Welcome to your CDP Climate Change Questionnaire 2022

C0. Introduction

C0.1

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

Canadian Natural is one of the largest independent crude oil and natural gas producers in the world. We have an effective and efficient, diversified combination of assets in North America, the UK portion of the North Sea and Offshore Africa, which enables us to generate significant value. Our balanced portfolio of light, synthetic, and heavy crude oil and natural gas represents one of the strongest and most diverse asset portfolios of any energy producer in the world. Our financial discipline, commitment to a strong balance sheet, and capacity to internally generate cash flows provide us the means to responsibly and sustainably grow our Company in the long term. At Canadian Natural, we are committed to conducting our business in a way that embraces the key piece of our mission statement "doing it right". Environmental stewardship is a fundamental value of our company and this is reflected in our approach to energy development. Our goal is to develop resources in a sustainable and responsible way. We are committed to managing and minimizing the environmental impacts of our operations during all phases of our projects. To reach high standards of environmental performance and achieve regulatory compliance, we adhere to the principles of continuous improvement, efficient operations and technological innovation. Our Environment team works together with management and all our operating divisions to ensure environmental stewardship is factored into our decision-making process. Through our Environmental Excellence program, we work together to proactively reduce greenhouse gas (GHG) emissions, minimize habitat disturbance and advance reclamation, minimize the impact on the landscape to conserve high-value biodiversity and wildlife, and reduce fresh water use. We foster a culture of environmental awareness where everyone has a vital role to play in identifying and mitigating environmental impacts from our operations. We reinforce environmental excellence through employee training, due diligence and the communication of environmental priorities.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1, 2021	December 31, 2021	Yes	3 years

C0.3

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

Canada
Côte d'Ivoire
United Kingdom of Great Britain and Northern Ireland

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.

Other, please specify
The Company's reporting is based on the operational control approach using gross operated production values (before royalties) unless otherwise noted.

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

Upstream

Other divisions

Carbon capture and storage/utilization

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, a CUSIP number	136385101

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
Director on board	The Board of Directors is responsible for overseeing and ensuring the Management Committee (MC) has appropriate and effective measures in place to create and execute its strategies, including management of climate-related issues. The Board brings a mix of experience and knowledge gained through senior level positions held in the public and private sectors such as oil and natural gas, energy storage solutions, technology, legal, finance, and health, where leadership and governance over sustainability matters have been a longstanding priority. Eight Directors of the Board have relevant experience in climate change/carbon policy & emissions, ten Directors have relevant experience in health, safety and environment, and twelve Directors have relevant experience in risk management. The Directors oversee and monitor company-wide efforts to support, manage and improve our performance, and ensure the effectiveness of our sustainability programs, including climate related issues. Specifically, Directors on the Health, Safety, Asset Integrity and Environment (HSAI&E) Committee of the Board receive quarterly updates from the Environment, Social, and Governance (ESG) Committee, a select group of the MC. Directors are part of the reporting process and are responsible for monitoring implementation of our sustainability programs, including review and approval of internal reports about objectives, performance, key performance indicators, and actions undertaken to mitigate risk. Each year, detailed presentations to the Board are provided by Management, including a review of the company's: Environmental Stewardship Report and key developments anticipated in the following year; and management of environmental risks including GHG emissions/climate change and the role of innovation to address and continuously improve environmental stewardship and performance. In addition, the Board, through the Directors on the Compensation Committee, focus on aligning executive pay for performance, assessing the Corporation's performance under set categories, including sustainability metrics for safety, asset integrity and environment. Performance is evaluated against benchmarks determined by prior period performance. For example, the 2020 corporate GHG emissions intensity performance was 0.050 tonnes/BOE, with our 2021 performance improving to 0.046 tonnes/BOE.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	Review internal stewardship reports about objectives, performance and key performance indicators and targets, and actions and initiatives undertaken to mitigate climate related risk. The Directors in the HSAI&E Committee oversee and monitor company-wide efforts to support, manage and improve our performance, and ensure the effectiveness of our sustainability programs, including health, safety, asset integrity, environmental risk and social initiatives. The Health and Safety, Asset Integrity, Environment, Stakeholder Relations and Community Investment groups report on a regular basis to Senior Management in the Environment, Social, and Governance (ESG) Committee, who in turn provide updates to the HSAI&E Committee of the Board. Progress is tracked regularly and shared across all levels of employees, including targets. The Board of Directors has responsibility for overseeing and ensuring that Management Committee has appropriate sustainability programs in place, including the identification of climate-related risks and opportunities, and their implications for our business strategies across Canadian Natural. The Board of Directors provides expertise and oversight on specific ESG factors, through the roles and responsibilities of the following Board committees: ● Nominating, Governance and Risk Committee – Corporate governance practices and the management of enterprise risk exposure. ● Health, Safety, Asset Integrity and Environment Committee – Occupational and process safety, asset integrity, environmental stewardship, regulatory, risk management, sustainability and social initiatives. Processes for identifying, assessing, and managing climate-related issues are integrated into our Enterprise Risk Management (ERM) framework. The Nominating, Governance and Risk Committee of the Board reviews and

