevant standards include:

- ISO 14065:2013
- IAF MD4:2018

### Relevant standard

ISO14064-3

### Proportion of reported emissions verified (%)

3

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**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**

-  fnl\_rpt\_160925120\_tce\_ab\_pipeline\_20220627.pdf
-  Pages from fnl\_rpt-ver-tier-carseland-2021-20220627.pdf
-  Pages from fnl\_rpt\_160925114\_ver\_tier\_bearcreek\_2021\_20220627.pdf
-  Pages from fnl\_rpt\_160925114\_ver\_tier\_mackay\_2021\_20220627.pdf
-  Pages from fnl\_rpt-ver\_tier\_tce\_agg-2021\_20220628.pdf
-  Pages from fnl\_rpt-ver-tier-redwater-2021-20220628.pdf

**Page/ section reference**

Page/section reference: entire document

Additional relevant standards include:

- ISO 14065:2013
- IAF MD4:2018

**Relevant standard**

ISO14064-3

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

38

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**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**

-  Pages from fnl\_rpt\_160925116\_obps\_om\_ml\_20220530\_combined.pdf
-  Pages from fnl\_rpt\_160925116\_obps\_sk\_ml\_20220530\_combined.pdf
-  Pages from fnl\_rpt\_160925116\_obps\_mb\_ml\_20220530\_combined.pdf
-  Pages from fnl\_rpt\_160925130\_obps\_fh\_sk\_20220530\_combined.pdf

**Page/ section reference**

Page/section reference: entire document

Additional relevant standards include:

- ISO 14065:2013
- IAF MD4:2018
- ECCC verification guidance document
- Stantec's Standard Operating Procedure



- ANSI National Accreditation Board

**Relevant standard**

ISO14064-3

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

11

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**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**

 Pages from 11207825-RPT-6-08-Vpréliminaire-Vérification Gazoduc TQM 2021\_WBA.pdf

 Pages from 11207825-RPT-7-06-Rapport Vérification TC Bécancour 2021\_final.pdf

 Pages from 11207825-RPT-5-07-Rapport Vérification TCPL 2021 (Notarius).pdf

**Page/ section reference**

Page/section reference: entire document.

Additional relevant standards include:

- ISO 14064-1:2018
- RLRQ c. Q-2, r. 15 : Règlement sur la déclaration obligatoire de certaines émissions de contaminants dans l'atmosphère. MELCC (version du

1 décembre 2021) (Règl. 15)

- RLRQ c. Q-2, r. 46.1 : Règlement concernant le système de plafonnement et d'échange de droits d'émission de gaz à effet de serre. MELCC (version du 1 décembre 2021) (Règl. 46.1)

**Relevant standard**

ISO14064-3

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

1

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**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for current reporting year – first year it has taken place

**Type of verification or assurance**

Limited assurance

**Attach the statement**

**Page/ section reference**

Additional relevant standards include:

ISAE 3410 Assurance Engagements on Greenhouse Gas Statements

**Relevant standard**

ISAE3000

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

100

## C10.1b

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

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### Scope 2 approach

Scope 2 location-based

### Verification or assurance cycle in place






### Status in the current reporting year

Complete

### Type of verification or assurance

Reasonable assurance

### Attach the statement

-  fnl\_rpt\_160925120\_tce\_ab\_pipeline\_20220627.pdf
-  Pages from fnl\_rpt-ver-tier-carseland-2021-20220627.pdf
-  Pages from fnl\_rpt\_160925114\_ver\_tier\_bearcreek\_2021\_20220627.pdf
-  Pages from fnl\_rpt\_160925114\_ver\_tier\_mackay\_2021\_20220627.pdf
-  Pages from fnl\_rpt-ver-tier-redwater-2021-20220628.pdf

### Page/ section reference

Page/section reference: entire document

Additional relevant standards include:

- ISO 14065:2013
- IAF MD4:2018

**Relevant standard**

ISO14064-3

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

46

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**Scope 2 approach**

**Verification or assurance cycle in place**

Annual process

**Status in the current reporting year**

Underway but not complete for current reporting year – first year it has taken place

**Type of verification or assurance**

Limited assurance

**Attach the statement**

**Page/ section reference**

Additional relevant standards include:

ISAE 3410 Assurance Engagements on Greenhouse Gas Statements

**Relevant standard**

ISAE3000

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

100

**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?**

Yes

**C10.2a**

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Progress against emissions reduction target	International Standard on Assurance Engagements ('ISAE') 3000 (Revised) Assurance Engagements other than Audits or Reviews of Historical Financial Information and ISAE 3410 Assurance Engagements on Greenhouse Gas Statements	TC Energy is currently completing a limited assurance on select indicators such as enterprise-wide Scope 1 and Scope 2 GHG emissions and production data, the results of which we anticipate to be available November 2022.
C6. Emissions data	Other, please specify Emission intensity performance relative to the regulatory facility specific benchmark billion cubic feet	TIER Standard for Validation, Verification and Audit, V5.1, December 2020 (Verification Standard) • ISO 14064 Part 3 • ISO 14065	The volumetric throughput of products from each of the pipeline systems are subject to regulatory verification to ensure the data and records management are valid (e.g., metering devices are maintained, data acquisition systems are relaying and storing appropriate

Disclosure module verification relates to	Data verified	Verification standard	Please explain
	(Bcf) natural gas per kilometer distance of pipeline	<ul style="list-style-type: none"> <li>International Accreditation Forum Mandatory Document for the Use of Information and Communication Technology (ICT) for Auditing/Assessment Purposes: Issue 2 (IAF MD4:2018).</li> </ul>	<p>operational activity data).</p> <p>The throughput volumes for regulatory reported emission intensity for the TCE assets under the TIER regulations are reported as Bcf/km distance of pipe.</p>
C6. Emissions data	Other, please specify emissions per megawatt hour of power and heat generated (MWh)	<p>TIER Standard for Validation, Verification and Audit, V5.1, December 2020 (Verification Standard)</p> <ul style="list-style-type: none"> <li>ISO 14064 Part 3</li> <li>ISO 14065</li> <li>International Accreditation Forum Mandatory Document for the Use of Information and Communication Technology (ICT) for Auditing/Assessment Purposes: Issue 2 (IAF MD4:2018).</li> </ul>	<p>The electrical and heat production from each of the cogeneration facility is subject to regulatory verification to ensure the data and records management are valid (e.g., metering devices are maintained, data acquisition systems are relaying and storing appropriate operational activity data).</p>
C6. Emissions data	Other, please specify total combustion emissions per volume (Injected + Withdrawn) (e3 m3)	<p>TIER Standard for Validation, Verification and Audit, V5.1, December 2020 (Verification Standard)</p> <ul style="list-style-type: none"> <li>ISO 14064 Part 3</li> <li>ISO 14065</li> <li>International Accreditation Forum Mandatory Document for the Use of Information and Communication</li> </ul>	<p>The production from each of the storage assets that are subject to regulatory verification is required to ensure the data and records management are valid (e.g., metering devices are maintained, data acquisition systems are relaying and storing appropriate operational activity data). The data used to inform the production metrics for these assets are also subject to regulatory reporting under Alberta Energy Regulator</p>

Disclosure module verification relates to	Data verified	Verification standard	Please explain
		Technology (ICT) for Auditing/Assessment Purposes: Issue 2 (IAF MD4:2018).	Directive 17 - Measurement Requirements for Oil and Gas Operations.

