



# **BUILDING ENERGY SOLUTIONS TOGETHER**

2022 REPORT ON SUSTAINABILITY





# Forward-looking information

This document 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, our anticipated capital program, the installation, adoption and integration of new technologies into our business, including hydrogen hubs, vapour combustors and hybrid gas and electric compressor units, future-orientated financial information or financial outlook, statements regarding our future plans and prospects overall, including those relating to energy transition and expected project and program implementation timelines, and TC Energy’s 10 sustainability commitments, more specifically targets related to GHG emissions intensity reduction, biodiversity and land capability, safety, further integration of sustainability into strategy, decision-making, performance-tracking and assessment, R&D and innovation investments to enhance energy sector sustainability, strengthening community resilience, fostering relationships with Indigenous groups, maintaining mutually beneficial partnerships with our landowners, fostering inclusion and diversity, and demonstrating the importance of mental health and psychological well-being, among other things.

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 targets and ambitions, the commercial viability and scalability of GHG emissions reduction strategies and related technology and products, the development and execution of implementing strategies to meet our sustainability commitments and GHG emissions 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 the 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, cybersecurity 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 recent outbreak of COVID-19 and the 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. 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.



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## Sustainability reporting

TC Energy produces a variety of publications to disclose the sustainability and environmental, social and governance (ESG) factors relevant to our business, rightsholders and stakeholders. These reports highlight our sustainability matters and focus on achieving meaningful and measurable results. In this report, we aim to provide a balanced summary of our performance.

More information and data, including content that is aligned with global reporting frameworks, standards and recommendations, can be found in these documents:

- [2022 ESG Data Sheet](#)
  - [2022 TCFD Alignment Table](#)
  - [2022 SASB Alignment Table](#)
  - [2022 UN SDG Alignment Table](#)
- [2022 sustainability materiality assessment](#)
- [Reconciliation Action Plan](#)
  - [2022 Reconciliation Action Plan Update](#)
- [GHG Emissions Reduction Plan](#)
- [2022 CDP climate change questionnaire response](#)
- [ESG directory](#)

This Report on Sustainability contains forward-looking information or forward-looking statements. Please refer to the forward-looking information statement on [page 2](#). You can also find more information about TC Energy in our [Annual Report](#), [Management Information Circular](#) and [Annual Information Form](#) available on our website, [EDGAR](#) and [SEDAR](#).

Our website also hosts select corporate policies and other governance documents, including our [oversight and policies on lobbying, political contributions and corporate memberships](#) information sheet.

We are committed to delivering energy responsibly, being a good neighbour and a top employer. We are proud to be recognized by respected third-party agencies for multiple awards within our industry and in the community.

The terms “we”, “us”, “our” and “TC Energy” as used in this Report on Sustainability refer collectively to TC Energy Corporation and its subsidiaries unless indicated otherwise.

Unless otherwise noted, all amounts are in Canadian dollars and all data reflects 2021 performance. Where relevant, 2022 developments and values are included and described.

The information in this report has been closely reviewed by internal subject matter experts and senior leaders. As part of our practice to continually improve our reporting, we have obtained independent third-party limited assurance of select 2021 environmental and workforce diversity indicators, which are identified with the symbol ^ throughout this document. To read the third-party limited assurance statement, please refer to our [ESG directory](#).

## Invitation for feedback

We'd like to hear what you think about our Report on Sustainability. Please send questions or comments to [communications@tcenergy.com](mailto:communications@tcenergy.com).



# ABOUT TC ENERGY

We're a team of more than 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 secure. We're innovating and modernizing to reduce emissions from our business. And, we're delivering lower-carbon 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.



## Our values

Our corporate values form the foundation of how we do business.

### **SAFETY**

Do it right – Today's quality is tomorrow's safety

### **INNOVATION**

Do things differently – Turn challenge into opportunity and ideas into creative solutions

### **INTEGRITY**

Do the right thing and keep commitments to stakeholders

### **RESPONSIBILITY**

Focus on what matters – Consider sustainability in everything we do

### **COLLABORATION**

Play as one team – Find win-win outcomes for rightsholders and stakeholders



## Our business

For more than 70 years, TC Energy has proudly operated pipelines, storage facilities and power generation plants that support life in Canada, the U.S. and Mexico.

### **Land acknowledgement**

Embedded in the lands on which TC Energy operates are the histories, cultures and traditions of Indigenous groups across North America. TC Energy thanks the original stewards of these lands – generations past, present and future – for sharing their homelands with us.



# Portfolio at a glance

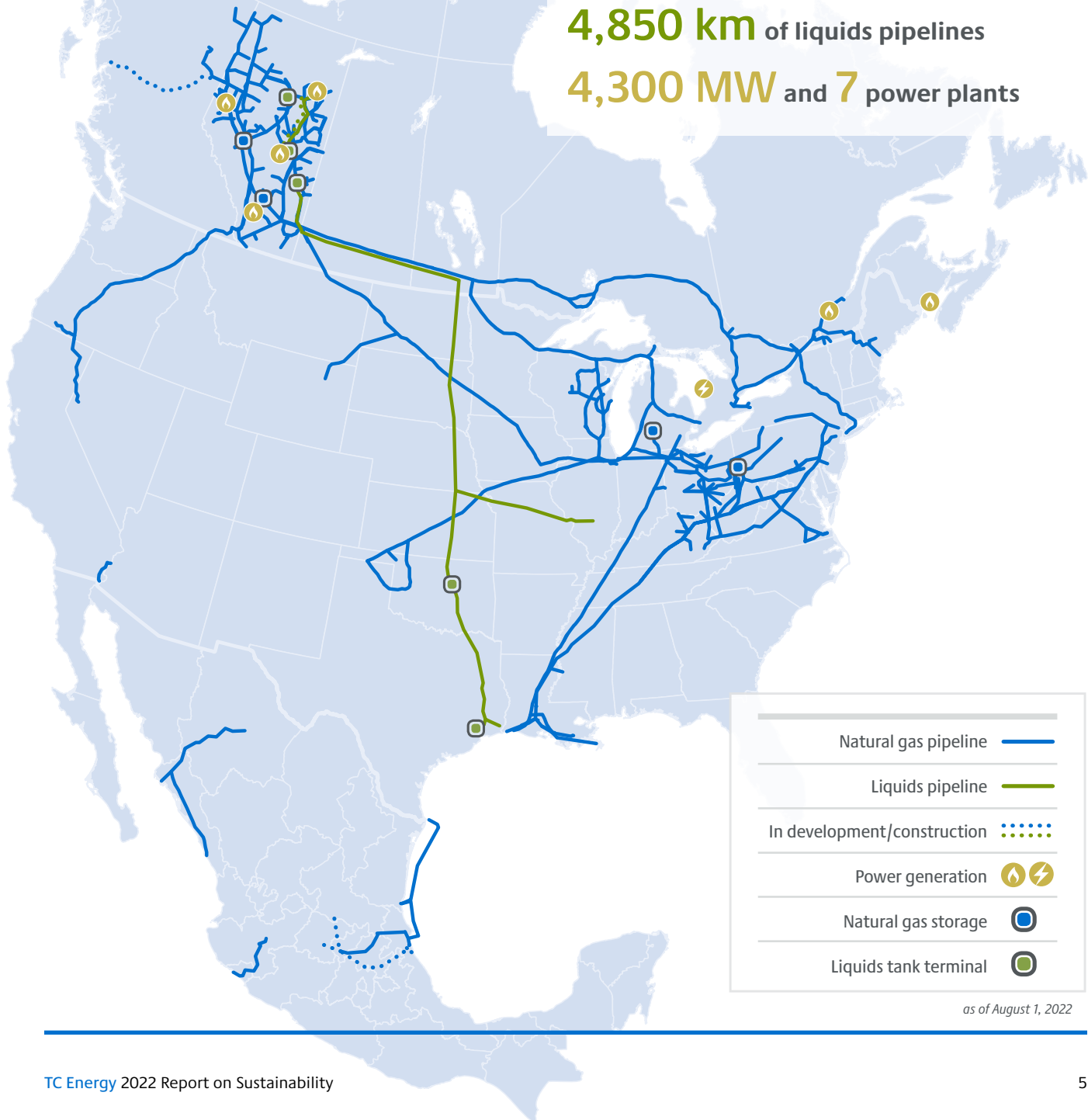
As we look to the future, [TC Energy's asset map](#) showcases the company's unique value proposition. Our well-connected network of assets delivers the energy North Americans need while enabling the technologies of the future.

**93,300 km** of natural gas pipelines

**635 Bcf** of natural gas storage


**4,850 km** of liquids pipelines

**4,300 MW** and **7** power plants



as of August 1, 2022



A photograph of two men, François Poirier and Siim A. Vanaselja, sitting at a wooden table in a modern office setting. François Poirier, on the left, is wearing a light blue button-down shirt and has his hands clasped. Siim A. Vanaselja, on the right, is wearing a dark blue zip-up jacket over a light blue shirt and glasses, also with his hands clasped. The background shows a blurred office interior with large windows and modern decor.

**François Poirier**  
President and  
Chief Executive Officer (CEO)

**Siim A. Vanaselja**  
Chair of the Board

# MESSAGE FROM THE CEO & BOARD CHAIR

The world is facing an ambitious and critically important challenge: the need to evolve to a lower-carbon, lower-emission energy economy while continuing to meet the growing global demand for safe, reliable and affordable energy – energy that is produced, transported and, ultimately, consumed in increasingly sustainable ways.

The need for secure and reliable access to energy supply, from countries with sustainable practices and values, has also become increasingly important, highlighted most recently by the tragic events that have unfolded in Ukraine and triggered global ramifications.

At TC Energy, the need for responsible energy solutions is clear to us, as is our obligation, ability and opportunity to bring solutions forward. We are working every day to address this challenge – for ourselves, our customers and the communities where we live and work – with a sense of urgency, dedication and restless innovation. The synergies across our asset footprint and our competitive strengths are irreplaceable and put us in a unique position to drive meaningful, positive change. By leveraging these attributes, we are developing unique and creative solutions to move, generate and store the energy North America needs and relies on in a safe, secure and increasingly sustainable way.

To us, evolving to a lower-carbon energy future is a serious obligation, but it is not an imposition or an obstacle – it is an incredible opportunity, serving as a catalyst for future growth for our company with investments that are strongly aligned with our corporate strategic objectives, traditional risk preferences and our core values.

## **Tackling the low-carbon challenge: incorporating new energy types and technologies into our operations**

Adaptability and innovation are key differentiators for business durability and, ultimately, sustainability. People want to work for a company that can both drive and thrive with change. And recently, the scope and pace of change feel larger and faster every year.

At TC Energy, we are a team of energy problem solvers continually working to adapt to the evolving expectations of our stakeholders to make our business more sustainable.

From making investments in solar and wind energy to using artificial intelligence applications to further optimize our systems, we are harnessing a broad range of solutions. In the



near term, much of our emissions reductions, including fugitive emissions, will come from the electrification, modernization and use of emissions abatement technologies and programs on our existing systems and assets.

### **Together we will create a low-carbon energy future: offering decarbonization solutions to other businesses and industries**

Natural gas and oil continue to be important components in the energy transition and in our business strategy for decades to come, even as we rapidly develop renewables including solar, wind and [renewable natural gas](#).

We're especially proud of the collaborative partnerships we are building inside and outside our industry to connect innovative technologies across great distances. In Canada, we are working with an industry partner on the [Alberta Carbon Grid](#) – a world-scale carbon capture and storage system that will help the province's industrial sectors sequester their emissions. We are also collaborating with electric vehicle manufacturers to develop hydrogen production hubs located near highly travelled trucking routes to deliver hydrogen fuel to heavy-duty vehicles across Canada and the U.S. Once operational, these projects will help reduce emissions and accelerate the energy evolution in North America.

### **Energy solutions include everyone: incorporating the unique expertise and perspectives of employees, communities and Indigenous groups**

We recognize that in a truly sustainable energy future, no one is left behind. We aim to develop energy solutions in a just and equitable manner – solutions created by our exceptional teams, built in partnership with rightsholders and stakeholders, that support and benefit the local communities where we live and work.

We know that people are at the heart of energy solutions. As we lead through the energy transition, we need an empowered team with diverse perspectives, ideas, backgrounds, opinions and skills at the table – it's critical to our shared success. In 2021, we continued to embed inclusion and diversity practices, and create systems and governance to sustain our progress. For example, we expanded the scope and representation of our Inclusion and Diversity Executive Council across our business and achieved over 99% participation in *Inclusion and Unconscious Bias Awareness* training.

We also know our shared success must be anchored in relationships based on mutual respect and trust, and that takes time and dedication. Reconciliation between Indigenous Peoples and non-Indigenous people is a journey requiring a thoughtful approach, a long-term commitment and openness to listen and learn. While we continue to mature our approach

to listening, learning and collaborating, we have achieved two historic milestones for our company. We were pleased to sign option agreements to sell a [10 per cent equity interest](#) in our Coastal GasLink project to Indigenous communities across the project corridor in 2022. We also established an Indigenous Advisory Council to provide guidance to our executive leadership team. These are steps we are taking to create enduring relationships and expand economic opportunities for Indigenous groups.

### **Nothing matters more than safety**

Safety remains our top core value and we have made progress on many of our safety targets. However, this progress was darkened by the loss of two colleagues who were fatally injured in workplace incidents: an employee in 2021 and a contractor in 2022. These outcomes are devastating and unacceptable and it is critical that we learn from these losses. We have initiated a third-party assessment of our company's approach to safety, our culture and the experiences of front-line workers. The assessment will help us learn what is working, what is not working, and how we can improve our safety culture, as well as personal and process safety practices across a broad cross-section of roles, geographies, business units and levels in the organization. We are taking urgent action on what we are learning and will remain relentless in advancing a strong safety culture.

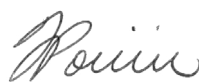
Psychological safety is also a critical component of a strong safety culture that affects a range of areas from physical safety to innovation. We have made mental health and psychological safety training mandatory for all leaders. And in 2023, we will roll out a mental health curriculum to employees.

### **A bright future in the changing energy landscape**

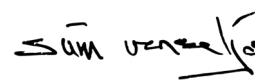
We have both an extraordinary opportunity and an accountability to play a vital role in the energy transition. We are excited by that challenge and confident we can and will make a difference thanks in large part to our innovative workforce, our asset footprint and the trusted relationships we have built with stakeholders, rightsholders and partners. Our diverse and growing portfolio of energy solutions positions us to continue moving, generating and storing energy in North America while advancing the energy transition.

We are energy problem solvers.


Sincerely,  
François and Siim



**François Poirier**  
President and  
Chief Executive Officer



**Siim A. Vanaselja**  
Chair of the Board



**Patrick Keys**  
*Executive Vice-President and  
General Counsel  
Chief Sustainability Officer (CSO)*

# Q&A WITH THE CSO

**Q: Setting targets is critical to focus and measure progress. How is TC Energy looking at the varied progress on its targets?**

At TC Energy, we often say that what gets measured is what gets done. That's why we created targets in 2020 and 2021 for each of the 10 commitments we established in 2019. These targets allow us to meaningfully measure our progress toward those commitments.

In 2022, we continued to refine these targets, making adjustments where appropriate to better reflect current and emerging business activities. We also published our emissions intensity on a corporate-wide basis for the first time, providing more transparency and insight into our goals as we progress toward our 2030 target to reduce our GHG emissions intensity by 30 per cent.

I am pleased to share that we are making positive and steady progress on most of our targets. For example, in June 2022, we exceeded our 30 per cent gender target for Board composition with the appointment of another highly qualified female Director, bringing the female composition of our Board to 38 per cent. As another example, we also met our target of restoring all sensitive habitat impacted by capital projects.

Progress, however, is often not linear and will not always be made in equal measures over equal periods of time. We also know it will be different from target to target. We anticipate

this to be the case in our annual progress toward our 2030 GHG target. We saw a reduction in emissions intensity from the 2019 baseline to 2020, but in 2021, our absolute emissions and emissions intensity increased, due in large part to increased energy demand that drove increased use of our networks and increased throughput across our operations. Ultimately, this increase in activity offset progress we made in other areas, like reducing fugitive emissions, but we remain confident that our longer-term efforts to lower the emissions intensity of our operations will enable us to achieve our 30 per cent reduction target by 2030 and position us to achieve zero emissions by 2050 on a net basis.

In addition to working to lower our emissions through electrification, modernization and use of abatement technologies, we've created dedicated energy transition teams focused on establishing foundational tools and capabilities and assessing relevant technologies and opportunities to support business resiliency and drive operational GHG emissions reductions. This work ranges from extensive scenario planning to conducting technical due diligence for the safe and reliable introduction of low-carbon fuels and technologies into our operating environment. And, to build on the systems and infrastructure we have in place, we have also established a team tasked with identifying new business opportunities and customer-focused solutions to help other companies progress towards a lower carbon energy future as well.



Tackling the challenges of increasing renewable energy sources and reducing emissions associated with the combustion of non-renewable fuels is a high priority for us. Working together with customers, communities and governments, we are confident in our ability to create solutions that will evolve energy systems to less carbon-intense sources and achieve net zero emissions over the long term.

**Q: How is TC Energy preparing for the future when the rate at which each form of energy will be developed to a practical level will continue to vary?**

Many factors make predicting the future of energy systems challenging, including the significant improvement required in the energy output, reliability and overall footprint of renewable technology such as hydro, wind and solar. Similarly, biomethane and renewable hydrogen production have many associated challenges to overcome such as large-scale production, storage and distribution infrastructure development.

However, what we know is the energy mix for the foreseeable future will require oil, natural gas, nuclear power and renewables. Natural gas, in particular, is a plentiful, affordable, and cleaner-burning fuel that has a crucial role to play in the evolution of energy sources and uses, particularly when combined with other developing technologies like CCUS that will contribute to achieving net-zero emissions. We also believe that natural gas will play a significant role on a global basis to significantly reduce dependence on higher-carbon fuels, like coal, and that North America can be a leader in responsible and reliable production. The world cannot wait for perfect solutions to emerge, which is why we have an “all of the above” strategy.

Two examples of other solutions we are co-developing are large-scale hubs for both [hydrogen-fueled zero-emission heavy-duty trucks](#) and [renewable natural gas](#). These developments will bring much-needed infrastructure to support the widespread use of these low-carbon fuels. Each collaboration leverages our existing asset footprint and accesses advantaged renewable energy from hydrogen to biomass to natural gas feedstocks.

Our success in navigating this energy evolution is dependent on our ability to continue to provide traditional energy safely, reliably and affordably while developing and, with a renewed sense of urgency, deploying new technologies.

One thing is certain, we will keep enhancing our ability to evolve, innovate and drive meaningful and sustainable change to lead the transition.

**Q: A respected and valued workforce with a culture of inclusion is critical to strong corporate performance. What steps is TC Energy taking to increase inclusion and diversity in its workforce and through its supply chain?**

We know that meaningful, enduring change requires action. Our [inclusion and diversity action plan](#) guides our commitment and encourages continued progress and sustainment, including:

- Attracting, hiring and retaining diverse talent
- Educating, training and deepening understanding
- Establishing accountability for inclusion
- Fostering and celebrating a culture of belonging
- Setting enterprise-wide diversity goals
- Investing in inclusive communities
- Diversifying our supply chain
- Reinforcing a non-discriminatory, equitable, accessible and respectful work environment

To advance these areas, we have established executive- and employee-level committees to guide our inclusion and diversity initiatives. We have also formed an Indigenous Advisory Council to directly advise our senior leadership on Indigenous matters.

We also continue to enhance our efforts to provide an inclusive and psychologically safe workplace through regular training and employee-driven storytelling, with active leadership engagement. From 2018 to 2021, at our corporate locations, the number of women in leadership positions increased by 4 per cent and the number of visible minorities in leadership positions increased by 3 per cent.

Our efforts to diversify our supply chain include integrating opportunities for local and diverse suppliers, including Indigenous businesses, to complete a growing portion of subcontracting work. In 2021, we spent \$530 million directly with diverse businesses working on our projects as prime contractors (Tier 1) and over \$900 million indirectly with diverse suppliers performing work as subcontractors (Tier 2).

One aspect we are diligently working on is changing the related processes and systems required to set and achieve meaningful Indigenous contracting targets across our footprint. We have a cross-functional team meeting regularly to achieve this.

Moreover, simply tracking dollars or diversity metrics is not enough. We know it is also critical to ensure everyone who works for us feels they are treated fairly and can contribute to their full potential. All employees are required to complete bias awareness training annually.

We also recognize that in order to increase the recruitment and retention of Indigenous employees, we need to build on the work we have done on projects and small initiatives and scale these successes to our wider operations.

We have the critical building blocks in place to foster meaningful and measurable change in our business. This journey has just begun as we leverage the Council and internal committees and work to identify additional gaps and mitigate emerging risks.



# OUR APPROACH TO SUSTAINABILITY

Anchored in our values, our multi-year strategy is driven by the belief that natural gas will play a pivotal role in the world's energy future, liquids will remain an important part of the fuel mix, while low-carbon power generation will grow significantly. Our success in achieving our strategy is enabled by the capabilities and expertise of our workforce, the extent to which we embrace technology and encourage innovation, and our approach to sustainability. To this end, we set targets for every one of our sustainability commitments in 2021. In 2022, we

revisited the targets and made adjustments to the wording as relevant to current and emerging business activities.

To hold ourselves accountable, we've [linked compensation to progress on our ESG priorities](#) through objectives in the corporate scorecard.

This table provides a simplified summary of the commitments, targets and progress and does not include all relevant details. Further information and details are provided throughout this report and in our [2022 ESG Data Sheet](#).

## Finding solutions that protect our planet



Commitment	Measure	Target	2021 Performance	Page
Reduce climate change	GHG emissions intensity reduction from our operations	<b>30% by 2030</b>	→	<a href="#">16</a>
	Position to achieve net-zero from operations	<b>By 2050</b>	→	<a href="#">16</a>
Environment	Sensitive habitat restoration	<b>100%</b>	✓	<a href="#">18</a>
	Environment-focused community giving	<b>\$1.2 million through 2022</b>	→	<a href="#">18</a>
Zero is real	Significant process safety incidents	<b>Zero</b>	✓	<a href="#">20</a>
	Total recordable case rate (TRCR)	<b>Employee: 0.25, contractor: 0.59 in 2021</b> <b>Employee and contractor combined: 0.50 in 2022</b>	✗ *	<a href="#">20</a>



## Finding solutions to create shared prosperity



Commitment	Measure	Target	2021 Performance	Page
Community resilience	Workforce giving participation	55% workforce participation in 2021	✓	24
		60% workforce participation in 2022	→	24
	Annual giving	0.5% to 1% of pre-tax profits through 2022	→	24
	Diverse supplier spending	5% year-over-year increase through 2022	✓	25
		Increase percentage of diverse influenceable procurement spend <sup>1</sup> 5% year-over-year through to 2027	*	
R&D and innovation through technology	Innovation-driven optimization	\$115 million to \$120 million by 2023	→	26
		\$80 million per year engineering R&D value creation <sup>2</sup>	*	
Strategic decision-making	Integrate sustainability in engineering practices	Establish roadmap in 2021	✓	28
	Incorporate sustainability in enterprise-wide integrated Asset Investment Planning Framework	Pilot value drivers <sup>3</sup> by end of 2023	*	
		Determine portfolio contributions by end of 2024	*	

## Finding solutions that empower people



Commitment	Measure	Target	2021 Performance	Page
Indigenous relations	Indigenous Advisory Council	Approach in place by 2021	✓	32
	Mandatory employee cultural awareness training	Initiate in 2021	✓	33
	Board of Directors cultural awareness training	Initiate in 2021	✓	33
	Indigenous contracting	Set targets in 2021	✗	33
	Project equity opportunities	Develop framework in 2021	✗	33
	Community-led reconciliation initiatives	Ongoing	→	34
Landowner relationships	Private land restoration	100%	✗	35
Inclusion and diversity	Women on Board of Directors	30% <sup>4</sup>	✓	36
	Unconscious bias training	100% by 2022	→	37
	Women in leadership <sup>5</sup>	40% by end of 2025	→	36
	Visible minorities in leadership <sup>6</sup>	17% by end of 2025	→	36
Mental health and psychological safety	Workplace psychological health and safety	Implement formal plan in 2021	✓	38
	Psychological health and safety targets	Establish baseline in 2021	✓	39
	Mental health awareness	100% of leaders trained by end of 2022	→	39
		100% of employees trained by end of 2023	→	39

Status: ✓ Achieved → On track ✗ Not achieved \* New target for 2022

<sup>1</sup> Influenceable procurement spend is defined as purchase order procurement spend and release order procurement spend of Tier 1 suppliers.

<sup>2</sup> "Value creation" includes value realized through engineering research and development (R&D) initiatives implemented in TC Energy programs. Engineering R&D creates accuracy, precision, and efficiency in decision-making tools and processes which creates smarter and sharper decisions that enable both safety and economy leading to sustainability.

<sup>3</sup> Asset Management value drivers include, but are not limited to, quality of life, reliability, and safety and environmental risk reduction.

<sup>4</sup> 29% as of Dec. 31, 2021, increased to 33% as of Apr. 29, 2022, and a subsequent Board appointment on Jun. 7, 2022 increased the representation to 38.5% women on the Board of Directors (5/13 members).

<sup>5</sup> Leadership positions in our corporate locations of Calgary, Houston, Charleston and Mexico City.

<sup>6</sup> Leadership positions across our workforce in Canada and the U.S.

# OUR SUSTAINABILITY JOURNEY

## Material topics<sup>1</sup>

To help us gauge the sustainability and ESG topics that are most relevant and of greatest importance<sup>2</sup> to our business and stakeholders, we regularly conduct [materiality assessments](#). This helps inform our sustainability-related targets and communications and our broader sustainability strategy.

In 2022, building on the assessment completed in 2020, we undertook an extensive third-party facilitated internal and external stakeholder feedback exercise. We conducted surveys, interviews and in-depth workshops with more than 270 individuals representing various stakeholder groups in jurisdictions in which TC Energy operates. The material topics identified remained generally consistent with our previous assessments.



## 1987

- Our Common Future published

## 1990's

- First HSE management system
- Established formal pipeline integrity program
- Voluntary climate change and GHG reporting

## 2000's

- Introduced asset management system
- First Corporate Social Responsibility report
- Purchased first GHG offset
- System-wide risk assessment process for pipeline integrity

## 2010's

- Inaugural materiality assessment
- Inaugural ESG Data Sheet
- Committed to third party-aligned GRI reporting

## 2015

- Paris Agreement formalized
- UN SDGs formalized
- Developed Supplier Diversity & Local Participation Program
- Materiality assessment refresh

## 2016

- Management system integration and TOMS introduction
- Introduced Chief Diversity Officer
- Materiality assessment refresh
- Established Life Saving Rules
- First aligned reporting with GRI G4 Core option Guidelines

<sup>1</sup> References and use of the terms "materiality," "material" and similar terms throughout this document are in the context of economic, environmental, social and governance topics. For ESG topics, materiality is based on definitions in referenced sustainability frameworks, standards and guidelines, and do not correspond to the concept of materiality under Canadian or U.S. securities laws.

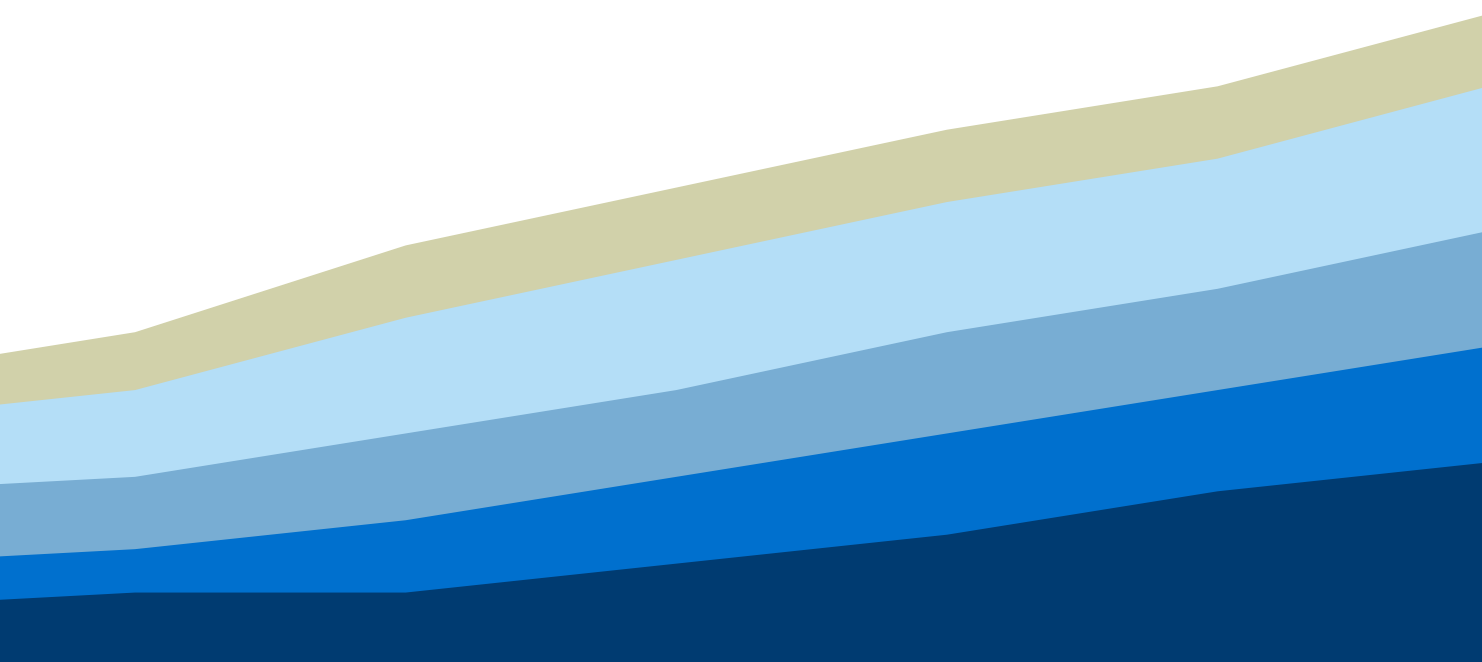
<sup>2</sup> Sustainability materiality assessments are a moment-in-time snapshot of the current topics of importance.



## WE SUPPORT



In alignment with our pursuit to develop meaningful partnerships that will solve critical global sustainability challenges, TC Energy became an official participant of the United Nations Global Compact (UNGC) in 2022. We are committed to making the UNGC and its principles part of our strategy, culture and day-to-day operations, and engaging in collaborative projects which advance the broader development goals of the United Nations, particularly the Sustainable Development Goals.



### 2017

- TCFD releases Final Report
- Elevated safety as a corporate value to advance our safety culture

### 2018

- SASB approves industry standards
- Adopted Board Diversity policy
- Added sustainability to Board Health, Safety and Environment Committee
- Introduced 2°C case into strategic planning scenario analysis
- Introduced Chief Risk Officer
- Adopted Enterprise Risk Management system
- Inaugural SASB-aligned data sheet

### 2019

- Introduced Chief Sustainability Officer
- Inaugural TCFD-informed reporting

### 2020

- Internal materiality refresh
- TCFD-aligned reporting
- Developed sustainability commitments and released targets
- UN SDG-aligned reporting

### 2021

- Set targets for every commitment
- Published Reconciliation Action Plan
- Published GHG Emissions Reduction Plan

### 2022

- Joined UN Global Compact and Global Compact Network Canada
- Comprehensive materiality assessment
- Developed Enterprise Risk Management Policy
- Demonstrated measurable progress on targets
- Published Reconciliation Action Plan update



# FINDING SOLUTIONS THAT PROTECT OUR PLANET

## In this section

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16 Commitment: Embracing the energy transition

20 Commitment: Zero is Real

18 Commitment: Leaving the environment as we found it

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*Whitebark pine conservation activities in southeast British Columbia conducted in collaboration with a Ktunaxa Nation-owned business*

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**\$4.4 billion** of capital plan dedicated to emission-less energy

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**\$2.3 million** invested through our community giving programs to support **107 environmental causes** that protect, enhance and restore North America's biodiversity and reduce the impacts of climate change

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**8,250 total cumulative acres** of lands restored

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## COMMITMENT: Embracing the energy transition

UN SDGs:



To contribute to global efforts to reduce climate change.

Metrics	Targets <sup>1</sup>	2021 Performance
Reduce GHG emissions intensity from our operations	30% by 2030	→
Position to achieve zero emissions from our operations on a net basis	By 2050	→

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

Climate change is a global issue that requires both global and local solutions. We know that as a North American corporate citizen, TC Energy has an important part to play in evolving to a clean energy future. As we continue to reduce GHG emissions within our operations, we're also focused on providing low-carbon energy options to our customers.

We are confident in our ability to deliver on our commitments, and believe the energy transition provides growth opportunities for our company.

### Building the foundation to further reduce GHG emissions intensity and position for net-zero emissions in our operations

Over the last 20 years, we've reduced emissions from our operations through a variety of methods including integrating enhanced leak detection and incorporating lower-carbon solutions into our infrastructure. Ranging from hybrid electric compressors to solar power, we are further integrating these lower-carbon solutions throughout our footprint as pilots prove successful.

In 2021, our absolute GHG emissions and emissions intensity increased due in part to increased energy demand across North America, resulting in the need to consume more fuel across our networks to deliver increased volumes.

Most of our emissions come from stationary combustion sources at our natural gas pipeline assets, reflecting over 80 per cent of our total Scope 1 emissions. As demand for energy in North America increased in 2021, our Scope 1 emissions increased

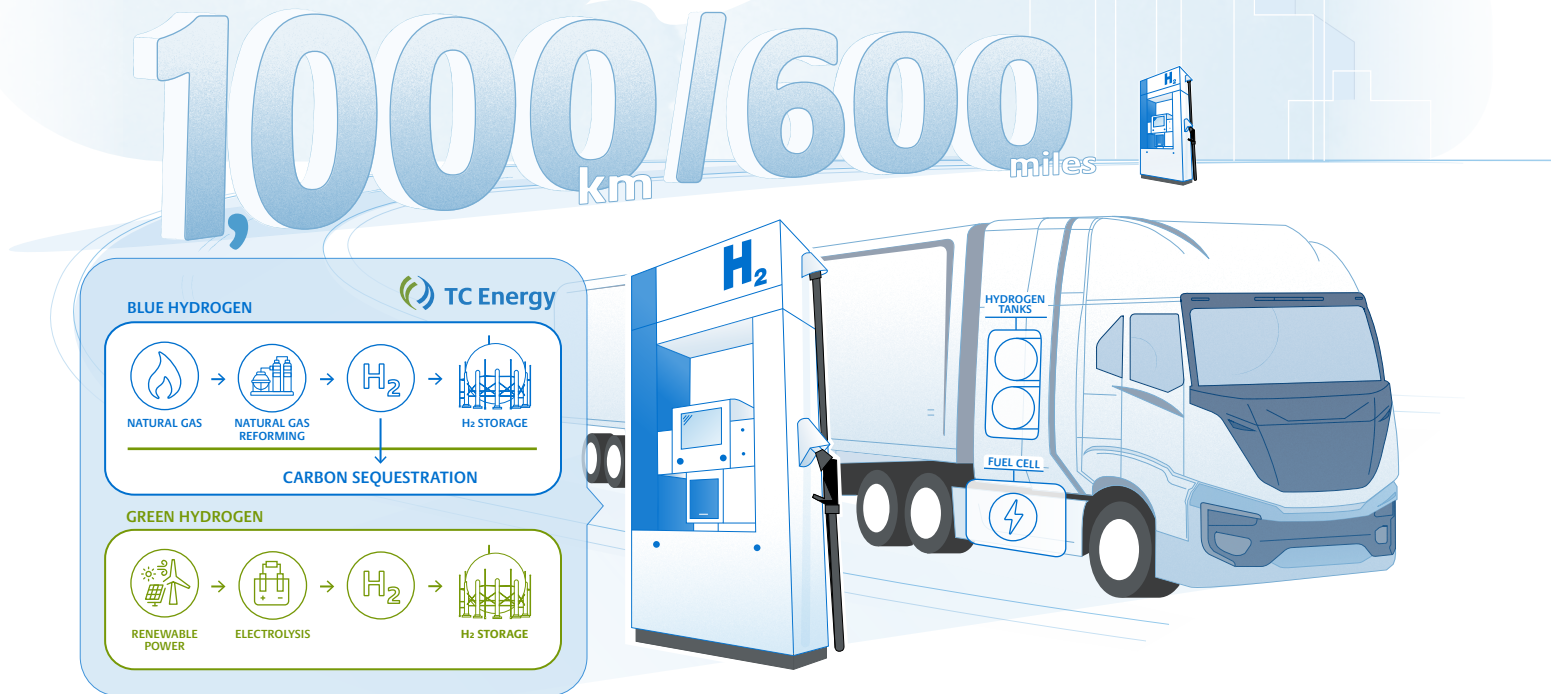
9 per cent in 2021 from 2019 levels as we transported 8 per cent more products to market, which consumed more fuel as we effectively met the energy needs of North America – an essential service.