		monitors the status of ERM activities, including climate-related regulatory and operational risks, and the steps Management has taken to implement mitigating actions. Performance results are reported internally through a management review process and externally through the annual sustainability report. Annual performance objectives and targets are tracked and corporate status reports are presented quarterly to senior management and Board of Directors.

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	The Board has constituted the Nominating, Governance and Risk Committee to annually conduct a self-assessment of the Board's performance, an assessment of Board members and its committees, (with each committee assessing its members), and to recommend to the Board, nominees for appointment of new directors to fill vacancies or meet additional needs of the Board. Through the Board evaluation process and ongoing monitoring of the needs of the Corporation, desired expertise, diversity and skill sets are identified and individuals that possess the required experience and skills are contacted by the Chair of the Nominating, Governance and Risk Committee. Nominees for director are selected on the basis of, among other things, broad perspective, integrity, independence of judgment, experience, expertise, diversity in background, experience and skills, ability to make independent analytical inquiries, understanding of the Corporation's business environment and willingness to devote adequate time and effort to Board responsibilities and such other factors as it deems appropriate given the current needs of the Board and Corporation, to maintain a balance of diversity, knowledge, experience, background and capabilities. This evaluation includes consideration of nominee expertise and experience in environmental aspects of our activities, including climate-related issues.

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
President	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).

Our Corporate Management Committee, a group of Canadian Natural's senior executives who share the responsibilities normally associated with a Chief Executive Officer position, reviews and approves decisions on climate-related issues. Two members of the Management Committee are also Directors of the Company — the Executive Chair and the President. The President and our Management Committee (MC) are responsible for the identification, assessment and management of climate change related risks and opportunities material to our industry and company. The President leads our ESG Committee, a sub-group of the Management Committee (MC), and is responsible for providing direction and guidance on climate-related issues. The ESG committee consists of our President, Chief Operating Officers (COOs) and Senior VPs and VPs representing Health, Safety, Asset Integrity, Environment, Operations, Finance, and Technology. Collectively, these individuals have the relevant expertise in their areas and play a critical role in the timely identification, assessment, monitoring and management of climate-related issues across our organization, including setting and reviewing targets. We monitor climate-related issues by tracking government policy development, monitoring peer company activity, reviewing independent external scenario analyses, and through discussions with investors. The ESG Committee monitors and reports on climate-related issues to the MC and Board of Directors on a quarterly and annual basis, including sustainability performance, key indicators, targets and actions taken to mitigate risks. The Board of Directors is responsible for overseeing and ensuring the President and Management Committee (including the ESG Committee) has appropriate sustainability programs in place, including the identification of climate-related risks and opportunities and their implications for our business strategies across Canadian Natural.