## 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 TIER - ETS
- BC carbon tax
- California CaT - ETS
- Canada federal fuel charge
- Canada federal Output Based Pricing System (OBPS) - ETS
- Québec CaT - ETS
- Saskatchewan OBPS - ETS
- Other ETS, please specify
- Manitoba OBPS – ETS, Ontario OBPS - ETS

## C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

### Alberta TIER - ETS

---

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

99

**% of Scope 2 emissions covered by the ETS**

41

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

6,319,899

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

43,740

**Details of ownership**

Facilities we own and operate



**Comment**

In Alberta, TIER regulations require industrial facilities with GHG emissions above a certain threshold or voluntary participating facilities to reduce their operational emissions to meet a specified emission intensity 'benchmark' for a predefined production unit (emission intensity benchmark) , which are prescribed by the Alberta Government for each participating facility or industrial sector.

Not all Scope 1 emissions are covered by the TIER regulations. For example, TIER aggregate facilities do not need to include emission from non-combustion sources and Scope 2 emissions.

The third-party verified Scope 2 emissions under the TIER regulations are also different from the corporate quantified Scope 2 emissions that are used to inform this CDP submission. The Scope 2 emissions reported in TIER regulations prescribe the emission intensity factors for electricity and heat energy using the "high performance benchmarks" that do not reflect the regional or subregional emission intensity of those energy sources. The scope 2 emission factors that are used to inform our corporate emissions are based on federally (ECCC) published emission factors that are based on measured emission intensity metrics for Alberta power generation (location-based method for reporting).

**California CaT - ETS**

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**% of Scope 1 emissions covered by the ETS****% of Scope 2 emissions covered by the ETS****Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated****Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

**Details of ownership**

Other, please specify

We do not own or operate assets in California which meet regulatory thresholds.

**Comment**

We do not own or operate assets in California which meet regulatory thresholds however we trade power into the state (not necessarily generated by us) which is regulated by this regulation

**Canada federal OBPS - ETS**

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

88

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

1,870,428

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

Our assets in Saskatchewan, Manitoba and Ontario are subject to this federal OBPS regulation, which covers all Scope 1 emission sources from our operations with the exception of venting and fugitive emissions and the import/consumption of electricity. Adherence to this Regulation inherently drives us to reduce emissions (through innovation, technology or other practices/procedures), or accept increased financial obligations.

**Québec CaT - ETS**

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

100

**% of Scope 2 emissions covered by the ETS**

0

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**Allowances allocated**

**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

114,758

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

0

**Details of ownership**

Facilities we own and operate

**Comment**

Adherence to this Regulation inherently drives us to reduce emissions (through innovation, technology or other practices/procedures), or accept increased financial obligations. Presently, the regulation does not consider the import of electricity and the associated indirect emissions (Scope 2) from that energy and is not part of the annual verification requirements.

**Saskatchewan OBPS - ETS**

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

**% of Scope 2 emissions covered by the ETS**

**Period start date**

**Period end date**

**Allowances allocated**



**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO<sub>2</sub>e**

**Verified Scope 2 emissions in metric tons CO<sub>2</sub>e**

**Details of ownership**

**Comment**

Please refer to response details included under "Canada federal OBPS - ETS"; information related to our assets in Saskatchewan have been included in the federal total.

**Other ETS, please specify**

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

**% of Scope 2 emissions covered by the ETS**

**Period start date**

**Period end date**

**Allowances allocated**

**Allowances purchased**

**Verified Scope 1 emissions in metric tons CO2e**

**Verified Scope 2 emissions in metric tons CO2e**

**Details of ownership**

**Comment**

Please refer to response details included under "Canada federal OBPS - ETS"; information related to our assets in Manitoba and Ontario have been included in the federal total.

**C11.1c**

**(C11.1c) Complete the following table for each of the tax systems you are regulated by.**

**BC carbon tax**

---

**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**% of total Scope 1 emissions covered by tax**

3

**Total cost of tax paid**

19,036,132

**Comment**

BC adopted their carbon tax system in 2008, the first broad-based carbon tax in North America.

On April 1, 2021, B.C.'s carbon tax rate, applied to the purchase and use of fossil fuels, rose from \$40 to \$45 per tCO<sub>2</sub>e. The rate is scheduled to increase to \$50 per tonne on April 1, 2022. To help provide relief during the COVID-19 pandemic, a previously scheduled increase was postponed in 2020.

**Canada federal fuel charge**

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**Period start date**

January 1, 2021

**Period end date**

December 31, 2021

**% of total Scope 1 emissions covered by tax**

0.05

**Total cost of tax paid****Comment**

Representative of the percentage of total Scope 1 emissions in the reporting period that were taxed by this carbon tax.

The Fuel Charge applies early in the supply chain and is payable by the registered distributor; no taxes were paid by TC Energy.

Under the Greenhouse Gas Pollution Pricing Act, adopted in 2018, the Canadian federal carbon pollution pricing system has two parts: a regulatory charge on fuel (fuel charge), under Part 1 of the Act, and a regulatory trading system for industry known as OBPS, under Part 2 of the Act.

The Fuel Charge, applies to 21 types of fuel delivered, transferred, used, produced, imported, or brought into the provinces and territories in which the federal system applies. It also applies to combustible waste that is burned for the purpose of producing heat or energy.

The Fuel Charge came into effect in April 2019 in Manitoba, New Brunswick, Ontario and Saskatchewan, in July 2019 in Nunavut and Yukon, and January 1, 2020 in Alberta. New Brunswick established its own provincial fuel charge on April 1, 2020 and as a result, the federal carbon

pollution pricing backstop system no longer applies in that province.

The remainder of the Canadian provinces and territories either have their own version of the fuel charge (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, British Columbia and the Northwest Territories) or have implemented a cap-and-trade program (Quebec) as an alternative.

## C11.1d

### **(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

Across North America, there are a variety of new and evolving initiatives in development at the federal, regional, state and provincial level aimed at reducing GHG emissions. We actively monitor and submit comments to regulators as new and evolving initiatives are undertaken, and expect that, over time, most of our facilities will be subject to some form of regulation to manage GHG emissions. We support transparent climate change policies that promote sustainable and economically responsible natural resource development. We believe environmental considerations and competitive economics must coexist to help drive emission reductions.

We follow a portfolio approach, seeking abatement opportunities within its own footprint (e.g. waste heat recovery, process optimization, electrification and sourcing net zero power), as well as retirement of self-generated cogeneration environmental performance credits, active procurement of carbon offset credits, and replacement of leak detection equipment at our pipeline assets with more effective equipment (e.g. replacement of electrochemical cell detectors by infrared camera equipment). Most carbon pricing regimes (Alberta TIER, Canadian federal OBPS) limit the use of carbon offsets and performance credits, mandating payments for excess emissions. In cap-and-trade markets, we exercise commercially reasonable hedging strategies and compliance requirements are met by retirement of appropriate vintage allowances purchased at auctions or from secondary markets. We continue to advocate for the use of carbon markets to create immediate and measurable reductions in GHGs at the lowest possible cost.