Alongside our Scope 1 and Scope 2 emissions, there are a variety of other factors that impact the emissions intensity equation, including the amounts of energy we move, generate and store. These interrelated factors led to an increase in our 2021 emissions intensity.

Reducing emissions in quantity and intensity throughout our operations is no small feat and we know that significantly reducing our emissions will take time. We are evaluating a suite of substantial abatement opportunities in a variety of stages. Aligned to the five focus areas outlined in our GHG Emissions Reduction Plan, many of these opportunities are complex projects which require a multi-year planning cycle to robustly address the environmental and social impacts. Like our energy industry peers, our operations are continuous, and our systems have numerous components and interfaces situated in remote areas. Modifying these systems requires careful planning and testing to ensure that safe and reliable operations continue as we strive to modernize our assets to meet our emissions reduction goals.

Our GHG data doesn't yet reflect the long-term efforts underway to meet our targets. As we execute the second year of our [GHG Emissions Reduction Plan](#) and the ambitious initiatives required to achieve our targets across our business segments, we remain highly focused on delivering on our commitments.

<sup>1</sup> For planning purposes, our progress will be measured relative to a 2019 base year.



### Providing energy solutions for the decarbonization journey

Whether it's renewable energy, renewable natural gas, hydrogen, electrification or other low-carbon energy services, we will strategically pursue opportunities to reduce our emissions and provide solutions to meet our customers' decarbonization needs.

We're decarbonizing our energy consumption in a variety of ways. Notably, our renewable energy portfolio has a number of projects under development including wind, solar, hydrogen, hydro and battery storage. We are also modernizing our existing systems and assets by integrating technologies such as gas recovery and recompression systems and [hybrid gas and electric compressor units](#).

In areas where oil and natural gas continue to power operations, we are pursuing the investment and development of large-scale energy storage projects to capture CO<sub>2</sub> for industrial application or permanent storage. Our investments in the [Alberta Carbon Grid](#) and Carbon Clean further demonstrate our pursuit of being a trusted and reliable source of low-carbon energy in North America.

#### Read more on the other ways we are solving the clean energy future challenge:

- [Solar power](#) through Claresholm Solar
- [Wind power](#) through EDP Renewables
- [Pumped Hydro Storage](#)
- [Renewable natural gas](#)
- [Hydrogen hubs](#) with Nikola
- [Hydrogen modular production hubs](#) with Hyzon Motors

Another example of decarbonization is our [24x7 Carbon-Free Power Solution](#) in Alberta, a combined wind, solar and long-duration pumped hydro portfolio that eliminates renewable generation variability. This groundbreaking product offers round-the-clock access to low-carbon energy at a fixed price for a fixed volume – ideal for companies seeking emissions-free power with price certainty.

### Expanding our infrastructure will also play a part in displacing emission-intensive fuels locally and globally

Knowing that all forms of energy will be required to reduce emissions inside and outside North America, we're continually looking at ways to help communities transition from fuels with very high carbon intensity, such as coal, to cleaner carbon fuels like natural gas.

Continental demand for electrification and coal-to-gas fuel substitution demonstrates that natural gas remains critical to North America's energy mix. Expanding our Tula-Villa de Reyes and Tuxpan-Tula pipelines will connect southeast Mexico to natural gas and support the energy transition by displacing reliance on fuel oil and diesel.

We are also working to connect world-class North American natural gas supplies to reach expanding global markets, many of which are currently using coal as their primary energy source. [Coastal GasLink](#) (CGL) will provide the first direct path for Canadian natural gas to reach global LNG markets, moving some of the most responsibly produced natural gas in the world. We are progressing five LNG-linked projects in the U.S. and already transport about a quarter of the natural gas destined for export from the U.S.

Furthermore, we're working with customers and vendors to better understand the GHG life cycle of the products we transport.





## COMMITMENT:

# Leaving the environment as we found it

UN SDGs:



To leave the environment where we work in a condition equal to or better than we found it, including biodiversity and land capability.

Metrics	Targets	2021 Performance
Restore or offset disturbances to sensitive habitat resulting from construction and operation of our North American assets	100% restoration <sup>1</sup>	✓
Invest in activities that restore biodiversity and reduce the impacts of climate change	\$1.2 million spend, per year, to support environmentally focused Community and Workforce Giving partnerships through 2022	→

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

Natural resources and green spaces are precious to every community, and we know that the [way we care](#) for the air, land and water matters. We have developed a network of dedicated environmental professionals across our operations focused on safeguarding sensitive habitats and maintaining biodiversity. We also invest in programs that promote environmental stewardship, conservation, values and priorities that are important to us all.

In 2021, we met our target of restoring all sensitive habitat impacted by capital projects by the last year of the five-year monitoring period. In addition, we contributed to biodiversity conservation to restore and help offset impacts to these sensitive areas, described further in the following sections.

We also nearly doubled our annual target, donating \$2.3 million to various environmental causes across Canada. The U.S. and Mexico focused on building partnerships that make a positive impact on species and habitats at risk. For example, TC Energy partnered with Alternative Land Use Services to support Canadian farm and ranch families in addressing biodiversity challenges, such as improved water quality and regenerative agricultural techniques on their lands.

## Understanding the impact of pipelines on the prairie landscape

In 2021, the University of Alberta published papers highlighting the success of TC Energy's land reclamation efforts after construction of the Keystone Pipeline following a [10-year research project on rare plant species along the pipeline corridor in southern Alberta](#).

## Restoring threatened trees and protecting rare plants

In 2021, 46,064 individual flora specimens were transplanted on over 33 hectares beyond our right-of-way to support flora and fauna relocation and reforestation programs on the Tuxpan-Tula pipeline in Mexico.

<sup>1</sup> Restoration activities are multi-year efforts with end-of-activity targets rather than annual targets. Further information is provided in our 2022 ESG Data Sheet, [page 38](#).

In Canada, a combined total of over one million trees were planted in caribou habitat over 450 hectares across Alberta and British Columbia related to multiple construction and abandonment projects. Similarly, we have committed to providing over \$1.5 million for riparian and instream habitat enhancements for bull trout in Alberta as part of an offsetting plan in collaboration with Fisheries and Oceans Canada.

We're also supporting the expansion of the [Nupqu Native Plant Nursery](#) to grow Whitebark Pine seedlings, with the aim to restore the threatened tree species in southeastern B.C. Once complete, the nursery's enhanced storage and building facilities will include a new climate-controlled environment with capacity to grow 100,000 seedlings, helping this community greenhouse increase its supply of native-area plants used for local reclamation projects.

### Safeguarding important habitats

In 2021, we supported a third season of migratory owl research adjacent to our Great Lakes Gas Transmission pipeline corridor in Michigan conducted by Mackinac Straits Raptor Watch. This organization promotes and conducts scientific research on the migration of birds of prey in the Straits of Mackinac region, an important migratory pathway, with an aim to protect the resting and feeding stopover habitats.

We also helped the University of Louisiana's Biology Department purchase [GPS telemetry units](#) for their studies, which will help planners understand the locations of nesting and foraging sites when planning coastal restoration projects.

In addition, we paid over \$750,000 in biodiversity offsets to numerous state agencies and natural resource management organizations in the U.S. who create, restore, enhance or preserve biodiversity through migration projects related to bats, bog turtles, mussel species and wetlands.



### Restoring salmon volume in northern B.C.

Nak'azdli Whut'en and Coastal GasLink developed a [sockeye restoration project](#) to help increase salmon stock, launching five mobile salmon hatcheries in Fort St. James, B.C. Coastal GasLink will also fund the capital, set-up, operational training and five-year operational costs for the project. This initiative will help create jobs for Nak'azdli members and contribute to the health of fish stocks considered vital to Nak'azdli Whut'en.



## COMMITMENT: Zero is real

UN SDGs:



To achieve our Zero is real safety commitment.

Metrics	Targets	2021 Performance
Maintain our dedication to zero harm, loss and incidents by improving personal and process safety performance	Zero significant process safety incidents <sup>1</sup>	✓
	Total recordable case rate (TRCR): 0.25 (employee) / 0.59 (contractor) in 2021	✗
	Combined (employee and contractor) total recordable case rate (TRCR): 0.50 in 2022	New

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

Our commitment to safety isn't just a mantra – it's how we work 24/7, 365 days of the year across our entire organization. Our goal of [Zero](#) is simple: all harm, loss and incidents are preventable. We conduct our business with a disciplined approach through our operational management system, which is applied throughout our organization and full asset life cycle. This includes the tracking of lagging and leading indicators to drive continuous improvement. We have numerous personal and process safety-focused programs and technologies in place, including our:

- Company-wide annual Zero Week and quarterly Zero Talks events that connect the dots between our corporate values and the actions we're taking to live those values
- Use of artificial intelligence to aid workers with identifying hazards and to aid leaders in interpreting risk areas and supporting the safety of their teams
- Sophisticated continuous monitoring technology for pipeline integrity, which has been widely recognized within the energy industry as the best available technology

In an industry as complex as ours, reaching the goal of Zero takes commitment, innovation and collaboration. It is fundamentally important to us that everyone who works with TC Energy arrives home safely every day. That is why we are combining employee and contractor exposure hours and will be reporting a combined TRCR rate going forward. This approach also increases the statistical validity of the TRCR because of the combined exposure hours. While we continuously strive for Zero, we have more work to do.

### Taking a hard look at our safety culture and reinforcing our growth mindset

Tragically, one employee was fatally injured in 2021 and one contractor was fatally injured in early 2022. Each time our CEO, François Poirier, held a company-wide safety stand-down to talk about safety culture and the need to stop, evaluate and learn from the incident.

<sup>1</sup> Significant process safety incidents are defined by TC Energy as unplanned or uncontrolled spills or releases that result in major consequences to people or the environment. They are a subset of Tier 1 process safety incidents. In evaluating the severity of the incident, we also consider the potential risk of legal, financial or reputational impacts to our company. Further information is provided in our 2022 ESG Data Sheet, [page 42](#).



In early 2022, we sought additional support and independent expertise to conduct a candid company-wide assessment to understand our current state with respect to safety. This assessment included interviews with senior leaders and focus group sessions, as well as a broad systems review. Once complete, the findings and recommendations will be shared broadly with our workforce and externally with peer companies and industries.

We're committed to learning and growing as an organization as we enhance our safety culture across occupational, process and psychological safety. In order for us to create better systems, processes and environments, it is critical that we learn from both our successes and our failures.

### Together, we will create better safety solutions

In 2021, we've focused on uniting our safety efforts across the organization. We created an integrated [Commitment Statement](#) to include our 10 sustainability commitments and our expectations on how we conduct business with Indigenous groups, landowners and stakeholders.

Another way we united our efforts was by recognizing a broader scope of individuals and teams contributing to safe and reliable operations in our [CEO Zero is Real Leadership Awards](#). Celebrating these successes supports learning, as we get a glimpse into the behaviours and attributes that elicit outstanding contributions to safe, reliable and sustainable operations.

In Mexico, we delivered emergency response training to civil protection authorities, emergency bodies and first responders focused on improving coordination related to natural gas pipeline emergencies. The training was delivered through our long-standing partnership with the International Association of Fire Chiefs with the overarching goal of promoting pipeline safety and mitigating risk. In addition, we synchronized this capacity-building program with emergency response vehicles and equipment donations to the states of Sinaloa, Hidalgo, Guanajuato and Queretaro.



*Luis Antonio Güereca*

“TC Energy is a partner of choice for building safer communities in the community because, firstly, it makes this training possible for emergency units in the state of Guanajuato and, secondly, because they donated an Emergency Response Unit which will allow us to offer better response services. The course also strengthens relationships between TC Energy and the local authorities facilitating better communication, coordination and attention to incidents. In addition, they are helping students with scholarships, something significant for the education of young people in Mexico,” says Luis Antonio Güereca, Coordinator of Civil Protection of the State of Guanajuato.



# FINDING SOLUTIONS TO CREATE SHARED PROSPERITY

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24 Commitment: Strengthening community resilience

28 Commitment: Integration of sustainability

26 Commitment: Enhancing energy sector sustainability  
with technology

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*Employees building a home in Houston with our community partner Habitat for Humanity*

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**\$28.3 million** to communities across North America

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**24,186** volunteer hours to organizations across our footprint which support community interests including recreation and sports, and educational and human services

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**\$900 million+** spent with Tier 2<sup>1</sup> diverse businesses through our Supplier Diversity program

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<sup>1</sup> Tier 2 spend, also referred to as indirect spend, is a classification of expenditure data that TC Energy's prime suppliers/general contractors spend for services/products that directly support TC Energy's business needs. Indirect expenditures may consist of labour, subcontractor, materials, and/or expense spend.

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## COMMITMENT: Strengthening community resilience

UN SDGs:



To strengthen local community, Indigenous group and employee resilience, including in recovery and moving forward from the COVID-19 pandemic.

Metrics	Targets	2021 Performance
Increase annual workforce participation in our workforce giving and volunteering program, to strengthen workforce resiliency	55% workforce participation in 2021	✓
	60% workforce participation in 2022	→
Maintain annual giving percentage of pre-tax profits to help strengthen local community, Indigenous group and workforce resiliency	0.5% to 1% of pre-tax profits through 2022	→
Increase spending with diverse suppliers <sup>1</sup> in Canada and the U.S	Increase diverse annual spend of Tier 1 and Tier 2 suppliers in Canada and U.S. 5% year-over-year through to 2022	✓
	Increase percentage of diverse influenceable procurement spend <sup>2</sup> 5% year-over-year through to 2027	New

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

At TC Energy, we often describe ourselves as a pipeline operator, energy distributor and, of course, we build pipelines and power plants too. But another thing we build, just as meticulously, is long-lasting relationships with stakeholders and rightsholders.

In 2021, we met our community investment targets. We invested 0.62 per cent of our pre-tax profits in communities across our footprint in a variety of ways including direct cash investments, scholarships, in-kind donations, matched contributions through employee giving and by providing

volunteer hours during paid work hours. Fifty-five per cent of our workforce participated in our workforce giving and volunteering program giving their time and money to over 3,000 organizations in Canada, the U.S. and Mexico. These efforts were enhanced by the company through matches totaling \$4.2 million and volunteer rewards totaling \$200,985 which were Directed to causes that are important to our workforce. Over \$7.3 million was awarded to Indigenous students who are pursuing a full-time, post-secondary program at a registered education institute in Canada, the U.S. and Mexico.

<sup>1</sup> Further details of our *Supplier Diversity* program, including definitions of Tier 1 and Tier 2 suppliers, can be found in our 2022 ESG Data Sheet, Supplier Diversity section, page 48.

<sup>2</sup> Influenceable procurement spend is defined as purchase order procurement spend and release order procurement spend of Tier 1 suppliers.

## Building strong, vibrant communities

We know that building long-lasting relationships and investing in the communities where we live and work is critical to building a stronger future together. [Our community giving program](#) supports communities in multiple ways, from providing corporate grants and scholarships to enhancing employee giving and volunteering efforts.

Safety, Education, Environment and Community are our four focus areas for corporate grants, which include supporting:

- First responder organizations by offering the tools and resources communities need to go home safely, every day
- The next generation of community leaders by investing in education and training programs that are building a strong and skilled workforce for the future
- Ecologically sensitive landscapes and species at risk
- The reduction of poverty and improvement of community infrastructure and connectedness

TC Energy contributed \$6.8 million to initiatives related to education and science, technology, engineering and mathematics (STEM), including 863 scholarships awarded across North America. These scholarships reward students who demonstrate leadership skills and involvement in their local or global community, along with strong academic performance. Students use the financial support they receive directly from us in the manner they choose, removing barriers to their future success and amplifying their contributions to a brighter future for us all.

## Supporting mental health

In 2021, over 60 staff members, including our President & CEO, François Poirier, joined the [Wounded Warriors Canada Ride for Mental Health](#), cycling over 3,000 km and raising over \$30,000 for mental health services for veterans, first responders and their families. Wounded Warriors Canada provides a range of clinically-facilitated programs specifically developed to support the unique needs of these groups that keep our communities safe. In addition, we donated \$50,000 toward the delivery of their Resiliency Training program in southern Ontario.

## Giving families safety and stability

In Ontario, our team volunteered with Habitat for Humanity to help build homes for four families in the Saugeen First Nation within the Neyaashiinigmiing Ojibwe Territory. In keeping with our 19-year partnership with Habitat for Humanity, we also matched a total of \$20,000 of donations made to the organization in December 2021.

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## Raising the roof on Giving Tuesday

**In November 2021, our employees jumped on the opportunity to have their donations matched by the company at 300 per cent. Not only did we achieve our initial goal in the first four hours, but we also exceeded it by collectively donating more than \$750,000 to over 900 organizations with a substantial amount of funds going towards causes supporting human services, mental health and crisis intervention and education in our communities.**

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## Sharing prosperity across our supply chain

In addition to increasing our employee base with diverse perspectives and skills, we also actively encourage diversity in our supply chain through our [Supplier Diversity](#) program. This program endeavors to create opportunities for qualified local and diverse suppliers and individuals to benefit from participation in our projects and operations. A strong, diverse supplier community is essential to a resilient and agile supply chain and contributes to the vitality of the communities where we live and work.

In 2021, we exceeded our diverse spend target and saw a year-over-year increase of approximately 80 per cent with Tier 1 and 36 per cent with Tier 2 diverse businesses from 2020.<sup>1</sup> This means that in 2021, we spent \$530 million directly with Tier 1 diverse businesses and over \$900 million indirectly<sup>2</sup> with Tier 2 suppliers.

<sup>1</sup> Percentages are calculated from Total Influenceable Purchase Order spend. Spend does not include Non-PO spend. Spend is always subject to change.

<sup>2</sup> Tier 2 spend, also referred to as indirect spend, is a classification of expenditure data that TC Energy's prime suppliers/general contractors spend for services/products that directly support TC Energy's business needs. Indirect expenditures may consist of labour, subcontractor, materials, and/or expense spend.



## COMMITMENT:

# Enhancing energy sector sustainability with technology

UN SDGs:



To enhance energy sector sustainability through research and development (R&D) and innovation investments.

Metrics	Targets	2021 Performance
Optimize operational and project effectiveness and efficiency through organizational, digital and technological innovations	Achieve \$115 million to \$120 million in capital and operating optimization and revenue opportunities by continuously improving our processes and systems by the end of 2023 <sup>1</sup>	→
	Through engineering research and development that utilizes the collective intelligence of data and cutting-edge technological advancements, create \$80 million per year in value creation <sup>2</sup>	New

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

TC Energy has a long history of innovation, continuously evolving to meet current needs. Innovation is one of our core values. Our people's innovative spirit radiates across our business; it's part of how we work and it's at the heart of our continued success. We encourage our people to challenge assumptions, be curious, create and anticipate change and make it safe to bring ideas forward. It's okay to fail because trying new things can lead to successful outcomes.

### Applying data analytics to make better informed decisions

To achieve our 2023 capital and operating optimization and revenue opportunities target, we improved several processes and systems which resulted in the realization of over \$45 million of value in 2021. Part of this value was created through proactive maintenance, which aims to improve the efficiency of our compressor stations and reduce the likelihood of unplanned events, further enhancing our ability to provide safe and reliable energy.

### Value creation in technical engineering research & development

Our track record of implementing innovative solutions to meet customer needs is long, and we continue to conduct significant R&D in support of our responsibility to safety, community and the environment. Our strategic research priorities are asset integrity performance, cost competitiveness and energy transition. Over the past decade, TC Energy has invested approximately \$158 million in R&D projects across North America.

We also leverage our network of research and innovation-related industry associations and initiatives to cost effectively execute research, as well as broaden the impacts of our innovation efforts to shape our industry. In the past year, our people have published or presented more than 50 technical papers across North America and have worked to incorporate our innovations in relevant codes and standards to ensure they are adopted and benefit the entire industry.

<sup>1</sup> Further information about the contents of this target is provided in our 2022 ESG Data Sheet, [page 46](#).

<sup>2</sup> 'Value creation' includes value realized through engineering R&D initiatives implemented in our (or TC Energy) programs. Engineering R&D creates accuracy, precision, and efficiency in decision-making tools and processes which creates smarter and sharper decisions that enable both safety and economy leading to sustainability.



## Plausible Profiles (Psqr) corrosion assessment model continues to bring immense value to the energy industry

Allowing for better decision-making for preventative maintenance and integrity activities and resulting in fewer ground disturbances, our revolutionary corrosion assessment model represents the first industry-wide corrosion modelling update in 30 years. In 2021, TC Energy won the Global Pipeline Award for impactful innovation and was also previously recognized by the Canadian Energy Pipeline Association in 2020. The model was validated and included in the American Society of Mechanical Engineers and Canadian Standards Association standards in cooperation with the Pipeline Research Council International.

One of our most successful recent R&D projects is the development of the *Decision Optimization Engine* (DOE). The strategic use of data helps us make sound decisions amid complexity and uncertainty. The DOE integrates data analytics, engineering principles and computing power, giving us a more precise understanding of our asset health in real-time, leading to improved safety and efficiency.

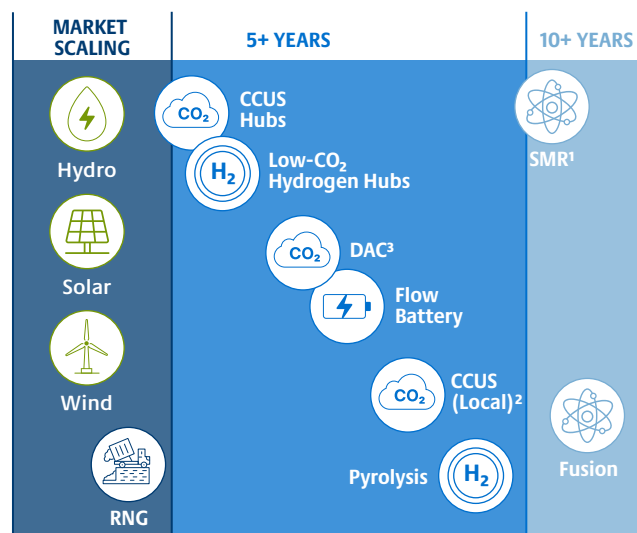
## Proactively managing wildfire conditions and reducing emissions with the use of drones

Our assets cover vast distances, often in remote areas, and require regular monitoring. Drone technology can easily monitor long linear infrastructure like ours, safely and in a more environmentally friendly way. Monitoring these assets has historically required helicopters and light manned aircraft. Drones, which are electric and battery-operated, can effectively and safely abate a significant amount of GHG emissions related to aerial monitoring of our rights-of-way.

Drones are also being used to reduce the fire risk for our operations and communities near our operations in areas with high temperatures and drought-like conditions. In 2021, we flew drones above heavily forested areas near Rosalia, Washington to determine the size and number of trees. This data helped to develop a risk mitigation plan in collaboration with local agencies to implement forestry best management practices, including removing smaller timber, trimming branches and thinning large trees that were identified as fire hazards.

Current regulations limit use of beyond visual line of sight (BVLOS) drones in several industries. We are working with a consortium of telecommunications, energy and drone operators to demonstrate to regulators the significant environmental and economic benefits of BVLOS drones while enhancing safety and security across multiple sectors.

## Commercial viability of low-carbon technologies



<sup>1</sup>Small Modular Reactor

<sup>2</sup>Local CCUS refers to capture/sequestration disassociated with potential hubs

<sup>3</sup>Direct Air Capture

## Monitoring low-carbon technology development

Some of the most powerful and impactful opportunities to address the climate crisis and create new value lie with emerging low-carbon technology development. We know that to speed up innovation and accelerate progress, extraordinary and collective efforts with startups, research institutions and even our competitors to develop, pilot and deploy viable technology are critical. This is why we proactively monitor developments across various stages and make long-term investments to support the growth of low-carbon technology.

### TC Energy collaborates with many organizations inside and outside the energy industry, including:

- Canadian Emissions Reduction Innovation Consortium (CanERIC)
- Rice Alliance Clean Tech Accelerator
- Emerging Fuels Institute (EFI)  
– founding member



## COMMITMENT: Integrating sustainability

UN SDGs:



To further integrate sustainability into our strategy, management decision-making and performance tracking and assessment.

Metrics	Targets	2021 Performance
Review and integrate sustainability considerations into engineering requirements <sup>1</sup> and operating procedures to ensure formalized consideration of sustainability in our work and operations	In 2021, define how sustainability can be considered in engineering standards and procedures as a part of a longer-term roadmap	✓
Incorporate sustainability drivers and measures in enterprise-wide Integrated Asset Investment Planning Framework, leveraged in program planning for existing assets	By end of 2023, pilot select value drivers <sup>2</sup> across all business units	New
	By end of 2024, determine portfolio sustainability contributions, informing future planning decisions aligned to corporate and business unit objectives	New

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

Integrating sustainability into strategy is critical to “future proofing” our business. However, we realize that to do so, we must plan for and address potential global impacts that can fundamentally change the way we may operate over the coming decades. We will continue to analyze external factors and relevant and emerging business issues, in order to influence our ability to integrate sustainability throughout our organization.

We have a tested and disciplined approach to capital allocation that includes sustainability factors. Every opportunity is assessed through the lens of risk preferences and return expectations. With this judicious approach, one quarter of the decision-making factors focus on ESG considerations.

### Embedding sustainability considerations at the beginning of projects

One of the biggest shifts in our project planning has been establishing sustainability as a key pillar of our *Practice of Engineering* (POE) program strategy in 2021. This strategy provides a roadmap for engineering excellence and focuses on the introduction and identification of sustainable design practices across the company’s footprint. As a near-term target, design alternatives are being incorporated into governing design documents to encourage consideration of sustainability commitments in design decisions.

<sup>1</sup> Engineering requirements reflect TC Energy engineering standards collection.

<sup>2</sup> Asset Management value drivers include, but are not limited to, quality of life, reliability, and safety, and environmental risk reduction.

In 2021, after careful consideration, prudent enhancements were also made to the broader document review process for engineering design standards to explicitly consider sustainability in reviewing requirements. Through this process enhancement, sustainability considerations have influenced design options that reduce GHG emissions, energy consumption and overall environmental impacts. An example of this is a design standard that defines the requirements for major equipment to capture and reinject line gas, that would otherwise be released to the atmosphere, during normal operation of our compressors.

In 2022, the sustainability strategy within the POE program was expanded to evaluate asset integrity requirements. This includes, where possible, the identification, assessment and implementation of sustainability measures on an ongoing basis in the program that governs asset integrity processes and work. Asset integrity is critical to managing integrity risk across our assets.

#### **Increased focus on cybersecurity to protect our interconnected assets and data sets**

The continued automation of our world comes with increases in associated risks. As a result, cybersecurity is constantly evolving to protect against hacking sensitive information or financial accounts and other crimes with serious implications. Industry collaboration is key to ensuring the most effective protection plans.

Due to the very real risks of an increasingly interconnected world, we created a cybersecurity office, which is responsible for managing all cybersecurity risk and dealing with an evolving threat landscape. This office has a comprehensive cybersecurity strategy, policy and program that aligns to industry best practices and recognized standards. As part of our commitment to continually improving our cybersecurity protocols, we work with government agencies, regulatory bodies and industry organizations that assess our program and processes. We also regularly remind staff of common and emerging cybercrime scenarios and tips for avoiding them throughout the year.



### **Sustaining safe, secure and resilient digital assets**

In 2021, the U.S. Transportation Security Administration issued Security Directives requiring pipeline owners and operators to implement a significant number of urgently needed protections against cyber threats. TC Energy's Cybersecurity Office reviewed the directives and created a focused program to provide guidance on how we will need to access our systems, use our systems and stay cyber safe.





# FINDING SOLUTIONS THAT EMPOWER PEOPLE

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**35** Commitment: Focus on landowner relationships

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**36** Commitment: Fostering inclusion and diversity

**38** Commitment: Focus on mental health

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*One of over 1,800 water systems constructed through a program funded by TC Energy and the state of Chihuahua to provide Indigenous groups and local communities clean drinking water.*

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**99%** of leaders and employees trained on how to recognize and mitigate unconscious bias and how to create and sustain an inclusive workforce

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**Mandatory training on the history and cultures of Indigenous Peoples** rolled out to Canadian employees, as well as our Board of Directors

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## COMMITMENT:

# Fostering relationships with Indigenous groups

UN SDGs:



To become a partner of choice for Indigenous groups.

Metrics	Targets	2021 Performance
Establish an Indigenous advisory council to provide advice to our leadership team and guide our reconciliation efforts	Advisory council approach in place by Q4/2021	✓
Implement a mandatory, corporate-wide cultural awareness training module focused on the history and cultures of Indigenous Peoples of North America to all employees and internal contractors	Developed by Q3/2021 and initiated in 2021	✓
Deliver tailored cultural awareness training for our Board of Directors	Developed by Q3/2021 and initiated in 2021	✓
Set Indigenous contracting targets to enhance participation of Indigenous businesses in the execution of our projects and operational activities	Targets set by Q3/2021	✗
Develop a framework to identify project equity opportunities with Indigenous groups across our footprint	Framework developed by Q4/2021	✗
Identify and support community-led reconciliation initiatives through partnerships with Indigenous groups	Ongoing	→

For more information on our progress, please refer to our [2022 Reconciliation Action Plan Update](#).

We continue to build on more than 40 years of engagement with Indigenous groups. We are committed to building and maintaining long-term relationships with Indigenous groups based on respect, trust, open communication and recognition that many of our activities occur on traditional lands. Our continued success depends on our ability to cultivate lasting relationships with Indigenous communities that have interests in lands on which our assets are located.

### Indigenous Advisory Council formed to guide our efforts

Establishing an advisory council is a key component of our [Reconciliation Action Plan](#). To begin, we recruited Indigenous leaders from across our Canadian footprint in 2021 to provide advice to our executive leadership team and guide our reconciliation efforts. The Indigenous Advisory Council convened for the first time in the first half of 2022 and met again in October 2022.



### Cultural awareness training developed in consultation with Indigenous employees

Since 2001, we have offered Indigenous Awareness training, which outlines our company's Indigenous Relations policy, strategy and guiding principles to all interested employees and contractors. In addition to in-class training, prior to the pandemic, we also regularly facilitated opportunities for employees to learn firsthand about history, protocols and culture through in-person experiences. In 2021, we offered 13 sessions and 750 individuals took this training.

In 2021, we also developed, with input from TC Energy's Indigenous employees, an online training module that covers the history and cultures of Indigenous Peoples. This was rolled out to all Canadian employees and certain contractors. Additionally, a two-hour interactive session was provided to members of our Board of Directors.

We acknowledge there is more we need to do so that TC Energy employees and contractors can play a meaningful role in reconciliation between Indigenous Peoples and non-Indigenous people. This training lays a foundation for us to build greater cultural competencies across the organization.

### Work in progress: Setting Indigenous contracting spend targets and developing a framework to identify project equity opportunities

While we have made progress on other commitments in the Reconciliation Action Plan, we need more time to establish contracting targets across each business unit. Detailed analyses of past spending and changes to processes and systems continued in 2022, both of which are needed to ensure we are capturing and reporting the right information.

In early 2022, we also established a cross-functional working group to advance the goal of developing a framework to identify project equity opportunities with Indigenous groups across our footprint. A framework has been developed and is currently being evaluated before final internal approval.



*Tiffany Murray, Director of Indigenous Relations, CGL  
Chief Corrina Leween of Cheslatta Carrier Nation  
– a member of the CGL First Nations Limited Partnership  
Management Committee*

**Together, as business partners, we have the opportunity to learn, grow and change the way energy is developed**

Signing option agreements to sell a 10 per cent equity interest in our CGL project to the Indigenous communities across the project corridor is a historic milestone. It represents an important path to true partnership through equity ownership, along with the 20 agreements we reached with elected Indigenous groups along the route, which will provide long-term benefits.



*Ila Roan*

## Building greater understanding of our business while providing meaningful employment and training opportunities

Ila Roan, a member of the Ermineskin Cree Nation, joined the Aboriginal Construction Participation Program in 2021 and monitored the construction of the 2021 NGTL System Expansion project. Through connections established during her participation in the program, she is now employed by Tomahawk Energy Services as a 3D Technician.

## Ongoing initiatives to connect Indigenous People to our operations

We have several successful inclusion initiatives encouraging our workforce to celebrate our differences and similarities across the company. Drawing inspiration from a proactive Coastal GasLink program, we implemented the [Community Workforce Accommodation Coordinator](#) program to support a positive and inclusive experience at our workforce accommodations for the NGTL System Expansion after concerns of harassment and discrimination were raised by NGTL workers in 2021. Central to the program is the cultural awareness programming designed by coordinators recruited from neighbouring Indigenous communities. The program was put in place at three workforce accommodations related to the NGTL project in 2021 and has since been expanded.

Over 50 Indigenous people have participated in the Aboriginal Construction Participation program since its inception in 2021. The program is designed to provide an opportunity for Indigenous Peoples from nearby communities to see first-hand how we construct a pipeline and identify possible concerns back to their communities on construction activities. In 2021, program participants helped with the recovery of [dinosaur bone fragments](#) found during trenching on the NGTL System Expansion Project near Grande Prairie, Alberta. The discovery was carefully documented and shared with Indigenous communities.

Our desire to be part of advancing reconciliation between Indigenous Peoples and non-Indigenous people is a journey requiring a thoughtful approach, a long-term commitment and openness to listening and learning. We are grateful for the feedback and guidance we receive from Indigenous groups, partners, employees and the Indigenous Advisory Council – it is shaping the work we are doing and future goals.



## COMMITMENT:

# Focus on landowner relationships

UN SDGs:



To maintain mutually beneficial partnerships with our landowners.

Metrics	Targets	2021 Performance
Restore disturbances to private lands resulting from construction and operation of our North American assets	100% restoration <sup>1</sup>	⊗

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

The ability to access private and public land is integral to the safe, reliable construction and operation of our assets. To ensure continuing access, it is critical we build strong, positive relationships with landowners, compensate them fairly and restore their land to an equivalent capability. We hold ourselves to a high standard with a target of 100 per cent restoration. In 2021, we nearly achieved this target and restored 99 per cent of disturbances to private lands. The remaining one per cent of full restoration was not achieved due to erosion issues on one of our projects, affecting full repair of the area. We're working to resolve the erosion issue and expect to complete restoration in the sixth year of monitoring.

### Enhancing relationships and leading land management

We're proud of the relationships we have built with thousands of landowners across North America, and we believe that these relationships are critical to our success. Landowners are regularly engaged through a variety of channels, including emails, phone calls, open houses and meetings. There is also a dedicated toll-free number in each country to contact us with questions or concerns.

Our [Guiding Principles](#) bring a consistent, principled approach to our engagement with landowners and other stakeholders in every country where we operate. We're committed to protecting the environment through the complete life cycle of our assets, from project planning, through construction and operation, to final decommissioning and asset retirement. Our Land, Environment and Community Relations teams work

closely together to minimize the impacts of our activities and make sure that land is restored to its equivalent capability. If concerns arise or damage does occur, we strive to address these issues collaboratively with landowners in a timely manner.

