METHANE GUIDING PRINCIPLES

Methane Guiding Principles Signatory Reporting

TC Energy

January 2022

COMPANY: **TC Energy**

YEAR OF JOINING METHANE GUIDING PRINCIPLES: **2018**

SENIOR REPRESENTATIVE: **Cheryl Johnson, Manager Sustainability**

Principle One:
Continually reduce methane emissions

- Please state what specific activities or projects your company has undertaken to reduce methane emissions. Please refer to the previous year's annual MGP reporting where applicable to refer to intended activity. Link to sustainability report where relevant to provide further detail.
- Describe how the reduction was achieved including description of the asset type, technology type, timeframe. What was the end result?
- Provide data to support your description e.g. the actual amount of emissions reduction achieved, or the reduction in methane intensity.

2021 completed activity	2022 intended activity
TC Energy's roadmap to 2050 includes two primary 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. Embedded in these goals is a focus on reducing **methane** emissions. (Source: TC Energy GHG Emission Reduction Plan, pages 8-9, and TC Energy 2021 Report on Sustainability, page 11). In 2020, total scope 1 (direct) **methane** emissions were 3,183 thousand tonnes CO_2e. This is a **decrease** of 140 thousand tonnes CO_2e over 2019 scope 1 (direct) **methane** emissions, which totaled 3,323 thousand tonnes. (Source: TC Energy 2021 ESG Data Sheet, SASB EM-MD-110a.1 indicator, page 20.) TC Energy's **methane** emissions are 0.0319% (2020 estimated) of total natural gas and hydrocarbon throughput (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG6.13, page 95). Through our regulatory Leak Detection and Repair (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. (Sources: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.6, page 71; TC Energy GHG Emission Reduction Plan, page 14).	TC Energy is 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* • We continue to enhance our leak detection and repair programs, modernize and enhance our equipment, and develop and implement new practices and technologies. 2. *Decarbonize our energy consumption* • We are seeking low-carbon energy sources to support our operations by sourcing renewable power, shifting company fleet towards electric vehicles, converting gas compressor stations to electric motor drives and installing dual-drive compressor motors to lower emissions while maintaining reliability. 3. *Invest in low-carbon energy and infrastructure* • We are developing a broad range of new opportunities that offer energy solutions for today and for the future; including renewable energy projects, energy storage solutions and we are further exploring decarbonization projects with our partners. 4. *Drive digital solutions and technologies* • We are developing and deploying software and systems to digitize our operations and monitor emissions.

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. (Source: TC Energy GHG Emission Reduction Plan, page 15).

The ONE Future coalition – of which TC Energy is a Transmission and Storage member – is comprised of some of the largest natural gas production, gathering and boosting, processing, transmission and storage and distribution companies in the U.S. and represents approximately 15% of the U.S. natural gas value chain. **The coalition registered a 2020 methane intensity number of 0.424% - beating its one percent goal by 58%; Transmission and Storage companies registered a methane intensity of 0.142% vs. goal of 0.301% - beating its goal by 53%.** The 2020 results reflect reporting from 45 of ONE Future's member companies – an increase from the 24 reporting members in 2019. Despite membership nearly doubling, year-to-year **methane** intensity remained flat; each sector was able to meet its goal, demonstrating that the natural gas industry can minimize **methane** emissions and increase production and throughput while supplying much needed energy to the U.S. and around the globe.

5. *Leverage carbon credits and offsets*
    - We are evaluating and leveraging carbon offsets and assessing opportunities to develop nature-based solutions by engaging in voluntary markets and participating in compliance markets.

Details of these focus areas and our **action plan** can be found in our GHG Emissions Reduction Plan, pages 13-23.

Principle Two:
Advance strong performance across the gas supply chain

Please include answers to the following questions:

1. Did you participate in any methane research or plan to do so?
2. Did you conduct any outreach on methane management?

- Describe what action you have taken to engage industry players across the value chain to better understand how to achieve robust methane emissions management. Outreach activity could include training sessions, participation in webinars, influencing of NOJV partners, or publication of guidance. Activity could also include commercial incentives or engagement with investors to drive better performance by others.
- Provide details of any outcomes that resulted from your action.