As a regulated midstream oil and gas company, TC Energy typically flows through carbon liability costs to its customers through rate base or shipper agreements. In British Columbia, the CleanBC Industrial Incentive Program (CIIP) supports emission reductions and industrial competitiveness by providing incentives for cleaner industrial operations that meet a world-leading low-carbon emissions benchmark. The level of incentive is based on the performance of each operation, such as TC Energy's Foothills pipeline system. For program year 2021, TC Energy's Foothills pipeline received nearly \$3MM in grants through the CIIP which was passed to its shippers' customers.

As an operator across numerous provinces and jurisdiction in Canada, the U.S., and Mexico, TC Energy witnesses the impact regional regulations can have on customers, specifically liability to current and purposed carbon taxes. For example, we regularly consult with federal and provincial governments on the development of carbon pricing frameworks to ensure our customers are sheltered as much as possible. These contributions occur with advocacy from our Stakeholder Relations and Policy teams, as well as through industry associations such as IETA, CGFA, INGAA, API, and CEPEI.



## C11.2

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

Yes

## C11.2a

**(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.**

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### **Credit origination or credit purchase**

Credit purchase

### **Project type**

Other, please specify

combination of wind, biomass energy, agriculture and methane avoidance

### **Project identification**

We purchase credits annually from several suppliers from a variety of protocol types in the Alberta market, including wind, to help reduce our emissions liability and profile.

Offsets are accepted for compliance in lieu of payment in some carbon pricing systems (such as Alberta's Technology Innovation and Emissions Reduction (TIER) regulation) offering not only compliance flexibility but also a direct way to support investment in innovative, sustainable abatement projects and technologies. In leveraging this compliance flexibility in Alberta, we support investment in low carbon energy and innovation while minimizing our GHG exposure.

Carbon credits purchased in 2021 through spot transaction and forward purchases to meet compliance requirements, were a combination of offsets and emissions performance credits (EPCs).

We elect to not disclose number of purchased credits due to competitive sensitivities.

### **Verified to which standard**

Other, please specify

Technology Innovation and Emissions Reduction (TIER) regulation - Offset System

**Number of credits (metric tonnes CO2e)**

**Number of credits (metric tonnes CO2e): Risk adjusted volume**

**Credits cancelled**

Yes

**Purpose, e.g. compliance**

Compliance

## C11.3

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

Yes

## C11.3a

**(C11.3a) Provide details of how your organization uses an internal price on carbon.**

---

**Objective for implementing an internal carbon price**

- Navigate GHG regulations
- Stakeholder expectations
- Change internal behaviour
- Drive energy efficiency
- Drive low-carbon investment
- Stress test investments

### **GHG Scope**

Scope 1

Scope 2

### **Application**

Company-wide (with local variations accepted).

We incorporate an expected future cost of carbon emissions into economic analyses of new investments and existing assets to estimate the potential carbon liability.

Across North America there are a variety of new and evolving initiatives in development at the federal, regional, state and provincial level aimed at achieving GHG emission reductions. We actively monitor and submit comments to regulators as these new and evolving initiatives are undertaken. We expect that, over time, most of our facilities will be subject to some form of regulation to manage GHG emissions.

### **Actual price(s) used (Currency /metric ton)**

95

### **Variance of price(s) used**

Carbon price may be up to \$95 (average for 2025), based on forecast assumptions as of December 2021.

In determining internal carbon price, we use scenario analysis with variations over time, geographies and policy outcomes. Our currency varies over geographies – for example, we are subject to different provincial, regional and state-level carbon pricing across North America. We continuously refine our strategy for managing climate change risks and opportunities, including carbon price forecasts.

### **Type of internal carbon price**

Shadow price

### **Impact & implication**

We understand that shareholders and stakeholders want more information on how the company is addressing climate change and associated risks. As the tools available to assess the risks and opportunities associated with climate change improve, we are utilizing them to increase the rigour of our assessment, as a key input into our strategic planning process, applied against a range of policy design options.

## C12. Engagement

### C12.1

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

Yes, our suppliers

Yes, our customers/clients

Yes, other partners in the value chain

### C12.1a

**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

---

**Type of engagement**

Information collection (understanding supplier behaviour)

**Details of engagement**

Other, please specify

collection of environmental regulations and laws/compliance information

**% of suppliers by number**

74

**% total procurement spend (direct and indirect)**

**% of supplier-related Scope 3 emissions as reported in C6.5**

### **Rationale for the coverage of your engagement**

In 2021, we commenced evaluation of methods to collect this information from our supplier base.

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

Total procurement spend (direct and indirect) is ~\$2.8B

Our contractor qualification process reviews all contractors in our qualification tool from “Aravo”. This process ensures current and potential contractors meet minimum requirements in EH&S and regulatory, legal, quality, and our Anti-Bribery and Corruption policies.

Any contractor to be found with a violation or fine is reviewed internally and assessed a classification on the severity of the incident. Decisions are based on working with contractors that align to our environmental principals of Stewardship, Performance and Protection of our footprint and interactions with the Environment in the work we conduct.

### **Comment**

We have recently updated our environmental qualification protocol with International Suppliers Network (ISN) to include questions around environmental policies and written standards. We have also implemented the recently developed ESG factors ISN has incorporated into supply chain management questionnaires, providing several benefits including enhanced business continuity, development of trusted partnerships with suppliers, cost savings through reduced energy and water consumption, prevention of fines and litigation, and minimization of disruptions in the supply chain.

We have numerous initiatives under consideration to bolster our climate-related supplier engagement strategy including:

- Climate change/sustainability performance featured in a contractor awards scheme
- Track in addition to cost savings climate reduction opportunities
- Classify contractors that meet diversity goals or who have formed partnerships with indigenous communities
- Obtain memberships in climate related groups for contractors

---

### **Type of engagement**

Engagement & incentivization (changing supplier behaviour)

### **Details of engagement**

Other, please specify

contractor encouragement to identify opportunities for improvement (OFI's)

**% of suppliers by number**

**% total procurement spend (direct and indirect)**

**% of supplier-related Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

Our contractors are encouraged to provide opportunities for improvements and reductions in our environmental and carbon impacts across our projects for contracted work packages.

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

We are working with our supply chain categories to onboard new suppliers that can support our energy transition plan for projects that will reduce our carbon footprint. Strategic categories are working with our suppliers to communicate our ESG goals and priorities to help them meet our requirements. Suppliers are encouraged to bring opportunities and improvements to our existing services and materials that can help achieve our goals.

**Comment**

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**Type of engagement**

Other, please specify  
reduction of client carbon liability through marketing and trading activities

**Details of engagement**

**% of suppliers by number**

**% total procurement spend (direct and indirect)**

**% of supplier-related Scope 3 emissions as reported in C6.5**

**Rationale for the coverage of your engagement**

Our Power & Storage group supplies several counterparties with offsets to reduce their emissions obligations in the province of Alberta.

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

**Comment**

## **C12.1b**

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

---

**Type of engagement & Details of engagement**

Other, please specify

Other, please specify

education/information sharing via informal engagement and conversations

**% of customers by number**

**% of customer - related Scope 3 emissions as reported in C6.5**

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

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

Engagement with customers regarding efforts each party is making to reduce GHGs in our operations tends to be done informally through conversations. At times we have provided formal presentations to prospective customers who are trying to understand current or potential future exposures associated with environmental regulation.

---

**Type of engagement & Details of engagement**

Other, please specify

Other, please specify

Informal customer / potential value-chain partners engagement

**% of customers by number**

**% of customer - related Scope 3 emissions as reported in C6.5**

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

Commercial customers occasionally inquire about our climate change position and actions; questionnaires are completed as required for commercial contracts and bids.