### Restoring habitats and species on private land

Following planned maintenance on the underground Columbia Gas transmission system, we began a multi-year habitat restoration and monitoring project in 2021 on half an acre of private land near Waynesboro, Virginia. Working collaboratively with the landowner, the project aimed to explore new ways to reduce the spread of autumn olive, an invasive plant species, benefitting both the natural environment on the landowner's property and allowing us to continually improve our wildlife and vegetation management techniques.

Initially, our team studied the species growing rapidly in the area. TC Energy and the landowner then worked together to identify the study location and agree upon the project details, which included clearing the entire right-of-way of the invasive species and re-planting with over 30 native plants and vegetation. Each year, our Environment and Land teams revisit the site to monitor progress and discuss project outcomes with the landowner. This collaboration increases our understanding of how to manage and control the spread of this invasive plant, and continues to enhance our ongoing relationship with the landowner and address any questions the landowner may have. Since the start of the project, the landscape has changed from thick, prickly weeds to productive grasses and flowers with enhanced biodiversity of pollinators and wildlife in the area.

<sup>1</sup> Restoration activities are multi-year efforts with end-of-activity targets rather than annual targets. Further information is provided in our 2022 ESG Data Sheet, [page 38](#).





## COMMITMENT: Fostering inclusion and diversity

UN SDGs:



To embed a culture of inclusion across our organization and ensure the diversity of employees reflects the communities in which we live and work.

Metrics	Targets	2021 Performance
Diversity of our Board of Directors	30% women on Board <sup>1</sup>	✓
Women in leadership positions in our corporate locations <sup>2</sup>	40% by end of 2025	→
Members of visible minorities in leadership positions across our Canadian and U.S. workforce	17% by end of 2025	→
Leaders and employees to be trained on how to recognize and mitigate unconscious bias and how to create and sustain an inclusive workforce	100% of our leaders and employees trained by 2022	→

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

Diversity and inclusion leads to better ideas, better business solutions and better opportunities to attract and retain top talent. We know that when we bring different people, ideas, backgrounds, opinions and skills to the table and embrace our differences, we create a creative, innovative and high-performing culture.

### Creating a more inclusive and equitable future

At TC Energy, we know that diverse opinions and perspectives strengthen our performance and ability to execute our strategy. That is why we created an [Inclusion and Diversity Action Plan](#) last year to guide our path to a more equitable and inclusive environment throughout the company, where diversity is not only supported but expected. Central to this plan is education, including helping our workforce understand and identify bias, as well as providing appropriate tools to work through identified issues.

Ensuring a diverse workforce, particularly at the top levels, is important to us. Working to achieve this over time, we actively seek qualified candidates at all levels while considering diversity

in our hiring decisions. We know it is critical that everyone sees a variety of paths forward for themselves in order to realize their full potential.

In early 2022, we met our target for female representation on our Board of Directors with a composition of 33 per cent women following the retirement of three directors. Later, we increased this representation to 38 per cent through the addition of another accomplished woman with extensive experience in the midstream energy sector.

Since establishing the corporate leadership goals in 2018, we've increased the representation of women in leadership positions at our corporate locations from 34 to 36<sup>3a</sup> per cent. Also, in 2021, we tipped the balance of our senior leadership team in Mexico to a majority of women, with 56 per cent in director-level positions and above. When taking a wider view of leaders at all levels within the country, 32 per cent were women.

The representation of visible minorities in leadership positions at our corporate locations in Canada and the U.S. has increased from 11 to 14 per cent between 2018 and 2021.

<sup>1</sup> 29% as of Dec. 31, 2021, increased to 33% as of Apr. 29, 2022, and a subsequent Board appointment on Jun. 7, 2022 increased the representation to 38.5% women on the Board of Directors (5/13 members).

<sup>2</sup> Leadership positions in our corporate locations of Calgary, Houston, Charleston and Mexico City.

<sup>3</sup> TC Energy has obtained independent limited assurance of this indicator for the year ended Dec. 31, 2021.

In 2021, over 99 per cent of our workforce completed the *inclusion and unconscious bias awareness* training. The remaining one per cent were new hires who completed their training within 60 days of joining the company, which occurred outside of the calendar year. The training covers a wide range of issues, including how we identify bias, cultivate connections and choose courage; however, we are committed to expanding education within this space on an ongoing basis as our learning continues.

Led by Dawn de Lima, our Executive Vice-President, Corporate Services and Chief Diversity Officer, our Inclusion and Diversity Executive Council is comprised of leaders who are focused on and accountable for progressing inclusion across the organization.

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**“Research shows that foundational to all innovation is diversity. We see this every day when we bring people with diverse ideas and backgrounds together, we make better decisions and achieve better outcomes,”** says Tina Faraca, President, U.S. Natural Gas Pipelines **“At TC Energy, it is important for us to create an inclusive culture where everyone feels valued.”**

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In 2021, we expanded the *Inclusion Champion* network to include representatives from all areas of the business and further enhance our commitment to promoting an inclusive culture. We have also launched a *Women in Leadership* network to create connection and community between women and support mentoring opportunities.

### **Revising employment practices to be more inclusive**

When everyone feels safe and empowered to bring their very best — that’s when we spark innovation. We’re working to foster an inclusive workplace where every member of our team is respected and feels that they can contribute to their full potential. We know that meaningful, enduring change requires action.

As part of our commitment to an inclusive workplace, we have updated our parental and maternity leave practices to support working parents and their families and promote equality in our workplace.

We also offer a flexible work arrangement where employees can work remotely two days per week, depending on the nature of the role and work. This practice supports work/life balance, while ensuring business performance through continuing in-person collaboration three days a week.



*Ashley; a long-time TC Energy employee, inclusion advocate, and member of the LGBTQ2+ community.*

## **Celebrating our diverse backgrounds and perspectives**

We asked our workforce to share their stories for our *This Is Me* campaign and heard from employees and contractors in Canada, the U.S. and Mexico. Every story showed the unique strengths and perspectives of each staff member, as well as the common goals we share. Aside from inspiring more staff to feel safe bringing their authentic selves to work, the articles and videos have further connected our workforce across three countries.



## COMMITMENT: Focus on mental health

UN SDGs:



To demonstrate in words and actions the importance of mental health and psychological safety.

Metrics	Targets	2021 Performance
Commence implementation of a Psychological Health and Safety in the Workplace plan	Establish baseline in 2021	✓
Increase mental health awareness by providing leader and employee training and other topical resources	100% of leaders trained by end of 2022	→
	100% of employees trained by end of 2023	→
Adopt voluntary psychological health and safety criteria and establish a 2021 target baseline for metrics in 2022 and beyond	Implement a formal plan in 2021	✓

For more information on our ESG performance, please refer to the [ESG Data Sheet](#).

TC Energy is committed to the health, safety and wellbeing of all employees, recognizing that mental health and psychological safety are contributing factors in business performance. We demonstrate this commitment by providing programs and services that support the physical, mental and social health of our employees. We announced an enhanced focus on mental health in early 2020, which took on increased importance amid the stress and strain of the pandemic. Our senior leadership is committed to advancing this important initiative, which has focused on improving resilience and decreasing stigma associated with mental health by providing company-wide training, topical webinars and resources.

### Sharing personal challenges and anxieties to normalize conversations about mental health

Our *Mental Health Champions* program, designed to provide our workforce with additional support, moved into its second year in 2021. Armed with in-depth mental health training provided by external experts, our Champions have formed smaller working groups to complete various projects focused on increasing mental health awareness and psychological safety throughout the organization.

The open conversations and videos that have been led by our Champions and shared internally shine a spotlight on personal experiences and tips for overcoming challenges. Each one opens our hearts and minds to reducing the stigma associated with mental health.

To track current trends, we created a mental health dashboard focusing on key metrics that will inform our health initiatives.



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## Ending the stigma around mental health

In 2021, we held two company-wide panel sessions focused on mental health. The first was held during *Zero Week* in May and featured leaders from across the company discussing personal successes and challenges around psychological safety in the workplace. This discussion highlighted the benefits of a psychologically safe culture, as well as the consequences of not having this culture. The second event recognized World Mental Health Day in October with Jessica Holmes, a comedian and mental health ambassador, who addressed the topic from a lighter side, with the goal of making the topic more approachable.

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## Fostering a culture of psychological safety

As part of our ongoing commitment to support employee mental health, we introduced *Mental Health and Psychological Safety* Training in 2022.

Designed to increase awareness of mental health, the mandatory interactive 90-minute module helps our leaders gain a better understanding of psychological safety, and what they can do to foster a safe and inclusive culture where employees feel supported. This training was developed internally in collaboration with our Inclusion & Diversity, Safety Culture and Learning & Leadership teams, as well as an external expert in workplace mental health.

In addition to setting a *Psychological Health and Safety in the Workplace* plan, we've established metrics and set a baseline related to psychological safety in the workplace. We will review these metrics regularly and set targets accordingly.



Vanessa Araujo

“I have always been interested in mental health. I have a degree in psychology, specifically the cognitive implication that, because of everything we go through on a day-to-day basis, there are potential consequences for a mental health imbalance. In turn, this can generate a positive or negative organizational climate and determine the degree of a company's success,” says Vanessa Araujo, Benefits Specialist, HR. “In Mexico, it is not common for people to take personal days for mental wellness. I am very proud to be part of a company that provides resources we can use, such as psychological, financial and legal assistance.”



**WE WANT TO HEAR FROM YOU!**

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# 2022 ESG DATA SHEET

A Task Force on Climate-Related Financial Disclosures  
and Sustainability Accounting Standards Board Report





# Forward-looking information

This document 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, statements related 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, statements regarding our future plans and prospects overall, including those relating to energy transition, expected scenario outcomes and our ability to maintain the value of existing assets, climate-related risks, climate-related opportunities, GHG emissions intensity targets, GHG emissions reduction targets, biodiversity and land capability targets, focus on safety and asset integrity, further integration of sustainability into strategy, decision-making, performance-tracking and assessment, R&D and innovation investments to enhance energy sector sustainability, strengthening local community, Indigenous group and employee resilience, fostering relationships with Indigenous groups, maintaining mutually beneficial partnerships with our landowners, fostering inclusion and diversity, and demonstrating the importance of mental health and psychological well-being, among other things.

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 targets and ambitions, the commercial viability and scalability of GHG emissions reduction strategies and related technology and products, the development and execution of implementing strategies to meet our sustainability commitments and GHG emissions 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 the 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, cybersecurity 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 recent outbreak of COVID-19 and the 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. 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.

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## Land acknowledgement

Embedded in the lands on which TC Energy operates are the histories, cultures and traditions of Indigenous groups across North America. TC Energy thanks the original stewards of these lands – generations past, present and future – for sharing their homelands with us.

## Environmental, social and governance reporting

This report and our related suite of publications represent TC Energy's ongoing commitment to the transparency and disclosure of environmental, social and governance (ESG) factors relevant to our business, our rightsholders and stakeholders. We remain accountable by engaging with all our stakeholders, addressing key topics and providing a balanced view of our performance. This publication is one element of our sustainability and ESG reporting. More information and data, including content that is aligned with global reporting frameworks, guidelines and standards, can be found in these documents:

- [2022 Report on Sustainability](#)
- [2022 sustainability materiality assessment](#)
- [Reconciliation Action Plan](#)
  - [2022 Reconciliation Action Plan Update](#)
- [GHG Emissions Reduction Plan](#)
- [2022 CDP climate change questionnaire response](#)
- [ESG directory](#)

This Data Sheet may contain forward-looking information, or forward-looking statements. Please refer to the forward-looking information statement on [page 2](#). You can also find more information about TC Energy in our [Annual Report](#), [Management Information Circular \(MIC\)](#) and [Annual Information Form](#) available on our website, [EDGAR](#) and [SEDAR](#). Our website also hosts select

corporate policies and other governance documents, including our [oversight and policies on lobbying, political contributions and corporate memberships](#) information sheet.

We are committed to delivering energy responsibly, being a good neighbour and a top employer. We are proud to be recognized by respected third-party agencies for multiple awards within our industry and in the community.

The terms “we”, “us”, “our” and “TC Energy” as used in this ESG Data Sheet refer collectively to TC Energy Corporation and its subsidiaries unless indicated otherwise.

Unless otherwise noted, all amounts are in Canadian dollars and all data reflects 2021 numbers. Where relevant, 2022 developments and values are included and described.

The information in this report has been closely reviewed by internal subject matter experts and senior leaders. As part of our practice to continually improve our reporting, we have obtained independent third-party limited assurance of select 2021 environmental and workforce diversity indicators, which are identified with the symbol ^ throughout this document. To read the third-party limited assurance statement, please refer to our [ESG directory](#).

## Invitation for feedback

We'd like to hear what you think about our ESG Data Sheet. Please send questions or comments to [communications@tcenergy.com](mailto:communications@tcenergy.com).

# Our approach to sustainability



## Our values

Our corporate values form the foundation of how we do business.

### SAFETY

Do it right – Today's quality is tomorrow's safety

### INNOVATION

Do things differently – Turn challenge into opportunity and ideas into creative solutions

### INTEGRITY

Do the right thing and keep commitments to stakeholders

### RESPONSIBILITY

Focus on what matters – Consider sustainability in everything we do

### COLLABORATION

Play as one team – Find win-win outcomes for rightsholders and stakeholders

## ESG reporting guidance

Recognizing the value of ESG reporting frameworks, standards and recommendations such as the Task Force on Climate-Related Financial Disclosure (TCFD), Sustainability Accounting Standards Board (SASB), United Nations Sustainable Development Goals (UN SDGs) and Global Reporting Initiative (GRI), this ESG Data Sheet demonstrates alignment to TCFD and SASB and complements the content in our [2022 Report on Sustainability](#). Where non-standard measures are required, we have disclosed in alignment with internal standards.



## Our business

For more than 70 years, TC Energy has proudly operated pipelines, storage facilities and power generation plants that support life in Canada, the U.S. and Mexico.

## Material topics<sup>1</sup>

To help us gauge the sustainability and ESG topics that are most relevant and of greatest importance<sup>2</sup> to our business and stakeholders, we regularly conduct [materiality assessments](#). This helps inform both our sustainability-related targets and communications and our broader sustainability strategy.

In 2022, building on the assessment completed in 2020, we undertook an extensive third-party facilitated ESG-focused internal and external stakeholder feedback exercise. We conducted surveys, interviews and in-depth workshops with more than 270 individuals representing the various stakeholder groups in jurisdictions in which TC Energy operates. The material topics identified remained generally consistent with our previous assessments. We appreciate these issues should not be viewed in isolation as they are increasingly interconnected and can often impact each other. As such, we will refresh our sustainability strategy, targets and communications in alignment to these topics.

<sup>1</sup> References and use of the terms "materiality," "material" and similar terms throughout this document are in the context of economic, environmental, social and governance topics. For ESG topics, materiality is based on definitions in referenced sustainability frameworks, standards and guidelines, and do not correspond to the concept of materiality under Canadian or U.S. securities laws.

<sup>2</sup> Sustainability materiality assessments are a moment-in-time snapshot of the current topics of importance.

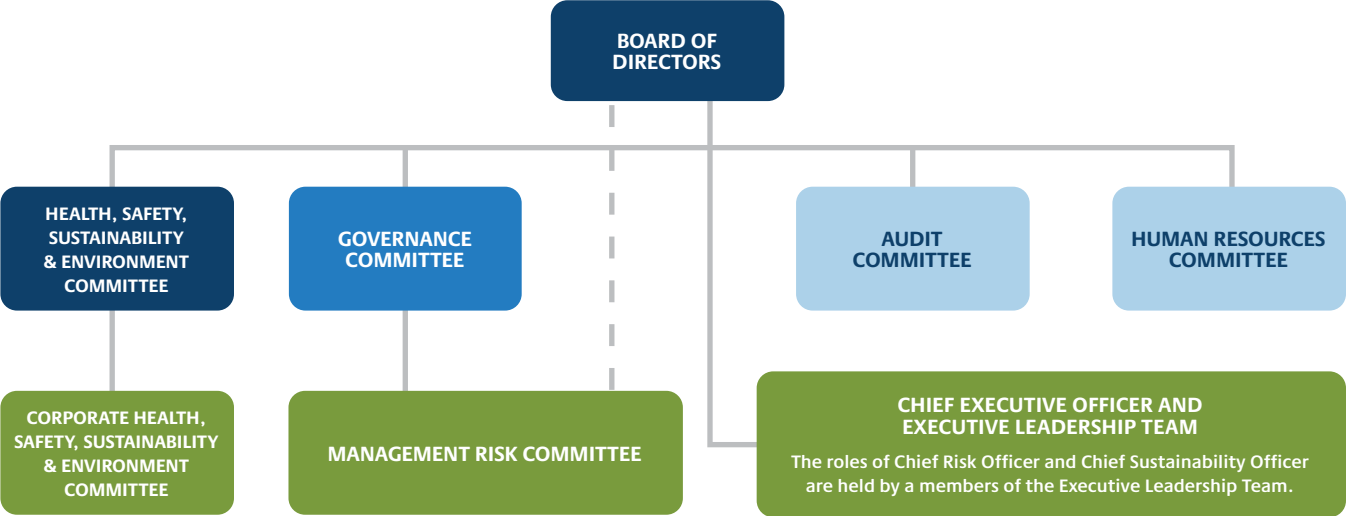


# TCFD climate-related governance

TC Energy’s governance structure provides a framework for accountability, management and mitigation of the risks and opportunities facing the company, including on the topics of sustainability and ESG matters. The Board has oversight over our sustainability and ESG practices, with the primary accountabilities at the Board committee level. Management’s sustainability governance framework includes the Chief Sustainability Officer (CSO) and a management-level Health, Safety, Sustainability and Environment (HSSE) Committee in addition to the activities

described below. At TC Energy, sustainability includes ESG considerations and the financial health of the organization and means safely, reliably and economically meeting today’s energy needs while finding responsible solutions for our energy future. Our [2022 MIC](#) contains further details on our governance structure and characteristics, including board member competencies to oversee sustainability in operations and the role that each committee of the Board has in overseeing ESG matters.

## Oversight structure for climate risks and opportunities



## Legend



Primary oversight — — — — Management Risk Committee outputs are reported to the Board of Directors

Figure 1: Oversight structure for climate risks and opportunities

Board oversight	Role	Sustainability accountabilities
	Board of Directors <sup>1</sup>	<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, now and in the future. In particular, the Board reviewed, discussed and approved the revised and extended five-year strategic plan in 2021 during our strategic planning cycle.</p> <p>This included an assessment of energy fundamentals, the competitive environment and the stakeholder landscape to identify opportunities and threats to our business strategy. This session informed our annual strategic priorities and executive performance measures. We also frequently test our strategy against a range of energy supply and demand outlooks to confirm our resilience.</p> <p>In addition, progress toward our GHG emissions reduction goal was incorporated in our strategic planning process in 2022.</p> <p>The Board and its committees are also responsible for risk oversight, including climate-related risks, and they oversee management systems and processes for identification, evaluation, prioritization, mitigation and monitoring of risk. Our directors have a broad range of experience and skills in risk management and, as a result, the Board is highly engaged and qualified to participate in a meaningful discussion of key business risks with management at Board and committee meetings.</p> <p>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. Potential candidates are recommended based on their qualifications and independence and how these qualities balance with the skill set of the current Board. This assessment helps the Board determine the best mix of skills and experience including operations, health, safety, sustainability and environment to guide our business operations and our long-term strategy.</p>

<sup>1</sup> Our [Corporate Governance Guidelines](#), [Board of Directors Charter](#) and the Charter for each committee can be found on our [website](#).

Board oversight	Role	Sustainability accountabilities
	<b>Health, Safety, Sustainability &amp; Environment (HSSE) Committee</b>	<p>The HSSE Committee oversees operational risk, health, occupational and process safety, 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.</p> <p>This includes reviewing the performance and activities of TC Energy HSSE matters including 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 HSSE 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.</p> <p>The Committee 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 a standing agenda item on 'sustainability' covering a range of topics. The HSSE Committee receives updates and reports on prevention, mitigation and management of risks related to HSSE matters, including climate change or business interruption risks that may adversely impact TC Energy.</p>
	<b>Governance Committee</b>	<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 change) are elevated for discussion with the entire Board as part of the strategy development process.</p>
	<b>Audit Committee</b>	<p>The Audit Committee oversees management's role in managing financial risk, including market risk, counterparty credit risk and cyber security, and reviews climate change and sustainability inclusion in financial disclosure documents.</p> <p>The Audit committee also oversees compliance with legal and regulatory requirements.</p>



Management oversight	Role	Sustainability accountabilities
	Chief Executive Officer (CEO)	<p>The President and CEO position is at the highest level of executive leadership with responsibility for climate-related risks and opportunities.</p> <p>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 CEO and ELT develop and implement TC Energy's strategy. Our CEO is also a member of the Board of Directors and the corresponding accountabilities also apply.</p>
	Executive Leadership Team (ELT) <sup>1</sup>	<p>The CEO and ELT develop and implement TC Energy's strategy. In addition, ELT members hold the roles outlined below including membership of applicable committees.</p>
	Chief Sustainability Officer (CSO)	<p>The 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.</p> <p>The CSO, a member of the ELT, reports to the HSSE Committee of the Board on sustainability matters, including climate-related issues, as well as to the CEO and the rest of the ELT. The CSO role formalizes our commitment to sustainability by establishing a coordination role at the highest level of the organization, and communicates with management, shareholders, customers, employees and other stakeholders to address sustainability matters, including climate-related issues.</p> <p>As the CSO and Chief Risk Officer (CRO) roles are presently held by the same individual, there is alignment in the oversight of sustainability and enterprise risks.</p>

<sup>1</sup> The current composition of our executive leadership team is on our [website](#).

Role	Sustainability accountabilities
<b>Chief Risk Officer (CRO)</b>	<p>The 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.</p>
<b>Corporate HSSE Committee</b>	<p>The Corporate HSSE Committee, comprised of management representatives from various departments, recommends strategic priorities relating to HSSE matters to the CSO, 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 that are part of TC Energy's Operational Management System, TOMS (see <a href="#">page 20</a> for further details).</p>
<b>Management Risk Committee</b>	<p>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.</p>

Governance characteristics

We believe that effective corporate governance improves corporate performance and benefits all shareholders and rightsholders and that honesty and integrity are vital to ensuring strong corporate governance. The Board has formally adopted the corporate governance guidelines recommended by the Governance Committee. These guidelines address the structure and composition of the Board and its committees and clarify the responsibilities of the Board and management. Based on the current directorship, our governance characteristics are noted below.

Indicator	Unit	2017	2018	2019	2020	2021
Board of Directors						
Size of Board <sup>1</sup>	number	13	12	12	14	14
Independent directors	per cent	92	92	92	86	93
Women on Board	per cent	23	25	25	29	29
Board diversity policy <sup>2</sup>	Yes/No	Y + target of 30% women	Y + target of 30% women	Y + target of 30% women	Y + target of 30% women	Y + target of 30% women
Number of Board interlocks	number	0	0	1	1	0
External Board service limits for independent directors	number	4 public company boards in total	4 public company boards in total	4 public company boards in total	4 public company boards in total	4 public company boards in total
Average Director age	years	63	62	61	62	63
All committees independent <sup>3</sup>	Yes/No	Y	Y	Y	Y	Y
Annual Director elections	Yes/No	Y	Y	Y	Y	Y
Individual Director elections	Yes/No	Y	Y	Y	Y	Y
Majority voting policy	Yes/No	Y	Y	Y	Y	Y
Independent executive compensation consultant	Yes/No	Y	Y	Y	Y	Y
Clawback policy	Yes/No	Y	Y	Y	Y	Y
Double-trigger vesting on change of control	Yes/No	Y	Y	Y	Y	Y
Separate Chair and CEO	Yes/No	Y	Y	Y	Y	Y
Director retirement age	years	70	70	70	The earlier of a Director turning 73 years of age or attaining 15 years of service	The earlier of a Director turning 73 years of age or attaining 15 years of service. <sup>4</sup>
Director share ownership requirements	x retainer	4	4	4	4	4
Executive share ownership requirements	x base salary	5x CEO 2x other named executives	5x CEO 3x EVP 2x SVP 1x VP	5x CEO 3x EVP 2x SVP 1x VP	5x CEO 3x EVP 2x SVP 1x VP	5x CEO 3x EVP 2x SVP 1x VP
CEO share ownership post-retirement hold period	years	N/A	1	1	1	1
In-camera sessions at every Board and committee meeting	Yes/No	Y	Y	Y	Y	Y
Annual say on pay	Yes/No	Y	Y	Y	Y	Y
Code of business ethics	Yes/No	Y	Y	Y	Y	Y
Board, committee and Director evaluations annually	Yes/No	Y	Y	Y	Y	Y
Board orientation and education program	Yes/No	Y	Y	Y	Y	Y

<sup>1</sup> As of Dec. 31, 2021. See Management Information Circular and website for subsequent updates.  
<sup>2</sup> Target achieved as of Apr. 29, 2022, with 33% women on the Board of Directors (4/12 members) and a subsequent Board appointment on Jun. 7, 2022 increased the representation to 38.5% women on the Board of Directors (5/13 members)  
<sup>3</sup> Audit, Governance and HR committees are entirely independent and HSSE committee must be a majority independent.  
<sup>4</sup> Notwithstanding age limits, a Director is eligible to serve a term of 5 years.



# TCFD climate-related strategy

TC Energy is uniquely situated at the intersection of molecules and electrons. We expect our assets will play a key role in the energy transition by enabling new technologies to develop and flourish to help us and our customers achieve our combined targeted emission reductions. In support of this, in 2021, we progressed numerous energy transition growth initiatives, including opportunities in renewables, hydrogen and carbon capture utilization and storage (CCUS). Our liquids pipeline systems remain relevant given the strategic connection of low-cost fuel sources to high-demand centres.

In 2022, we further embedded ESG and energy transition goals into our corporate scorecard. We have increased the weighting for ESG measures including safety and sustainability. We include safety because for us, everything starts with safe operations, and safety is paramount to achieving every other goal. We have also explicitly added a metric for advancing key energy transition priorities. For 2022, our scorecard weightings are 25 per cent for ESG priorities, including safety, 50 per cent for delivering financial results, and 25 per cent for advancing other key strategic priorities, including growth and energy transition. These metrics have a direct impact on compensation for executives and employees.

Climate change presents potential financial impacts to TC Energy's business and strategy which are mitigated by strong governance and strategic planning. Key components of our strategy set out in our [2021 Annual Report](#) (highlights most relevant to ESG considerations are below) support our ability to be competitive, responsible and innovative, enhance our value proposition for our shareholders and safely deliver the energy people need today and in the future.

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## Cultivate 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. We are well positioned to deliver decarbonization solutions through our world-class footprint that enables broad development of CCUS, hydrogen and renewable natural gas (RNG) in conjunction with traditional renewables.

We monitor trends specific to energy supply and demand fundamentals. In addition, we analyze how our portfolio performs under different energy mix scenarios considering the recommendations of the TCFD. These results contribute to the identification of opportunities that contribute to our resilience, strengthen our asset base and improve our diversification.



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## Maximize our competitive strengths

We continually seek to enhance our core competencies in safety, operational excellence, investment opportunity origination, project execution and stakeholder relations as well as key sustainability and ESG areas to ensure we deliver shareholder value. The use of a disciplined approach to capital allocation supports our ability to maximize value over the short, medium and long term.

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## Maximize the full-life value of our infrastructure assets and commercial positions

Maintaining safe, reliable operations and ensuring asset integrity, while minimizing environmental impacts, continues to be the foundation of our business.

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## Commercially develop and build new asset investment programs

Safety, executability, profitability and responsible ESG performance are fundamental to our investments.

Our existing extensive footprint offers significant in-corridor growth opportunities. This includes possible future opportunities to deploy low-emission infrastructure technologies such as renewables, hydrogen and carbon capture, which will help reduce the carbon footprint of our operations and those of our customers also supports the long-term value of our existing assets.




# Climate-related risks and opportunities

A summary of the climate-related risks and opportunities that may affect our company are shown below. The tables describe potential risk events, financial impacts and the estimated timeframe and mitigation activities and controls related to the risks. These are a subset of the risks identified through our ERM program, which are regularly monitored and revised annually. The financial impact has been determined following our annual enterprise risk assessments where both risks to and opportunities from TC Energy strategy are considered.

The climate-related risks and opportunities listed below may not be material under securities laws. Information on the material risks for TC Energy can be found in the [2021 Annual Report](#) and our most recent quarterly report, available on our [website](#), [SEDAR](#) and [EDGAR](#).

In addition to the summary of risks and opportunities arising from climate below, we are taking action through our 10 sustainability commitments and targets, as outlined in the climate-related metrics and targets section, our [Report on Sustainability](#) and [GHG Emissions Reduction Plan](#).

## Legend:

	Low financial impact	Short term (S/T): 1-2 years
	Medium financial impact	Medium term (M/T): 3-10 years
	High financial impact	Long term (L/T): 11-20 years

## Summary of climate-related risks

Risk definition	Potential financial impact			Mitigation measures and controls
Reputational risk				
Our operations and growth prospects require us to have strong relationships with rightsholders and stakeholders such as customers, Indigenous groups, landowners, communities, suppliers, investors, governments and government agencies, and non-governmental organizations.	S/T	M/T	L/T	<p>Our core values – safety, responsibility, collaboration, integrity and innovation – guide us in building and maintaining our key relationships as well as our interactions with rightsholders and stakeholders. We are proud of the strong relationships we have built with stakeholders and rightsholders across North America, 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 most recent Report on Sustainability includes details on our specific commitments related to safety, Indigenous groups, landowners and workplace inclusion and diversity. Specific rightsholder and stakeholder programs and policies shape our interactions, clarify expectations, assess risks and facilitate mutually beneficial outcomes.</p> <p>In addition to our annual sustainability reporting, the central hubs to access comprehensive climate change and ESG communications are our <a href="#">ESG directory</a> and the <a href="#">Sustainability page</a> on <a href="#">our website</a>.</p>
	Inadequately managing expectations and concerns, including those related to ESG, 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.			

## Summary of climate-related risks (continued)

Risk definition	Potential financial impact			Mitigation measures and controls
Policy and legal risk				
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.	S/T	M/T	L/T	We monitor regulatory and government developments and decisions to analyze the 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.
	Higher operating costs or capital expenditures due to complying with new or more stringent regulations.			
	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 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.			



## Summary of climate-related risks (continued)

Risk definition	Potential financial impact			Mitigation measures and controls
Technology risk				
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 evolution opportunities such as energy efficiency, electrification, renewable and alternative energy sources, batteries and other energy storage, and low-carbon infrastructure to support RNG, carbon capture and sequestration and hydrogen, along with traditional energy sources.	S/T	M/T	L/T	<p>We have a diverse portfolio of assets and use portfolio management to divest non-strategic assets, effectively rotating capital while adhering to our 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 our regulated pipeline rates, which is an important lever to accelerate or decelerate the return of capital from a substantial portion of our assets. We also monitor signposts including customer, regulatory and government decisions as well as innovative technology development to inform our capital allocation strategy and adapt to changing market conditions.</p> <p>Our longstanding pipeline research and development program aims to assess and mitigate technology risks and potential opportunities (please refer to the <a href="#">summary of climate-related opportunities</a> table).</p> <p>Established in 2021, our dedicated energy transition team’s mandate includes assessing relevant technologies for implications and opportunities to support business resiliency irrespective of the pace or direction of energy transition and our Technology &amp; Innovation Management Office (TIMO) drives solutions to pipeline management and operational challenges through research and development.</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.			

## Summary of climate-related risks (continued)

Risk definition	Potential financial impact			Mitigation measures and controls
Physical risk				
As a leading energy infrastructure company in North America, our assets could be impacted by significant temperature or weather events and our business may be impacted by market risks, as noted above. Seasonal changes in temperature can also reduce the efficiency and production of our natural gas-fired power plants.	S/T	M/T	L/T	As part of our strategic planning process, we conduct scenario analysis to evaluate the resilience of our asset portfolio over a range of potential supply and demand outcomes. 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. In addition, our engineering standards, used to design and construct our assets, are also regularly reviewed to ensure assets continue to be designed and operated to withstand the potential impacts of climate change.  Our engineering standards 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.  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.
	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.			

## Summary of climate-related opportunities

Opportunity definition	Potential positive financial impact			Realization measures
Technology opportunities				
Technological innovation is critical to managing the complex and interrelated issues surrounding GHG emissions. Taking advantage of the opportunities posed by technological development is closely integrated with mitigating its risks, as described above.	S/T	M/T	L/T	We have expertise across the energy spectrum including in pipelines and power generation (e.g., natural gas, wind, solar, hydro and nuclear). We are taking advantage of the vast opportunities that energy transition technology development provides, including <a href="#">investing</a> in a world-scale carbon transportation and sequestration system, <a href="#">seeking</a> wind, solar and battery storage capacity to power parts of our pipeline network and <a href="#">launching</a> a carbon-free power product in Alberta.  We also have dedicated resources to advance and study opportunities including pumped storage, hydrogen, carbon capture and other innovations.
	The inherent financial risks associated with technological developments also offers financial opportunities. We will not compromise our commitment to being thoughtful, deliberate and disciplined in every investment decision we make.			
Market opportunity: diverse energy sources				
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.  We are uniquely positioned to capture energy transition opportunities through a variety of future scenarios, building on our existing experience and assets.  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.	S/T	M/T	L/T	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.  Our strategy and energy transition teams collaborate with our business units to assess how the pace, scale and types of energy system shifts may potentially introduce business opportunities.
	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. Whatever pace it takes, the energy transition ahead will require expertise and billions of investment dollars. We have both.			



## Summary of climate-related opportunities (continued)

Opportunity definition	Potential positive financial impact			Realization measures
Market opportunity: natural gas and electrification				
Transporting natural gas—the cleanest-burning fossil fuel—in our pipelines continues to support the significant shift away from coal-fired power generation occurring in North America and beyond, including through exporting liquefied natural gas (LNG).	S/T	M/T	L/T	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 that we will grow our energy offerings as we participate in the energy transition. Key focus areas in 2021 include 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.
	As of Dec. 31, 2021, our \$24 billion secured capital program is 78 per cent natural gas pipeline projects and 18 per cent power and storage projects. This includes \$4.4 billion towards refurbishing Bruce Power which supplies ~30 per cent of Ontario’s power market with emission-less electricity.			
Policy opportunities				
Effective policy development is an opportunity for government and industry to partner in driving timely, cost-effective emissions reductions.  Current and emerging climate-related regulations are also an opportunity to facilitate meaningful emissions reductions and support market-based policies to promote industry innovation.	S/T	M/T	L/T	We own assets and have business interests in a number of regions subject to GHG emissions regulations, including GHG emissions management and carbon pricing policies. We support transparent climate change policies that promote sustainable and economically responsible natural resource development.  Our dedicated public policy and advocacy team mandates include ensuring we present policy proposals that build positive outcomes for our business, rightsholders and stakeholders, including governments.
	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-related scenarios

Our vision is to be the premier energy infrastructure company in North America now and in the future, focused on transporting and delivering the energy people need every day. Our goal is to develop and build a platform that will enable us to prosper irrespective of the pace and direction energy transition takes. To deliver this vision, our five-year strategic plan was presented to the Board for review, discussion and approval in 2021.

We recognize that future energy systems will evolve and we continue to evaluate the resilience of our asset portfolio over a range of potential energy supply and demand outcomes, also known as scenario analysis, as part of our strategic planning cycle. In this context, resilience refers to our ability to tolerate disruptions and adapt to external changes or uncertainties that may affect our ability to meet our long-term goals and remain effective under most situations and conditions.

We monitor the pace and magnitude of energy transition through various signposts and look for material shifts that pose threats or create opportunities. We evaluate climate-related 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 a variety of assumptions about future trends, including the impact of climate policies on the energy mix, the rate of technological change for energy systems and supply and demand changes for oil and gas (both domestic and global). Since 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 and investors should not rely on them to make investment decisions.