2021 completed activity	2022 intended activity
TC Energy engages oil and gas **value chain** partners (upstream, midstream and downstream) in various ways to ensure the interests and concerns of its stakeholders are heard. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, S. 12 [Engagement], pages 144-150. We continue to shape industry best practices and technology development through our strategic involvement in various research and innovation-related industry associations and initiatives. Some of these partnerships include: • The Pipeline Research Council International (PRCI); • The American Gas Association (AGA); and • The Intelligent Pipeline Integrity Program (iPipe). We support objectives to reduce **methane** emissions to meet local, federal, and global climate change targets, and we are a signatory to the **Methane Guiding Principles (MGP).** These principles focus priority areas for action towards reduction of **methane** emissions across the natural gas value chain. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.2d, page 63). As part of MGP 2021 Global Outreach Program, in November/December 2021, TC Energy facilitated an	TC Energy will continue to participate and partner with research organizations like PRCI, the Canadian Energy Partnership for Environmental Innovation (CEPEI), PTAC and CanERIC to advance environmental stewardship and emissions reduction initiatives across the energy industry. As a signatory to MGP, we will continue to focus on actions to reduce **methane** emissions across the **natural gas supply chain**. A new application of an existing technology has been tested and will be implemented by our Coastal GasLink Facilities Engineering team to reduce **methane** emissions on the project's compressor and meter stations. Once fully implemented on Coastal GasLink, using Enclosed Vapour Combustors (EVCs) could be applied across TC Energy's footprint. Similar to EVCs, incinerators are a tool to help break down **methane** into water vapour and CO_2. Mobile incinerators can be used for larger **methane** releases such as pipeline blowdowns, a procedure used to empty natural gas from a pipeline system to allow for safe maintenance work. Four mobile incinerators were recently piloted at an NGTL pipeline section located near Grande Prairie with results indicating a reduction of approximately 2,000 GHG tonnes.

industry-wide Masterclass; this workshop focused on methane activities and regulations targeted to Canadian companies across the entire Oil and Gas value chain.

In addition, we remain actively involved with the **U.S. EPA Natural Gas STAR Program**, which provides a framework for partner companies with U.S. oil and gas operations to implement methane reducing technologies and practices and document their voluntary emission reduction activities. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.2d, pages 63-65). As part of this program, TC Energy is also a **U.S. EPA Methane Challenge Program Partner** which requires the commitment to transparently report systematic and comprehensive actions to reduce methane emissions and are publicly recognized as leaders in reducing methane emissions in the U.S.

Other memberships to industry coalitions include Interstate Natural Gas Association of America (INGAA) methane commitments - a trade organization that advocates regulatory and legislative positions of importance to the natural gas pipeline industry in North America - and the American Petroleum Institute (API) Environmental Partnership Pipeline Blowdown Program which is focused on broadening the scope of emission reduction capabilities across the **supply chain** by promoting best practices and techniques during the pipeline blowdown process along pipelines between compressor stations.

Consitent with API status, we are also a member of **The Environmental Partnership (TEP) –** a coalition of U.S. natural gas and oil production, processing, and transmission companies- first initiative is focused on further emissions reduction, incl. methane and Volatile Organic Compounds (VOCs) associated with natural gas and oil production/processing/transmission. (Source: TC Energy 2021 CDP Climate Change, C-OG4.2d, pages 63-65).

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)**

With TC Energy's ongoing commitment to emissions reduction such as these, additional developments to support sustainability can be anticipated in the future.

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.** (Source: TC Energy GHG Emission Reduction Plan, page 10).

committees which emphasize industry sharing of best practices learned with a focus on methane, and shared response to government agencies regarding upcoming regulations. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.6, page 71).	

Principle Three:
Improve accuracy of methane emissions data

- Describe action taken to improve methane emissions data collection methodologies. This could be application of new technology at an operated site(s), investment and participation in R&D initiatives, development of monitoring/modelling software, or support to research that improves the accuracy of the quantification of methane emissions.
- Where new technology /software has been piloted or adopted, it is helpful to describe how it works, the reasons it was selected, and how it was deployed. Any data that can be shared to demonstrate improvements is useful.
- How these new methods/technologies have been adopted into your accounting process if at all.