The annual Report on Sustainability and ESG Datasheet are published publicly to encourage further engagement with us on climate change positioning and actions.

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

While we have not had engagement sessions with our customers on our GHG emissions and climate change strategies, we engage with our customers with respect to the introduction of the climate change policies that have been legislated across Canada, and how those policies may impact the costs and operation our assets.



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**Type of engagement & Details of engagement**

Other, please specify

Other, please specify

Education/information sharing via natural gas trade organizations

**% of customers by number**

**% of customer - related Scope 3 emissions as reported in C6.5**

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

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

We formally engage with customers as members and Board members of many industry trade organizations. Collaborating in these associations allows us to educate each other and respond together on important issues regarding the natural gas industry, such as climate related risk.

Associations we actively engage with include American Gas Association (AGA), Canadian Gas Association (CGA), Northwest Gas Association (NWGA), Western Energy Institute (WEI), Southern Gas Association (SGA) and The Interstate Natural Gas Association of America (INGAA).

## **C12.1d**

**(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

We engage value chain partners in various ways to ensure the climate-related interests and concerns of its stakeholders are always incorporated.

One of our main tools for engaging stakeholder on climate change is the annual Report on Sustainability Report and complementary disclosures, which provide detailed information regarding our initiatives to address climate-related issues, as well as relevant performance metrics. We also provide public information about GHG emission reduction practices through voluntary disclosures like the CDP climate change questionnaire.

Our operations and growth prospects require us to have strong relationships with key stakeholders including customers, Indigenous communities, landowners, suppliers, investors, governments and government agencies and environmental non-governmental organizations to conduct collaborative



research, listen to different perspectives and share our position related to climate change. We maintain ongoing partnerships with industry groups and trade associations, which collectively engage industry sector companies in climate-related discussions and identify opportunities to collaborate on strategies and industry commitments.

Our core values – safety, responsibility, collaboration, integrity and innovation – guide us in building and maintaining our key relationships as well as our interactions with stakeholders. We are proud of the strong relationships we have built with stakeholders across our geographies, and we are continuously seeking ways to strengthen these relationships. Beyond our core values, we have specific stakeholder programs and policies that shape our interactions, clarify expectations, assess risks and facilitate mutually beneficial outcomes.

Our energy transition strategy includes reducing our GHG emissions while simultaneously taking advantage of the growth opportunities presented by low-carbon fuels and infrastructure. This requires partnerships and innovation, and we continue to build meaningful and thoughtful collaborative partnerships within industry to further explore and develop commercially viable decarbonization projects.

## C12.2

**(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization’s purchasing process?**

No, and we do not plan to introduce climate-related requirements within the next two years

## C12.3

**(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?**

Row 1

**Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate**

Yes, we engage directly with policy makers

Yes, we engage indirectly through trade associations


Yes, we engage indirectly by funding other organizations whose activities may influence policy, law, or regulation that may significantly impact the climate

**Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?**

Yes

**Attach commitment or position statement(s)**

Please also refer to our Managing the energy transition webpage: <https://www.tcenergy.com/about/explore-energy/creating-our-energy-future/managing-the-energy-transition/>

 tcenergy-lobbying-infosheet.pdf

**Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy**

As an organization with a long history of innovation in reducing our emissions and addressing climate change-related issues, we support the goals of the Paris Agreement and are ready to undertake the critical challenge before us as we move to a low-carbon future. We will continue to collaborate with industry, academia and governments in Canada, the U.S. and Mexico to enhance the safety and efficiency of our pipeline operations and to find ways that further reduce our emissions.

TC Energy is also committed to actively managing public policy issues that have an impact on our company. The company engages in the public policy process by participating in direct government advocacy, as well as working with third parties, such as industry associations. As part of this commitment, the company focuses on constructive engagement and support of the political process through contributions to political organizations and political campaigns to the extent permitted by applicable law.

TC Energy is non-partisan and participates in the political process only when permitted by applicable law, in accordance with company policies, and in a responsible and ethical way that serves the best interests of the company and its stakeholders.

We have highlighted the need for clear rules and a stable framework to give the market clearly defined, predictable and transparent pricing signals over the long term. We strongly encourage governments to promote technological innovation to reduce emissions and provides additional solutions for consideration.

It is vital that stakeholders and governments understand the broad nature of our assets and our contribution to clean energy. We have a major role to play in the provision of clean electricity and will position itself as a trusted, experienced partner in the future of clean energy delivery

**C12.3a**

**(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?**

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**Focus of policy, law, or regulation that may impact the climate**

Carbon tax  
Climate-related targets  
Low-carbon, non-renewable energy generation  
Methane emissions

**Specify the policy, law, or regulation on which your organization is engaging with policy makers**

In 2021, TC Energy engaged on the Canadian government's 2030 Emissions Reduction Plan (ERP). Beyond setting a target for Canada to reduce national emissions 40 to 45 percent below 2005 levels by 2030, the ERP also either began or continued facilitating a significant policymaking process and implementation for an array of related measures. Key initiatives relating to the ERP applicable to TC Energy include the following:

- Federal Carbon Pollution Pricing System
- Federal GHG Offset System
- Clean Fuel Regulations
- Federal Hydrogen Strategy
- CCUS investment tax credit
- National CCUS Strategy
- Oil and Gas Emissions Cap
- Clean Electricity Standard
- Changes to the Oil and Gas Methane Regulations

**Policy, law, or regulation geographic coverage**

National

**Country/region the policy, law, or regulation applies to**

Canada

**Your organization's position on the policy, law, or regulation**

Support with minor exceptions

**Description of engagement with policy makers**

TC Energy made a written submission to the Net-Zero Advisory Body in 2021 outlining our perspectives on the foundational values that should underpin government's approach to developing the 2030 ERP. This was supplemented with direct engagement and advocacy to government as TC Energy and through our industry associations.

We also engaged on several of the related key initiatives listed above in 2021. TC Energy engaged in advocacy with the Department of Finance on development of the CCUS investment tax credit through written submissions and advocacy, both directly from TC Energy and through our industry associations. We pursued similar engagement with NRCan on its National CCUS Strategy and Clean Fuel Regulations.

In 2021 we participated on an array of hydrogen task forces led by NRCan to help continue the work by that department to refine and implement the Hydrogen Strategy it released in late 2020.

Finally, TC Energy engaged in limited advocacy on carbon pricing, offset measures and CFR that we pursued both directly with government and through our industry associations.

**Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation**

We support the objectives set out by the Paris Agreement and we recognize that, as a responsible owner and operator, we need to effectively manage and reduce our GHG emissions. In October 2021, we announced new targets to reduce GHG emissions intensity from our operations by 30 per cent by 2030 and positioning the company to achieve net-zero emissions from our operations by 2050. As such, we are aligned with the federal government in leveraging interim targets to help achieve net-zero by 2050.

We provided some considerations for government in developing the 2030 ERP. TC Energy positions relevant to this questionnaire include:

- Ensuring consideration for how existing energy pathways can be best used to support Canadians through the energy transition.
- Focusing on establishing outcome-based policy that provides the certainty and incentivization needed to support the transition to a lower emission economy.
- Ensuring a balance between required compliance and market-based policies that provide fiscal incentives to help drive renewable deployment.
- Seeking opportunities to streamline regulatory processes to ensure decarbonization projects can be deployed as quickly as possible, while still meeting stakeholder and environmental objectives.
- Ensuring the necessary quick win emission reductions do not come at the expense of the transformational change required to facilitate the energy transition.
- As climate change is a global issue and all reasonable future energy scenarios see significant hydrocarbon use beyond 2050, ensuring Canada does not cede market share to international producers with lower ranking ESG performance to achieve near-term national emission reductions.