In recent years, the global energy market has experienced extreme volatility. While the impacts of the COVID-19 pandemic have yet to completely unfold, recent geopolitical and rising energy inflationary pressures have added to the changing energy supply and demand dynamics.

## Scenario overview

In 2021, we analyzed the impact on our company under two scenarios:

- **Primary Scenario** – looked at evolutionary change in technologies, efficiencies, environmental policies and an intense fuel competition for new opportunities. The energy transition accelerates but moves along different paths, at varying speeds, in distinct markets.
- **Accelerated Transition Scenario** – looked at the resilience of our portfolio in an accelerated energy transition scenario that sustains global temperature rise to below 2°C by 2050. The drivers of this scenario consider strong demand for governments to see clean energy and climate change mitigation actions as strategic imperatives and concerted efforts by neighboring jurisdictions.

The differentiating factors between this range of scenarios are the pace of change, the role of consumer choice and behaviours, the role of government and the private sector, the impact of geopolitical cooperation and the differentiated long-term economic effects on select markets as a result of the global pandemic.

## Scenario outcomes

TC Energy's portfolio remains resilient over the long term across a full range of considered scenarios. Supported by our 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 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 could 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 assets (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. 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.

# TCFD climate-related risk management

## Enterprise risk management

Risk management is integral to successfully operating our business. Our strategy is to ensure our risks and related exposures are aligned with our business objectives and risk tolerance. Recognizing many risks are interrelated and should be managed across the enterprise, we manage risk through a centralized ERM process that identifies and assesses key enterprise risks, including ESG-related risks, that have the potential to materially impact TC Energy's ability to meet or support its business, operational or strategic objectives. 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 outlining an end-to-end process for risk identification, analysis, evaluation, mitigation, ongoing monitoring and reporting to the Board, CEO and executive leadership team (ELT). The core ERM principles are in alignment with international standards and guidelines, such as ISO 31000, the Committee of Sponsoring Organizations (COSO) and TCFD. Further details are outlined in the TC Energy [ERM Policy](#).

Our Board of Directors' Governance Committee oversees our ERM activities and ensures adequate Board oversight of our risk management policies, programs and practices. Other Board committees oversee specific classifications of risk:

- the Human Resources Committee oversees executive resourcing, organizational capabilities and compensation risk to ensure human and labour policies and remuneration practices align with our overall business strategy.

- the HSSE Committee oversees operational, health, safety, sustainability, including climate-related and environmental risk.
- the Audit Committee oversees management's role in managing financial risk, including market risk, counterparty credit risk and cyber security.

Our ELT is accountable for developing and implementing risk management plans and actions, and effective risk management is reflected in their compensation. Select members of the ELT are identified as enterprise risk governance and execution owners, reporting quarterly to our Board of Directors and as appropriate, this includes climate-related risks.

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. These teams continuously review the company's activities and provide expertise to inform policy response strategies and ensure consistency. The liaison network includes business and corporate functions to ensure risks from across the organization are identified, shared, discussed and treatments are coordinated, where necessary. Risks, including those associated with climate, are monitored and escalated to MRC through ERM program to ensure our ELT has visibility on the broader perspective and treatments are applied in a holistic and consistent manner.

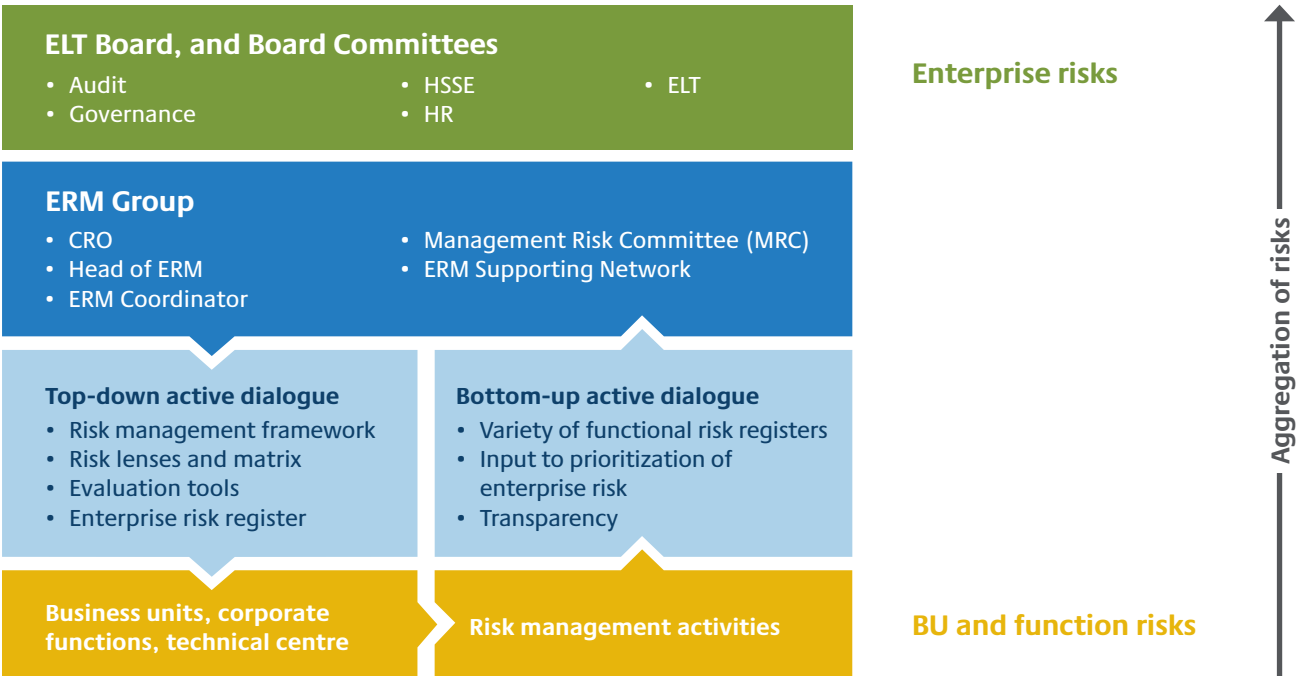


Figure 2: TC Energy's Enterprise Risk Management Framework



# TC Energy's Operational Management System

TOMS is our overarching management system that enables operational excellence through a structured set of requirements and processes to manage risk and continually improve through the plan, do, check, act cycle. It is modelled after international standards, including the ISO standard for environmental management systems, ISO 14001 and the Occupational Health and Safety Assessment Series. TOMS aligns to industry best practices and standards and incorporates applicable regulatory requirements. It applies across the organization and throughout the asset life cycle, including design, construction, operation and decommissioning, to ensure the integrity of our physical assets and the safety and security of the public, our personnel and the protection of the environment.

Under TOMS, elements provide standardized requirements for business activities including risk management. These requirements drive our approach to identify, analyze, evaluate, monitor and communicate risks and implement barriers for the asset life cycle, including climate-related risks. Operational risks are communicated annually through the corporate ERM process.

Under TOMS, mandated programs set requirements to manage specific risk areas including asset integrity, safety, health and industrial hygiene, emergency management and environment. These requirements for our day-to-day work protect our people, our workplace and assets, the communities we work in, and the environment.



# Climate-related metrics and targets

In 2020, we published 10 commitments describing our path to continuously driving toward a more sustainable organization, aligned to the UN SDGs. In 2021, we set ambitious targets for every commitment to measure and demonstrate our progress. Below we have included a description of our progress on climate-related targets and metrics. For a full list of our sustainability targets, please refer to our [2022 Report on Sustainability](#).

Metrics	Targets	2021 Performance
GHG emissions intensity reduction from our operations	30% by 2030	On track
Position to achieve zero emissions from our operations on a net basis	By 2050	On track

For more information on our commitment to embracing the energy transition, see the [2022 Report on Sustainability](#).

For planning purposes, progress is measured relative to a 2019 baseline year, adjusted for material changes in our asset portfolio and quantified on an operational control boundary.<sup>1</sup>

We are making progress towards our goals to reduce the GHG emissions intensity of operations by 30 per cent by 2030 and to position ourselves to achieve net-zero emissions from our operations by 2050. We are doing this through the identification and implementation of a suite of abatement opportunities aligned to the five focus areas outlined in our [GHG Emissions Reduction Plan](#). As our plan continues to progress and our performance is monitored, we will provide further details through periodic progress updates.

Reducing emissions in quantity and intensity throughout our operations is no small feat. In early 2021, we established a dedicated team to chart our path forward and determine measures to ensure accountability to our stakeholders. This team conducted detailed review and analysis to set ambitious and meaningful GHG emissions reduction targets. This review

included assessing our emissions profile and evaluating future opportunities presented by emerging low-carbon fuels and infrastructure. As a result of this effort, we are confident we have made informed decisions about Scope 1 and Scope 2 targets and associated action plan. We believe today's energy industry must play a proactive role to enable change and support the advancement of a lower-carbon economy. At the same time, we must make sure that a growing population continues to have the energy required to maintain quality of life – transportation, health care, agriculture, education and economic prosperity all depend on access to safe, reliable, affordable energy.

There are still many unknowns about how a global energy transition may unfold. To succeed, the energy transition will require policy, regulatory and technology enablers. We will adapt and respond as these factors change over the life of our plan and ensure that our reporting is appropriate to communicate the progress towards our goals.

<sup>1</sup> Values in the GHG emissions performance data tables on [page 26](#) are reported on an equity share and operational control boundary.

# Performance data

## About our ESG performance data

Our goal is to address the information needs of our stakeholders by providing clear and useful ESG data.

- ESG data represents the period of Jan. 1 to Dec. 31, 2021, or status as of Dec. 31, 2021, whichever is applicable, unless otherwise noted.
- Performance data is included for the five years ending Dec. 31, 2021, as available.
- ESG data reported in the performance data tables reflect all assets that we operate, unless otherwise noted. Operational control is defined as the authority to introduce and implement operating policies at the facility. Data reflects 100 per cent for facilities where TC Energy, or one of its subsidiaries, has operational control regardless of percentage of financial ownership. GHG emissions are reported both on an equity share and operational control approach, defined in alignment with the World Resources Institute and the World Business Council for Sustainable Development GHG Protocol.
- Full listings of the assets we operate are contained in the 2021 Annual Report, on page 34 for our natural gas assets, page 55 for our liquids pipelines assets and page 65 for our power and storage assets.
- Financial data is reported in Canadian dollars. Foreign currencies are converted based on the average exchange rates published in our [2021 Annual Report](#) (1.25 U.S. to Canadian dollars).
- Footnotes provide additional contextualization information on 2021 data boundaries, definitions and methodology where applicable. Further discussion is also contained in the 2022 Report on Sustainability. Data exclusions or additions are noted throughout the report.
- Totals may not add up due to rounding.

The indicators reported in our performance data tables reflect both external reporting frameworks and the interests of our stakeholders. Where we add indicators to align with new sustainability targets, for example, it may not be reasonable to calculate historical data points.

Where historical data for a directly comparable scope is not available, this has been indicated as 'N/A'.



Operational overview

With over 70 years of experience, TC Energy is a leader in the responsible development and reliable operation of North American energy infrastructure including natural gas and liquids pipelines, power generation and natural gas storage facilities.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Operational overview							
Natural gas transmission network	kilometres	91,900	92,600	93,250	93,421	93,294	
Natural gas pipeline throughput	billion cubic feet	N/A	N/A	14.933	14,684 <sup>1</sup>	17,096 <sup>2</sup>	
Liquids pipeline network	kilometres	4,874	4,874	4,900	4,946	4,856	
Liquids pipeline throughput <sup>3</sup>	million barrels	N/A	N/A	433	409	392	
Power							
Number of power facilities	number	11	9	7	7	7	
Power generation capacity	megawatt	6,100	5,200	4,197	4,197	4,258	
Net power generation	megawatt hour	N/A	29,003,004	25,888,462	24,060,721	24,283,977	
Storage							
Natural gas storage capacity	billion cubic feet	653	653	653	653	653	
Total natural gas volume injected and withdrawn	billion cubic feet	N/A	58	54	115	133	
Liquids storage capacity	barrels	N/A	N/A	Over 6.5 million	Approximately 7 million	Approximately 7 million	

<sup>1</sup> The 2020 natural gas pipeline throughput has been revised herein as a result of a correction and update to the 2020 natural gas pipeline throughput; Canada value.  
<sup>2</sup> The increase in natural gas pipeline throughput is mainly attributable to an increase in equity ownership of U.S. natural gas pipelines and a ~4% increased throughput for U.S. natural gas assets.  
<sup>3</sup> This indicator represents the net standard volume (NSV) receipt volume inventory for the Liquids Pipelines business segment pipelines and tank terminals, across Canada and the U.S.

# Finding solutions that protect our planet



## GHG emissions

### Commitment: Embracing the energy transition

UN SDGs:    

As an energy infrastructure company, we recognize our role in the larger energy system, including the ongoing management of our own GHG emissions. We are committed to managing our GHG emissions, reducing our GHG emissions intensity and continuing to integrate climate considerations into our overall business strategy.

With this in mind, we acknowledge there has been an overall increase in absolute emissions since our 2019 baseline year. This is due in part to fluctuating energy demands, increased power generation and throughput and expanded ownership of select pipeline systems. We continue to implement technological enhancements as we work towards our 2030 commitment.

TC Energy quantifies GHG emissions following the methodologies prescribed by various regulations in the different jurisdictions in which we operate. We report our emissions to British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, Environment and Climate Change Canada (ECCC), the U.S. Environmental Protection Agency (EPA), California, Oregon, Maryland, Washington, and Mexico's Ministry of Environment and Natural Resources. These methods can include, but are not limited to, direct measurement, use of emissions factors in conjunction with activity data and mass balance. Quantification for voluntary reporting is done on an equity share and operational control boundary and aligns to [GHG Protocol Guidance](#)<sup>1</sup>. We report greenhouse gases emitted to the atmosphere before accounting for offsets, credits, or other similar mechanisms that have reduced or compensated for emissions.

For increased transparency, GHG emissions reported include those considered below reporting thresholds under regulatory reporting regimes. Please refer to our [climate-related targets](#) section and [GHG Emissions Reduction Plan](#) for more information on our 2019 GHG emissions baseline.

### Scope 1 GHG emissions

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Absolute Scope 1 GHG Emissions							
Equity share approach							
Total Scope 1 GHG emissions <sup>2,3</sup>	thousand tonnes CO <sub>2</sub> e	12,500	13,749	16,262	16,438	19,352	SASB EM-MD-110a.1
Breakdown by operating segment							
Scope 1 GHG emissions: natural gas pipelines	thousand tonnes CO <sub>2</sub> e	8,700	10,699	14,202	14,551	17,132	
Scope 1 GHG emissions: Canadian natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	6,979	6,437	7,267 <sup>4</sup>	
Scope 1 GHG emissions: U.S. natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	7,145 <sup>5</sup>	8,018 <sup>5</sup>	9,785 <sup>4</sup>	
Scope 1 GHG emissions: Mexico natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	78	96	80 <sup>6</sup>	
Scope 1 GHG emissions: liquids pipelines	thousand tonnes CO <sub>2</sub> e	0	1	0 <sup>7</sup>	0 <sup>7</sup>	0	
Scope 1 GHG emissions: power and storage	thousand tonnes CO <sub>2</sub> e	3,800	3,015	2,025	1,853	2,189	
Scope 1 GHG emissions: power	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2,005 <sup>8</sup>	1,840	2,177 <sup>9</sup>	
Scope 1 GHG emissions: storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	20	13	13	
Scope 1 GHG emissions: corporate <sup>10</sup>	thousand tonnes CO <sub>2</sub> e	62	34	34	33	30	
Breakdown by source <sup>11</sup>							
Scope 1 GHG emissions: stationary combustion	thousand tonnes CO <sub>2</sub> e	N/A	12,285	12,287	12,635	15,429	
Scope 1 GHG emissions: venting	thousand tonnes CO <sub>2</sub> e	N/A	969	1,785 <sup>12</sup>	1,530 <sup>12</sup>	1,709	
Scope 1 GHG emissions: fugitive	thousand tonnes CO <sub>2</sub> e	N/A	449	2,130 <sup>13</sup>	2,220 <sup>13</sup>	2,153	
Scope 1 GHG emissions: flaring	thousand tonnes CO <sub>2</sub> e	N/A	12	22	16	27 <sup>14</sup>	
Scope 1 GHG emissions: transportation <sup>10</sup>	thousand tonnes CO <sub>2</sub> e	N/A	34	34	33	30	

<sup>1</sup> In the interest of increased transparency, starting with the current Data Sheet, TC Energy reports GHG emissions data on both an equity share and operational control approach in order to illustrate the difference in GHG emission footprint between the two organizational boundaries of reporting. The equity share reporting boundary best reflects TC Energy's corporate GHG emission footprint in relation to the percentage of ownership held across our operated and non-operated assets and more closely aligns with our financial performance results. The operational control boundary data represents the GHG emission footprint from assets that are operated by TC Energy and therefore are under TC Energy's operational practices.

<sup>2</sup> Approximately 80 per cent of our total Scope 1 emissions are associated with stationary combustion sources at our natural gas pipeline assets. The most significant changes in our Scope 1 GHG emissions profile between 2020 and 2021 are due to increases in throughput and production resulting in increased energy and fuel consumption in 2021.

<sup>3</sup> TC Energy increased its equity interest ownership in several U.S. pipeline assets. This change in equity interest resulted in a higher proportion of the operational emissions from these assets being attributed to and reported by TC Energy in 2021 than in previous years. Emission variances as a result of changes in equity interest do not necessarily indicate changes in the operational emission profile of the assets.

<sup>4</sup> Increased fuel combustion and vented emissions contributed to the increased emissions between 2020 and 2021.

<sup>5</sup> 2019 and 2020 GHG emissions were recalculated to align with the updated methodology for corporate GHG reporting, which considers the inclusion of emission sources that are beyond the regulatory reporting.

<sup>6</sup> The demand for compression was lower in 2021 as compared to 2020, resulting in lower emissions at our Mexico natural gas pipeline assets.

<sup>7</sup> The 2019 and 2020 emissions were recalculated to account for the November 2021 divestiture of the Northern Courier assets.

<sup>8</sup> The 2019 emissions were recalculated to account for the April 2020 divestitures of Halton Hills, Portlands Energy and Napanee power facilities.

<sup>9</sup> The increase in Scope 1 emissions in 2021 are attributable to increased operations relative to previous year.

<sup>10</sup> Scope 1 GHG emissions related to transportation sources (aviation and vehicles) are reported under our Corporate operating segment.

<sup>11</sup> Emissions by source category do not total the reported total Scope 1 GHG emissions as certain negligible emission sources have not been broken out to individual GHG constituents.

<sup>12</sup> 2019 and 2020 vented emissions were recalculated to include additional sources of emissions beyond the regulatory reporting requirements from our U.S. natural gas pipeline assets. Increased equity in U.S. assets in 2021 influenced an increase in vented emissions relative to previous years.

<sup>13</sup> 2019 and 2020 fugitive emissions were recalculated to include additional sources of emissions beyond the regulatory reporting requirements from our U.S. natural gas pipeline assets.

<sup>14</sup> Increased flaring emissions in 2021 are attributable to increased use of temporary flares on our Canadian natural gas pipeline to mitigate vented emissions from construction and planned maintenance activities.

Scope 1 GHG emissions continued

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Additional							
Scope 1 (direct) methane emissions	thousand tonnes CO <sub>2</sub> e	N/A	1,467	3,963	3,804	3,917	SASB EM-MD-110a.1
Portion of Scope 1 GHG emissions covered by reduction regulations <sup>10</sup>	per cent	N/A	72	59	50	49	SASB EM-MD-110a.1
Operational control approach <sup>1</sup>							
Total Scope 1 GHG emissions <sup>2</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	18,284	18,172	19,888 <sup>3^</sup>	
Breakdown by operating segment							
Scope 1 GHG emissions: natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	16,228	16,289	17,671	
Scope 1 GHG emissions: Canadian natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	6,983	6,446	7,280 <sup>4</sup>	
Scope 1 GHG emissions: U.S. natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	9,167	9,745	10,308 <sup>4</sup>	
Scope 1 GHG emissions: Mexico natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	78	98	83 <sup>5</sup>	
Scope 1 GHG emissions: liquids pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	1	1	0	
Scope 1 GHG emissions: power and storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2,021	1,849	2,186	
Scope 1 GHG emissions: power	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2,002	1,837	2,173 <sup>6</sup>	
Scope 1 GHG emissions: storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	20	13	13	
Scope 1 GHG emissions: corporate <sup>7</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	34	33	30	
Breakdown by source <sup>8</sup>							
Scope 1 GHG emissions: stationary combustion <sup>2</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	14,117	14,190	15,935	
Scope 1 GHG emissions: venting	thousand tonnes CO <sub>2</sub> e	N/A	N/A	1,952	1,678	1,745	
Scope 1 GHG emissions: fugitive	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2,158	2,254	2,151	
Scope 1 GHG emissions: flaring	thousand tonnes CO <sub>2</sub> e	N/A	N/A	22	16	27 <sup>9</sup>	
Scope 1 GHG emissions: transportation <sup>7</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	34	33	30	
Additional							
Scope 1 (direct) methane emissions	thousand tonnes CO <sub>2</sub> e	N/A	N/A	4,161	3,989	3,959	SASB EM-MD-110a.1
Portion of Scope 1 GHG emissions covered by reduction regulations <sup>10</sup>	per cent	N/A	N/A	49	46	48	SASB EM-MD-110a.1

<sup>1</sup> Emissions data has previously only been reported on an equity share approach in the Report on Sustainability and ESG Data Sheet. In the interest of clarity and transparency, emissions data is reported, for the first time this year, on both an equity share and operational control approach. Operational control represents a new organizational reporting boundary.

<sup>2</sup> Approximately 80 per cent of our total Scope 1 emissions are associated with stationary combustion sources at our natural gas pipeline assets. The most significant changes in our Scope 1 GHG emissions profile between 2020 and 2021 are due to increases in throughput and production resulting in increased energy and fuel consumption in 2021.

<sup>3</sup> TC Energy has obtained independent limited assurance of operational control boundary Scope 1 emissions for the year ended December 31, 2021.

<sup>4</sup> Increased fuel combustion and vented emissions contributed to the increased emissions between 2020 and 2021.

<sup>5</sup> The demand for compression was lower in 2021 as compared to 2020, resulting in lower emissions at our Mexico natural gas pipeline assets.

<sup>6</sup> The increase in Scope 1 emissions in 2021 are attributable to increased operations relative to previous year.

<sup>7</sup> Scope 1 GHG emissions related to transportation sources (aviation and vehicles) are reported under our Corporate operating segment.

<sup>8</sup> Emissions by source category do not total the reported total Scope 1 GHG emissions as certain negligible emission sources have not been broken out to individual GHG constituents.

<sup>9</sup> Increased flaring emissions in 2021 are attributable to increased use of temporary flares on our Canadian natural gas pipeline to mitigate vented emissions from construction and planned maintenance activities.

<sup>10</sup> This indicator represents the portion of total Scope 1 emissions covered by reduction regulations based on provincial, state or federal GHG policies. Methodology used to determine this indicator is based on the inclusion of Scope 1 GHG emissions from all sources associated with natural gas pipelines and Power and Energy Solutions (previously our Power and Storage business segment) assets that are regulated under GHG reduction-based regulations in Canada. Asset emissions covered under legislation such as the Canadian federal Fuel Charge are not included in the emission reduction regulation coverage.



Scope 2 GHG emissions

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Absolute Scope 2 GHG emissions							
Equity share approach							
Total Scope 2 GHG emissions	thousand tonnes CO <sub>2</sub> e	344	2,343	2,066	1,949	2,081	
Breakdown by operating segment							
Scope 2 GHG emissions: natural gas pipelines	thousand tonnes CO <sub>2</sub> e	335	430	313	333	277 <sup>1</sup>	
Scope 2 GHG emissions: Canadian natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	101	92	79	
Scope 2 GHG emissions: U.S. natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	210	238	196	
Scope 2 GHG emissions: Mexico natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2	2	2	
Scope 2 GHG emissions: liquids pipelines	thousand tonnes CO <sub>2</sub> e	N/A	1,874	1,660 <sup>2</sup>	1,485 <sup>2</sup>	1,659 <sup>3</sup>	
Scope 2 GHG emissions: power and storage	thousand tonnes CO <sub>2</sub> e	9	40	94	131	145	
Scope 2 GHG emissions: power <sup>4</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	72	87	104 <sup>3</sup>	
Scope 2 GHG emissions: storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	21	44	41	
Operational control approach <sup>5</sup>							
Total Scope 2 GHG emissions	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2,132	1,996	2,104 <sup>6^</sup>	
Breakdown by operating segment							
Scope 2 GHG emissions: natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	360	363	294 <sup>1</sup>	
Scope 2 GHG emissions: Canadian natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	101	92	79	
Scope 2 GHG emissions: U.S. natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	257	269	213	
Scope 2 GHG emissions: Mexico natural gas pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	2	2	2	
Scope 2 GHG emissions: liquids pipelines	thousand tonnes CO <sub>2</sub> e	N/A	N/A	1,681	1,505	1,668 <sup>3</sup>	
Scope 2 GHG emissions: power and storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	91	128	142	
Scope 2 GHG emissions: power	thousand tonnes CO <sub>2</sub> e	N/A	N/A	69	84	101 <sup>4</sup>	
Scope 2 GHG emissions: storage	thousand tonnes CO <sub>2</sub> e	N/A	N/A	21	44	41	

<sup>1</sup> Although power consumption across our Canada and U.S. natural gas pipeline assets was relatively static year-over- year, the location-based methodology for quantification of Scope 2 emissions indicates a generalized improvement towards greening of grid power across most our operational footprint, resulting in lower emissions.

<sup>2</sup> The 2019 and 2020 emissions were recalculated to account for the November 2021 divestiture of the Northern Courier assets.

<sup>3</sup> Increased emissions in 2021 are attributable to increased power consumption relative to previous year.

<sup>4</sup> Scope 2 emissions now includes the import of "net" consumed heat in addition to the electricity consumption that was historically reported. Further adjustments to the Scope 2 methodology were made to represent the emissions attributed to the actual electricity consumed on site and now excludes power that is imported to site but is largely flow-through power to service the receiving customer.

<sup>5</sup> Emissions data has previously only been reported on an equity share approach in the Report on Sustainability and ESG Data Sheet. In the interest of clarity and transparency, emissions data is reported, for the first time this year, on both an equity share and operational control approach. Operational control represents a new organizational reporting boundary.

<sup>6</sup> TC Energy has obtained independent limited assurance of operational control boundary Scope 2 emissions for the year ended Dec. 31, 2021.

Scope 3 GHG emissions

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Absolute Scope 3 GHG emissions							
Total Scope 3 GHG emissions <sup>1</sup>	thousand tonnes CO <sub>2</sub> e	N/A	3,026	3,136	2,688	3,178 <sup>2</sup>	
Breakdown by Scope 3 category							
Fuel- and energy-related activities (category 3)	thousand tonnes CO <sub>2</sub> e	N/A	2,985	3,062	2,598	3,115	
Waste generated in operations (category 5) <sup>3</sup>	thousand tonnes CO <sub>2</sub> e	N/A	N/A	50	75	49 <sup>4</sup>	
Business travel (category 6)	thousand tonnes CO <sub>2</sub> e	N/A	11	12	5	4	
Upstream leased assets (category 8) <sup>5</sup>	thousand tonnes CO <sub>2</sub> e	N/A	31	13	11	10	

<sup>1</sup> Scope 3 GHG emissions cover 15 categories of emissions and of these, TC Energy reports on four relevant categories (fuel- and energy-related activities, business travel, waste generated in operations and upstream leased assets). Fuel- and energy-related activities emissions relate to fuel supplied for combustion during operational (combustions) activities that are not included in our Scope 1 or Scope 2 emissions.

<sup>2</sup> Increases from the previous year are largely attributed to increased fuel consumption across most of the operational footprint.

<sup>3</sup> TC Energy has estimated Scope 3 emissions associated with waste using the spend-based method from the GHG Protocol Scope 3 Guidance and the emission factors within the Quantis Suite Scope 3 Evaluator.

<sup>4</sup> Waste related expenditures in 2021 were down relative to 2020 operations.

<sup>5</sup> TC Energy does not own or operate our corporate offices; emissions associated with operation of those leased spaces are included as Scope 3 emissions.

Scope 1 and 2 GHG emissions intensities

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Scope 1 and 2 GHG emissions intensities <sup>1</sup>							
Equity share approach <sup>2</sup>							
GHG emissions intensity: Canada natural gas pipelines <sup>3,4</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	779	895	891 <sup>5</sup>	874 <sup>5</sup>	909	
GHG emissions intensity: U.S. natural gas pipelines <sup>3,4</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	280	291	1,117 <sup>6</sup>	1,229 <sup>6</sup>	1,176	
GHG emissions intensity: Mexico natural gas pipelines <sup>3,4</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	145	211	197	198	155	
GHG emissions intensity: Canada and U.S. liquids pipelines <sup>7,8</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / receipt volume NSV bbls	N/A	N/A	0.0038	0.0036	0.0042	
GHG emissions intensity: power <sup>7,9</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / net generation MWh	0.1182	0.1036	0.0800	0.0800	0.0940	
GHG emissions intensity: storage	Scope 1 +2 tonnes CO <sub>2</sub> e / total volume injected + withdrawn Bcf	N/A	858	768	492	404	
Operational control approach <sup>10</sup>							
GHG emissions intensity: total corporate <sup>11</sup>	Scope 1+2 kg CO <sub>2</sub> e / GJ	N/A	N/A	0.96	0.96	1.00 <sup>12,^</sup>	
GHG emissions intensity: Canada natural gas pipelines <sup>3</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	N/A	N/A	879	863	899	
GHG emissions intensity: U.S. natural gas pipelines <sup>3</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	N/A	N/A	1,073	1,129	1,144	
GHG emissions intensity: Mexico natural gas pipelines <sup>3</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / throughput Bcf	N/A	N/A	185	166	128	
GHG emissions intensity: liquids pipelines <sup>7,8</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / receipt volume NSV bbls	N/A	N/A	0.0380	0.0036	0.0042	
GHG emissions intensity: power <sup>7,9</sup>	Scope 1+2 tonnes CO <sub>2</sub> e / net generation MWh	N/A	N/A	0.5807	0.5833	0.5947	
GHG emissions intensity: storage	Scope 1+2 tonnes CO <sub>2</sub> e / total volume injected + withdrawn Bcf	N/A	N/A	768	492	404	

<sup>1</sup> Business segment emission intensities are not directly comparable to the corporate emissions intensity value without the conversion of production and throughput metrics to a common unit of measure, GJ.

<sup>2</sup> Emission intensity calculations for equity share is based on Net to TC Energy Scope 1 and Scope 2 emissions divided by net production or throughput metrics. Net values are based on total gross multiplied by percent ownership as of Dec. 31, 2021.

<sup>3</sup> TC Energy's calculated GHG emission intensities for our natural gas business segments are based on a throughput denominator. Throughput volumes from the Natural Gas Pipelines are based on physical or nominated delivery volumes from each pipeline system.

<sup>4</sup> The gross throughput volumes from each pipeline system are normalized to equity share reporting methodology based on the percentage of ownership held by TC Energy as indicated in the 2021 Annual Report.

<sup>5</sup> The 2019 and 2020 GHG emissions intensity for Canada natural gas pipelines has been restated from the previously published values as throughput volumes from select pipeline systems within Canada were recalculated to align year-over-year methodologies.

<sup>6</sup> The 2019 and 2020 GHG emissions intensity for U.S. natural gas pipelines has been restated from previously published values as Scope 1 GHG emissions were recalculated to align with the updated methodology for corporate GHG reporting, which considers the inclusion of emission sources that are beyond the regulatory reporting requirements.

<sup>7</sup> Data reported has been normalized to exclude divestitures, as applicable.

<sup>8</sup> The GHG emission intensity indicator for Liquids Pipelines business unit represents the net standard volume (NSV) receipt volumes on the pipeline systems and select tank terminals across Canada and the U.S.

<sup>9</sup> Many of TC Energy's power generation assets generate both electricity and useful heat. Intensity calculations do not account for this useful heat generated in the denominator and therefore represent only a conservative estimation of emissions intensity for power generation.

<sup>10</sup> Emission intensity calculations for operational control is based on gross Scope 1 and Scope 2 emissions from assets operated by TC Energy divided by gross production or throughput metrics of those operated assets. Assets partially owned but not operated by TC Energy are excluded from the Scope 1, Scope 2, and production/throughput calculations to determine the emission intensity.

<sup>11</sup> TC Energy's corporate emissions intensity is based on an operational control reporting boundary. The various throughput and production data is normalized to an energy equivalency to calculate this corporate intensity value.

<sup>12</sup> TC Energy has obtained independent limited assurance of this indicator for the year ended Dec. 31, 2021.



Air emissions

Commitment: Embracing the energy transition



Protecting our shared air quality is important to TC Energy. Our assets are subject to federal, state, provincial and local environmental statutes and regulations governing environmental protection including air emissions and we work to reduce these emissions through a variety of approaches including operational optimization.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Air quality <sup>1,2</sup>							
Nitrogen oxide (NO <sub>x</sub> )	metric tonnes	12,889	14,247	45,099	40,421	38,620	GRI 305-7 SASB EM-MD-120a.1
Sulfur oxide (SO <sub>x</sub> )	metric tonnes	N/A	N/A	74	98	159 <sup>3</sup>	GRI 305-7 SASB EM-MD-120a.1
Volatile organic compounds (VOCs)	metric tonnes	54	21	1,544	1,528	1,556	GRI 305-7 SASB EM-MD-120a.1
Particulate matter 10 micrometers (PM <sub>10</sub> )	metric tonnes	18	22	675	686	726	GRI 305-7 SASB EM-MD-120a.1

<sup>1</sup> Air quality emissions data is calculated based on regulatory requirements in jurisdictions where we operate. The data reported within includes emissions at, or above, regulatory reporting thresholds.

<sup>2</sup> 2017 and 2018 emissions data is limited to our Canadian operations. 2019 emissions data onwards reflects all operated assets, including our U.S. and Mexico operations.

<sup>3</sup> The reported quantity of SOx emissions increased over the prior year as a result of increased operational activity and enhanced sampling of a waste gas stream that makes up a small portion of the fuel used to generate useful energy at a cogeneration facility.