2021 completed activity	2022 intended activity
Specific to **methane** emissions management, we take a multi-faceted approach to our proactive maintenance and monitoring programs, combining ongoing aerial and ground-based patrol programs with our sensitive leak detection technologies to monitor pipelines for indications of leaks. Some of these technologies include specialized optical gas imaging technology, advanced in-line inspection tools and **methane** detection tools to help further protect our pipelines and reduce environmental impacts. TC continues to use and improve our in-house developed Emissions Management Application within SAP (EMA-SAP Tool). The application is fully integrated with our enterprise resource planning software and its automated features, enabling us to action repairs sooner, identify trends in inspections results and implement system. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C4.3c, pages 65-68, and COG4.7 pages 72-73).	Our digital transformation journey is **ongoing**. We have begun to drive digital solutions that help us meet our emissions reduction goals. As well, we are working with strategic partners to develop industry-accepted emissions technology and data standards. We are investing in and harnessing artificial intelligence (AI) and machine learning for data-based decision-making and – 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. In 2022 we will continue to evaluate investing in compression electrification, where appropriate, and the use of zero emissions vacuum and compressor (ZEVAC) technology to prevent **methane** emissions

In Canada, we are the only company to employ pilot projects for dry gas seal implementation. This pilot project is aimed at reducing **methane** emissions. While this technology remains in development, we aim to have them in service shortly. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.2d, pages 63-65). In Mexico, we prepare a Program for the Comprehensive Prevention and Control of **Methane** Emissions (PPCIEM) including identification of **methane** sources, quantification of baseline emissions, and estimate of expected emission reductions from prevention and control activities. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C-OG4.2d, pages 63-65).	during in-line inspections to advance our ability to move more low-carbon fuels. *For more details around driving digital solutions and technologies and applying what we learn to better optimize system operations, see our* TC Energy GHG Emissions Reduction Plan, pages 21-22.

Principle Four:
Advocate sound policy and regulations on methane emissions

Advocacy consists of active participation in legal consultation processes, external policy statements, and direct engagement with government

- Consider providing details on the region or regulation involved, how you undertook your advocacy, others involved, and the outcome.

2021 completed activity	2022 intended activity
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 requirement. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C4.3c, pages 65-68). 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. For example, in 2021, TC Energy provided comments to the Government of Canada's *Draft Technical Guide*	In 2022, through a combination of independent and industry association submissions, TC Energy anticipates providing responses during open comment periods to the Government of Canada's Emissions Reduction Plan – calling to reduce oil and gas **methane** emissions by at least 75 percent below 2012 levels by 2030 – and its COP26 announcement to put a cap on oil and gas sector emissions, for which the federal government is developing a roadmap by March 2022 (implications for **methane** reduction requirements are not known at this time). Provincially, we may also submit comments to the British Columbia (BC) Clean BC roadmap to 2030, which is aligned to the federal Emissions Reduction Plan sector targets and pledges to take further action to nearly eliminate industrial **methane** emissions by 2035 (more details are expected later in 2022).

Related to the Strategic Assessment of Climate Change through a combination of independent and industry association submissions. We are working with INGAA and API in the U.S. to provide input and guidance on proposals, including, but not limited to, various commitments, practices and initiatives that support **methane** reduction. (Source: TC Energy 2021 CDP Climate Change Questionnaire Response, C12.3c, page 154). In 2021, TC Energy joined the Renewable Natural Gas (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. (Source: TC Energy GHG Emissions Reduction Plan, page 19) *For a description of the processes implemented to ensure all our direct and indirect activities that influence policy are consistent with our overall climate change strategy, please see* TC Energy 2021 CDP Climate Change Questionnaire Response, C12.3f, pages 158-159.	The Management Risk Committee comprises our ELT and receives support from the ERM team and the ERM supporting network. These teams continuously review the company's activities and provide expertise **to inform policy response strategies** and ensure consistency. Members of several corporate functions, such as environment, stakeholder relations, legal, regulatory services and business segments are represented to ensure risks from across the organization are identified, shared and discussed. Risks, including those associated with **climate policy**, are monitored and escalated to senior management through TC Energy's ERM process to ensure leadership has visibility on the broader perspective, and that treatments are applied in a holistic and consistent manner (Source: TC Energy 2021 ESG Data Sheet, page 15). 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 initiatives in development at the federal, regional, state, and provincial levels aimed at reducing GHG emissions. **We actively monitor and submit comments to regulators as these new and evolving initiatives are undertaken** (Source: TC Energy 2020 Annual Report, pages 94-97). *For details on our use of scenario planning against several demand outlooks, considered as part of our long-term corporate strategic planning process in anticipation of the energy transition (including shifts in policy change), please reference TC Energy 2021 ESG Data Sheet, pages 13-14.*

Principle Five:
Increase transparency

Please include answers to the following question:

1. Are you participating in OGMP 2.0 or do you intend to do so? If you are participating in OGMP 2.0 you may provide a link to the website.