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	Yes	Yes. In 2021, Canadian Natural reinforced the significance of environmental performance on the overall performance of the company, increasing the Safety, Asset Integrity and Environmental performance measure weighting by 50% (from 10% in 2020 to 15% in 2021). The increase in the weighting is in addition to targets for North America E&P absolute methane emissions as well as abandonment and reclamation activity. These changes further align executive compensation with Canadian Natural's performance when measured against sustainability metrics for safety, asset integrity and environmental targets. Performance is evaluated based on improvement from prior period results (e.g. corporate GHG intensity and methane emissions) and/or against target ranges determined by prior period performance. Our executive compensation policies and procedures are centered on a pay-for-performance philosophy and aligned with the long term interests of our shareholders.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
President	Monetary reward	Emissions reduction target	With the exception of Canadian Natural's Debt to Book metric, which has been established to reflect all commodity price cycles, we established 2021 performance targets as part of our 2021 budget guidance, which was released on December 9, 2020. The resulting performance measures are assigned weightings as indicated in the Performance Scorecard (available in our 2022 Management Information Circular) and the resulting overall score is utilized by the Compensation Committee to determine the performance bonus for the President. The cash bonus awarded is based on Canadian Natural's and the individual's performance over the

			year in contributing to the company meeting its yearly operating plans and its operating and financial goals as evidenced by corporate performance. Corporate greenhouse gas emissions intensity (tonnes/BOE) and North America E&P absolute methane emissions are two metrics in the corporate Performance Scorecard on which performance bonuses are based.

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	0	3	No comment
Medium-term	3	7	No comment
Long-term	7	100	No comment

C2.1b

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

Given the dynamic nature of risk, Canadian Natural uses a multidisciplinary Enterprise Risk Management (ERM) framework to identify, assess, and mitigate risks that may affect the company and our operations. The ERM framework incorporates a matrix approach to risk assessment that categorizes and aligns risks across operational areas, allowing teams to better understand the identified risks, their impacts on our operations and the mitigation being undertaken to address these risks. This allows management to monitor potential risk exposures and the steps taken to address the identified risks, or otherwise mitigate these exposures by identifying the specific individuals on our Management Committee responsible for each of the

identified risks. Reporting on the risks and related mitigating activity throughout Canadian Natural is also part of the ERM framework. Summaries of corporate risk, including climate-related, regulatory and operational risks, are provided in the corporate enterprise risk register and reported to the Nominating, Governance and Risk Committee (NGRC) twice a year. To ensure proper accountability of risk, this semi-annual report includes an assessment of the inherent risk areas, mitigating action plans and the Board or Management Committees that have oversight and management responsibilities for each risk. Our risk processes include an assessment of the significance and scope of identified existing and emerging climate-related risks. We use an Enterprise Risk Matrix to determine likelihood (probability) and impact of risks, and classify them as High, Moderate, or Low. A classification of 'High' would be considered a substantive financial or strategic impact to Canadian Natural's business. This process helps us prioritize climate-related risks and determine materiality.

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

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

Canadian Natural identifies, assesses and responds to climate-related risks and opportunities using a multidisciplinary risk management process, which considers these types of risks and opportunities as part of business evaluation. Processes for identifying, assessing, managing