Ecological impacts

Commitment: Leaving the environment as we found it



Maintaining safe, reliable operations and ensuring asset integrity, while minimizing environmental impacts, continues to be the foundation of our business and how we interact with the environment is as important to our communities as it is to us. Guided by our [Environment Principles](#), we conserve and protect the land and ecosystems throughout the life of our projects and beyond. We also recognize our interactions with water aren’t just about the water we use, but are also about how we ensure our activities don’t impact the water quality around our projects and operations.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Biodiversity <sup>1</sup>							
Acreage of land (owned, leased and/or operated) within areas of protected conservation status or endangered species habitat	acres	N/A	N/A	N/A	47,717	56,543	SASB EM-MD-160a.2
Total land owned, leased and/or operated	acres	N/A	N/A	N/A	378,888	380,286	
Percentage land owned, leased and/or operated within areas of protected conservation status or endangered species habitat	per cent	N/A	N/A	N/A	13	15	SASB EM-MD-160a.2
Land capability							
Cumulative total of disturbed land <sup>2</sup>	acres	N/A	N/A	N/A	4,503	11,236	SASB EM-MD-160a.3
Land restoration completed <sup>3</sup>	acres	N/A	N/A	N/A	2,449	8,224	SASB EM-MD-160a.3
Percentage of disturbed area restored within five years <sup>4</sup>	per cent	N/A	N/A	N/A	100	99	
Percentage of disturbances to sensitive habitat restored or offset within five years	per cent	N/A	N/A	N/A	N/A	100	
Percentage of disturbances to private lands restored within five years	per cent	N/A	N/A	N/A	N/A	99	
Water							
Water withdrawal: fresh surface water	million cubic metres	N/A	N/A	N/A	2.96	2.05	
Water withdrawal: fresh groundwater	million cubic metres	N/A	N/A	N/A	0.00	0.00	
Water withdrawal: municipal/utility	million cubic metres	N/A	N/A	N/A	0.39	0.27	
Water discharge	million cubic metres	N/A	N/A	N/A	0.14	0.16	
Water consumption <sup>5</sup>	million cubic metres	4.50	2.20	5.10	3.20	2.16	SASB IF-EU-140a.1
Waste							
Hazardous waste generated <sup>6</sup>	metric tonnes	N/A	N/A	N/A	10,129	13,157	GRI 306-3

<sup>1</sup> Our biodiversity indicator currently reflects most of the land TC Energy owns, leases and/or operates that is associated with our pipeline rights-of-way, compressor stations, meter stations, pump stations and power plants in Canada, Mexico and the U.S. This footprint also includes abandoned assets. The footprint does not include temporary workspaces or proposed projects. Valve sites are assumed to be contained within right-of-way footprint. TC Energy considers land to be an area of protected conservation status or endangered species habitat if it is identified as such in one or more of the publicly available datasets we use. While not an exact match, in 2021 we selected multiple publicly available datasets that included conservation status and habitat information that most closely aligned to the intent of SASB indicator EM-MD-160a.2. This year, for critical habitat in Canada and the U.S., we identified critical habitat for endangered species, which more closely aligns to the SASB indicator.

<sup>2</sup> The cumulative total of disturbed land currently includes land disturbed by gas pipeline and maintenance projects across Canada, the U.S. and Mexico and a liquids pipeline project in Canada that underwent post-construction reclamation monitoring in 2021 to determine restoration success. These indicators include sensitive habitat, as defined in footnote 1, and private lands. The cumulative total of disturbed lands includes land disturbed from projects constructed in preceding years that have not yet achieved restoration and that are being monitored annually for restoration status. We do not include operating facilities that are above ground (fenced and graveled sites) in our disturbed lands or restoration reporting until they undergo decommissioning and abandonment. Projects are typically monitored annually following final clean-up after construction is completed, for five years, or until restoration has been achieved. This year we excluded several gas projects in our Mexico business unit because we were unable to access our right-of-way due to unforeseen circumstances. Without access, and despite our best efforts, we were unable to monitor these projects for restoration success. We are working with the appropriate agencies in Mexico to ensure we meet our commitments for restoration. We do not have a specific start date to begin monitoring activities again but remain committed to maintaining compliance and restoring these lands to their equivalent land capability.

Commitment: Focus on landowner relationships



This reflects our ongoing commitment to restore the land that is disturbed as we construct and maintain the assets needed to deliver energy. This restoration process begins soon after construction activities are completed and progresses over multiple years, reflecting the natural pace of vegetation growth in the surrounding ecosystem. Our experts follow a systematic process with multiple steps to assess, design, implement, monitor, evaluate and adjust; assisting landowners if issues are identified during monitoring.

<sup>3</sup> Restoration is defined as the process of returning disturbed land to equivalent land capability, which is the ability of the land to support various land uses similar to the ability that existed prior to disturbance. This includes ensuring stable, non-hazardous, non-erodible soil conditions and seeding or enabling the re-establishment of vegetation, as appropriate and in accordance with applicable regulatory requirements and permit conditions. Includes previously disturbed land that achieved restoration during 2021. This includes projects in years one through to five being monitored for restoration success.

<sup>4</sup> While the cumulative total of land disturbed and restored in acres reflects 2021 data, the percentage of land restored has been defined using a five year timeframe to better reflect the longer-term nature of our restoration activities. While much of the land is restored in the first two to three years following construction, we achieved 99 per cent restoration for land that is in the fifth year of monitoring following construction.

<sup>5</sup> Water consumption volume reflects management’s best estimate. TC Energy considers water consumed unless it is discharged to the same source at equal or higher quality. The volume reported includes water used during hydrostatic testing of pipelines and liquids storage tanks and water used for power asset operations (excluding once-through cooling water). Water used during construction or operational activities (e.g. for dust control on access roads, construction of winter access or to assist in hydrovac operations) is excluded. In 2021, there was an increase in water consumption for pipeline hydrotests from the previous year while there was a decrease in water consumption on our power assets. This accounts for the overall decrease in water consumption.

<sup>6</sup> We have chosen to focus reporting on the generation of hazardous wastes for 2020 onward. Most of TC Energy's hazardous wastes consist of recyclable hydrocarbons from our storage operations, recovered from the natural gas in our gas pipelines or used lube oils and glycols from turbines, pumps and engines. Any hazardous wastes that cannot be recovered or recycled are disposed of at licensed, secure disposal facilities. 2021 data includes operations, project and remediation waste for TC Energy operated assets across Canada, the U.S. and Mexico. Requirements for tracking and reporting of waste as well as the waste classifications and types themselves vary by jurisdiction. TC Energy also relies on multiple third-party vendors and/or government databases for tracking of hazardous waste. Internal subject matter experts familiar with our waste streams review and reconcile waste data often using assumptions and/or estimations to consolidate the data into a single, corporate-wide value.

Asset integrity and process safety

Commitment: Zero is Real



Our pipeline and power and storage assets are some of the most technologically advanced in the industry. One way we manage the safety of these assets is through integrity and preventative maintenance programs.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Pipeline inspection							
Percentage of natural gas pipelines inspected <sup>1</sup>	per cent	18	16	20	24	26	SASB EM-MD-540a.2
Percentage of liquids pipelines inspected <sup>1,2</sup>	per cent	140	159	125	202	58	SASB EM-MD-540a.2
Number of in-line inspections <sup>1</sup>	number	277	279	313	323	288	
Length of in-line inspections <sup>1</sup>	kilometre	21,914	22,091	24,890	30,895	23,019	
Completed integrity digs	number	936	1,133	846	865	841	
Investment in integrity programs							
Investment in pipeline integrity programs <sup>3</sup>	dollars (billions)	1.1	1.3	1.3	1.5	1.4	

<sup>1</sup> The pipeline integrity inspection program will vary to some degree from year-to-year based on several factors, which include performing inspections based on our annual system wide risk assessments of our pipeline system as well performing the prescribed regulatory inspections. The intervals for regulatory inspections vary depending on the regulatory jurisdiction.

<sup>2</sup> Values over 100 % indicate that some pipeline sections were inspected multiple times using different technologies.

<sup>3</sup> Pipeline integrity spending will fluctuate based on the results of annual risk assessments conducted on our pipeline systems and evaluations of information obtained from recent inspections, incidents and maintenance activities.



Asset integrity and process safety incidents

Commitment: Zero is Real



We believe Zero is real, and today—for us—Zero means: *All harm, loss and incidents are preventable.*

In line with this commitment, we believe that expanding our voluntary reporting to include incidents across our diverse asset base, beyond our pipelines, is the right thing to do. We have chosen to report on Tier 1 and Tier 2 process safety incidents, guided by CSA Z260 - an industry-wide standard. To support transparency against previously disclosed targets we have retained the significant process safety incidents indicator, which is specific to TC Energy.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Process safety incidents							
Significant process safety incidents <sup>1</sup>	number	N/A	N/A	4	0	0	
Tier 1 process safety incidents <sup>2</sup>	number	N/A	N/A	N/A	14	5	
Tier 2 process safety incidents <sup>3</sup>	number	N/A	N/A	N/A	22	11	
Reportable gas releases							
Number of reportable gas releases <sup>4</sup>	number	37	37	50	69	59	
Volume of reportable gas releases <sup>5</sup>	cubic metres	4,538,083	2,222,034	6,383,452	16,771,363	5,121,426	
Hydrocarbon spills							
Number of hydrocarbon spills <sup>6</sup>	number	N/A	N/A	4	9	2	SASB EM-MD-160a.4
Volume of hydrocarbon spills <sup>7</sup>	bbl	N/A	N/A	4,847	750	5	SASB EM-MD-160a.4
Volume of hydrocarbon spills: in unusually sensitive areas <sup>8</sup>	bbl	N/A	N/A	0	0	0	SASB EM-MD-160a.4
Volume of hydrocarbon recovered <sup>9</sup>	bbl	N/A	N/A	4,847	690	5	SASB EM-MD-160a.4
Third-party incidents							
One Calls per 1,000 km of right-of-way <sup>10</sup>	number	5,810	6,620	5,820	4,790	4,865	
Unauthorized pipeline encroachments per 1,000 km of right-of-way <sup>11</sup>	number	3.93	3.42	4.64	2.36	3.53	
Unauthorized excavations per 1,000 km of right-of-way <sup>12</sup>	number	1.68	1.46	1.90	1.56	1.31	

<sup>1</sup> Significant process safety incidents are defined by TC Energy as unplanned or uncontrolled spills or releases that result in major consequences to people or the environment. They are a subset of Tier 1 process safety incidents. In evaluating the severity of the incident, we also consider the potential risk of legal, financial or reputational impacts to our company.

<sup>2</sup> Tier 1 process safety incidents are unplanned or uncontrolled releases that result in either greater consequences and/or higher release volumes. These incidents may result in a serious injury to a person, an officially declared community evacuation or shelter in place order, a fire or an explosion. Our reporting of Tier 1 incidents is guided by CSA Z260, an industry wide standard.

<sup>3</sup> Tier 2 process safety incidents are unplanned or uncontrolled releases with lesser consequences. These incidents may result in a recordable injury to a person, a fire or explosion that can be contained and extinguished with little to no damage, or localized environmental damage. Our reporting of Tier 2 incidents is guided by CSA Z260, an industry wide standard.

<sup>4</sup> A reportable release is defined as one that is reportable to an external agency or authority, such as a federal, provincial or state regulator. Thresholds for reporting of gas releases are lower in the U.S. than Canada with respect to the cost of damage to operators and/or adjacent facilities. In the U.S., a release resulting in damages of \$50,000 to the operator is considered a reportable release. In Canada, a release resulting in damages of \$50,000 is below the reporting threshold for a reportable release.

<sup>5</sup> Reporting thresholds are variable depending on jurisdiction and therefore releases are not wholly comparable by jurisdiction or year over year.

<sup>6</sup> Hydrocarbon spills are defined as an unintentional release of liquid hydrocarbons, in excess of one barrel, to the environment and that is reportable to an authority. Releases from the company's operating assets (e.g., pipeline, storage tank, process facility) are included in this disclosure while releases from construction equipment and vehicles are excluded.

<sup>7</sup> Hydrocarbon spill volume represents the total estimated amount spilled that reached the environment and is not reduced by the amount of such hydrocarbon subsequently recovered, evaporated or otherwise lost.

<sup>8</sup> An unusually sensitive area (USA) in this metric means a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

<sup>9</sup> The volume of spill recovered represents the spilled hydrocarbons removed from the environment through short-term spill response activities, excluding amounts recovered during longer term remediation at spill sites and amounts that evaporated, burned or were dispersed.

<sup>10</sup> Local One Call centres field requests to have all underground utilities located and marked free of charge, prior to any commercial or residential project involving digging. These requests are received via telephone or online. Historical data for One Calls per 1,000 km of right-of-way were previously reported per kilometer. Data from 2017-2020 have been reissued to accurately reflect the indicator definition of One Calls per 1,000 km of right-of-way.

<sup>11</sup> TC Energy defines unauthorized encroachments as those that include activities carried out without authorization from local One Call centres.

<sup>12</sup> TC Energy defines unauthorized excavations as those that include more serious activities than other encroachments, with greater potential to cause impact or exposure that would result in a need to repair an underground facility.

Emergency preparedness and response

Commitment: Zero is Real



Emergency preparedness is the foundation that supports our response activities. Preparedness includes hazard identification, risk assessments, response plans, training programs, exercises and public awareness elements of emergency management that considers the needs of TC Energy, its employees and the community at large as well as regulatory and legislative requirements.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Emergency preparedness and response exercises							
Total exercises completed	number	172	196	192	171	211	
Annual field exercises	number	23	26	28	12	19	
Tabletop exercises	number	137	159	146	151	159	
Equipment deployment exercises	number	12	11	8	0 <sup>1</sup>	10	
Additional exercises	number	0	0	10	8	23	
Emergency preparedness and response training							
First responder training <sup>2</sup>	number	253	510	747	1,429	1,999	
Incident Command System training <sup>3</sup>	number	2,548	3,387	4,797	4,321	4,107	

<sup>1</sup> Equipment deployment exercises are required on a three-year cycle and involve the physical deployment of spill response equipment and a large personnel response. In 2020 it was determined that these exercises would not be held to ensure the safety of employees, the public and to follow federal, state and local health guidelines in place due to COVID-19, with no compliance impacts.

<sup>2</sup> Personnel that could be the first on the scene of an emergency event are profiled to complete the First Responder Training course. This is a specialized training course on how to assess, respond and activate the emergency management system in an emergency event as the first company representative on site.

<sup>3</sup> The Incident Command System (ICS) is a standardized on-site management system designed to enable effective and efficient emergency response. This system is used across North America and is the standard response system within multiple industries and public safety response organizations.

# Finding solutions to create shared prosperity



## A thriving economy

[Commitment: Strengthening community resilience](#)

[Commitment: Enhancing energy sector sustainability with technology](#)

UN SDGs:



UN SDGs:

We're proud of the role we've played in empowering businesses and families for more than 70 years and we know the world's appetite for safe, reliable and affordable energy continues to grow. The crux of our challenge in a changing energy landscape is to safely deliver the energy the world needs in an economically, environmentally and socially responsible manner. We are well positioned to deliver on that challenge by investing in a balanced and sustainable energy future.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Direct economic value generated and distributed							
Direct economic value generated	dollars (billions)	13,449	13,679	13,255	12,999	13,387	GRI 201-1
Economic value distributed: operating costs	dollars (millions)	N/A	2,088	2,262	2,213	2,467	GRI 201-1
Economic value distributed: employee wages and benefits	dollars (millions)	N/A	1,505	1,651	1,665	1,631	GRI 201-1
Economic value distributed: payments to providers of capital	dollars (millions)	3,952	4,308	4,439	5,643	5,779	GRI 201-1
Economic value distributed: payments to government	dollars (millions)	816	907	1,437	1,205	1,282	GRI 201-1
Economic value distributed: payments to governments in Canada	dollars (millions)	N/A	429	466	555	438	
Economic value distributed: payments to governments in the U.S.	dollars (millions)	N/A	533	1,217	625	758	
Economic value distributed: payments to governments in Mexico	dollars (millions)	N/A	23	45	25	86	
Economic value distributed: community investments	dollars (millions)	15	24	30	29	23	GRI 201-1
Economic value retained	dollars (millions)	4,760	4,847	3,436	2,244	2,204	GRI 201-1
Technology and innovation spend							
R&D program spend	dollars (millions)	N/A	N/A	N/A	7	10 <sup>1</sup>	
Capital and operating optimization and revenue opportunities achieved <sup>2</sup>	dollars (millions)	N/A	N/A	13	23	47	
Political contributions							
Political contributions made by TC Energy Corporation in Canada <sup>3</sup>	dollars	22,500	5,150	6,000	5,000	0	GRI 415-1
Political contributions made by TC Energy U.S. subsidiaries <sup>4</sup>	dollars	19,463	84,240	0	0	243,180	GRI 415-1
Political contributions made by TC PAC, a separate segregated fund in the U.S. <sup>5</sup>	dollars	392,753	274,495	270,270	387,750	300,812	GRI 415-1
Competitive behaviour							
Total monetary losses that relate to violations of regulations governing competitive behaviours <sup>6</sup>	dollars	N/A	N/A	641,000	0	0	SASB EM-MD-520a.1
Significant environmental fines <sup>5</sup>							
Number of significant environmental fines <sup>7</sup>	number	0	2	0	2	2	GRI 307-1
Value of significant environmental fines <sup>8</sup>	dollars	0	175,942	0	253,429	916,421	GRI 307-1

<sup>1</sup> The 2021 spend of \$9.6 million includes \$2.4 million of corporate membership fees paid to associations with a research and/or technology focus; however, this similar amount for 2020 was included separate from the TIMO R&D Program spend.

<sup>2</sup> This optimization indicator includes cost avoidance, savings and incremental revenue gains realized within the reporting period for two specific programs. Our Canadian Natural Gas Pipelines business unit has an optimization initiative that leverages data and algorithms to identify operational issues and optimize maintenance, balancing cost, reliability, integrity and commercial needs. Another initiative is driving a systematic approach to improve efficiencies across our U.S. Natural Gas Pipelines business unit. Additionally, similar initiatives may be made in the future and would be reported accordingly.

<sup>3</sup> Political contributions by corporations are not permitted in most jurisdictions in Canada. Corporate political contributions are permissible in Saskatchewan; however, TC Energy did not make any contributions in that province in 2021 due to the COVID-19 pandemic and event cancellations.

<sup>4</sup> Political contributions in the U.S. were made by U.S. subsidiaries of TC Energy or the TC PAC. Variance from 2018 onwards reflects the shift away from U.S. subsidiary contributions in favor of making political contributions through the TC PAC. This was due in part to leaders requesting a uniform contribution policy across the various state jurisdictions in which we operate.

<sup>5</sup> The TransCanada USA Services Inc. Political Action Committee (TC PAC) is a separate segregated fund (SSF) established under U.S. federal election law by TransCanada USA Services Inc., a U.S. subsidiary of TC Energy. The TC PAC is funded solely through contributions from U.S. employees. In many cases, amounts such as receipts, disbursements and cash on hand differ from what we report internally to what is found on FEC. This is because the FEC also records disbursements that include bank fees, registration fees and voided checks from the prior year. The 2021 value has been reissued to align with current best available data and reflects a U.S./Canada foreign exchange rate of 1.25 as per the 2021 Annual Report. The PAC is directed entirely out of the United States, by U.S. residents.

<sup>6</sup> The total amount of monetary losses incurred during the reporting period as a result of legal proceedings associated with alleged breaches of regulations governing competitive behaviour.

<sup>7</sup> A significant environmental fine is a fine or penalty of >\$5,000 that is paid to a regulatory agency within the reporting year. In some cases, the year the fine was paid may differ from the year the fine was issued.

<sup>8</sup> Columbia Gas Transmission received a draft Consent Order from the WV DEP in February 2020 on the Mountaineer Xpress Project. The Consent Order was finalized in 2021 and a fine of \$670,031 USD was issued in October 2021. Columbia Gas Transmission received a Consent Order from the WV DEP in September 2021 on the Mountaineer Xpress Project. A fine was issued to the company of \$51,560 USD. Currency converted to CAD based on 1.25 exchange rate as of Dec. 31, 2021 as per Annual Report.



Supplier diversity

Commitment: Strengthening community resilience



Our Supplier Diversity program enhances opportunities for diverse, local and Indigenous communities to participate in our projects and operations. The result is mutually beneficial for both our company and our stakeholders as it expands our access to competitive, innovative, qualified suppliers and creates economic benefits for businesses and individuals. This contributes directly to our sustainability commitments through the use of a supply chain that exemplifies our corporate values.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Supplier diversity <sup>1</sup>							
Tier 1 diverse spend <sup>2</sup>	dollars (millions)	N/A	N/A	N/A	300.8	529.9	
Canadian diverse spend: Tier 1 <sup>3</sup>	dollars (millions)	N/A	N/A	N/A	201.1	409.4	
Canadian Indigenous spend: Tier 1 <sup>4</sup>	dollars (millions)	17.7	8.6	70.0	189.4	398.5	
U.S. diverse spend: Tier 1 <sup>5</sup>	dollars (millions)	N/A	N/A	N/A	99.7	120.5	
U.S. Native American spend: Tier 1	dollars (millions)	0.04	9.5	5.0	5.9	3.8	
Tier 2 diverse spend <sup>6</sup>	dollars (millions)	N/A	N/A	N/A	705.5	906.5	
Canadian diverse spend: Tier 2 <sup>3</sup>	dollars (millions)	N/A	N/A	N/A	566.4	840.3	
Canadian Indigenous spend: Tier 2 <sup>4</sup>	dollars (millions)	57.8	151.0	380.0	503.0	700.7	
U.S. diverse spend: Tier 2 <sup>5</sup>	dollars (millions)	N/A	N/A	N/A	98.5	66.1	
U.S. Native American spend: Tier 2	dollars (millions)	0.01	9.5	2.0	27.4	4.1 <sup>7</sup>	

<sup>1</sup> While we plan to expand our supplier diversity program to Mexico, including Indigenous suppliers, this is still underway and data is not yet available.

<sup>2</sup> Tier 1 spend represents a classification of expenditure data that TC Energy spends directly with prime suppliers and/or general contractors and is directly linked to contractual agreement(s) or purchases.

<sup>3</sup> Our diverse spend in Canada includes spend with suppliers who self-identify as Indigenous, visible minorities, women, LGBTQ and/or veterans.

<sup>4</sup> Coastal GasLink (CGL) started construction in January 2019. CGL has targets to increase Indigenous spend and saw construction ramp up in 2020 which was continued through 2021. Additionally, there was significant capital project activity in Canada Gas Regulated Projects in 2021.

<sup>5</sup> Our diverse spend in the U.S. includes spend with suppliers who self-identify as Native American, Asian-American, Hispanic-American, African-American, women and/or veterans.

<sup>6</sup> Tier 2 spend represents expenditures that TC Energy's prime suppliers and/or general contractors spend for services and/or products that directly support TC Energy's business needs. Indirect expenditures may consist of labour, subcontractors, materials and/or expense spend.

<sup>7</sup> Decrease is due to the cancellation of Keystone XL in 2021.

Thriving communities

Commitment: Strengthening community resilience

UN SDGs:



For more than 70 years, we have worked hard to earn and maintain relationships and uphold our reputation as being a good neighbour, a trusted community partner and an employer of choice. Investing and giving back to communities where we operate has long been a part of that effort. We believe that when we develop and nurture lasting relationships and give back to the communities where we live and work, we will build a stronger future together.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Community investment							
Direct community investment <sup>1</sup>	dollars (millions)	15.1	23.9	29.7	29.1	23.8	GRI 201-1
Indirect community investment <sup>2</sup>	dollars (millions)	N/A	1.8	2.5	3.2	2.8	
Total community investment	dollars (millions)	N/A	25.7	32.1	32.3	26.5	
Community investment directed towards the environment <sup>3</sup>	dollars (millions)	N/A	N/A	N/A	1.0	2.3	
Total community investments as a percentage of pre-tax profits <sup>4</sup>	per cent	N/A	0.5	0.6	0.6	0.6	
External resources leveraged <sup>5</sup>	dollars (millions)	N/A	1.9	2.0	2.7	1.8	
Total value of investment in the community <sup>6</sup>	dollars (millions)	17.0	27.6	34.1	35.0	28.3	
Employee giving & volunteering							
Workforce donations <sup>7</sup>	dollars (millions)	0.9	1.0	1.1	1.6	1.4	
Total corporate donations through the workforce giving program <sup>8</sup>	dollars (millions)	N/A	1.9	2.1	3.9	2.9	
Total volunteer hours logged by employees and contractors	hours	14,736	25,695	36,583	22,567	24,186	
Volunteer hours logged during paid time	hours	2,908	4,438	7,324	1,413	1,714	
Volunteer hours logged during unpaid time	hours	11,828	21,257	29,258	21,154	22,471	
Overall participation in workforce giving program	per cent	N/A	N/A	N/A	84	55	
Local community engagement plans							
Percentage of operations with local community engagement, impact assessments and development programs	per cent	100	100	100	100	100	GRI 413-1

<sup>1</sup> Project-related community investment activity was lower than previous years across Canada, the U.S. and Mexico based on project activity.

<sup>2</sup> This includes in-kind giving, the value of volunteer hours during paid work time and program management costs.

<sup>3</sup> TC Energy is focusing on increasing its environmental spend across Canada, the U.S. and Mexico and on building partnerships that have a positive environmental impact on species and habitats at risk.

<sup>4</sup> The total value of TC Energy's community investments as a percentage of revenue. This number can vary depending on how the business performs. The value reported was calculated based on TC Energy's pre-tax profit before taking into account the 2021 Keystone XL asset impairment charge taken on in Q1 2021, related to the formal suspension of Keystone XL.

<sup>5</sup> External resources leveraged include community contributions from outside sources that can be directly linked to our involvement such as employee donations and time volunteered during non-working hours or funds matched from governments or other partners.

<sup>6</sup> The total value of TC Energy's investments in the community. This includes cash investments, in-kind giving, volunteering during paid working hours, program management costs and community contributions from outside sources that can be directly linked to our involvement.

<sup>7</sup> The decrease in donations is an expected result after coming out of the initial pandemic year (2020) which is considered to be an outlier year due to the COVID-19 pandemic and our workforce's heightened use of Empower to provide relief that was unmatched in previous years. This year's results are more aligned with our historic rates but still show an overall increase as a result of the momentum gained in 2020.

<sup>8</sup> Total corporate donations through our workforce giving program includes company matching donations, Dollars for Doers, donation credits from TC Energy and corporate donations from Empower directly to causes.

# Finding solutions that empower people



## Workforce demographics

### Commitment: Fostering inclusion and diversity



We are committed to building an inclusive and diverse workforce for our 7,000+ employees across Canada, the U.S. and Mexico. Across our footprint, we also support the communities in which we live and work – providing opportunity, purchasing from local businesses and suppliers and partnering with communities to help them be vibrant, prosperous and resilient.

We continually look for opportunities to ensure we are well positioned to continue to meet the needs of our customers and safely deliver the energy millions of North Americans rely on every day, now and in the future. In 2021, we offered a Voluntary Retirement Program to proactively and thoughtfully plan for the workforce demographic changes that we are anticipating. Applying for the program was voluntary and at the discretion of those individuals who were eligible.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Workforce demographics							
Core workforce							
Total	number	6,771	7,094	7,387	7,358	7,083	GRI 102-8
Canada	number	3,390	3,550	3,728	3,677	3,587	GRI 102-8
U.S.	number	3,112	3,269	3,344	3,355	2,993	GRI 102-8
Mexico	number	269	275	315	326	503	GRI 102-8
Employees represented by independent trade union or covered by collective bargaining agreements	per cent	5	5	5	5	4	GRI 102-41
Leadership <sup>1</sup>							
Total	number	817	864	910	936	944	
Executive leadership team	number	9	10	10	9	9	
Contractor workforce							
Total	number	3,252	4,348	3,211	3,515	3,466	GRI 102-8
Canada	number	1,757	2,190	2,037	2,223	2,409	GRI 102-8
U.S.	number	958	1,744	901	1,081	1,057	GRI 102-8
Mexico	number	537	414	273	211	0 <sup>2</sup>	GRI 102-8
New hires (core workforce)							
Total	number	751	899	886	663	884	GRI 401-1
Canada	number	281	402	417	364	336	GRI 401-1
U.S.	number	385	428	387	257	326	GRI 401-1
Mexico	number	85	69	82	42	222 <sup>2</sup>	GRI 401-1
Women	per cent	26	31	29	32	32	GRI 401-1
Core workforce turnover							
Overall turnover rate	per cent	15	7	8	10	16	
Canada	per cent	8	6	7	11	11	GRI 401-1
U.S.	per cent	21	7	9	8	22 <sup>3</sup>	GRI 401-1
Mexico	per cent	10	10	15	9	10	GRI 401-1
Women	per cent	12	8	8	9	16 <sup>3</sup>	GRI 401-1
Men	per cent	15	7	8	10	14	GRI 401-1
Voluntary turnover rate <sup>4</sup>	per cent	4	5	5	4	11 <sup>3</sup>	GRI 401-1
Involuntary turnover rate <sup>5</sup>	per cent	11	2	3	6	5	GRI 401-1

<sup>1</sup> Our leadership includes core workforce employees classified as leaders and above.  
<sup>2</sup> Due to Mexico labour reform in 2021, we converted our contractors to core employees.  
<sup>3</sup> Increase is due to Voluntary Retirement Program.

<sup>4</sup> Voluntary turnover includes employees who retired or resigned from employment at TC Energy.  
<sup>5</sup> Involuntary turnover includes divestitures, severances, discharges and layoffs.

Workforce diversity

Commitment: Fostering inclusion and diversity



We believe our workforce should reflect the communities in which we live and work. From head office to our field operations, we actively seek out a wide range of candidates for all positions because diverse backgrounds, opinions and skills strengthen our teams, drive innovation and enhance a performance culture. We actively strive to promote a culture of inclusion, where there is sense of belonging, we have a respectful workplace and encourage employees to reach their full potential.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Inclusion and diversity <sup>1</sup>							
Gender							
Women; core workforce	per cent	28	28	28	29	30	GRI 405-1
Women; contractor workforce	per cent	27	23	26	26	24	GRI 405-1
Women; leadership	per cent	26	27	28	30	32	GRI 405-1
Women; leadership positions in our corporate locations <sup>2</sup>	per cent	N/A	32	34	34	36 <sup>3^</sup>	GRI 405-1
Visible minorities in leadership							
Visible minorities in leadership positions across our Canadian and U.S. workforce	per cent	N/A	12	13	13	14	GRI 405-1
Protected groups by jurisdiction							
Canadian core workforce							
Women	per cent	36	37	37	38	38	GRI 405-1
Indigenous <sup>3</sup>	per cent	2	3	2	3	3	GRI 405-1
Persons with disabilities	per cent	3	3	3	3	3	GRI 405-1
Visible minorities <sup>4</sup>	per cent	22	21	21	23	24	GRI 405-1
U.S. core workforce							
Women	per cent	19	19	19	19	19	GRI 405-1
Minorities <sup>5</sup>	per cent	13	13	13	14	14	GRI 405-1
Individuals with disabilities	per cent	2	3	3	3	2	GRI 405-1
Veterans	per cent	6	6	6	6	5	GRI 405-1
Mexican core workforce							
Women	per cent	28	30	27	28	31	GRI 405-1
Inclusion and diversity training							
Leaders and employees trained on how to recognize and mitigate unconscious bias and how to create and sustain an inclusive workplace	per cent	N/A	N/A	N/A	58	99	

<sup>1</sup> Diversity data is categorized by protected groups as defined by regional compliance requirements: in Canada under the Employment Equity Act and in the U.S. as a condition of the Office of Federal Contract Compliance Programs. There are no such compliance requirements in Mexico, however, we track and voluntarily report Mexico gender workforce representation.

<sup>2</sup> Leadership positions in our corporate locations of Calgary, Houston, Charleston and Mexico City.

<sup>3</sup> TC Energy has obtained independent limited assurance of this indicator for the year ended December 31, 2021.

<sup>4</sup> In Canada, Indigenous groups are reported separately from visible minorities.

<sup>5</sup> In the U.S., American Indians and Alaska Natives are included in minorities reporting.



Occupational safety, health and industrial hygiene

Commitment: Zero is Real



Our commitment to safety isn’t just a mantra – it’s how we work 24/7, 365 days a year. By reinforcing a disciplined set of rules and providing rigorous training, we aim to ensure all employees and contractors make it home safely every day.

Indicator	Unit	2017	2018	2019	2020	2021	Related framework indicator ID
Core workforce							
Employee fatalities <sup>1</sup>	number	1	0	0	1	1	GRI 403-9
Employee recordable case rate <sup>2</sup>	recordable cases per 200,000 hours worked	0.59	0.58	0.42	0.50	0.49	GRI 403-9
Employee away-from-work case rate <sup>3</sup>	away from work cases per 200,000 hours worked	0.19	0.16	0.10	0.07	0.20	GRI 403-9
Employee high potential incident rate <sup>4</sup>	high potential incidents per 200,000 hours worked	0.16	0.42	0.30	0.29	0.35	GRI 403-9
Employee vehicle incident frequency <sup>5</sup>	vehicle incidents per 1,000,000 km driven	2.07	1.84	1.94	1.55	1.57	
Contractor workforce							
Contractor fatalities <sup>1</sup>	number	0	0	0	0	0	GRI 403-9
Contractor recordable case rate <sup>2</sup>	recordable cases per 200,000 hours worked	0.95	0.99	1.13	0.64	0.87	GRI 403-9
Contractor away-from-work case rate <sup>3</sup>	away from work cases per 200,000 hours worked	0.10	0.15	0.11	0.09	0.15	GRI 403-9
Contractor high potential incident rate <sup>4</sup>	high potential incidents per 200,000 hours worked	0.55	0.93	0.74	0.60	0.68	GRI 403-9
Contractor vehicle incident frequency <sup>5</sup>	vehicle incidents per 1,000,000 km driven	2.45	2.41	1.80	1.38	1.31	
Employee absences							
Casual absence rate <sup>6</sup>	average number of days absent per employee per year	1.89	1.84	1.81	1.40	0.99	
Short-term disability absence rate <sup>7</sup>	average number of days absent per employee per year	2.51	2.15	2.27	2.20	2.66	
Workers compensation absence rate <sup>8</sup>	average number of days absent per employee per year	0.09	0.07	0.05	0.03	0.03	
Total employee absence rate <sup>9</sup>	average number of days absent per employee per year	4.49	4.06	4.13	3.63	3.68	

<sup>1</sup> ESG Data Sheet is timebound from Jan. 1, 2021 to Dec. 31, 2021, including one employee fatality. Note that 2022 Report on Sustainability references two fatalities; one employee in 2021 and one contractor in 2022.

<sup>2</sup> TC Energy defines total recordable case rate as the number of recordable cases related to a common exposure base of 200,000 hours (100 full-time employees). Recordable cases are all work-related deaths and illnesses, and those work-related injuries that result in a loss of consciousness, restriction of work or motion, transfer to another job or require medical treatment beyond first aid.

<sup>3</sup> TC Energy defines away-from-work case rate as an incident resulting in an injury or illness that prevents an employee from returning to work on the next scheduled shift. The number of away-from-work cases, where the employee would have worked but could not because of an occupational injury or illness, is related to a common exposure base of 200,000 hours (100 full-time workers).

<sup>4</sup> TC Energy defines high potential incidents as incidents with a high potential to result in a serious, debilitating injury to the worker related to a common exposure base of 200,000 hours (100 full-time employees). Examples of high potential incidents include, but are not limited to, high-speed vehicle incidents, vehicle rollovers, high-voltage or high-pressure incidents, injuries to the head and falls from heights.

<sup>5</sup> TC Energy defines vehicle incident frequency rate as the number of recordable vehicle incidents related to a common exposure base of 1,000,000 km driven. A recordable vehicle incident is any incident (regardless of fault) involving a fleet, rental motor vehicle, or a personal vehicle being used for TC Energy business which results in an injury to any person or damage to any vehicle or property, unless the vehicle was safely and properly parked at the time of the incident.

<sup>6</sup> On Aug. 1, 2021, TC Energy updated the definition of casual absence to when an employee is unfit for work for up to five consecutive work shifts due to a non-work related illness or injury. Previously, TC Energy defined casual absence as when an employee was unable to work for up to 36 continuous work hours.

<sup>7</sup> On Aug. 1, 2021, TC Energy updated the definition of short-term disability (STD) as a medical absence lasting longer than five consecutive work shifts away from work due to a non-occupational illness or injury. Previously, TC Energy defined short-term disability absences as a medical absence lasting more than 36 consecutive hours away from work. Short-term disability is a company-funded income continuance program from which qualifying employees can derive income replacement for a non-work-related illness or injury from the first day to 26 weeks of absence.

<sup>8</sup> TC Energy defines Workers’ Compensation Board (WCB) absences as a work-related illness or injury requiring medical aid and/or medical absence of more than a day, involving a provincial or state company-sponsored income replacement program operated through the various provincial or state workers’ compensation boards or U.S. insurance carriers.

<sup>9</sup> TC Energy defines the average number of days absent per employee as the sum of the casual absence rate, STD absence rate and WCB absence rate.

# Table of alignment with the TCFD recommendations

Recognizing the value of environmental, social and governance (ESG) reporting frameworks such as the Task Force on Climate-Related Financial Disclosure (TCFD), the concordance table shown below demonstrates the relationship between TC Energy's sustainability reporting and [Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures Final Report \(October 2021\)](#).