- Describe what activity you have carried out e.g. providing information in relevant external reports on methane emissions data, methodologies, and progress and challenges in methane emissions management.
- If you have contributed towards the standardisation of comparable external methane reporting describe the activity you have taken.

2021 completed activity	2022 intended activity
TC Energy does not participate in the Oil and Gas Methane Partnership (OGMP 2.0); however, we are monitoring development of the OGMP 2.0 **methane**-specific reporting framework and its potential regulatory implications for North America. In 2020, we published 10 new sustainability commitments that contribute to the United Nations Sustainable Development Goals. In all our operations and projects, we remain focused on managing, reducing or eliminating our GHG emissions where possible. Simultaneously, we are undertaking due diligence to identify potential paths to maximize our GHG emissions reductions by 2050 while ensuring our duty to protect shareholder value is not compromised. We are confident that we can continue to do both. (Source: TC Energy 2020 Annual Report, page 9). Published information about our organization's response to climate change and GHG emissions performance for the 2020 reporting year can be found here: • GHG Emissions Reduction Plan • 2021 CDP Climate Change Questionnaire Response • 2021 Report on Sustainability • 2021 ESG Data Sheet • 2020 Materiality Assessment • 2021 TCFD Alignment Table • 2021 SASB Alignment Table • 2020 Annual Report • 2021 Management information circular	Going forward, our intention is to report on our progress and performance against the GHG targets announced 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 (including those related to **methane** emissions data, methodologies, and progress and challenges in **methane** emissions management). A complete list of our annual publications can be found on our ESG Directory.

Methane Emissions

Do you report absolute methane emissions within your sustainability report? *If so, provide link.*	Yes TC Energy 2021 ESG Data Sheet, page 20 TC Energy 2021 CDP Climate Change Questionnaire Response, C7.1a, page 96
Do you report a methane intensity within your sustainability report? *If so, provide link.*	No; methane intensity (as a percentage) is submitted to ONE Future, as part of our commitment within the coalition of companies to reduce methane emissions; company-specific information is not disclosed publicly, rather rolled us to sector totals (in our case, Transmission and Storage). Enterprise-wide methane intensity is not currently quantified.
What are your organisation's total absolute methane emissions? **Provide a figure in tonnes.** **Provide latest data publicly available.**	Scope 1 (direct) methane emissions thousand tonnes CO2e in 2020: 3,183 Source: TC Energy 2021 ESG Data Sheet, page 20
State your methodology.	We calculate GHG emissions using a combination of methods mandated by various regulations in the different jurisdictions where 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, 2020 methane emissions reported within this submission include those considered below reporting thresholds under regulatory reporting regimes (source: TC Energy 2021 ESG Data Sheet, pages 20-21)
State your reporting boundary.	Reported emissions have been adjusted based on legal entity ownership, as of December 31, 2020, as disclosed in our 2020 Annual Report. Please refer to our 2021 CDP Climate Change Questionnaire Response (question C-5.2a), and 2021 ESG Data Sheet (pages 21-22) for further details.

What are your organisation's methane intensity? **Provide latest data publicly available.**	Methane intensity (as a percentage) is submitted to ONE Future, as part of our commitment within the coalition of companies to reduce methane emissions; company-specific information is not disclosed publicly, rather rolled us to sector totals (in our case, Transmission and Storage). Enterprise-wide methane intensity is not currently quantified.
State your methodology.	Not Applicable
State your reporting boundary.	Not Applicable
Do you have a methane emission target? **If yes, please state what it is, including the boundaries and methodology.** **If no, are you developing such a target? Please state your intended timeline.**	Not Available

Commentary

Use this space to provide any general context or statements around the information and data provided.

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 document.

Our forward-looking information in this document includes, but is not limited to, statements related to TC Energy's GHG Emissions Reduction Plan, more specifically, GHG intensity reduction targets, GHG emission reduction targets, five focus areas to reduce the emissions intensity of our operations, participation in various research organizations, development of digital solutions that help us meet our emissions reduction goals, investing in compression electrification and other technology to prevent methane emissions, legislative, regulatory and other policy-based advocacy, and intention is to report progress and performance against GHG targets, 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.

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.