Similarly, key relevant positions regarding the CCUS ITC included:

- Eligibility for infrastructure in all three CCUS value chain components (capture, transportation and storage)
- Eligibility for both greenfield and brownfield projects
- Facilitating credit stackability with other federal and provincial programs
- Ensuring tax credit competitiveness with similar programs in other jurisdictions (i.e., the United States)

TC Energy recommendations on the remaining policy engagements were more technical or nuanced in nature; therefore, we have excluded in the context of this questionnaire.

**Have you evaluated whether your organization’s engagement is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

## C12.3b

**(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.**

---

**Trade association**

Other, please specify

Canadian Energy Pipelines Association (CEPA)

**Is your organization’s position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association’s position on climate change, explain where your organization’s position differs, and how you are attempting to influence their position (if applicable)**

TC Energy was a member of CEPA until the end of 2021, when the organization ceased operation. CEPA’s most recent climate change position is outlined below.

CEPA has participated in industry, government and other stakeholder forums that address the challenge of climate change in Canada. CEPA supports GHG emission regulations that include price certainty and achievable targets. CEPA believes the following should be recognized in Canadian climate change policy:

- The dual objective of reducing GHG emissions while also ensuring people and businesses around the world have access to reliable and affordable sources of energy.
- Pipelines are critical to meeting domestic and international demand for energy.
- As the global energy mix evolves, the need for Canada's pipelines to safely transport energy products will remain.
- Enabling and encouraging collaboration, innovation and technology in the pipeline industry is critical to addressing climate change.

We are an active participant in the development of public policy positions, sharing our expertise and experience using technology and contributing to research and development to reduce emissions.

Collaboration and research across the value chain are other important vehicles for continual improvement. CEPA and its members work with a variety of organizations and associations across the energy value chain to meet climate objectives and ensure industry is working together for positive change.

TC Energy played a key role in influencing development of CEPA's climate change position and see it as being aligned with our position.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

850,000

**Describe the aim of your organization's funding**

TC Energy's objective participating on CEPA was to develop an aligned Canadian transmission pipeline industry voice that could be used to lead and influence ongoing and future policy development relevant to industry. CEPA helped create a forum for exchange of views and concerns on industry issues by pipeline companies that allowed TC Energy to take an active role in policy development. CEPA allowed member companies, including TC Energy, to speak with a common and strong voice to regulators, legislators and the public, in developing and shaping industry best practices.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

**Trade association**

Other, please specify

Canadian Gas Association (CGA)

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

CGA does not have an explicit climate change position but speaks to environmental considerations in describing the role of natural gas transmission and distribution in Canada:

The industry understands that the energy landscape is evolving and we know that natural gas will remain a vital and growing part of that landscape. From renewable gases to natural gas transportation to energy efficiency to a host of other opportunities, we are committed to a future that leverages our infrastructure and drives innovation. Our product and infrastructure have played a central role in helping Canadians achieve our quality of life, not only because it offers a reliable energy source to Canadians when they need it most, but also because it has delivered affordable energy. That has meant significant savings for consumers, and it has meant growth for our economy as investors have been attracted to our markets' low energy input costs. We take pride in our past and are committed to a future of continued growth for Canada, using our products and our infrastructure to help deliver our country's social, environmental and economic well-being.

Generally, TC Energy's position aligns with the CGA.

As CGA develops positions pertaining to climate at either an overarching level or in response to discrete government consultation, we work to ensure CGA's perspectives align with our position on climate change.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

575,500

**Describe the aim of your organization's funding**



TC Energy's President of Canadian Natural Gas Pipelines holds an Executive Member seat on the board of directors and the company has representatives on various policy committees. TC Energy engages with CGA to provide industry perspectives on policy issues, and environmental innovation studies position industry to help achieve Net Zero by 2050.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Business Council of Canada

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

In summary form, the Business Council of Canada (BCC) positions itself in the following manner on climate change:

Drawing on the experiences and expertise of membership, BCC provides unique insights, data-driven policy recommendations and in-depth analysis across a broad range of economic and social issues. BCC's climate position promotes developing and promoting effective policies that reduce pollution and the environmental footprint of Canadian businesses, communities and citizens. Canadian industry is committed to the fight against climate change. To contribute innovative and lasting solutions, companies need a road map that provides clarity and predictability, anchored in a sound economic competitiveness framework.

Generally, TC Energy's position aligns with BCC. As BCC develops positions pertaining to climate at either an overarching level or in response to discrete government consultation, we work to ensure BCC's perspectives align with our position on climate change.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

70,000

**Describe the aim of your organization's funding**

TC Energy's President and CEO is a member of the Business Council of Canada. The Business Council of Canada is well-positioned to advocate on large and cross-cutting policy issues impacting major corporation in Canada. TC Energy leverages the Business Council of Canada to help understand, assess, and advocate on an array of policy and regulatory initiatives with implications to Canadian industry.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Electricity Canada (formerly, the Canadian Electricity Association (CEA))

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Electricity Canada positions itself on climate change as follows:

The Canadian electricity industry is committed to acting on climate change and improving environmental performance while maintaining a reliable and cost-effective supply of electricity. With the Government of Canada's Net Zero by 2050 targets, the Canadian electricity industry has been identified as a safe bet as the need for clean energy increases. The sector is working cooperatively with the federal government to find an

equitable approach for emission reductions. Electricity generators have already made gains in areas such as low-emission technologies, energy efficiency, emerging renewable power, and emission offsets. Currently, the electricity industry is working cooperatively with the federal government to find an equitable approach for emission reductions. Measures to address electricity sector GHG emissions and broader air issues must be designed, however, to address the diversity of technologies, fuel/generation sources, environmental pressures, political and socio-economic climates from region to region.

Strategies adopted to address these issues generally adhere to a set of principles aimed at optimizing solutions:

- Continued provision of safe, cost-effective, and reliable electricity;
- Integrated management of GHGs and other air pollutant emissions;
- Accommodation of full fuel/generation source diversity;
- Consideration of regional differences, in electricity supply and demand as well as air quality issues;
- Flexibility of implementation mechanisms, allowing a full array of market and other instruments; and
- Consideration of GHG policies of the U.S., Canada's primary trading partner.

We are an active participant in the development of public policy positions, sharing our expertise and experience using technology and contributing to research and development to reduce emissions.

Generally, TC Energy's position aligns with EC. As EC develops positions pertaining to climate at either an overarching level or in response to discrete government consultation, we work to ensure EC's perspectives align with our position on climate change.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

98,124

**Describe the aim of your organization's funding**

TC Energy is represented on the board of directors by our Executive Vice President and President, Power, Storage and Origination and has representatives on various policy committees. TC Energy has a large and growing power generation portfolio in Canada and will use our membership with Electricity Canada to collaborate with other power companies to share learnings and advocate for common public policy and regulatory issues.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

American Petroleum Institute

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

API, and its members, commit to delivering solutions that reduce the risks of climate change while meeting society's growing energy needs. We support global action that drives greenhouse gas emissions reductions and economic development.