and responding to climate-related issues are integrated into our Enterprise Risk Management (ERM) framework. Our business strategy is influenced by incorporating knowledge of climate-related risks and opportunities, including current and potential policies and regulations, into decisions made by our Management Committee (MC) and Board of Directors. Risk is managed at all levels of our company, and several bodies take part in this governance approach: • (MC) is responsible for the identification, assessment and management of climate change risks and opportunities. Business units identify and report on significant local risks and opportunities regularly. • MC, including the ESG Committee and the Greenhouse Gas (GHG) Operations Strategy Committee, provides direction and guidance to business units on climate-related risk assessment, carbon emissions management and project implementation. • ESG Committee provides internal stewardship reports to the HSAI&E Committee of the Board, reporting on sustainability performance, key indicators and actions taken to mitigate risks. • GHG Operations Strategy Committee is responsible for climate change strategy and issue prioritization. This Committee oversees working groups that manage and coordinate GHG reduction and technology projects across the company, such as the cross-functional Methane Steering Committee. The GHG Committee also assesses and provides input on current and developing GHG policy and regulation. • Nominating, Governance and Risk Committee of the Board reviews and monitors the status of ERM activities, including climate-related regulatory and operational risks, and the steps Management has taken to implement mitigating actions. • HSAI&E Committee of the Board is responsible for ensuring that Management has effective design and implementation of sustainability and environmental risk management programs, including controls and reporting systems. • Board of Directors is responsible for overseeing and ensuring the MC has appropriate and effective measures in place to manage climate-related risk. Climate change risk management also occurs at the asset level through recurring projects and reviews, as well as economic evaluations, including forecasting GHG intensity and compliance costs, and reviewing abatement projects. Internal quarterly management reviews are completed to monitor GHG performance. As per regulatory requirements for specific facilities and/or jurisdictions where we operate, GHG emissions reports are submitted annually. Canadian Natural's associated environmental risk management strategies focus on stakeholder engagement and working with legislators and regulators to ensure that any new or revised policies, legislation or regulations properly reflect a balanced approach to sustainable development. Specific measures taken in response to existing or new legislation include focus on energy efficiency, air emissions management, released water quality, fresh water use reduction, and minimization of the impact on the landscape to conserve high-value biodiversity. Our internal procedures are designed to ensure environmental aspects of new acquisitions and new developments are taken into account prior to proceeding. Canadian Natural is also working with relevant parties to ensure that new policies encourage technological innovation, energy efficiency, and targeted research and development while not impacting competitiveness. We provide ongoing reporting on how we are addressing climate and other environmental related financial and operational risks. Climate-related management of risks and opportunities are monitored every quarter, with risks assessed every six months or more frequently, considering risks that impact our business as far as 6+ years into the future. We review transition risk and physical climate risk. Physical climate change risks are mitigated by a combination of a geographically diverse production base and by our emergency response plans. For example, our Horizon oil sands operation may experience physical climate change risk in the form of more frequent forest fires or

reduced ability to withdraw water from the Athabasca River due to low stream flows. The need to manage these risks was identified, with Canadian Natural addressing these risks by constructing a fire break (cleared area) around the Horizon site, and by constructing a water storage pond on site to ensure a supply of fresh water at times of low stream flow. The result is that the Horizon facility has not been damaged by forest fires nor been affected by water shortages. Transitional climate change risks are mitigated by our large, diversified and balanced portfolio which positions us to be resilient in a lower carbon emissions economy. For example, the transitional risk of governments establishing net zero emission targets is mitigated by our long life low decline oil sands assets that have infrastructure ideal for continued investments in carbon capture, utilization and storage (CCUS). Canadian Natural's management response is participation in the Oil Sands Pathways to Net Zero initiative, an alliance of oil sands companies working together with governments to achieve net zero GHG emissions from oil sands operations by 2050 – to help Canada meet its climate goals, including Paris Agreement commitments and 2050 net zero aspirations. The initiative considers multiple pathways to net zero including a foundational project of a CO2 trunkline connecting Fort McMurray and Cold Lake to a carbon sequestration hub; deploying existing and emerging GHG reduction technology such as carbon capture, clean hydrogen, process improvements, energy efficiency, fuel switching and electrification. Another example of a transition risk is that customers may select against higher GHG intensity crude oils, which could reduce the value of that production. Our management response was to establish a corporate aspiration of net zero on our oil sands operations in 2018, to set a target to reduce our oil sands GHG intensity by 25% by 2025 from a 2016 baseline (a target that has been achieved) and to participate in the Oil Sands Pathways to Net Zero initiative. Additionally in August 2021, Canadian Natural announced an absolute methane emissions reduction target of 50% from a 2016 baseline by 2030. As part of a transition to lower intensity production, we have assessed the intensity of current projects, and developed technology pathways to reduce GHG intensity. For example, we are currently piloting the use of solvents at our Kirby South thermal oil sands operation, as well as at our Primrose steam flood operation as a way to reduce steam use and GHG emissions per barrel of production.