Topic and recommended content	Select TC Energy material
<b>Governance</b>	
a) Describe the Board's oversight of climate-related risks and opportunities	<a href="#">2022 ESG Data Sheet; governance, page 5</a> <a href="#">2021 Annual Report; page 96</a> <a href="#">2022 Management Information Circular; page 47-49, 64, 66, 71</a> <a href="#">2021 Annual Information Form; page 21-22</a> <a href="#">CEO Terms of Reference</a> <a href="#">Board of Directors Terms of Reference</a> <a href="#">2022 CDP climate change questionnaire response; C1.1b</a>
b) Describe management's role in assessing and managing climate-related risks and opportunities	<a href="#">2022 ESG Data Sheet; governance, page 5</a> <a href="#">2021 Annual Report; page 96</a> <a href="#">2022 Management Information Circular; page 47-48, 64</a> <a href="#">2022 CDP climate change questionnaire response; C1.2, C1.2a</a>
<b>Strategy</b>	
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term	<a href="#">2022 ESG Data Sheet; strategy – risks and opportunities table, page 13</a> <a href="#">2021 Annual Report; page 7, 94</a> <a href="#">2022 Management Information Circular; page 71</a> <a href="#">2021 Annual Information Form; page 21-22</a> <a href="#">2022 CDP climate change questionnaire response; C2.1a, C2.3, C2.3a, C2.4, C2.4a</a>
b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning	<a href="#">2022 ESG Data Sheet; strategy, page 12</a> <a href="#">2021 Annual Report; page 94</a> <a href="#">2022 CDP climate change questionnaire response; C2.3a, C2.4a, C3.1, C3.2b, C3.3, C3.4</a>
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, include a 2°C or lower scenario	<a href="#">2021 ESG Data Sheet; strategy – climate-related energy scenario analysis, page 19</a> <a href="#">2021 Annual Report; page 17, 94, 98, 102, 186</a> <a href="#">2022 CDP climate change questionnaire response; C3.2, C3.2a, C3.2b</a>
<b>Risk management</b>	
a) Describe the organization's processes for identifying and assessing climate-related risks	<a href="#">2022 ESG Data Sheet; risk management – ERM, page 20</a> <a href="#">2021 Annual Report; page 94</a> <a href="#">2022 Management Information Circular; page 47-48, 64</a> <a href="#">2021 Annual Information Form; page 21-22</a> <a href="#">2022 CDP climate change questionnaire response; C2.1, C2.2, C2.2a</a>
b) Describe the organization's processes for managing climate-related risks	<a href="#">2022 ESG Data Sheet; risk management – TOMS, page 21</a> <a href="#">2021 Annual Report; page 94</a> <a href="#">2022 Management Information Circular; page 47-48</a> <a href="#">2022 CDP climate change questionnaire response; C2.1, C2.2</a>
c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.	<a href="#">2022 ESG Data Sheet; risk management – ERM, page 20</a> <a href="#">2021 Annual Report; page 94, 98</a> <a href="#">2022 Management Information Circular; page 47-48</a> <a href="#">2022 CDP climate change questionnaire response; C2.1, C2.2</a>
<b>Metrics and targets</b>	
a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process	<a href="#">2022 ESG Data Sheet; performance data tables, page 26</a> <a href="#">2022 ESG Data Sheet; climate-related metrics and targets, page 22</a> <a href="#">2021 Annual Report; page 94</a> <a href="#">2022 CDP climate change questionnaire response; C4.2, C4.2a, C4.2b, C9.1</a> <a href="#">GHG Emissions Reduction Plan</a>
b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 GHG emissions and the related risks	<a href="#">2022 ESG Data Sheet; performance data tables, page 26</a> <a href="#">2022 CDP climate change questionnaire response; Section 6, Section 7</a>
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets	<a href="#">2022 Report on Sustainability; Embracing the energy transition commitment and targets, page 16</a> <a href="#">2021 Annual Report; page 94</a> <a href="#">2022 Management Information Circular; page 6, 65</a> <a href="#">2022 CDP climate change questionnaire response; Section 4</a> <a href="#">GHG Emissions Reduction Plan</a>

# Table of alignment with the SASB standards

Recognizing the value of environmental, social and governance (ESG) reporting standards such as the Sustainability Accounting Standards Board (SASB), the concordance table shown below demonstrates the relationship between TC Energy's sustainability reporting and the SASB Oil & Gas - Midstream industry standard (October 2018). For a limited number of metrics, non-standard measures are required and we have disclosed similar indicators in alignment with internal standards.

Topic and accounting metric	Indicator ID	Select TC Energy material
<b>Greenhouse gas emissions</b>		
Gross global Scope 1 emissions, percentage methane, percentage covered under emissions-limiting regulations	EM-MD-110a.1	<a href="#">2022 ESG Data Sheet; performance data tables, page 26</a> <a href="#">2022 CDP climate change questionnaire response; C6.1, C-OG6.12, C-OG6.13, C7.1a</a>
Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	EM-MD-110a.2	<a href="#">2022 Report on Sustainability; embracing the energy transition commitment and targets, page 16</a> <a href="#">2022 ESG Data Sheet; strategy, page 12</a> <a href="#">2022 CDP climate change questionnaire response; C4</a> <a href="#">GHG Emissions Reduction Plan</a>
<b>Air quality</b>		
Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, (3) volatile organic compounds (VOCs) and (4) particulate matter (PM10)	EM-MD-120a.1	<a href="#">2022 ESG Data Sheet; performance data tables, page 36</a>
<b>Ecological impacts</b>		
Description of environmental management policies and practices for active operations	EM-MD-160a.1	<a href="#">2021 Annual Report; environmental risk, compliance and liabilities, page 97</a> <a href="#">TCEnergy.com; Commitment Statement, Environment principles</a> <a href="#">2022 Report on Sustainability; integrating sustainability, page 28</a> <a href="#">2022 ESG Data Sheet; TOMS, page 21</a> <a href="#">2022 CDP climate change questionnaire response; C15.4, C15.6</a>
Percentage of land owned, leased and/or operated within areas of protected conservation status or endangered species habitat	EM-MD-160a.2	<a href="#">2022 ESG Data Sheet; performance data tables, page 38</a>
Terrestrial acreage disturbed, percentage of impacted area restored	EM-MD-160a.3	<a href="#">2022 ESG Data Sheet; performance data tables, page 38</a>
Number and aggregate volume of hydrocarbon spills, volume in Arctic, volume in unusually sensitive areas (USAs) and volume recovered	EM-MD-160a.4	<a href="#">2022 ESG Data Sheet; performance data tables, page 42</a>
<b>Competitive behaviour</b>		
Total amount of monetary losses as a result of legal proceedings associated with federal pipeline and storage regulations	EM-MD-520a.1	<a href="#">2022 ESG Data Sheet; performance data tables, page 46</a>  <i>Note: TC Energy interprets this indicator as representing the total amount of monetary losses incurred during the reporting period as a result of legal proceedings associated with alleged breaches of regulations governing competitive behaviour.</i>
<b>Operational safety, emergency preparedness &amp; response</b>		
Number of reportable pipeline incidents, percentage significant	EM-MD-540a.1	Please note this indicator requests information on pipeline incidents only. To transparently communicate integrity incidents related to our diverse asset base, including our power and storage facilities, we have chosen to publicly report on Tier 1 and Tier 2 process safety incidents guided by industry standard CSA Z260. TC Energy believes this approach is congruent with the intent of SASB EM-MD-540a.1 to promote increased, comparable reporting of integrity incidents. Tier 1 and Tier 2 process safety incidents are reported in our 2022 ESG Data Sheet. <a href="#">2022 ESG Data Sheet; performance data tables, page 42</a>
Percentage of (1) natural gas and (2) hazardous liquid pipelines inspected	EM-MD-540a.2	<a href="#">2022 ESG Data Sheet; performance data tables, page 40</a>
Number of (1) accidents releases and (2) non-accident releases (NARs) from rail transportation	EM-MD-540a.3	Not applicable to TC Energy's operations.
Discussion of management systems used to integrate a culture of safety and emergency preparedness throughout the value chain and throughout project life cycles	EM-MD-540a.4	<a href="#">2022 Report on Sustainability; Zero is real commitment and targets, page 20</a> <a href="#">2022 Report on Sustainability; mental health and psychological safety commitment and targets, page 38</a> <a href="#">TCEnergy.com; Commitment Statement</a>
<b>Activity metric</b>		
Total metric ton kilometers of: (1) natural gas, (2) crude oil and (3) refined petroleum products transported, by mode of transport	EM-MD-000.A	<a href="#">2022 ESG Data Sheet; performance data tables, page 24</a>  <i>Note: TC Energy does not report activity in these units.</i>

# Table of alignment with the United Nations Sustainable Development Goals

We support the [United Nations Sustainable Development Goals \(UN SDGs\)](#) and have identified the SDGs that are most relevant to our business and where we can make our greatest contributions. These global goals serve as a framework to orient our sustainability commitments, targets and progress. We consider it essential to cooperate with other organizations, to align our efforts behind UN SDG 17.

Commitment	UN SDG
Finding solutions that protect our planet	
<b>Embracing the energy transition</b> <a href="#">2022 Report on Sustainability; page 16</a> <a href="#">2022 ESG Data Sheet; page 26</a>	<a href="#">UN SDG 3</a> – Good Health and Well-being <a href="#">UN SDG 7</a> – Affordable and Clean Energy <a href="#">UN SDG 13</a> – Climate Action <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Leaving the environment as we found it</b> <a href="#">2022 Report on Sustainability; page 18</a> <a href="#">2022 ESG Data Sheet; page 38</a>	<a href="#">UN SDG 3</a> – Good Health and Well-being <a href="#">UN SDG 6</a> – Clean Water and Sanitation <a href="#">UN SDG 12</a> – Responsible Consumption and Production <a href="#">UN SDG 15</a> – Life on Land <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Zero is real</b> <a href="#">2022 Report on Sustainability; page 20</a> <a href="#">2022 ESG Data Sheet; page 40</a>	<a href="#">UN SDG 3</a> – Good Health and Well-being <a href="#">UN SDG 8</a> – Decent Work and Economic Growth <a href="#">UN SDG 13</a> – Climate Action
Finding solutions to create shared prosperity	
<b>Strengthening community resilience</b> <a href="#">2022 Report on Sustainability; page 24</a> <a href="#">2022 ESG Data Sheet; page 46</a>	<a href="#">UN SDG 3</a> – Good Health and Well-being <a href="#">UN SDG 4</a> – Quality Education <a href="#">UN SDG 10</a> – Reduced Inequalities <a href="#">UN SDG 12</a> – Responsible Consumption and Production <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Integrating sustainability</b> <a href="#">2022 Report on Sustainability; page 28</a>	<a href="#">UN SDG 12</a> – Responsible Consumption and Production <a href="#">UN SDG 16</a> – Peace, Justice and Strong Institutions
<b>Enhancing energy sector sustainability with technology</b> <a href="#">2022 Report on Sustainability; page 26</a> <a href="#">2022 ESG Data Sheet; page 46</a>	<a href="#">UN SDG 7</a> – Affordable and Clean Energy <a href="#">UN SDG 9</a> – Industry, Innovation and Infrastructure <a href="#">UN SDG 17</a> – Partnerships for the Goals
Finding solutions that empower people	
<b>Fostering relationships with Indigenous groups</b> <a href="#">2022 Report on Sustainability; page 32</a>	<a href="#">UN SDG 4</a> – Quality Education <a href="#">UN SDG 10</a> – Reduced Inequalities <a href="#">UN SDG 11</a> – Sustainable Cities and Communities <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Focus on landowner relationships</b> <a href="#">2022 Report on Sustainability; page 35</a> <a href="#">2022 ESG Data Sheet; page 38</a>	<a href="#">UN SDG 15</a> – Life on Land <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Fostering inclusion and diversity</b> <a href="#">2022 Report on Sustainability; page 36</a> <a href="#">2022 ESG Data Sheet; page 52</a>	<a href="#">UN SDG 4</a> – Quality Education <a href="#">UN SDG 5</a> – Gender Equality <a href="#">UN SDG 8</a> – Decent Work and Economic Growth <a href="#">UN SDG 17</a> – Partnerships for the Goals
<b>Focus on mental health</b> <a href="#">2022 Report on Sustainability; page 38</a>	<a href="#">UN SDG 3</a> – Good Health and Well-being <a href="#">UN SDG 4</a> – Quality Education





**WE WANT TO HEAR FROM YOU!**

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Energy for the

*Future*



## Forward-looking information

This document 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, statements related to our goal to reduce GHG emissions intensity from our operations 30% by 2030; our goal to position to achieve zero emissions from our operations, on a net basis, by 2050; our five focus areas to reduce the emissions intensity of our operations, namely: (1) modernizing our existing systems and assets, (2) decarbonizing our energy consumption, (3) investing in low-carbon energy and infrastructure, (4) driving digital solutions and technologies, and (5) leveraging carbon credits and offsets; among other things.

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 necessary to efficiently and effectively achieve GHG emissions targets and ambitions, 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 sustainability commitments and GHG emissions 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 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 the environment and COVID-19, competition in the businesses in which we operate, unexpected or unusual weather, acts of civil disobedience, cyber security and technological developments, economic conditions in North America as well as globally, and global health crises, such as pandemics and epidemics, including the recent outbreak of COVID-19 and the 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. In addition, there are risks that the effect of actions taken by us in implementing targets, commitments and ambitions for our GHG emissions 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 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.

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# About TC Energy



## Our purpose

Delivering the energy people need, every day.  
Safely. Innovatively. Responsibly. Collaboratively.  
With integrity.



## Our vision

To be the premier energy infrastructure company  
in North America, now and in the future.

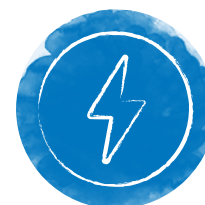
## Our business



### Natural gas pipelines



### Liquids pipelines



### Power and storage

We are a vital part of everyday life — delivering the energy millions of people rely on to power their lives in a sustainable way. Thanks to a safe, reliable network of natural gas and crude oil pipelines, along with power generation and storage facilities, wherever life happens — we're there.

Guided by our core values of safety, innovation, responsibility, collaboration and integrity, our 7,500 people make a positive difference in the communities where we operate across Canada, the U.S. and Mexico.

TC Energy's common shares trade on the Toronto (TSX) and New York (NYSE) stock exchanges under the symbol TRP.

## Protecting our planet

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Sustainability is foundational in everything we do — in our culture, our stakeholder engagements and partnerships, and in our decision-making. One of our 10 sustainability commitments is to contribute to global efforts to reduce climate change, including establishing GHG emission reduction targets. This plan describes our approach and key strategies for embracing the energy transition that is underway — meeting our climate change goals while delivering solutions for a lower-carbon future.

This publication is one element of our sustainability, environmental, social and governance (ESG) reporting.

Please see page 25 for a list of related reports and documents.

## Sustainability governance

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Our Board of Directors provides oversight and direction for our overall sustainability objectives including emissions reduction activities. The Board and its subcommittees are also responsible for monitoring our performance, and risk oversight, including environment, social and governance related risks. Our CEO and executive leadership team develop and implement our strategy and are accountable for our performance. More detailed information on our climate-related governance structures and processes can be found in our 2021 ESG Datasheet.

## Ongoing dialogue with our stakeholders

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We welcome dialogue and engagement with our stakeholders.

For general inquiries, please contact us at [communications@tcenergy.com](mailto:communications@tcenergy.com).

Shareholders and others in the financial or investment community, please contact us at [investor\\_relations@tcenergy.com](mailto:investor_relations@tcenergy.com).

# Embracing the energy transition

## Message from leadership



**François Poirier**  
*President and  
Chief Executive Officer*



**Siim A. Vanaselja**  
*Chair of the Board*

Our vision is to be the premier energy infrastructure company in North America today and in the future. That future includes embracing the energy transition that is underway and contributing to a lower-carbon energy world.

The evolving energy transition supports society's climate-related goals by reducing energy-related greenhouse gas (GHG) emissions and incorporating low-carbon fuels and infrastructure into the energy system.

We believe today's energy industry must play a proactive role to enable change and help meet each country's climate goals. At the same time, we must make sure that a growing population continues to have the energy required to maintain quality of life — our transportation, agriculture, health care, education, and economic prosperity all depend on access to safe, reliable and affordable energy.

### Reducing our GHG emissions

In 2020 we announced 10 sustainability commitments, including our commitment to contribute to global efforts to reduce climate change and set GHG emission reduction targets.

In early 2021, we established a dedicated team to chart our path forward and determine measures to ensure accountability to our stakeholders. This team conducted detailed review and analysis to set ambitious and meaningful GHG emissions reduction targets.

In October 2021, we were pleased to release our goals to:

- Reduce GHG emissions intensity from our operations 30% by 2030, and
- Position to achieve zero emissions from our operations, on a net basis, by 2050.

Our detailed review included assessing our emissions profile and abatement programs, and evaluating future opportunities presented by emerging low-carbon fuels and infrastructure. As a result of this effort, we are confident that we have made informed decisions about our targets and associated action plan.

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, 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

We also recognize the importance of current energy systems and infrastructure. Energy forecasts show that natural gas and liquids will play a vital role beyond 2050. Our existing assets will remain an essential element of these energy systems, providing an unparalleled base from which we will grow and evolve.

There are still many unknowns about how a global energy transition may unfold, and which low-carbon fuels and infrastructure may become widely adopted by society. To succeed, this transition will require policy, regulatory, and technology enablers. Governments will need to provide direct financial support for emissions reduction initiatives, emerging low-carbon fuels and infrastructure, and other decarbonization solutions. New technologies must come to market at a scale and cost that is competitive. We will adapt and respond as these factors change over the life of our plan.

## A bright and sustainable future

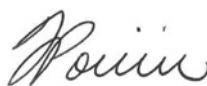
We believe our business is well-positioned to seize the exciting opportunities that a global energy transition presents, regardless of the path it ultimately takes. We already have many activities underway to reduce emissions and develop solutions for the future — for example, leak detection and repair programs, natural gas pipeline modernization and electrification programs, solar and battery storage projects, pumped hydro projects, transportation of renewable natural gas, and promising possibilities for developing carbon capture and storage solutions.

Our emissions reduction goals, while challenging, will help inform our strategy and how we make operational decisions. Our approach prepares us well to be competitive, remain resilient and deliver shareholder value for those seeking sustainable investment opportunities over the long term.

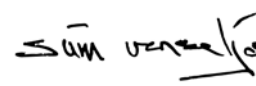
When we engage with our employees on the future of energy, we are always inspired by their excitement for the possibilities ahead and the ideas they bring forward. We are confident that our people have the technical capabilities, innovative mindset and commitment required to contribute positively to a lower-carbon world.

We welcome your comments and feedback and look forward to ongoing dialogue with our stakeholders,

Sincerely,



**François Poirier**  
President and  
Chief Executive Officer



**Siim A. Vanaselja**  
Chair of the Board



# Our roadmap to 2050

## Five focus areas

We are targeting five focus areas to reduce the emissions intensity of our operations while developing lower-carbon energy solutions for the future.

### Our goals

**30% by 2030**

Reduce GHG emissions intensity from our operations 30% by 2030.

**Net zero by 2050**

Position to achieve zero emissions from our operations, on a net basis, by 2050.

### Calculating emissions intensity

Emissions intensity is calculated, in aggregate, as CO<sub>2</sub> equivalent emissions per unit of energy that we transport or produce for our customers annually. For planning purposes, progress is measured relative to a 2019 baseline year (adjusted for material changes in our asset portfolio).

### Defining net zero

Net zero means achieving an overall balance where our operations have eliminated Scope 1 and 2 GHG emissions on a net basis by 2050. This means we have removed or offset emissions through abatement activities and/or the use of carbon credits and/or offsets.



## 1. Modernize our existing systems and assets

Reduce fugitive methane emissions, leaks, venting and flaring associated with regular operations and maintenance, and improve overall operational efficiency.

Waste heat recovery units on compressors



Leak detection and repair

Equipment enhancements (valves, meters, etc.)



## 2. Decarbonize our energy consumption

Seek low-carbon energy sources to support our operations.

Convert gas compressor stations to electric motor drives

Shift company fleet towards electric vehicles

Source renewable power

Continue to develop renewable energy projects and storage solutions



## 3. Invest in low-carbon energy and infrastructure

Develop a broad range of new low-carbon energy solutions for today and for the future.



## 4. Drive digital solutions and technologies

Develop and deploy software and systems to digitize our operations and monitor emissions – includes system automation, AI and machine learning applications.



## 5. Leverage carbon credits and offsets

Evaluate and leverage carbon offsets and assess opportunities to develop nature-based solutions.

CO<sub>2</sub>

Further the deployment of carbon capture, utilization and storage (CCUS)

Expand renewable natural gas and hydrogen opportunities



# Addressing emissions from our operations

Our targets address Scope 1 and 2 emissions, using a 2019 baseline year for planning purposes.

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.

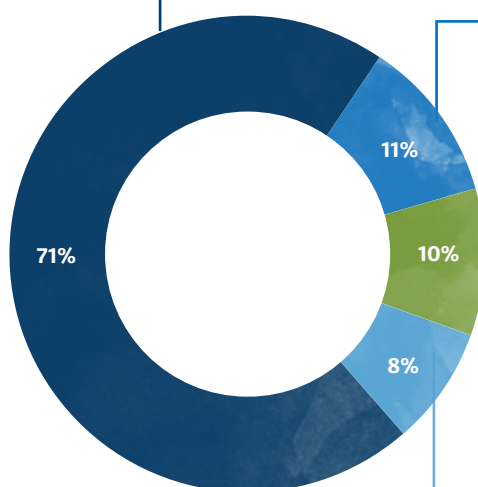
## Emissions by category

### 71% Combustion

Emissions from the combustion of natural gas to operate pipelines, power and storage assets. On our natural gas transmission system these are predominantly generated by our natural gas-fired compressor engines. At our power and cogeneration facilities these are from natural gas-fired turbine generators and duct burners that produce electricity and heat for our customers.

### 8% Venting and other emissions

Vented emissions are controlled releases of natural gas and other vapours during operation and maintenance, for example during blowdowns and purges. Other emissions include flaring, and aircraft and fleet vehicle transportation owned and leased by the company.



### 11% Electricity consumption

Emissions from purchased electricity used to power our assets, primarily for our Liquids pipelines.

### 10% Fugitive emissions and leaks

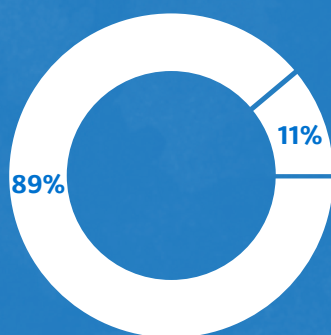
Unintentional releases of methane to the atmosphere. These include leaks from valves, fittings, and other pressurized equipment at meter stations, compressor stations and valve sites, and other uncontrolled releases.

## Detailed review and analysis

We have completed a detailed review and analysis to ensure our targets are ambitious and meaningful and that our decisions are informed by the most recent and verifiable dataset available.

Our review included establishing our baseline emissions data, assessing our emissions profile and abatement programs, evaluating future opportunities presented by low-carbon fuels and infrastructure, and scenario analysis.

### Emissions by scope



#### **89% Scope 1**

Emissions generated directly from operations that are owned or controlled by our company.

#### **11% Scope 2**

Emissions from the generation of electricity that we purchase and consume.

## Approach to Scope 3 emissions

Scope 3 emissions occur from sources owned or controlled by other entities in TC Energy's value chain. They are organized into 15 distinct categories, which is intended to provide a systemic approach to understanding the diversity of activities within a company's value chain. Not all categories are relevant to all companies.

We currently track and report on four categories of Scope 3 emissions that are relevant to our business: Fuel and energy related activities (not already included in Scope 1 and 2), waste generated in operations, business travel, and upstream leased assets. We are actively working with our suppliers and customers to understand Scope 3 emissions along our entire value chain.

# Our guiding principles

As we consider various pathways to meeting our goals, we have established guiding principles to inform our decision-making. Our strategy includes reducing our GHG emissions while simultaneously taking advantage of the business growth opportunities presented by low-carbon fuels and infrastructure.

## Reducing our GHG emissions

### Develop proactive and commercially viable solutions

Pursue a path that reflects a proactive, commercially viable approach that meets or exceeds regulatory requirements. Consider emissions impacts in our project assessments and decisions.

### Target intensity-based reductions

Meet the growing demand for energy across our footprint while simultaneously reducing emissions.

### Use a wide spectrum of available tools

Leverage the full spectrum of available tools now and in the future — including optimizing our existing assets with improvements, using instruments such as renewable energy credits (RECs) and carbon credits, and implementing emerging technologies.

## Capturing growth opportunities

### Adopt low-carbon fuels and infrastructure

As the energy transition unfolds, continuously evolve our business mix in response to our customers' needs and as low-carbon fuels and infrastructure solutions emerge across North America.

### Leverage our competitive advantages

Develop opportunities that leverage our existing network of assets, technical skills and expertise, financial capacity, and strong stakeholder relationships as key competitive advantages.

### Maintain our financial flexibility and risk profile

Evaluate growth opportunities through the lens of long-term shareholder value and adhere to our risk-return profile for investors.

## Responding to change

There are many evolving external factors that will influence our plan over time, for example:

- Energy fundamentals
- The pace, scale and types of change that emerge in the global energy system
- Evolving expectations and requirements of our stakeholders
- Technology innovations and improvements
- Government regulation and decarbonization policy development
- Carbon markets and pricing
- Government innovation funding and incentives
- Reporting frameworks and standards

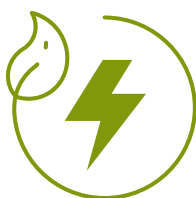
Internally, we continue to learn, innovate and build our own capabilities to measure and monitor our emissions, deploy new technologies, and work with partners to develop low-carbon energy solutions.

As the landscape evolves, we expect to adapt and adjust our plans accordingly.



# Building on strong foundations

Throughout our 70-year history, our people have continually found innovative solutions to the energy challenges of the day. We have been working towards emissions reduction for over two decades — we began voluntarily reporting GHG emissions in 2001. We have never stopped learning and evolving to ensure our business remains truly sustainable. These are strong foundations to build from as we work towards a cleaner energy future.



## 15+ YEARS

Experience with renewables and lower-carbon infrastructure.

## 400 MW

Renewable power purchase agreements.



## 200,000 tCO<sub>2</sub>e

Eliminated through our enhanced Canadian Natural Gas Pipelines LDAR program in the first 18 months of operation (started in 2020).

Approximately 10% of our Canadian and 5% of our U.S. compressor fleet is already electric.



## 20 MILLION TONNES CO<sub>2</sub>

Would be eliminated each year through the Alberta Carbon Grid, a project we are currently exploring.

## 12 RNG INTERCONNECTS

Transporting renewable natural gas for our customers since 2002.

## \$75 MILLION

Committed to venture funds developing clean energy technologies — Energy Impact Partners (EIP) in the U.S. and NGIF (Natural Gas Innovation Fund) Cleantech Ventures in Canada

## Founding member of the EMERGING FUELS INSTITUTE

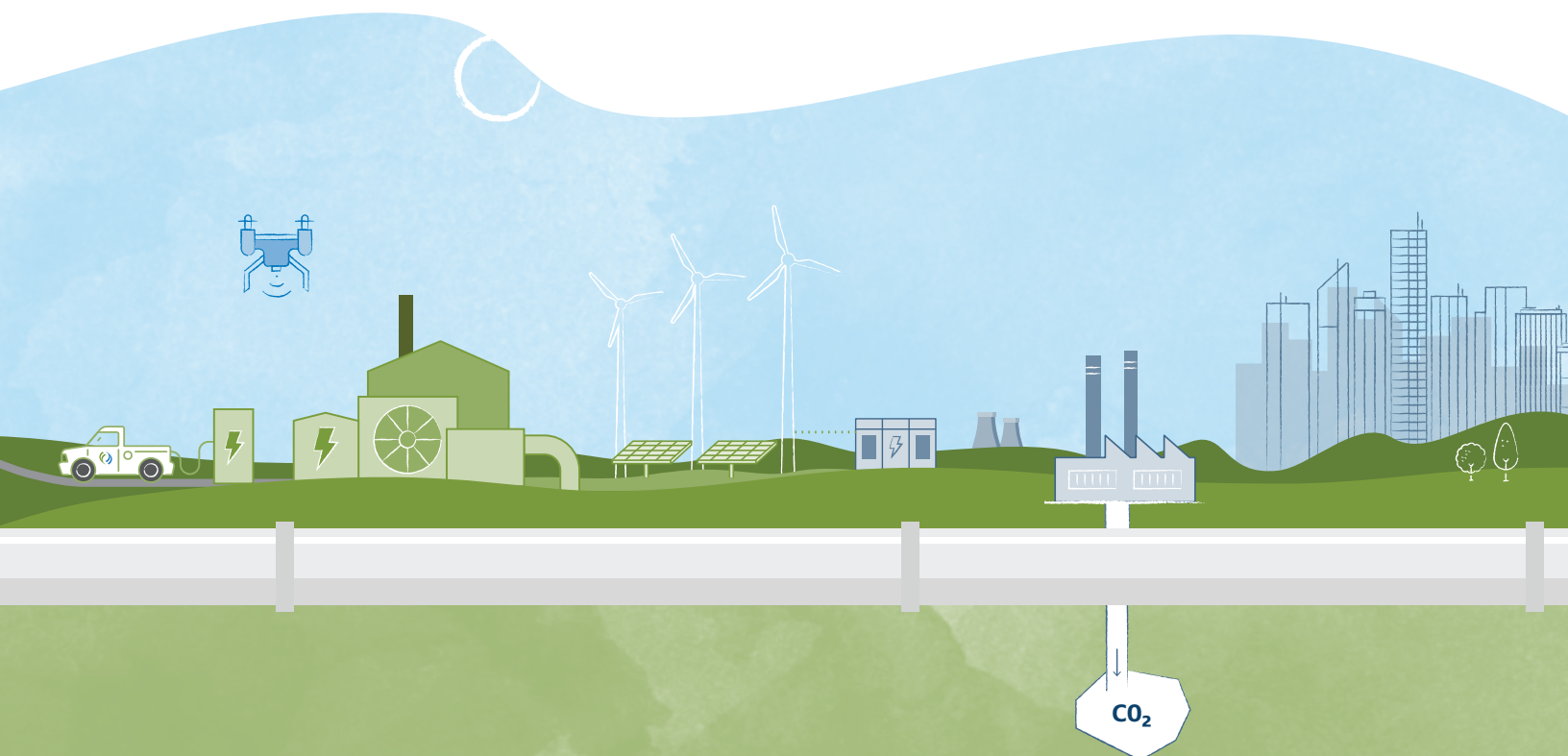
Established by the Pipeline Research Council International (PRCI) in 2021

# Our action plan

## Five focus areas

We are targeting five focus areas to reduce the emissions intensity of our operations while developing the next generation of lower-carbon energy solutions. We are working with customers and other partners within our industry, fostering innovation, and investing in research and development. We are adopting emerging technologies as they evolve, to drive safe, reliable and sustainable operations.

Beyond our own direct emissions, we are developing infrastructure and services that help decarbonize the energy system and reduce the full lifecycle GHG emissions of the energy we deliver. For example, we will continue to assess and progress opportunities to transport renewable natural gas and hydrogen; develop renewable power projects; develop carbon capture, utilization and storage (CCUS) infrastructure; and develop other low-carbon technologies such as pumped hydro power storage.





## Modernize our existing systems and assets

Reduce fugitive methane emissions, leaks, venting and flaring associated with regular operations and maintenance, and improve overall operational efficiency.

### Managing methane emissions

Fugitive emissions from our natural gas pipeline systems represent approximately 10 percent and controlled vented releases are approximately eight percent of our Scope 1 and 2 emissions<sup>1</sup>. These emissions occur during operations and maintenance and are primarily methane. Managing these emissions over the long term will help ensure that natural gas remains a sustainable fuel for today and into the future.

We continue to enhance our leak detection and repair programs, modernize and enhance our equipment, and develop and implement new practices and technologies.

We are collaborating with industry groups on methane-reduction initiatives including:

- Interstate Natural Gas Association of America (INGAA) [ONE Future Coalition](#)
- U.S. Environmental Protection Agency's (EPA) [Natural Gas STAR program](#)
- [Canadian Energy Partnership for Environmental Innovation](#) (CEPEI)
- Canadian Emissions Reduction Innovation Consortium (CanERIC), an initiative of the [Petroleum Technology Alliance Canada](#) (PTAC)

TC Energy is also a signatory to the [Methane Guiding Principles](#), which focus on actions to reduce methane emissions across the natural gas supply chain.

### Installing waste heat recovery units on compressors

Combustion of natural gas to fuel compressors generates excess heat alongside the resultant GHG emissions. This heat has the potential to be converted into electricity and generate zero-carbon power at locations with specific technical and economic attributes. We currently employ waste-heat-to-power technology on a commercial scale at select locations across our footprint.

### Enhancing our leak detection and repair (LDAR) programs

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. We have digitized our processes and created a unique-in-Canada emissions management application (EMA), improving our ability to plan maintenance activities. The EMA 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. In the first 18 months of the enhanced Canadian LDAR program, we eliminated almost 200,000 tCO<sub>2</sub>e. We continue to assess and deploy new practices and technologies to make further improvements.

Through this effort, we have gained much experience that we will apply to develop leak detection and repair strategies on our other natural gas pipeline systems.

### ONE Future Coalition

In the U.S., we participate in Our Nation's Energy Future (ONE Future) Coalition, a growing group of 50 natural gas companies working together to voluntarily reduce methane emissions intensity across the natural gas value chain. The coalition is focused on implementing innovative, performance-based approaches to the management of methane emissions, with a goal to achieve a methane intensity of one percent (or less) of total produced natural gas by 2025.

The coalition represents approximately 15 percent of the U.S. natural gas value chain. As of 2020, the net methane intensity from ONE Future member companies was well below the one percent goal.

<sup>1</sup> Figures are for our 2019 baseline year.

## Ongoing equipment enhancements to optimize our systems

Safety and reliability are always top priorities for us, and our pipeline safety programs are among the most robust in the industry. Through ongoing integrity and maintenance programs, we are continually replacing parts, retrofitting, and adjusting equipment to reduce fugitive emissions and venting and/or modernizing our natural gas pipeline systems for greater energy efficiency. For example:

- Stringent and disciplined valve maintenance
- Compressor station piping modifications that provide greater operational flexibility to run the system for efficiencies and reduce venting and blowdown volumes during maintenance activities
- Replacing reciprocating compressor rods (based on condition)
- Use of low-emitting dry gas seals and installation of other vent capture systems on compressor equipment
- Use of electric starters on new and existing turbine installations, in place of gas starters
- Deployment of enclosed incineration equipment and portable transfer compressors to reduce or eliminate vented emissions
- Flow meter enhancements to provide greater precision in emissions quantification

## Piloting new technology and equipment to capture vented emissions

We are also piloting new technology and equipment that reduces vented emissions — for example, in 2021:

- We piloted a field trial of a zero emissions vacuum and compressor (ZEVAC) unit during an in-line inspection of one of our Canadian Natural Gas pipelines. Traditionally, the gas inside the launcher and receiver barrel is vented to the atmosphere and blown down to zero to launch and receive our in-line inspection tools. Using the ZEVAC, zero emissions were released into the environment.
- We also installed Canada's first methane capture and reinjection skid to collect vented emissions at a compressor station in Manitoba. Captured methane is reinjected into the pipeline instead of being released into the atmosphere.



## Modernizing our Columbia Gas Transmission system

We are undertaking a modernization program for our Columbia Gas Transmission system, which consists of more than \$2.5 billion in system enhancements. The work done under this program has led to improvements in reliability of service, integrity of assets and efficiency of operations — all while reducing emissions. Our efforts to address GHG emissions on the Columbia system have resulted in 258,000 tCO<sub>2</sub>e emissions avoided since 2013. Based on the work currently completed, it's estimated that 57,000 tCO<sub>2</sub>e emissions will continually be avoided on an annual basis. This trend is expected to continue over the next several years amid a proposed third phase of the modernization program.