The natural gas and oil industry are part of the global solution and plays a vital role in developing and deploying technologies and products that continue to reduce GHG emissions while advancing human and economic prosperity and that are essential to extending the benefits of modern life to all.

API will lead by providing platforms for industry action to reduce greenhouse gas emissions through industry-led solutions, and actively work on policies that address the risks of climate change while meeting the global need for affordable, reliable and sustainable energy.

We are an active participant in the development of public policy positions, sharing our expertise and experience using technology and contributing to research and development to reduce emissions.

This includes the March 2021 release of the Climate Action Framework, which highlights how cross-sector collaboration can accelerate meaningful development toward addressing the risks of climate change focused on the following five actions:

1. Accelerate technology and innovation to reduce emissions while meeting growing energy needs.
2. Further mitigate emissions from operations to speed additional environmental progress.
3. Endorse a carbon price policy to drive economy-wide, market-based solutions.
4. Advance cleaner fuels to power lower-carbon choices for consumers.
5. Drive climate reporting to provide consistency and transparency.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

869,624

**Describe the aim of your organization's funding**

TC Energy leadership and employees work on many technical and policy committees across API's organizational framework. We leverage API to help influence public policy in support of a strong, viable U.S. oil and natural gas industry. API represents the oil and natural gas industry with the public, Congress and the Executive Branch, state governments and the media. We use API to help negotiate with regulatory agencies, represent industry in legal proceedings, participate in coalitions and work in partnership with other associations to help achieve TC Energy's public policy goals.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Interstate Natural Gas Association of America (INGAA)

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

As part of INGAA's commitment to build a cleaner energy future, INGAA's members commit to the following:

1. Reducing individual GHG emissions from their natural gas transmission and storage operations and to setting and meeting individual

emission reduction goals.

2. Identifying and continuing to implement long-term strategies to transition industry and the individual INGAA member companies to lower emissions, while working as an industry towards reaching net-zero GHG emissions from natural gas transmission and storage operations by no later than 2050, supported by necessary technology advancements and sound public policy initiatives.

3. Providing consistent and transparent data collection, measurement, and reporting of GHG emissions from operations to support that INGAA members are making actionable progress to achieve our shared climate goals.

4. Reducing both the carbon intensity of our natural gas infrastructure, as well as supporting the reduction of net global GHG emissions by adopting and investing in more innovative technologies such as renewable natural gas (RNG), carbon capture, and other carbon solutions and transporting low or no carbon fuels.

5. Working together with customers, governments, non-governmental organizations, and other stakeholders to accelerate efforts to reduce and minimize all GHG emissions across the entire natural gas value chain through the adoption of innovative solutions.

6. Investing in responsible environmental stewardship and practices as part of our efforts to modernize our nation's natural gas infrastructure, including supporting meaningful and positive engagement with the communities in which we operate.

INGAA is also looking for ways to reduce releases from compressor equipment by establishing industry guidelines with a focus on equipment with the largest-emissions profile. Natural gas has an important role in helping the nation become a larger user of renewable energy, like wind and solar in electric generation. It is the number one “back stop” to ensure we continue to have electricity, even when the sun isn’t shining, or the wind isn’t blowing.

We are an active participant in the development of public policy positions, sharing expertise and experience using technology and contributing to research and development to reduce emissions. We are working with INGAA to provide input and guidance on proposals, including, but not limited to, various commitments, practices and initiatives that support methane reduction.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

889,000

**Describe the aim of your organization’s funding**

TC Energy leverages INGAA to influence U.S. regulatory and legislative positions impacting the U.S. natural gas pipeline industry. INGAA advocacy helps enable strong public policy development focused on ensuring a reliable and resilient energy transmission system. INGAA is facilitating development and implementation of long-term strategies to help reduce natural gas pipeline industry emissions with the goal of achieving net-zero GHG emissions from natural gas transmission and storage operations by no later than 2050.

**Have you evaluated whether your organization’s engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

American Gas Association (AGA)

**Is your organization’s position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association’s position on climate change, explain where your organization’s position differs, and how you are attempting to influence their position (if applicable)**

The American Gas Association is committed to reducing greenhouse gas emissions through smart innovation, new and modernized infrastructure, and advanced technologies that maintain reliable, resilient, and affordable energy service choices for consumers.

AGA and its member natural gas utilities collectively commit to:

1. Further reduce methane emissions from natural gas utility systems
2. Encourage and support energy efficiency
3. Increase efficiencies in operating facilities
4. Scale-up and deploy advanced natural gas applications
5. Invest in research, development, and deployment of new emissions mitigation, delivery, and end-use technologies
6. Support renewable natural gas development and use and assess the potential of renewable power to gas
7. Modernize pipeline and other natural gas utility infrastructure
8. Encourage and support third-party damage prevention programs
9. Utilize recognized best practices to reduce methane and transparently report emissions data

10. Encourage and increase collaboration with natural gas producers and pipeline operators to help ensure that natural gas resources are developed and transported sustainably and responsibly

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

127,000

**Describe the aim of your organization's funding**

Participation in the AGA provides TC with the ability to promote a unified industry position across the transmission and distribution portion of the U.S. natural gas supply chain in key regulatory, legislative, and public or high-profile proceedings.

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

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**Trade association**

Other, please specify

Confederación Patronal de la República Mexicana (COPARMEX)

**Is your organization's position on climate change consistent with theirs?**

Consistent

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Supportive of Mexico's clean energy goals (as established in Mexican legislation and its 2015 Nationally Determined Contribution submitted to the UNFCCC) and critical of the current administration's landmark projects (Maya Train, Dos Bocas Refinery etc.). Throughout 2018 and 2019 the Environmental Affairs Committee published COPARMEX's Environmental Agenda, taking UN Sustainable Development Goals as



benchmarks.

We support Mexico's clean energy goals, while also respecting the Mexican government's right to define its own energy policy.

In September 2021, President Lopez Obrador introduced a bill proposing constitutional amendments to several articles of the Mexican Constitution governing energy companies, energy regulators, and the state-owned enterprises in the country. The President's bill was discussed in Congress through a series of hearings hosting experts from the sector in favour and against the reform. Coparmex was an active participant in these hearings advocating against its approval.

The President's Electricity and Energy Sector Constitutional Reform Bill was rejected on in April 2022, after failing to reach the two-thirds majority needed to pass the reform.

We are opposed to an increased use of high polluting fuels, such as fuel oil. We actively participate in the Confederation's Environmental and Energy Committees to this effect.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

Canadian Chamber of Commerce in Mexico (CANCHAM)

**Is your organization's position on climate change consistent with theirs?**

Mixed

**Has your organization influenced, or is your organization attempting to influence their position?**

We are attempting to influence them to change their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

We are supportive of Mexico's clean energy goals and they were critical of the current administration's energy policy. We actively participate in CANCHAM's monthly committee and executive board meetings, where the committee's agendas for discussion are set.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

Asociación Mexicana de Gas Natural (Mexican Association of Natural Gas, AMGN)

**Is your organization's position on climate change consistent with theirs?**

Mixed

**Has your organization influenced, or is your organization attempting to influence their position?**

We publicly promote their current position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

Representing natural gas users and companies, the Association is supportive of Mexico's environmental agenda, promoting natural gas as a transition fuel for the country, to replace more carbon-intensive fuel sources. With technical committees, the Association follows-up and make collective comments on regulatory initiatives, such as the methane directives. In addition, the Association promotes meetings with public officials in charge of environmental measures (i.e., ASEA).

We are an active participant in the Association's Board Meetings and technical committees, focused on the transportation of natural gas; as well as their Annual Members' Meeting.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

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**Trade association**

Other, please specify

American Chamber of Commerce in Mexico (AMCHAM)

**Is your organization's position on climate change consistent with theirs?**

Mixed

**Has your organization influenced, or is your organization attempting to influence their position?**

We are attempting to influence them to change their position

**State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)**

American Chamber of Commerce of Mexico has taken a more active role by making public statements or leading discussions between private companies and US Ambassador to Mexico Ken Salazar. Amb. Salazar has conveyed the administration's concerns over the deterioration of the business environment for foreign energy investors and current and future investments of U.S. companies in Mexico, in accordance with the country's obligations under the U.S.-Mexico-Canada Agreement (USMCA). We have participated at meetings organized by Amb. Salazar with other private sector companies.

**Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)**

**Describe the aim of your organization's funding**

**Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?**

No, we have not evaluated

## C12.3c

**(C12.3c) Provide details of the funding you provided to other organizations in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.**

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**Type of organization**

Non-Governmental Organization (NGO) or charitable organization

**State the organization to which you provided funding**

The Canadian Energy Partnership for Environmental Innovation (CEPEI)

**Funding figure your organization provided to this organization in the reporting year (currency as selected in C0.4)**

104,400



**Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate**

The Canadian Energy Partnership for Environmental Innovation (CEPEI) has been in place for over 25 years. Its members put forward specific emissions related and other programs and projects that are co-funded by members. The focus under CEPEI is to collect data that support regulatory compliance and tracking emerging environmental issues with a view to being ready to address them when they become matters of regulation or of public attention.

Recently, CEPEI has completed industry guidance related to interpretation of and compliance with the federal Methane Regulations and the Output Based Pricing System requirements, under the federal Carbon Pollution Pricing Act.

Finally, on tracking emerging issues, CEPEI represents Canada Gas Association (CGA)/ Canadian Energy Pipeline Association (CEPA) on various Technical Working Groups and actively engages with the American Gas Association’s environmental committees, and on the International Gas Union’s Methane Experts Group.

The CEPEI program has provided significant value to TC Energy for over twenty years. This value includes air emissions and greenhouse gas inventories that have been used extensively by the TC Energy and industry groups including Canada Gas Association (CGA) and CEPA in discussions with governments on air emissions and greenhouse gas emissions policies. In addition to the GHG and air emissions inventory programs, CEPEI also provides a critical forum for understanding and communicating environmental issues within the industry and with the regulators.

**Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?**

Yes, we have evaluated, and it is aligned

**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**

Underway – previous year attached

**Attach the document**

 tc-2021-ros.pdf

**Page/Section reference**

Entire document

**Content elements**

Governance  
Strategy  
Risks & opportunities  
Emissions figures  
Emission targets  
Other metrics

**Comment**

Our 2021 Report on Sustainability is aligned to TCFD, and concurs with select Sustainability Accounting Standards Board (SASB) Oil & Gas – Midstream industry standard topics and metrics.

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**Publication**

In mainstream reports, incorporating the TCFD recommendations

**Status**

Complete

**Attach the document**

 tc-2021 annual-report.pdf

**Page/Section reference**

Entire document

**Content elements**

Governance

Strategy

Risks & opportunities

Emission targets

Other metrics

Other, please specify

Environmental compliance and liabilities, revenues, MD&A

**Comment**

We disclose climate change and related regulation risk challenges, and our strategy to address such risks, which is aligned to TCFD recommendations.

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**Publication**

In mainstream reports, incorporating the TCFD recommendations

**Status**

Complete

**Attach the document**

 tc-2022-management-information-circular.pdf

**Page/Section reference**

Pages 37-72 (Governance, Strategy/Risks (p.46-49))

Page 6, 65 (Emission Target)

Pages 73-118 (Compensation)

Page 58 (Competencies)

**Content elements**

Governance

Strategy

Risks & opportunities

Emission targets

Other metrics

Other, please specify

compensation, competencies

**Comment**

We disclose our governance of climate change-related risks, including Board committee oversight, which is aligned to TCFD recommendations.

We also disclose details of our compensation programs, which are designed to 'pay for performance' by rewarding employees, including our executives, for delivering results that meet or exceed our corporate objectives and support our overall strategy.

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**Publication**

In voluntary communications

**Status**

Underway – previous year attached

**Attach the document**

 tc-2021-esg-data-sheet.pdf

**Page/Section reference**

Entire document



**Content elements**

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets
- Other metrics

**Comment**

Recognizing the value of ESG reporting frameworks such as the Global Reporting Standard (GRI), SASB, and TCFD, our 2021 Data Sheet demonstrates continued alignment to GRI, SASB, the UN SDGs and complements the TCFD disclosures in our 2021 Report on Sustainability. Where non-standard measures are required, we have disclosed in alignment with internal standards.

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**Publication**

In voluntary communications

**Status**

Underway – previous year attached

**Attach the document**

 tc-2021-tcf-d-alignment-table.pdf

**Page/Section reference**

Entire document

**Content elements**

- Governance
- Strategy

Risks & opportunities  
Emissions figures  
Emission targets

**Comment**

Recognizing the value of environmental, social and governance (ESG) reporting frameworks such as the TCFD, the concordance table demonstrates the relationship between TC Energy's sustainability reporting and Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures Final Report (October 2021).

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**Publication**

In voluntary communications

**Status**

Complete

**Attach the document**

 tc-ghg-emissions-reduction-plan.pdf

**Page/Section reference**

Entire document

**Content elements**

Strategy  
Risks & opportunities  
Emission targets  
Other metrics

**Comment**

Our GHG Emissions Reduction plan, published in October 2021, details our action plan to reduce the emissions intensity of our operations, while also capturing growth opportunities that meet the energy needs of the future.

## C15. Biodiversity

### C15.1

**(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?**

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	<p>The Board has the responsibility to oversee environmental and social issues and receive, on a regular basis, reports on matters relating to, among others, environmental management, relationships with Indigenous communities and related party transactions, as well as the responsibility to review significant new corporate policies or material amendments to existing policies, including, for example, the environment.</p> <p>The Board Governance committee looks for a mix of skills and experience required for overseeing our business and affairs. The Board considers personal characteristics such as gender, ethnic background, geographic residence and other distinctions when looking at diversity. While candidates are nominated as directors based on their background and ability to contribute to the Board and committee meetings, the Board also specifically considers diversity factors. Candidates who are being nominated for the first time must have experience in industries similar to ours or experience in general business management or with corporations or organizations that are similar in size and scope. The committee ensures that the Board seeks expertise in the following key areas, some of which may relate to biodiversity:</p> <p>Operations/health, safety, sustainability &amp; environment: Expertise with operating assets in a cost effective, reliable and efficient manner with a mindset of continuous improvement, including expertise in assessing and</p>

Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
	<p>managing health, safety and environmental compliance obligations. Experience in overseeing sustainability in operations.</p> <p>Enterprise risk management: Expertise in enterprise risk management frameworks, systems, processes and tools used to identify, assess and manage enterprise risks and opportunities; includes cyber security and other technology risk oversight.</p> <p>Government, regulatory &amp; stakeholder relations: Government and public policy acumen, including the legal and regulatory environments in North America. Experience with stakeholder management and engagement.</p> <p>Please refer to questions C1.1a and C1.2a for responsibility and oversight details of our Health, Safety, Sustainability and Environment committee, and that of our CEO, CSO and CRO.</p>