## Decarbonize our energy consumption

Seek low-carbon energy sources to support our operations.

### Sourcing renewable power

We are taking significant steps to address our Scope 2 emissions, which are primarily generated by the consumption of electricity used to power our Liquids pipelines.

Our Liquids systems use a fleet of electric-powered pumps and we are advancing plans to source renewable power for that fleet. There is little to no change in the equipment or infrastructure required to transition to renewable power, and the pipeline right-of-way traverses many geographies that are well-suited to wind or solar power.

Earlier this year we put out a request for information to over 100 suppliers to source renewable energy to power our Keystone system in the U.S. We may invest in new renewable energy projects and/or contract to procure renewable power purchase agreements for the associated renewable energy certificates (RECs). These power purchase agreements, underpinned by the operating Keystone pipeline, will facilitate the construction of multiple new wind and solar facilities across the U.S., in the power pools where Keystone operates. These projects will create new investment, new employment through construction and operations, and help to “green” the jurisdictions touched by the pipeline.

We intend to extend this plan to Liquids pipelines in Canada once agreements in the U.S. are finalized. Once all our Liquids assets are powered by renewable generation, we will see an annual GHG reduction of up to two million metric tonnes annually.

### Shifting company fleet towards electric vehicles

Our field operations teams drive millions of kilometers each year to monitor, maintain and operate our pipeline systems safely and reliably. With increasing availability of electric SUVs and light-duty trucks, we are developing a strategy to transition our fleet to electric vehicles and reduce the carbon intensity of our driving. To ensure safety, reliability and viability of electric fleet vehicles, we are assessing factors such as availability of charging infrastructure; range of the vehicle for each battery charge; expected lifespan of the vehicle before replacement; and costs for vehicle purchase, fuel, and maintenance. We anticipate that our fleet will be partially electric by 2030 and we will continue a gradual transition over the longer-term, as larger-sized trucks and charging infrastructure become more widely available.



## Converting gas compressor stations to electric motor drives

Approximately 70 percent of our GHG emissions come from combustion of the fuel used in our natural gas pipeline operations. To reduce this predominant emissions source, we are working to gradually convert our compressor fleet to electric motor drives, where it is feasible to do so.

Today, approximately 10 percent of our Canadian and five percent of our U.S. compressor fleet is already electric. We intend to continue to install electric motor drives throughout the next decade, using dual electric and natural gas drives to manage risks associated with electricity grid reliability.

Future growth and modernization programs will also incorporate compressor electrification, where appropriate.

To further reduce the emissions intensity of our natural gas pipeline operations, we are investigating opportunities to power our electric compressors with renewable sources. The experience we are gaining in sourcing renewable power for our Liquids pipelines will enable us to implement a similar approach to our natural gas pipeline business both in the U.S. and Canada.

## Installing dual-drive compressor motors lowers emissions while maintaining reliability

Our proposed Virginia Electrification Project will provide much-needed natural gas supply to meet the increasing market demand in the State of Virginia, as well as reduce net GHG emissions on Columbia Gas Transmission's pipeline system.

Reduced GHG emissions will be achieved through the installation of strategic, incremental facilities and upgrading outdated, existing infrastructure with brand-new, more efficient facilities.

New, Dual Drive Technologies, Ltd.<sup>TM</sup> ("dual-drive") electric motor compressor units will replace some of our existing gas-powered compressor units. New units will run exclusively on electric motors. To ensure local energy reliability, each unit will be capable of running on natural gas in the event of local power outages or other emergencies, thereby assuring customers retain their energy when needed most. The project will result in an overall net operating emissions reduction of over 27,000 tCO<sub>2</sub>e per year.



## Replacing higher carbon-emitting fuels with natural gas

Our Coastal GasLink pipeline project, now under construction, will supply one of the world's cleanest and safest energy sources — natural gas — to LNG Canada's liquefaction facility on the West Coast of British Columbia. LNG Canada will export the energy to Asian markets, where coal-fired electricity is commonly used.

In Mexico, we are supporting the country's transition away from fuel oil and diesel as its primary energy sources for electric generation. For example, in 2019, we placed the Sur de Texas-Tuxpan marine pipeline into service. This major feat of engineering allows Mexico to import affordable clean-burning natural gas from the U.S.



## Invest in low-carbon energy and infrastructure

Develop a broad range of new opportunities that offer energy solutions for today and for the future.

### Renewable energy projects

As renewable electricity demand grows across North America, new hydro, solar, wind and energy storage capacity will be needed to meet that growing demand and support a shift in the energy mix. TC Energy is well positioned to capture these opportunities given our 20+ years of experience in the power business and the multiple projects and opportunities we have underway. Our operating experience with hydro, wind, solar and nuclear power assets demonstrates the expertise required to excel in these evolving markets. We are also exploring opportunities to serve our own electricity requirements with renewables.

TC Energy is committed to providing renewable energy solutions in North America for our own assets as well as those of customers. For example, we can offer customers access to a variety of renewable energy resources via the long-term power purchase agreements (PPAs) we have recently finalized in Alberta, including:

- 74 MW of solar energy at Claresholm Solar, which came online in April 2021.
- 20 MW of solar energy at East Strathmore Solar, which will come online in the first quarter of 2022.
- 297 MW of wind energy at Sharp Hills Wind Farm, which is now under development by EDP Renewables Canada. Subject to customary regulatory approvals and conditions, the wind farm is anticipated to be operational in 2023.

With the addition of Sharp Hills, we have access to about 400 MW of renewable power. Our agreements include the rights to all the environmental attributes of these projects, enabling us to apply carbon credits to our business, or market the environmental attributes for our customers.



### Energy storage solutions

Large scale energy storage solutions are critical to solving intermittency issues with renewable power sources such as wind and solar while optimizing the efficiency of the electricity grid. We have active projects developing large scale multifaceted power storage opportunities. These include:

- A 1,000 MW pumped hydro energy storage project under development in Ontario, one of Canada's largest climate change initiatives
- A majority ownership of the proposed Canyon Creek pumped hydro storage facility in Alberta, currently seeking remaining governmental permits for construction; the project would have an initial generating capacity of 75 MW
- A teaming agreement with Lockheed Martin to identify and develop large-scale, long-duration energy storage projects using innovative flow battery technology
- A novel, utility-scale solar-plus-storage electricity generation facility in Alberta that contemplates the use of state-of-the-art bifacial solar panels that take advantage of local climate conditions

## Renewable natural gas (RNG)

We have transported RNG in our systems since 2002 and currently have 12 RNG interconnects across our footprint. This fuel is produced by our customers by capturing methane emissions from biological sources and landfills. We are actively focusing on growing our RNG receipts — in 2021 we doubled the amount of renewable natural gas flowing in our U.S. pipeline system, from 2Bcf to 4Bcf per year. This brings our 2021 total to 8Bcf for Canada and the U.S. combined. We continue to develop opportunities to increase this amount by another 30 Bcf per year. Because of the high demand, we are working to create a standard biogas meter skid that will cut installation cost and time and make future participation in these projects more efficient.

This year, TC Energy joined the RNG Coalition, a non-profit organization that brings together members from each sector of the RNG industry to educate and advocate for the advancement of RNG. Our involvement reinforces that we envision a future where natural gas and renewables work together.

## Nuclear

In 2003, we made our initial investment in the Bruce nuclear power facility in Ontario. Bruce Power provided 70 percent of the electricity needed to phase out coal power stations in the province. Today, we continue to invest in a multi-billion dollar life extension program that will enable Bruce to deliver emissions-free energy for over the next 40 years. Innovating for the future, Bruce is now participating in exploring small modular reactor technology, which could be another complement to intermittent power sources such as wind and solar in the decades ahead.

## Carbon capture, utilization and storage (CCUS)

CCUS is one of the most promising forms of emissions-reduction technology and it will be critical to meeting global climate goals. CO<sub>2</sub> pipelines are a mature technology and, with CO<sub>2</sub> in supercritical or liquid phases, pipeline operation is largely analogous to our other Liquids pipelines. There are many opportunities to leverage our pipeline and storage network and expertise for this purpose. For example, we are now furthering the development of a world-scale carbon transportation and sequestration system, the Alberta Carbon Grid, with our partner Pembina Pipeline Corporation.

Work is ongoing to assess additional CCUS opportunities in other regions. These opportunities may exist in industrial hubs with associated emissions from power generation, petrochemicals, iron/steel, and cement manufacturing, along with other industrial activities. CCUS infrastructure also has application at certain hydrogen production facilities as the hydrogen economy grows. Many of these hubs are located in regions where we already have a strong presence and CCUS infrastructure could be a natural extension of our existing network.



## Hydrogen

Hydrogen represents a key lever in the transition to a low-carbon future, although some end use applications remain in an early stage. We see a role for TC Energy in hydrogen infrastructure development as it closely aligns with our core business and operating expertise. Experience and expertise in fuel transportation, power generation, and gaseous fuel storage are all required in the growth of a hydrogen economy. Our recently announced partnership with Irving Oil will assess the opportunity to support the development of low-carbon hydrogen as part of a broader suite of low-carbon opportunities within the Atlantic region.



## Further exploring decarbonization projects with our partners

We are building collaborative partnerships within industry to further explore and develop commercially viable decarbonization projects. These partnerships enable us to leverage the assets of multiple partners, combine capabilities and expertise, and develop customer-focused solutions.

### Alberta Carbon Grid

We recently announced plans to develop the Alberta Carbon Grid, a world-scale carbon transportation and sequestration system. The plan will leverage existing pipelines and a newly developed sequestration hub to create the infrastructure platform needed for Alberta-based industries to effectively manage their emissions and contribute positively to Alberta's lower-carbon economy. The Alberta Carbon Grid would be capable of transporting more than 20 million tonnes of CO<sub>2</sub> annually — representing approximately 10 percent of Alberta's industrial emissions.

For Canada to achieve its enhanced climate targets, including a 40–45 percent reduction in greenhouse gas emissions below 2005 levels by 2030, CCUS technology and infrastructure will need to play a vital role. With partners, TC Energy is uniquely positioned to take a leadership role in the transportation of CO<sub>2</sub> given our skills and extensive network of pipeline infrastructure. Utilizing existing assets dramatically accelerates timing, greatly reduces cumulative environmental and community impacts, and is significantly less capital intensive than building a new pipeline.

### Irving Oil partnership

In August 2021, TC Energy and Irving Oil announced that we will explore the joint development of four proposed energy projects focused on decarbonizing current assets and deploying emerging technologies to reduce overall emissions.

The initial focus will consider a suite of upgrade projects at Irving Oil's refinery in Saint John, New Brunswick, with the goal of significantly reducing emissions through the production and use of low-carbon power generation.

The partnership will also explore opportunities to aid decarbonization over the medium- and long-term via the production and distribution of low-emissions hydrogen and a world class carbon capture and sequestration network. Targeting industry solutions to lower emissions aligns with regional goals and enhances the opportunities for future development in Atlantic Canada.

### Co-development of large-scale clean hydrogen hubs

In October 2021, we announced a strategic collaboration with Nikola Corporation in the U.S., aimed at the development, construction, ownership and/or operation of critical hydrogen infrastructure for hydrogen fueled zero-emission heavy-duty trucks.

A key objective of the collaboration is to establish hubs producing 150 tonnes or more of hydrogen per day near highly traveled truck corridors to serve Nikola's planned need for hydrogen to fuel its Class 8 fuel cell electric vehicles (FCEVs) within the next five years.

TC Energy has significant pipeline, storage and power assets that can potentially be leveraged to lower the cost and increase the speed of delivery of these hydrogen production hubs.

Both Nikola and TC Energy are committed to reducing the carbon intensity (CI) of hydrogen produced and delivered to end-use markets utilizing renewable energy, as well as low-cost natural gas, renewable natural gas and biomass feedstocks, paired with carbon capture and storage. Nikola and TC Energy are aligned in a technology agnostic approach to find the best pathway to hydrogen production for each unique geography that is intended to result in the lowest CI and a clear pathway to achieve net-zero over time.



## Drive digital solutions and technologies

Develop and deploy software and systems to digitize our operations and monitor emissions.

Our digital transformation journey is ongoing. Our focus to date has been on using digital solutions to enhance operational efficiency, safety and reliability — delivering on customers' needs. More recently, we have begun to drive digital solutions that also help us meet our emissions reduction goals. As well, we are working with strategic partners to develop industry-accepted emissions technology and data standards.

### Harnessing artificial intelligence (AI) and machine learning for data-based decision-making

We are investing in AI innovations using both machine learning and deep learning technologies. These technologies use algorithms to parse complex datasets and enable us to make more informed business decisions, based on data.

We are working to integrate real-time data from disparate sources including sensors along our pipeline, compressor monitoring systems, pipeline reliability and integrity data, energy demand forecasts, emissions monitoring programs, pipeline capacity and nominations data, and data from our enterprise resource planning (ERP) system.

A centralized data repository will connect these previously siloed datasets, and AI engines will perform analysis on this aggregated data. These advanced analytics can reveal correlations, patterns and anomalies that may have otherwise gone undetected, giving us an enterprise-wide view that was not available before. These “big data” insights will augment human expertise, enabling informed decisions that address critical operational factors as well as emissions management considerations.

AI and machine learning applications could ultimately support a variety of interconnected business processes — for example, our gas control, operations planning, maintenance planning, and field work management processes.

### Incubating new technology in our innovation lab

To speed new ideas to implementation, we have established an AI and machine learning innovation lab, where our team of data scientists, and subject matter experts, from various departments and specializations, can experiment with new technologies in a test environment. This is a safe digital space that allows for new systems and programs to be tested virtually and fine tuned before we deploy them.



### Detecting and quantifying emissions

Emissions detection and quantification technology has been rapidly evolving in the past two years. TC Energy has been piloting various emissions data capture technology including:

- Direct manual measurement techniques performed by our field personnel
- Fixed continuous sensors that detect emissions and other operational data in real time
- Satellite emissions monitoring
- Aerial imaging methods from drones, helicopters, fixed wing planes and unmanned aerial vehicles

These technologies enable us to monitor emissions in near-real-time and track our emissions performance on a more frequent basis. This data also helps us to prioritize required maintenance and repairs to rapidly address fugitive emissions when detected.

## Piloting AI and machine learning applications on our natural gas pipelines

Our natural gas pipeline system includes close to 100,000 km of pipe, almost 250 compressor stations, 1,100 compressor units, and approximately 2,500 meter stations. There are close to one million data streams from sensors on equipment and facilities. We are piloting advanced data and analytics applications that help optimize key activities and functions required for the safe, reliable performance of this extremely complex system. In 2021 we implemented two such tools.

### Using machine learning to optimize system operations

We have created a machine learning application to provide predictive forecasts and recommendations for our U.S. Natural Gas Pipeline operators. This application, dubbed the “autonomous pipeline” monitoring system, collects critical real-time data from many different sensors and systems, at many locations along our pipeline. The application uses advanced data analytics to evaluate millions of potential scenarios then predict operational outcomes. Computer models make recommendations for station pressures and produce operational recommendations to meet the predicted flow requirements. This allows controllers to look to one dashboard in real-time to assess how best to optimize the pipeline. We are now completing studies to determine which other assets are suited for this technology.



### Using AI to detect and predict pipeline anomalies

We developed and launched an operational business intelligence program that uses AI and machine learning to help our customers optimize gas throughput. The program, nicknamed “ORBIT” (Operations Resiliency Business Intelligence Tool), uses advanced analytics techniques and a comprehensive knowledge base to detect and predict potential anomalies on our Canadian Natural Gas Pipeline system — faster and more efficiently than current computer systems. Through machine learning, the program then recommends actions to help mitigate and resolve issues with more precision. Going forward, we anticipate ORBIT will help identify pipeline integrity anomalies and improve operational efficiency, as well as reduce greenhouse gas emissions across the system.

Our experience with these applications gives us a strong foundation to build from, as we apply our digital capabilities to our emissions reduction goals.



## Leverage carbon credits and offsets

Evaluate and leverage carbon offsets and assess opportunities to develop nature-based solutions.

### Engaging in voluntary markets

Carbon offsets will continue to play a role in helping hard-to-abate sectors mitigate their emissions. As we look to address the balance of our residual emissions, we may invest in carbon offsets or purchase carbon credits, prioritizing projects that are co-located in the areas we operate, and maximize the socio-economic and environmental benefits for our company and the communities in which we operate. When participating in voluntary carbon markets we will strive to invest in the highest quality offsets, including nature-based solutions, that are verified by internationally recognized standards such as Verra, Gold Standard, the Climate Action Reserve and the American Carbon Registry.

We will investigate opportunities to develop projects that generate other environmental, social, and economic co-benefits beyond just GHG reductions.

### Participating in compliance markets

Today, all our Canadian Natural Gas assets (except for Trans Québec & Maritimes Pipeline (TQM)) are regulated under carbon pricing — these include cap-and-trade in Quebec, the carbon tax in British Columbia, baseline-and-credit through the Alberta Technology Innovation and Emissions Reduction (TIER) regulation, and the federal output-based pricing system (OBPS). In managing our carbon compliance obligations, we maintain a portfolio approach — evaluating abatement opportunities within our own footprint (e.g., waste heat recovery, process optimization, electrification), as well as procuring carbon offset credits and emission allowances. We continue to advocate for the use of carbon markets for compliance purposes to create immediate and measurable reductions in GHGs at the lowest possible cost.



### Developing quantification protocols

Over the past decade, we have been partnering with project proponents to develop quantification protocols under the Alberta Offset System. We have contributed to the development of over 10 approved protocols and invested in projects that promote development of sustainable practices and clean energy such as wind generation, biomass, landfill gas recovery, energy efficiency and sustainable forestry practices.



# Funding our plan

As with all of our capital allocation decisions, we intend to continue our disciplined approach to funding and financing our GHG emissions abatement programs and low-carbon fuels and infrastructure projects.

## Making strategic capital allocation decisions

Our climate goals will help inform our future capital expenditure decisions — and we believe there are abundant opportunities for emission reduction investments that leverage and enhance the resiliency of our asset footprint. We are seeking low-carbon investments which will also support our objectives to deliver growth in earnings, dividends and total shareholder return, while aligning to our risk preferences.

We are already allocating capital to lower-carbon infrastructure investments — for example, investments in pumped hydro storage projects, solar and wind projects, natural gas pipeline modernization programs, and the Bruce nuclear power generation facility in Ontario. We regularly provide information and updates on our capital program through our quarterly and annual reports, news releases and other communications.

We will continue to review and evaluate all relevant funding sources to ensure optimal financing solutions are implemented to support our GHG emissions abatement programs.

## Evaluating innovation funding sources and incentives

The innovation funding ecosystem in Canada and the U.S. continues to rapidly evolve in support of GHG emissions reduction projects.

We continue to identify and assess potential external funding sources and incentives which could be available. These may include government grants and incentives, tax credits and infrastructure bank programs among others.

Funding opportunities are specific to each jurisdiction and type of project, and so must be identified on a case-by-case basis. It is a highly competitive space — however, climate-related funding sources continue to grow, and we expect new opportunities will become available to us over time. Our ability to access external funding may influence the sequence and timing of our abatement projects.

# Communications and reporting

This publication describes our plans for progressing towards our GHG emissions reduction targets, which contribute to meeting our broader sustainability commitments. Going forward, our intention is to report on our progress and performance against these targets in our Report on Sustainability and other reporting as appropriate. We remain committed to full transparency in our communications and reporting as our plans evolve.

## Additional sustainability and ESG reporting

This publication constitutes one element of our environmental, social and governance (ESG) reporting. More information and data, including content that is aligned with global reporting standards, can be found in the following documents:

[2021 Report on Sustainability](#)

[2021 ESG Data Sheet](#) — with downloadable performance data tables

[2021 TCFD Alignment Table](#)

[2021 SASB Alignment Table](#)

[2021 Reconciliation Action Plan](#)

[2021 CDP Climate Change Report](#)

[2020 Materiality Assessment](#)

[ESG Directory](#)

## Other communications

Our quarterly and annual reports, news releases and other communications can be found on our website ([TCEnergy.com](https://www.TCEnergy.com)), on SEDAR ([www.sedar.com](https://www.sedar.com)) and on EDGAR ([www.sec.gov/edgar.shtml](https://www.sec.gov/edgar.shtml))





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October 2021





# Reconciliation Action Plan Update

NOVEMBER 2022





# Land acknowledgement

Embedded in the lands on which TC Energy operates are the histories, cultures and traditions of Indigenous Peoples across North America. We thank the original stewards of these lands—generations past, present and future—for sharing these homelands with us.



“We dance to honour our ancestors—following their footsteps, with grace, dignity and pride.”

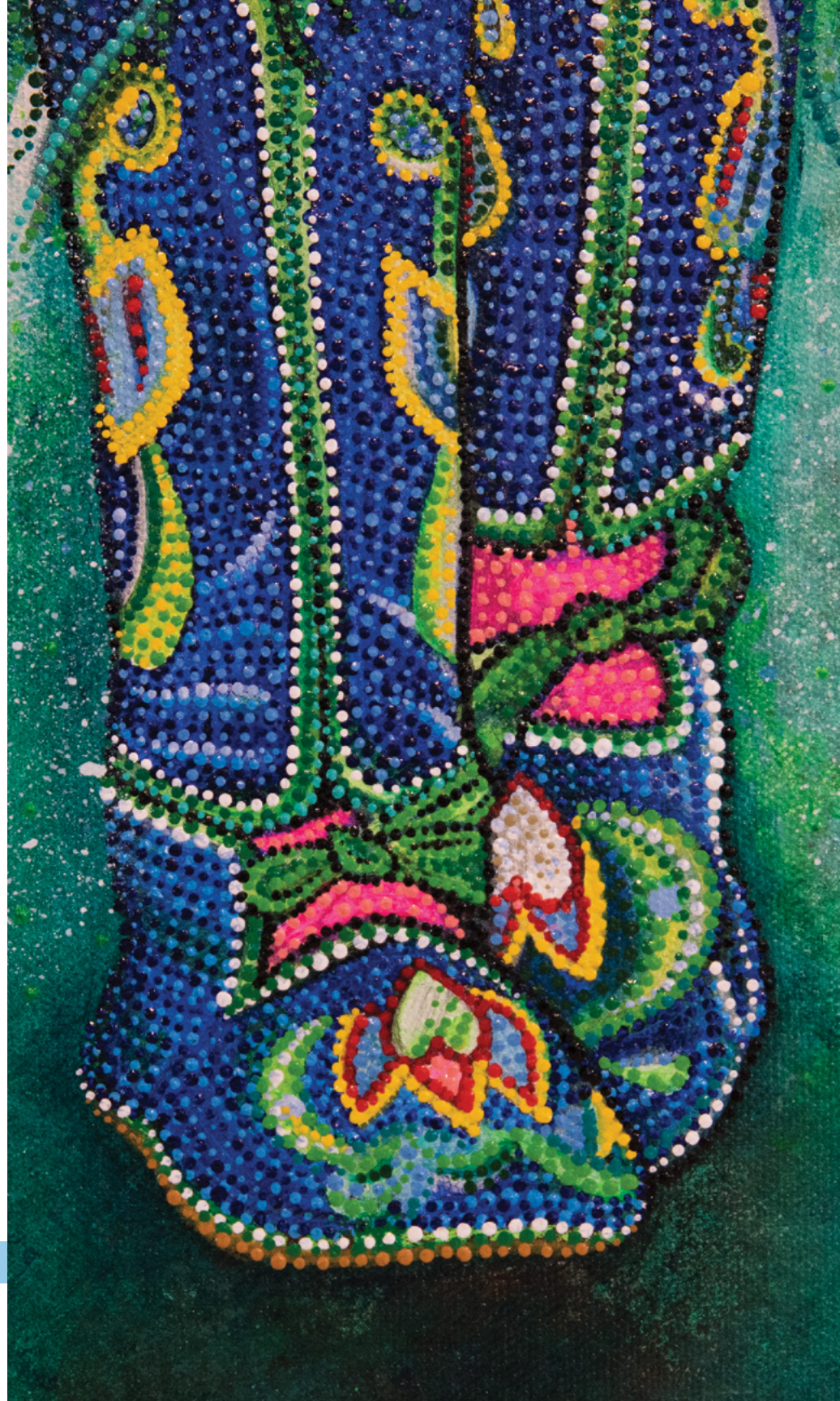


#### ARTIST PROFILE

## Delreé Dumont

Wâpiski Kihéw Esquao (White Eagle Woman), also known as Delreé Dumont, is an internationally recognized Cree artist from Nakusp, British Columbia, Canada. Dumont was born in Chilliwack, British Columbia and is a member of Onion Lake Cree Nation located north of Lloydminster, Saskatchewan. Prior to working as a full-time artist in 2014, Dumont was employed in Alberta's oil and gas industry for 32 years. During that time, she promoted the beauty of her culture and traditions within the corporate environment. Today, much of her artistic work draws on her experience as an Indigenous person.

**ANCESTORS' FOOTSTEPS.** Acrylic on canvas. 2020.





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(All amounts in the Reconciliation Action Plan Update are in Canadian dollars.)





# Introduction

**A year after publishing our inaugural Reconciliation Action Plan, we continue to listen and learn and we have made progress along the way.**

Most importantly, we have grown our mindset from *wanting* to learn many of the answers right away to *understanding* this growth takes time. Only through our relationships with Indigenous Peoples can we identify interconnected issues and then co-create meaningful solutions on our path to building a strong shared energy future together. This is why we have focused our efforts in the past year on increasing cultural awareness among our Board, employees and contractors, and have invited Indigenous leaders to help us define the next steps in our journey.

Through internal and external engagement activities, we made mindful decisions to embed reconciliation into how we work. However, we recognize that we have much more work to do. From feedback, encouragement and collaboration, we are learning to approach reconciliation with humility. In the following update on the Reconciliation Action Plan published in 2021, we offer transparency on performance and reflection on our learnings.





# Our vision for reconciliation

**We will be an industry leader in advancing reconciliation with Indigenous Peoples.**

We play a role in reconciliation as an energy infrastructure company that engages with Indigenous Peoples every day across our unique footprint. Our vision is to support the growth of resilient Indigenous communities and the development of a strong shared future.

Successful long-term relationships are based on trust and respect. By ensuring early and honest communication with our partners, and listening to understand priorities of Indigenous Peoples and businesses, together we will find alignment and pursue opportunities that help us continually build stronger, mutually beneficial relationships and partnerships. Reconciliation is the responsibility of every person, every employee and every employer.

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## An ongoing commitment

Early and honest communication sets the foundation for successful long-term relationships based on trust and respect.

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# Progress in 2021-2022: Acting on our plan

**Reconciliation between Indigenous Peoples and non-Indigenous people is a journey requiring education, introspection, a thoughtful approach, long-term commitment and openness to listen and learn.**

Our Reconciliation Action Plan includes six commitments. Since the launch of this plan in 2021, we have made progress in several areas and have recognized it is also important to take time to meaningfully advance other areas to fulfil the intent of some of the goals. For example, mandatory training for our Board of Directors and our Canadian workforce was a first step in building a greater understanding of the history of Canada and relationships with First Peoples. We are now evolving our internal training to further integrate community perspectives and tailor the training for specific regions. Some commitments have taken us longer and require additional work; for example, setting contracting targets across each business unit requires detailed analysis of past spend and changes to process and systems before we can determine the best approach.

We are deeply grateful for the feedback and interest from Indigenous groups, partners, employees and the Indigenous Advisory Council. This guidance is informing how we measure progress, identify other areas for improvement and shape new goals.

In the following sections, we offer detailed updates on our progress towards each of the goals set in 2021. As we continue our journey, it is important to share stories and learnings that may spark ideas or create connections. In each section, we set key learnings that will continue to inform our actions as we move forward.



“We are committed to building respectful relationships, enhancing cultural competency and pursuing opportunities that help us build stronger, mutually beneficial relationships with Indigenous Peoples.”





# 1. Indigenous Advisory Council

## Our goal and target

Work with Indigenous leaders across our footprint to establish an Indigenous Advisory Council that will provide advice to our Executive Leadership Team and help guide our reconciliation efforts. We targeted having an approach for an Advisory Council in place by Q4 of 2021.

## Our progress

**Complete:** An Indigenous Advisory Council (the Council) was established in December 2021 with leaders representing Indigenous interests across Canada. Currently, the Council is comprised of three Indigenous leaders with recruitment continuing. The Council will meet with TC Energy's Executive Leadership Team twice a year and will provide guidance on initiatives to progress reconciliation-related priorities with Indigenous groups. The Council had its first meeting with our Executive Leadership Team in May 2022 and identified six pillar areas of focus. At the second joint meeting in October 2022, discussions focused on the launch and progress of working committees in these focus areas.

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## Pillar areas of focus:

- Talent and Employment
  - Contracting and Hiring
  - Relationships/Partnerships
  - Governance
  - Land and Environment
  - Education
-

## Meet members of our Indigenous Advisory Council



### **Raylene Whitford MBA, ACA**

#### **Indigenous Advisory Council Chair**

Born in Amiskwacîwâskahikan, now commonly known as Edmonton, Alberta, Raylene Whitford is a proud member of the Métis Nation of Alberta.

As a finance professional, Whitford spent the majority of her career working internationally in the energy sector in Europe, Latin America and the Middle East. In 2019, she returned to Canada specifically to work in the intersection of government, industry and community. She is passionate about ensuring the energy transition is not only inclusive—but co-created—with Indigenous Peoples.

Whitford is a Partner with Monitor Deloitte Canada and works as their National Indigenous Strategy Practice Lead. She is also a member of the Advisory Committee for the Deputy Minister of International Trade and the founder of INDIGI-X, a platform for global exchanges for Indigenous professionals.

Whitford is committed to working with companies and governments to create sustainable economic development opportunities for Indigenous Peoples around the world.

“I joined the Council as I truly believe TC Energy’s leadership team members are personally committed to making real and measurable change. Our role is to challenge and hold leadership accountable to making measurable progress on their journey to becoming better partners with Indigenous Nations and businesses.”



### **Krystal Abotossaway, MHRM**

At an early age, Krystal Abotossaway, an urban Ojibwe Anishinaabe Kwe, already recognized the need for equity advocacy for Indigenous Peoples, people with disabilities, women and youth. Driven by her life experiences and later observations of lack of representation for these demographics at school and workplaces, Abotossaway has spent her personal and professional life working to enable more Indigenous youth to achieve their aspirations and dreams.

Now a well sought-after expert, speaker and leader on Indigenous engagement, Abotossaway is a senior human resources manager at TD Bank and sits on many boards as an avid community advocate, all while pursuing an Executive Master of Business Administration from Western University. As the President of the Indigenous Professional Association of Canada, she is helping to redefine the agenda and identify new measures for advancing the opportunities for and the capabilities of Indigenous Peoples.

“As a young Indigenous woman, reconciliation means that both parties come to the table to work and progress in the right direction. I’m excited to share my HR knowledge as well as my leadership experience working with Indigenous youth and professionals alike to support TC Energy’s efforts towards truth and reconciliation.”



**Robert Louie, LL.B, OC, Hon. Dr. LL.B, Hon. Fellow Okanagan College**

Over the past few decades, newly elected Westbank First Nation Chief Robert Louie has built a reputation as a trusted leader, successful businessman and advocate for legislative change to further the economic and social well-being of Indigenous Peoples.

A longtime Westbank First Nation leader and former lawyer specializing in Indigenous law, he previously served as Chief for 24 years until 2016—during which time he helped guide the Nation through independence, achieving self-governance in 2005.

Chief Louie has held many leadership and advisory roles with government and private industry over the years, including more than 30 years as Chairman of the First Nations Lands Advisory Board. Chief Louie is a recipient of many esteemed designations and awards, including Officer of the Order of Canada, Queen's Diamond Jubilee Medal and the Canadian Council for Aboriginal Business' 2022 Aboriginal Business Lifetime Achievement Award.

“I joined TC Energy’s Council because I want to see long-term tangible benefits being made with Indigenous communities in advancing their economic activities. I want to see Indigenous communities with equity stakes and meaningful partnerships in place. I want to see Indigenous Peoples listened to and respected and their concerns addressed.”





## An important story

As we engaged with Indigenous leaders across Canada during the Council interview process, we learned a great deal. The interviews offered us an opportunity to hear the candidates' experiences and perspectives, as well as feedback and guidance about advancing reconciliation. In this way, the process of establishing the Council created a channel for direct communication that contributed to our learning journey. We are grateful for everyone who participated and shared their ideas—thank you.

### Learnings to share:

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- The Council members have informed and unique perspectives ranging across Canada, and are not limited to our operational footprint. This approach complements existing activities and commitments and provides for a more diverse Council with a variety of experiences, credentials and knowledge.
- Through our engagement with Indigenous Peoples across North America, we have learned the importance of having a flexible approach as there is no “one size fits all.” As a result, the Council is initially focused on our Canadian footprint.



Our pipelines cross the traditional territory of many Indigenous communities across North America, including this right-of-way on Tsuut'ina Nation land.



## 2. Board of Directors cultural awareness training

### **Our goal and target**

In response to the Truth and Reconciliation Commission's 92nd (iii) Call to Action, we committed to delivering tailored training to our Board of Directors focused on the history and cultures of Indigenous Peoples across North America. We targeted developing the training by Q3 of 2021 and initiating it before the end of 2021.

### **Our progress**

**Complete:** In September 2021, we engaged an external consultant with Indigenous trainers to design and facilitate a training session for TC Energy's Board of Directors. The training was held in November 2021 and all 14 Directors participated virtually due to COVID-19 safety precautions.



“The training session for the Board of Directors was informative and insightful. We appreciated the opportunity to ask questions and gain a deeper understanding of the original stewards of North America and look forward to learning more.”

**Siim Vanaselja**

TC Energy Chairman of the Board of Directors





## An important story

The session captured the hearts and minds of the Directors. By combining historical details with storytelling, facts and personal perspectives, the session offered a variety of learning topics and insights.

### Learnings to share:

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- Recognizing that this is a journey of learning and given this session was so positive, we will explore further opportunities to share cultural awareness information with our Board of Directors and examples of economic success and shared prosperity from Nations that have successfully built a shared energy future.





## Dānít'ádā ~ - 'How are you?': A warm welcome from Tsuut'ina Nation

A [new Relationship Agreement](#) has strengthened our long-standing relationship with Tsuut'ina Nation.

Our relationship dates back to the 1960s, when we began building one of the first natural gas pipeline systems throughout southern Alberta and crossed Tsuut'ina land. The Relationship Agreement—an excerpt of which was engraved onto a buffalo hide in both the Tsuut'ina language and English and then gifted to us—establishes a mutually beneficial relationship that recognizes the interests of both parties. A Feather Hat was also given to our Executive Leadership Team member.

“The Feather Hat is a high honour that is bestowed on someone who represents this relationship. It is called

‘making relatives’ and recognizes the interdependence of the strengths of two groups,” says Elder Bruce Starlight.

As part of the Relationship Agreement, support for the Tsúūt'ínà Gūnáhà Nest is also included, which will be a centre for the preservation of the Tsuut'ina language and will promote mentoring, teaching and development of language resource materials for future generations.

The late Councilor Stanley Big Plume was a well-respected community member who advocated for language support to be included in the Relationship Agreement, in collaboration with the Nation's consultation department, which has engaged closely with TC Energy over the years. ■



### 3. Cultural awareness training

#### Our goal and target

In response to the Truth and Reconciliation Commission's 92nd (iii) Call to Action, we committed to implementing a corporate-wide training module to provide mandatory cultural awareness training to all employees and internal contractors. The training was set to focus on the history and cultures of Indigenous Peoples across North America. We targeted developing the training by Q3 of 2021 and initiating it in 2021.