## C15.2

**(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?**

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	<p>Adoption of the mitigation hierarchy approach</p> <p>Commitment to respect legally designated protected areas</p> <p>Other, please specify</p> <p>leave the environment where we work in condition equal to, or better than, we found it; incl. biodiversity &amp; land capability, with target to restore or offset 100% of disturbances to sensitive habitat resulting fr. construction &amp; operation of assets.</p>	SDG

### C15.3

**(C15.3) Does your organization assess the impact of its value chain on biodiversity?**

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	No, and we do not plan to assess biodiversity-related impacts within the next two years

### C15.4

**(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?**

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity-related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness





### C15.5





**(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?**


	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Other, please specify we monitor performance through our published target to restore or offset 100% of our disturbance to sensitive habitat, as published in the annual ESG Data Sheet


## C15.6


**(C15.6) Have you published information about your organization’s response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**


Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Impacts on biodiversity Details on biodiversity indicators	2021 Report on Sustainability Pages: 11-12  1
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Impacts on biodiversity Details on biodiversity indicators	2021 ESG Data Sheet Pages: 27-28  2
In mainstream financial reports	Content of biodiversity-related policies or commitments Governance Risks and opportunities	2021 Annual Report Page: 96  3
In mainstream financial reports	Content of biodiversity-related policies or commitments Governance	2022 Management Information Circular Pages: 49, 65, 71  4
Other, please specify Environment Principles	Content of biodiversity-related policies or commitments Biodiversity strategy	Environment Principles Pages: all

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
	Other, please specify principles to meet our obligation to being responsible environmental stewards	 5
Other, please specify Protecting biodiversity factsheet	Content of biodiversity-related policies or commitments Impacts on biodiversity Biodiversity strategy Other, please specify project lifecycle considerations	Protecting biodiversity factsheet Pages: all   6
Other, please specify Reducing our environmental footprint factsheet	Content of biodiversity-related policies or commitments Impacts on biodiversity Biodiversity strategy Other, please specify project lifecycle considerations	Reducing out environmental footprint factsheet Pages: all   7
Other, please specify Enterprise risk management policy.	Governance Risks and opportunities	Enterprise risk management policy Pages: all   8

 1tc-2021-ros.pdf


 2tc-2021-esg-data-sheet.pdf


 3tc-2021 annual-report.pdf

 4tc-2022-management-information-circular.pdf

 5tc-environment-principles.pdf

 [6tc-2020-protecting-biodiversity.pdf](#)

 [7tc-2020-reducing-our-environmental-footprint.pdf](#)

 [8tc-enterprise-risk-management-policy.pdf](#)

## C16. 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.**

This publication is one element of our environmental, social and governance (ESG) reporting. For more data and information of interest to investors, including content that is aligned with global reporting standards, we invite you to review our other disclosures:

- 2022 Report on Sustainability (publication date: November 9, 2022)
- 2022 ESG Data Sheet and downloadable performance data tables (publication date: November 9, 2022)
- GHG Emissions Reduction Plan (2021)
- TCFD Alignment Table (publication date: November 9, 2022)
- SASB Alignment Table (publication date: November 9, 2022)
- Materiality Assessment (publication date: November 9, 2022)
- ESG Directory

The content and data included in this submission has been subject to an internal review process. In addition, TC Energy is currently completing a limited assurance on select indicators such as enterprise-wide Scope 1 and Scope 2 GHG emissions and production data, the results of which we anticipate being available November 2022. All data cited within this submission reflects 2021 numbers. Where relevant, 2022 developments are reflected in the discussion and analysis however, for more information please refer to our 2021 Annual report and the most recent Quarterly Report to Shareholders, which can be found on our website, and on SEDAR ([www.sedar.com](http://www.sedar.com)) and EDGAR ([www.sec.gov](http://www.sec.gov)).

FORWARD-LOOKING INFORMATION: This questionnaire response contains certain information that is forward-looking and is subject to important risks and uncertainties (such statements are usually accompanied by words such as “anticipate”, “expect”, “believe”, “may”, “will”, “should”, “estimate”, “intend” or other similar words).



Forward-looking statements do not guarantee future performance. Actual events and results could be significantly different because of assumptions, risks or uncertainties related to our business or events that happen after the date of this report.

Our forward-looking information in this document includes, but is not limited to, information relating to: our anticipated capital program, the installation, adoption and integration of new technologies into our business, including those relating to renewables, hydrogen and carbon capture utilization and storage, our future plans and prospects overall, including those statements relating to energy transition, expected scenario outcomes and our ability to maintain the value of existing assets, climate-related risks and opportunities, absolute and intensity based GHG emissions targets, government policies and stakeholder expectations, planned capital expenditures, planned R&D investments, planned publication and timing of our ESG and limited assurance reports, and how climate-change risks have informed our business strategy and financial planning.

Our forward-looking information is based on certain key assumptions and is subject to risks and uncertainties, including but not limited to: our ability to successfully implement our strategic priorities and whether they will yield the expected benefits, our ability to develop, access or implement some or all of the technology and infrastructure necessary to efficiently and effectively achieve GHG emissions reductions, the commercial viability and scalability of GHG emission reduction strategies and related technology and products, the development and execution of implementing strategies to meet our GHG reduction targets and ambitions, our ability to implement a capital allocation strategy aligned with maximizing shareholder value, the operating performance of our pipeline and power and storage assets, amount of capacity sold and rates achieved in our pipeline businesses, the amount of capacity payments and revenues from our power generation assets due to plant availability, production levels within supply basins, construction and completion of capital projects, cost and availability of, and inflationary pressure on, labour, equipment and materials, the availability and market prices of commodities, access to capital markets on competitive terms, interest, tax and foreign exchange rates, performance and credit risk of our counterparties, regulatory decisions and outcomes of legal proceedings, including arbitration and insurance claims, our ability to effectively anticipate and assess changes to government policies and regulations, including those related to environmental, social and governance (ESG) matters and COVID-19, competition in the businesses in which we operate, unexpected or unusual weather, acts of civil disobedience, cyber security and technological developments, ESG related risks, the impact of energy transition on our business, economic conditions in North America as well as globally, and global health crises, such as pandemics and epidemics, including the outbreak of COVID-19 and the continued unexpected impacts related thereto. In addition, there are risks that the effect of actions taken by us in implementing targets, commitments and ambitions for sustainability may have a negative impact on our existing business, growth plans and future results from operations.

For additional information about the assumptions made, and the risks and uncertainties which could cause actual results to differ from the anticipated results, refer to the most recent Quarterly Report to Shareholders and Annual Report filed under TC Energy's profile on SEDAR and with the U.S. Securities and Exchange Commission (SEC). As actual results could vary significantly from the forward-looking information, you should not put undue reliance on forward-looking information and should not use future oriented information or financial outlooks for anything other than their intended purpose. We do not update our forward-looking statements due to new information or future events, unless we are required to by law.



## C16.1

**(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

	Job title	Corresponding job category
Row 1	Vice President, Sustainability and Community and Workforce Giving	Other, please specify Vice President, Sustainability and Community and Workforce Giving