#### Our progress

**In progress and behind schedule:** We designed and launched a mandatory cultural awareness training module for all employees and contractors located in Canada in Q4 of 2021. By July 30, 2022, 99.82 per cent of the Canadian workforce had completed the training. Importantly, all new employees and contractors in Canada receive this training as part of their required onboarding. The course is complemented by a resource page with additional guidance materials as well as the option to provide feedback and comments.

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99.82%

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By July 30, 2022, 99.82 per cent of the Canadian workforce had completed the training.

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TC Energy employees set up a tipi for an Indigenous awareness training session on the lawn of our office in Airdrie, Alberta.



## An important story

In parallel to the company-wide training, the project team leading Coastal GasLink developed mandatory project-specific cultural awareness training for the entire workforce across the project. In creating the content for the course, the Coastal GasLink team shared a draft version with Indigenous Nations along the route to seek feedback on the content. We received over 500 comments of thoughtful feedback on the content from the Indigenous communities. This feedback was insightful and resulted in changes to the course content.

### Learnings to share:

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- Cultural awareness training is an important step in the journey towards reconciliation that helps build understanding and will continue to evolve over time. We have learned the importance of listening and updating the training to reflect feedback from Indigenous people as well as the importance of understanding the unique cultures and different histories of the geographies across our broad footprint.
- In 2022 and 2023, we will plan how best to follow up on training sessions to enable continuous learning and engagement. We will continue to offer enhancement to the online training through the availability of our full-day session on the history of Indigenous Peoples and the opportunity to visit an Indigenous community for a hands-on learning experience.



## Partnering with Indigenous neighbours to encourage safe and inclusive workforce lodges

There is now a [new initiative at workforce lodges](#) encouraging workers to celebrate our differences and similarities across the company.

[Drawing inspiration from a proactive Coastal GasLink program](#), the Indigenous Relations team partnered with Indigenous Nations to pilot the Community Workforce Accommodation program for the NOVA Gas Transmission Ltd. (NGTL) System Expansion to support a positive and inclusive experience at our workforce accommodations.

Central to the program is the cultural awareness programming designed by coordinators recruited from several Indigenous Nations. The coordinators are hired to work as ambassadors of inclusion, resource navigators, cultural keepers, activity coordinators and role models at the lodges.

Janet Auger, who is of Métis and Cree heritage, worked as a coordinator. She says, "It's really a recognition in supporting the health and wellness of the workforce and... will help with retention of both Indigenous and non-Indigenous staff because it fosters understanding between one another."

The program was piloted at three workforce accommodations in Alberta beginning in 2021 and has since expanded to other projects. ■



Janet Auger, a Community Workforce Accommodation Coordinator, engages with lodge staff on a cultural craft.



## 4. Investment in communities

### Our goal and target

We committed to partnering with Indigenous groups to identify and support community-led reconciliation initiatives. We have a long history of providing support for community-led priorities and aimed to continue this process throughout 2021. In addition, through our [community giving program](#), we support Indigenous-led organizations and non-profits through our long-standing Community Legacy programming to address priorities identified by the communities that fit within four focus areas: Safety, Education and Training, Environment, and Community.

### Our progress

**In progress:** In 2021, more than \$7.3 million was provided to Indigenous-related causes and initiatives, including 293 Indigenous Legacy scholarships in North America to support Indigenous post-secondary students in reaching their education goals.

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\$7.3M+

In 2021, more than \$7.3 million was provided to Indigenous-related causes and initiatives.

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Cali Weasel Fat from Kainai First Nation in Alberta is a three-time recipient of our Indigenous Legacy Scholarship.



## Important stories

- For nearly 20 years, TC Energy has supported local Habitat for Humanity organizations across Canada through Habitat Build Days. Since 2021, our team in Ontario partnered with Habitat for Humanity Canada to support the Indigenous Housing Partnership. The Indigenous Housing Partnership is an equitable partnership rooted in respect for Indigenous cultures, helping deliver housing solutions by Indigenous communities for Indigenous communities. TC Energy is proud to be partnering with Habitat Canada, Habitat Grey Bruce, the Chippewas of Nawash Unceded First Nation, and the Saugeen First Nation. Through this partnership, our team has worked alongside homeowners and community members to help build 11 homes within the Saugeen Ojibway Nation traditional territory.
- We have provided support to Driftpile Cree Nation to help build an essential new healing lodge on the shore of Lesser Slave Lake to care for the mental wellness, health and healing of community members. The healing lodge, which opened in May 2022, provides treatment for addiction recovery in a beautiful facility that is close to home. A stunning feature wall at the lodge was built using material recovered from the original cabin site of Chief Kinosayo, who was the Chief for all current Lesser Slave Lake Nations when Treaty 8 was signed in 1899.

## Learnings to share:

- We recognize the best solutions start with listening to the people who are impacted by our business activities. We continue to find alignment, enhance relationships and support Indigenous-led initiatives within communities where we work. We will continue to engage with Indigenous groups to understand their priorities and work collaboratively to support them.



TC Energy team members volunteer with Habitat for Humanity to help build homes within the Saugeen Ojibway Nation traditional territory.



Levi McKay credits Trade Winds to Success with his current career success as a union boilermaker.

## Community changemaker offers opportunities to achieve economic prosperity and security

It's partner organizations like Trade Winds to Success that enable the long-term social and economic success in Alberta. Through its four-month long pre-apprenticeship trades program, which we've supported since 2020, Indigenous students across Alberta receive pre-apprenticeship training in a variety of trades, with the goal of supporting students to achieve journeyman status and bringing more trained Indigenous tradespeople into the workforce.

Robert Bryenton, a Trade Winds instructor, says, "Trade Winds can change lives, and that's the truth. Someone who might not have had a chance to get

into trades can now get a higher paying job and have better opportunities."

Levi McKay, who is of Cree and Blackfoot descent, completed the program in 2016 and is now a third-year boilermaker who has found success and inspired others to take up a trade through Trade Winds. His life has changed significantly since he first participated in the program: "I'm married, I have one child with a second on the way and I do own my own house and vehicle. Success looks to me like where I am right now—all due to Trade Winds to Success." ■



## 5. Indigenous hiring and contracting

### Our goal and target

We committed to setting contracting targets with Indigenous businesses to drive increased participation of Indigenous businesses in the execution of our projects and operational activities. We aimed to have the targets set by Q3 2021.

### Our progress

**In progress and behind schedule:** Prior to 2020, we did not have corporate-level targets. While some major projects, such as Coastal GasLink, adopted internal contracting targets, we have not yet established enterprise-level targets in operations and maintenance workstreams. We believe top-to-bottom support and alignment are important elements to ensure the approach becomes part of the way we do business. In order to set ambitious yet achievable goals, our team is conducting a comprehensive review process to understand previous spend data with Indigenous vendors across Business Units and our contractors. In addition, we reviewed forecasts to understand how expenditures may shift over the next five years. Through this process, it has been made clear to us by Indigenous leaders that we must support the building of skills and capabilities and that our contractors hire Indigenous people in the areas where our work is taking place. Put simply, whenever possible we should hire and buy from the Nations impacted by our work. We agree. We are conducting a review of our contracting and hiring processes and expect to implement new changes in 2023.

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\$1.2<sub>B</sub>

To date Coastal GasLink has awarded \$1.2 billion of contract awards to local Indigenous businesses affiliated with Coastal GasLink agreement-holding First Nations groups.

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Dwayne Prince (left), the Construction Monitoring and Community Liaison for Skin Tyee Nation and Tommy Adair (right), Environmental Inspector, walk along the project route. Skin Tyee Nation is one of the three local Indigenous Nations whose economic development division partnered with O.J. Pipelines to build a section of the Coastal GasLink pipeline.





## An important story

Indigenous participation is a core component of Coastal GasLink's extraordinary legacy and the [recent contracting collaboration on the project](#) demonstrates the importance of working together towards economic prosperity for all involved.

In April 2022, O.J. Pipelines, one of Canada's largest pipeline contractors, partnered with the economic development divisions of three Wet'suwet'en communities along the project route to build a section of the Coastal GasLink pipeline, marking the third Indigenous collaboration responsible for major pipeline construction on the project. The partnership is a collaboration between O.J. Pipelines, Natanlii Development Corporation (Skin Tyee Nation), Yinka Dene Economic Development Limited Partnership (Wet'suwet'en First Nation) and Kyah Development Corporation (Witset First Nation) and leverages each Nation's deep knowledge and commitment to the land while providing significant opportunities for local Indigenous participation in the region.

"Having the ability to participate and benefit from projects like Coastal GasLink without compromising our cultural values and environmental stewardship is what economic reconciliation looks like," says Joe Bevan, Chair of Kyah Development Corporation.

## Learnings to share:

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- Indigenous contracting and hiring are among the most effective ways to advance economic reconciliation and enhance relationships through tangible opportunities. We have recognized the success of these collaborative efforts and the positive impacts created through our capital project activities. In 2021, TC Energy and our Prime or General Contractors collectively reported more than \$1.1 billion spend with Indigenous and Native American businesses. Meanwhile, to date Coastal GasLink has awarded \$1.2 billion of contract awards to local Indigenous businesses affiliated with Coastal GasLink agreement-holding First Nations groups\*. We also recognize there are opportunities for us to approach our operations and maintenance activities differently, leveraging our experience and learnings in capital projects to support the continued growth and strengthening of relationships with Indigenous businesses. This will help us extend the economic opportunities created through our ongoing business activity more widely across our asset footprint.
- We will continue to identify opportunities to increase Indigenous participation in service categories aligned with our ongoing business needs and the economic development priorities of the communities with whom we work. We will also extend our efforts to increase Indigenous participation through direct and indirect employment.

\* Coastal GasLink acknowledges that the total dollar value of these contracts at award may not be the same as the total dollar value received as revenue share by the Indigenous partner.



New fish hatcheries are helping re-establish salmon stocks in the Stuart River.

## Nak'azdli Whut'en salmon population revitalized thanks to new hatchery

For generations, salmon stocks, a staple in Nak'azdli Whut'en diet and culture, have dwindled in waterways within the Nak'azdli Whut'en traditional territory. Last year, [Coastal GasLink partnered with Nak'azdli Whut'en on a project](#) that would provide new fish hatcheries to re-establish salmon stocks for future generations to enjoy.

Fast forward to June 2022, exactly one year since the hatcheries were delivered to the Stuart River waterfront. Nak'azdli Whut'en released their first 60,000 sockeye salmon fry into a creek connecting to the Stuart River system.

Along the busy stretch of the Stuart Lake Highway, the salmon were released into a small creek with prayers and drumming to send them on their way. The salmon will make their way to Stuart Lake for the next year and then travel down through river systems that ultimately reach the Pacific Ocean. Every year, thousands of salmon make their way back from the ocean to the river they started from to spawn their eggs, which is a four-year trek.

"Now we have the ability to make an impact and feed the community again the way we used to. To tell the Elders that we'll be okay is going to be really important," says Pete Erickson, the Nak'azdli Whut'en Hatchery Manager. ■



## 6. Project equity

### **Our goal and target**

We committed to developing a framework to identify project equity opportunities with Indigenous Nations and groups across our footprint. We targeted having the framework developed by Q4 of 2021.

### **Our progress**

**In progress and behind schedule:** In 2021, a cross-functional team was established to develop an Indigenous Equity Framework. By the end of 2022, we will finalize our Indigenous Equity Framework for new projects. In the meantime, we have continued to pursue Indigenous equity ownership opportunities on projects and will continue to explore similar opportunities on our existing assets.





A significant milestone reached: Chief Corrina Leween of Cheslatta Carrier Nation signs the equity option agreements with Coastal GasLink.





## An important story

Building on the journey that started nearly 10 years ago with Indigenous Peoples and Coastal GasLink, we have continued to work with the Nations to enhance our partnerships. As a result of an interest from the Nations, [we signed Equity Option Agreements with two entities](#) that represent 16 Nations to sell them a 10 per cent equity interest in the project. The equity option is in addition to 20 agreements Coastal GasLink has with Indigenous groups along the corridor that provide opportunities for contracting and employment as well as other long-term benefits.

“The finalization of the option agreement represents a historic milestone in our desire to participate as equity owners in Coastal GasLink. For many of us, this marks the first time that our Nations have been included as owners in a major natural resource project that is crossing our territories,” says Chief Corrina Leween of Cheslatta Carrier Nation, which is a member of the Coastal GasLink First Nations Limited Partnership Management Committee. “This deal is important because it demonstrates the value First Nations can bring as true partners in major projects.”

## Learnings to share:

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- Indigenous groups and projects are unique and as a result, it is important for us to approach potential equity opportunities with an open mind and willingness to work collaboratively with Indigenous Nations and groups to reach a mutually beneficial agreement, as was the case on Coastal GasLink. Through the Indigenous Equity Framework, we will identify the key principles that will guide how we assess equity opportunities, while leaving space to adapt to the uniqueness and different priorities of the business and Indigenous groups.
- The most critical element to realizing Indigenous equity opportunities is having financing options available to Indigenous Nations and groups at an affordable cost of capital that will generate a meaningful return to communities. Large-scale financing for major projects can be very complex to navigate in the capital markets and is often new to many people. TC Energy seeks to work with Indigenous Nations and groups to identify appropriate and competitive financing options to support their participation. We also believe there is a role for federal and provincial governments to support Indigenous Nations’ and groups’ economic participation in resource development on their lands, such as through loan guarantees.



# About TC Energy

**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 communities and partner with our neighbours, customers and governments to build the energy system of the future.

**We'd like to hear from you.** Please send questions, comments and suggestions to [Indigenous\\_Relations@TCEnergy.com](mailto:Indigenous_Relations@TCEnergy.com)






[TCEnergy.com](https://www.tcenenergy.com)

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 @TC Energy

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# 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.tcenergy.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
	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>
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?

	Provide incentives for the management of climate-related issues	Comment
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
		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.
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. 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. Seasonal changes in temperature can reduce the efficiency and production of our natural gas-fired power plants. 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.tcenenergy.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.

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### 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.**

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**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.

**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.

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### **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
			<p>role of consumer choice &amp; behaviours, role of government &amp; private sector, impact of geopolitical cooperation, and differentiated long-term economic effects on select markets.</p> <p>Additional transition scenarios referenced: IEA SDS, IEA STEPS &amp; BNEF NEO.</p> <p>Additional temperature alignment of scenario: 1.6°C–2°C</p>

## 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 CO<sub>2</sub>e)**

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

**Base year Scope 3 emissions covered by target (metric tons CO<sub>2</sub>e)**

**Total base year emissions covered by target in all selected Scopes (metric tons CO<sub>2</sub>e)**

**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.tcenenergy.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 CO<sub>2</sub>e per unit of activity)**

0.108

**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)**

0.108

**% 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e per unit of activity)**

0.118

**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)**

0.118

**% 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. ECCC 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 CO<sub>2</sub>e savings (metric tonnes CO<sub>2</sub>e)**

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**

&gt;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 CO<sub>2</sub>e 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 CO<sub>2</sub>.</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>
Other Dedicated Technical R&D Budget is leveraged for low-carbon R&D	<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>
Partnering with governments on technology development	<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>
Other Operational excellence and effectiveness	<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?**

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
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	<p>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.</p> <p>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.</p>

## 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 CO<sub>2</sub>e)

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**

---

**Base year start**

**Base year end**

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

**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 CO<sub>2</sub>e)**

**Comment**

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

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**Base year start**

**Base year end**

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

**Comment**

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

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**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 6: Business travel**

---

**Base year start**

**Base year end**

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

**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**

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**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**

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**Base year start**

**Base year end**

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

**Comment**

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

---

**Base year start**

**Base year end**

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

**Comment**

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

---

**Base year start**

**Base year end**

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

**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**

---

**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 14: Franchises**

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**Base year start**

**Base year end**

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

**Comment**

**Scope 3 category 15: Investments**

---

**Base year start**

**Base year end**

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

**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)**

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**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**

**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 CO<sub>2</sub>e?**

**Reporting year**

**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.**

---

**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%.

**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

---

##### 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

---

##### 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)

---

##### 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**

---

**Evaluation status**

Relevant, calculated

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

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**

---

**Evaluation status**

Relevant, calculated

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

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

---

### 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

---

### 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

---

### 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

---

### 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

---

### 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

---

### 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)**

---

**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 CO<sub>2</sub>e)**

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 CO<sub>2</sub>e)**

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.

---

**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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e 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.**

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**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 CO <sub>2</sub> e)	GWP Reference
CO <sub>2</sub>	15,365,892	IPCC Fourth Assessment Report (AR4 - 100 year)
CH <sub>4</sub>	3,916,709	IPCC Fourth Assessment Report (AR4 - 100 year)
N <sub>2</sub> O	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 CH<sub>4</sub>)**

133

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**

25,581

**Comment**

Data based on equity share reporting boundary

**Emissions category**

Venting

**Value chain**

Midstream

**Product**

Gas

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

2,152

**Gross Scope 1 methane emissions (metric tons CH<sub>4</sub>)**

66,831

**Total gross Scope 1 emissions (metric tons CO<sub>2</sub>e)**

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 CO <sub>2</sub> e)
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 CO<sub>2</sub>e.**

	Gross Scope 1 emissions, metric tons CO <sub>2</sub> e	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 CO <sub>2</sub> e)	Scope 2, market-based (metric tons CO <sub>2</sub> e)
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 CO<sub>2</sub>e.**

	Scope 2, location-based, metric tons CO <sub>2</sub> e	Scope 2, market-based (if applicable), metric tons CO <sub>2</sub> e	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 CO <sub>2</sub> e)	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	<p>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.</p> <p>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.</p>
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 CO<sub>2</sub>e)

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

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

**Comment**

## **Marine**

---

**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 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 CO<sub>2</sub>e)**

2,112,647

**Scope 1 emissions intensity (metric tons CO<sub>2</sub>e 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
	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.			
Other, please specify wind, solar and power storage renewable energy projects	<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.tcenenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q1-quarterly-report.pdf">https://www.tcenenergy.com/siteassets/pdfs/investors/reports-and-filings/annual-and-quarterly-reports/2022/tc-2022-q1-quarterly-report.pdf</a></p>			
Other, please specify	In June 2021, we announced a partnership with Pembina Pipeline Corporation to jointly develop a world-scale carbon transportation and sequestration system which,			



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
carbon transportation and sequestration system	<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.</p> <p>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
				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.
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			<p>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)</p> <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>	operational activity data). The throughput volumes for regulatory reported emission intensity for the TCE assets under the TIER regulations are reported as Bcf/km distance of pipe.
C6. Emissions data	Other, please specify emissions per megawatt hour of power and heat generated (MWh)	TIER Standard for Validation, Verification and Audit, V5.1, December 2020 (Verification Standard) <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>	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).
C6. Emissions data	Other, please specify total combustion emissions per volume (Injected + Withdrawn) (e3 m3)	TIER Standard for Validation, Verification and Audit, V5.1, December 2020 (Verification Standard) <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>	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

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**

---

**% 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 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**

---

**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.**

---

#### **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 CO<sub>2</sub>e)**

**Number of credits (metric tonnes CO<sub>2</sub>e): 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.

---

**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?**

---

**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

**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

---

**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

---

**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.**

---

**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).**

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**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 concords 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.

---


**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.

---


**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.

---

**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).

---


**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. 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	 <sup>5</sup>
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   <sup>6</sup>
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   <sup>7</sup>
Other, please specify Enterprise risk management policy.	Governance Risks and opportunities	Enterprise risk management policy Pages: all   <sup>8</sup>

 <sup>1</sup>tc-2021-ros.pdf <sup>2</sup>tc-2021-esg-data-sheet.pdf <sup>3</sup>tc-2021 annual-report.pdf <sup>4</sup>tc-2022-management-information-circular.pdf <sup>5</sup>tc-environment-principles.pdf



 <sup>6</sup>tc-2020-protecting-biodiversity.pdf

 <sup>7</sup>tc-2020-reducing-our-environmental-footprint.pdf

 <sup>8</sup>tc-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



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### Independent Practitioners' Limited Assurance Report

To the Board of Directors of TC Energy Corporation ('TC Energy' or 'the Corporation'),

We have undertaken a limited assurance engagement with respect to the selected ESG Indicator presented in the table below, that, based on our work performed and evidence obtained, nothing has come to our attention that causes us to believe that they have not been properly prepared and presented, in all material respects, based on the applicable criteria (as defined below).

Topic	ESG Indicator
Greenhouse Gases (GHG) – Operational Control Approach	Scope 1 Corporate GHG Emissions (tCO <sub>2e</sub> )
	Scope 2 Corporate GHG Emissions (tCO <sub>2e</sub> )
GHG Intensity – Operational Control Approach	Corporate GHG Emissions Intensity (kgCO <sub>2e</sub> /GJ)
Diversity & Inclusion	Women in leadership – Corporate (%)

Collectively, the ESG Indicators form the "subject matter information" and are denoted by the symbol ^ in the accompanying Report on select environmental and workforce diversity indicators (the "Indicator Report"), 2022 Report on Sustainability (the "Report"), and 2022 ESG Data Sheet (the "ESG Data Sheet") issued by TC Energy as at and for the year-ended, December 31, 2021.

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Indicator Report, the Report and the ESG Data Sheet, and accordingly, we do not express a conclusion on this information.

### ***Management's responsibilities***

There are no mandatory requirements for the preparation, publication, or review of the subject matter information. As such, TC Energy applies:

- Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (the GHG Protocol) of the World Resource Institute and the World Business Council for Sustainable Development for GHG subject matter information; and



- TC Energy's internally developed criteria, in line with applicable regulatory standards, definitions and guidance for Diversity & Inclusion and GHG Intensity subject matter information.

Collectively, these frameworks form the "applicable criteria" and are defined in Appendix 1 to Appendix 3 of the Indicator Report, referenced on pages 16-17 and 36-37 of the Report, and page 26-30, 34 and 54 of the ESG Data Sheet.

Management is responsible for the preparation and presentation of the subject matter information in accordance with the applicable criteria.

Management is responsible for developing and determining the appropriateness of the use of the applicable criteria and also for ensuring that the Corporation complies with applicable laws and regulations.

Management is also responsible for such internal control as management determines necessary to enable the preparation and presentation of the subject matter information that is free from material misstatement, whether due to fraud or error.

### ***Practitioners' responsibilities***

Our responsibility is to express a limited assurance conclusion on the subject matter information based on procedures performed and evidence obtained. We conducted our limited assurance engagement in accordance with Canadian Standards on Assurance Engagements (CSAE) 3000, *Attestation Engagements Other than Audits or Reviews of Historical Financial Information* and CSAE 3410, *Assurance Engagements on Greenhouse Gas Statements*. These standards require that we plan and perform our engagement to conclude whether a matter(s) has come to our attention that causes us to believe that the subject matter information is materially misstated.

The nature, timing and extent of procedures performed depends on our professional judgment, including an assessment of the risks of material misstatement, whether due to fraud or error, and involves obtaining evidence about the subject matter information.

Our engagement included, amongst other procedures, the following:

- Assessing the appropriateness of the applicable criteria;
- Making inquiries of TC Energy's management, relevant staff at the corporate and business unit level, including those with responsibility for ESG reporting governance, management, and reporting;
- Gaining an understanding of the design of key structures, systems, processes and controls for managing, recording and reporting the subject matter information;
- Comparing the reported data for the subject matter information to underlying data sources on a sample basis;
- Reperforming calculations of selected ESG indicators on a sample basis; and
- Reviewing subject matter information presented in the Indicator Report, the Report, and ESG Data Sheet to determine whether they are consistent with



other information included and our overall knowledge of, and experience with, the sustainability performance of TC Energy.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We believe the evidence we obtained is sufficient and appropriate to provide a basis for our conclusion.

### ***Practitioners' Independence, Quality Control, and Competence***

We have complied with the relevant rules of professional conduct/code of ethics applicable to the practice of public accounting and related to assurance engagements, issued by various professional accounting bodies, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

The firm applies Canadian Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements* and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

The engagement was conducted by a multidisciplinary team which included professionals with suitable skills and experience in both assurance and in the applicable subject matter including environmental, social, and governance aspects.

### ***Inherent Limitations***

Non-financial information, such as that included in the Indicator Report, the Report, and the ESG Data Sheet, is subject to more inherent limitations than financial information, given the characteristics of significant elements of the underlying subject matter and the availability and relative precision of methods used for determining quantitative information. The absence of a significant body of established practice on which to draw allows for the selection of different but acceptable measurement techniques, which can result in materially different measurements and can impact comparability.

### ***Emphasis of Matter***

We draw attention to Appendix 2: Corporate GHG Emissions Intensity to the Indicator Report which describes the various methodologies employed by TC Energy to measure throughput used to calculate Corporate GHG Emissions Intensity. Variations in methodology exist between Business Units as a result of the difference in operations and nature of the products transported.

Our conclusion is not modified in respect of this matter.





### ***Conclusion***

Based on the procedures performed and evidence obtained, no matters have come to our attention to cause us to believe that the subject matter information of TC Energy is not properly prepared and presented based on the applicable criteria, in all material respects, as at and for the year-ended, December 31, 2021.

### ***Specific purpose of subject matter information***

The subject matter information has been prepared and presented based on the applicable criteria. As a result, the subject matter information may not be suitable for another purpose.

A handwritten signature in black ink that reads 'KPMG LLP'. The signature is written in a cursive, stylized font and is underlined with a single horizontal stroke.

Chartered Professional Accountants

Calgary, Canada

November 9, 2022

# Report on select environmental and workforce diversity indicators

**YEAR ENDED DECEMBER 31, 2021**

## Context

TC Energy (TCE or the Company) engaged KPMG to conduct limited assurance on the following select 2021 ESG indicators:

1. Scope 1 and 2 Corporate greenhouse gas (GHG) emissions inventory (tCO<sub>2</sub>e)
2. Corporate GHG emissions intensity (kgCO<sub>2</sub>e/GJ)
3. Women; leadership positions in TCE corporate locations (%)

## ESG Indicator #1: Corporate GHG emissions inventory for 2021

**Table 1: 2021 Scope 1 and Scope 2 Corporate GHG emissions**

	Emissions (tCO <sub>2</sub> e)
Scope 1 Corporate GHG Emissions	19,888,048
Scope 2 Corporate GHG Emissions	2,104,210

The corporate GHG emissions inventory is calculated using the internally developed criteria as described in Appendix 1. The corporate GHG emissions provided in Table 1 has been subject to external assurance.

## ESG Indicator #2: Corporate GHG emissions intensity for 2021

**Table 2: 2021 Corporate GHG emissions intensity**

	Intensity (kgCO <sub>2</sub> e/GJ)
TCE Emissions Intensity	1.0

The corporate GHG emissions intensity is calculated using the internally developed criteria as described in Appendix 2. The GHG emissions intensity provided in Table 2 has been subject to external assurance.

## ESG Indicator #3: Women; leadership positions in TCE corporate locations for 2021

**Table 3: Women; leadership positions in TCE corporate locations for 2021**

	Metric
Women; leadership positions in TCE corporate locations	36%

The percentage of women in leadership positions in TCE corporate locations has been calculated using the internally developed criteria as included in Appendix 3. The data for this metric as provided in Table 3 has been subject to external assurance.

# Appendix 1:

## Scope 1 and Scope 2 corporate GHG emissions inventory

The purpose of this appendix is to outline the reporting criteria for TCE's Scope 1 and Scope 2 corporate GHG emissions inventory related to the assured ESG indicator.

### Corporate GHG Emissions Reporting Criteria

TC Energy has established an annual process for quantifying and reporting greenhouse gas (GHG) emissions. The Company's 2021 GHG emissions inventory has been developed with the guidance of the Revised Edition of *The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard* published by the World Resources Institute and World Business Council for Sustainable Development.

TCE's corporate GHG emissions inventory is developed by consolidating TCE's three core businesses, which consists of Natural Gas Pipelines (comprising three business units: Canadian Natural Gas Pipelines, United States (US) Natural Gas Pipelines and Mexico Natural Gas Pipelines), Liquids Pipelines and Power and Storage.

**Organizational Boundary** – TCE uses an operational control approach, reflecting assets and operations where the Company has the authority to influence operating practices, leveraging corporate standard operating practices and procedures, and therefore has influence over the resulting throughput or production and emissions profile. TCE's inventory boundary includes all assets with operational control at the end of the reporting year (i.e., December 31). For acquisitions completed during the reporting year, TCE reports both emissions and production for the full calendar year. TCE does not report either emissions or production for assets divested during the reporting year.

**GHG Emissions<sup>1</sup>** – TCE reports on Scope 1 (i.e., direct emissions from operations which includes sources such as stationary fuel combustion, mobile fuel combustion, venting emissions, flaring and incineration, and fugitives) and Scope 2 emissions (i.e., indirect emissions from purchased electricity, steam and heating/cooling energy)<sup>2</sup>. All material sources of emissions have been included.

- **Scope 1 emissions** are calculated using quantification methodologies defined by regulatory reporting requirements using measured fuel consumption and gas quality data, operational activity data, measured emissions, default emission factors and engineering estimates. In instances where emissions are not subject to regulatory reporting, emissions are calculated using business unit quantification methodologies consistent with regulatory quantification methods. Where applicable, operationally derived emission factors from measured data were used to quantify emissions. Non-material Scope 1 emissions related to SF<sub>6</sub> and refrigerants are excluded from reporting.
- **Scope 2 emissions** are determined using the location-based methodology. The 2021 indirect emissions are calculated using invoiced or metered energy consumption data and the most current power and heat generation emission factors published for the region in which the assets are located. TCE applies reasonable estimates in the event Scope 2 data is not available. The Company has not calculated Scope 2 emissions using market-based emissions factors and no environmental instruments such as carbon offsets or renewable energy certificates were used in the 2021 corporate GHG inventory. Non-material Scope 2 emissions for the US Natural Gas business unit are excluded from reporting.

**Rebaseline Approach** – TCE's 2030 emissions intensity reduction target is measured relative to a 2019 baseline year used for corporate target setting. TCE's baseline recalculation approach is to re-evaluate for any methodological or structural changes which meet a significance threshold.

<sup>1</sup> TCE inventory of GHG Emissions includes, where applicable, total emissions data for six GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, PFCs, HFCs, SF<sub>6</sub>) in metric tonnes and in tonnes of CO<sub>2</sub>-equivalent.

<sup>2</sup> TCE's Scope 3 emissions were excluded from the limited assurance scope of work.

## Emission Factors

- **Scope 1** emissions calculations and emission factors are applied as required by jurisdictional regulatory reporting requirements, resulting in methodological differences between jurisdictions throughout the reported data.

In cases where emissions are not subject to regulatory reporting, TCE applies a hierarchy for assigning emission factors in the following order: specific regulatory definitions (e.g., U.S. Environmental Protection Agency, Environment and Climate Change Canada, or Mexico Government emission factors), site specific emission factors (e.g., operational specific factors from TCE measured, calculated, or sampled activity data), references using publicly available data (e.g., American Petroleum Institute, equipment manufacturer emission factors) along with references using Industry Association data (e.g., CEPEI, AGA) and finally academic sources. All emission factors are assigned with consideration to jurisdictional applicability.

- **Scope 2** emissions are quantified using regional or subregional emission factors from the following jurisdictions in which TCE assets operate:
  - Canadian facilities: Environment and Climate Change Canada (ECCC) 2022 *National Inventory Report* for electricity use, and Alberta Environment and Parks *Technology Innovation and Emission Reduction* (TIER) 2020 regulations for heat energy use.
  - US facilities: US Environmental Protection Agency's (EPA) 2020 Emissions & Generation Resource Integrated Database (eGRID).
  - Mexico facilities: 2022 Government of México Ministry of Environment and Natural Resources (Secretaria de Medio Ambiente y Recursos Naturales).
- **Global Warming Potentials (GWP)** – The conversion of emissions data into carbon dioxide equivalent GHG emissions is completed across all operational jurisdictions using the 100-year global warming potential factors from the United Nations Climate Change (UNCC) *IPCC Fourth Assessment Report* (AR4).

**Emission Quantification Methods** – GHG inventory reporting is based on measured or calculated GHG emissions from all applicable sources of emissions. The basic methodology for quantifying GHG emissions is outlined by the following equation:

$$\text{Activity} \times \text{Emission Factor} \times \text{GWP} = \text{CO}_2\text{e}$$

Where:

- **Activity** is a measure of a level of activity that results in GHG emissions.
- **Emission factor** reflects the average GHG emissions intensity per unit of available activity data and absolute emissions for a given source.
- **Global Warming Potential**, GWP, convert emissions of individual GHG compounds to carbon dioxide equivalent, CO<sub>2</sub>e.

**Missing data and Uncertainty** – Different regulatory and/or business unit specific quantification methodologies can result in uncertainty in the calculated emissions results. Additional uncertainty may arise from missing data due to different regulatory requirements across the operational footprint or due to partial activity datasets. In these cases, TCE uses best available information including operational activity data if available and/or engineered estimates to calculate emissions for missing data and applies reasonable estimates and best available information, per regulatory reporting requirements or internal processes, to complete activity datasets.

**Inventory Verification** – Where relevant, reported emissions data includes the same information that was used for regulatory verification purposes.

## Appendix 2: Corporate GHG Emissions Intensity

The purpose of this appendix is to outline the reporting criteria for TCE's corporate GHG emissions intensity.

### GHG Emissions Intensity Reporting

Emissions intensity is calculated and reported in aggregate for the Company, as tonnes of CO<sub>2</sub>-equivalent (including both Scope 1 and Scope 2 GHG emissions) per unit of energy that we transport or produce for our customers annually.

The emissions intensity denominator (either throughput or production, as appropriate) is quantified for each business unit and is converted to a common energy metric (gigajoules [GJ]) in the following manner:

- Canadian Natural Gas Pipelines, US Natural Gas Pipelines and Mexico Natural Gas Pipelines: TCE's gas pipelines business units report throughput volumes from delivery points (natural gas pipeline systems) using measured and/or allocated volumes. The volumes are converted to an energy equivalent (GJ) using measured or predetermined higher heating values.
- Liquids Pipelines report throughput from volumes-based receipt points using measured net standard volume. These volumes are converted to an energy equivalent (GJ) using measured or predetermined higher heating values.
- The Power business unit production (i.e., MWh of electricity and GJs of steam) is derived from metering devices that measure the net electricity and net heat energy that are produced. The electricity produced is converted to GJ equivalents using predetermined conversion factors. The throughput for the Storage assets is based on measured volumes of natural gas injected and removed from storage, which is then converted to a GJ equivalent using predetermined conversion factors.

**Uncertainty** - Each business unit follows regulatory or internal reporting requirements for the quantification of emissions and the determination of throughput or production metrics. Uncertainty may arise from different methodologies employed by each business unit when reporting throughput and production metrics used to calculate Corporate GHG emissions intensity due to unique measurement or commercial data systems across the operational footprint. These quantification methodologies may result in different measurement outcomes.

**Corporate Emissions Intensity Metric** - The reporting boundary for the corporate emissions intensity indicator is based on the operational control methodology for emissions and throughput or production metrics. TCE's company-wide intensity is reported at an aggregated level which is defined as kgCO<sub>2</sub>e/GJ, and has been developed on the following basis:

- The numerator uses the Scope 1 and 2 Corporate GHG emissions inventory as detailed in Appendix 1.
- The denominator for the corporate intensity metric is developed as a consolidated energy metric from the individual business units as described above.

## Appendix 3:

# Women; leadership positions in TCE corporate locations

The purpose of this appendix is to outline the reporting criteria for Women in leadership positions in TCE corporate locations.

### Women; leadership positions in TCE corporate locations

- The percentage of women in leadership positions in TCE corporate locations is calculated as follows:

**Number of women leaders in our corporate offices**

**Total number of leaders in our corporate offices**

- Employee information is housed in SAP and woman status is identified as part of the hiring onboarding process.
- TCE's corporate office locations are: Calgary, Houston, Charleston and Mexico City.
- The leadership positions include core workforce employees classified as leaders and above.
- Core workforce employees are legally employed by one of TC's employing entities. Core employee headcount includes all active employees including workers on short-term disability, but excludes those on short-term leaves and on long-term disability.