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	Current and potential climate change policies and regulations are relevant because their impacts are considered when making decisions to advance Canadian Natural's business strategy. For example, the new "Management and Reduction of Greenhouse Gases Act" in the province of Saskatchewan will impose a GHG cost on our operations in that province,

		increasing our operating expense for certain assets in Saskatchewan, such as the North Tangleflags in situ heavy crude oil facility and the Senlac in situ heavy crude oil facility.
Emerging regulation	Relevant, always included	An aspect of climate change risk that most influences Canadian Natural's business strategy is future compliance costs/regulatory changes. In Canada, the federal government has ratified the Paris Agreement, with a commitment to reduce GHG emissions by 40-45% from 2005 levels by 2030. The Canadian government has also committed to cap and cut emissions from the oil and gas sector, with further details to be developed in 2022. In addition, Canada has committed to reduce methane emissions from the upstream oil and natural gas sector by 40-45% by 2025, and by 75% by 2030, both as compared to 2012 levels. In December 2020, the federal government announced its intention to increase the carbon price to $170/tonne by 2030 in annual increments of $15/tonne after 2022. We monitor the development of GHG regulations on an ongoing basis in the jurisdictions in which we operate to assess the impact of future regulatory developments on the Company's operations and planned projects. For example, the federal government released draft Clean Fuel Regulations in December 2020 that only apply to producers or importers of liquid fuels (including gasoline, diesel, kerosene and light and heavy fuel oils). This may increase the cost of liquid fuels, which would increase the operating cost for facilities, such as our Oil Sands Mining and Upgrading operations. The final Clean Fuel Standard regulations are expected to be published in 2022.
Technology	Relevant, sometimes included	Canadian Natural works with relevant parties to ensure new policies encourage technological innovation, energy efficiency, and targeted research and development while not impacting competitiveness. Regulatory and policy changes to address climate change may require the development or adoption of new sustainable technologies to reduce environmental footprint and support the transition to a lower carbon emissions/energy efficient economy at significant cost. The risks to Canadian Natural are that the available technologies may not prove to be economic and there is potential execution risk in implementing new technologies, including when retrofitting into existing facilities. An example would be the deployment of solvent recovery technology at the Kirby South thermal facility. To address this risk, we continue to evaluate new technologies to reduce environmental impacts, including support for Canada's Oil Sands Innovation Alliance (COSIA), and Petroleum Technology Alliance Canada (PTAC).
Legal	Relevant, always included	Canadian Natural strives to carry out its activities in compliance with applicable regional, national and international regulations and industry standards. Environmental specialists in Canada and the UK track numerous environmental performance indicators, review the operations of our worldwide interests and report on a regular basis to senior management, who in turn reports on environmental matters directly to the Health, Safety, Asset Integrity and

		Environmental Committee of the Board of Directors. Canadian Natural regularly meets with, and submits to inspections by, the various governments in the regions where we operate. Our associated environmental risk management strategies focus on working with legislators and regulators to ensure that any new or revised policies, legislation or regulations properly reflect a balanced approach to sustainable development. For example, failure to meet the reporting requirements under the Alberta Specified Gas Reporting Regulation for facilities such as the Gold Creek Gas Plant would result in enforcement action, up to and including a $500,000 fine for failure to report.
Market	Relevant, always included	Various jurisdictions have enacted or are evaluating low carbon fuel standards, which may affect access to market for crude oils with higher emissions intensity. Canadian Natural may be exposed to greater market risk for its products associated with the shift to a lower carbon emissions future. These risks may include increases in the demand for renewable energy sources, increases in compliance costs that may not be recoverable in the price of the product, which could delay the development of certain assets, and restricted access to markets for higher carbon intensive energy sources. This could result in a competitive disadvantage if producers in other jurisdictions are not subject to similar regulatory burdens. For example, Canadian Natural is evaluating and monitoring the Government of Canada's development of a proposed Clean Fuel Regulation which may affect production and consumption of fuels in Canada. The impact of the proposed Clean Fuel Regulation on the Oil Sands Mining and Upgrading Operations is estimated at less than CAD $100 million per year.
Reputation	Relevant, always included	Aspects of climate change risk that most influence Canadian Natural's business strategy are: future regulatory changes and associated compliance costs, commodity price, access to markets and capital, social preferences and reputational risk, and technology development. Changes in public support for climate action, combined with increased activism and opposition to fossil fuels, particularly to oil sands, may impact the market for our products and securities and impact its ability to obtain approvals for new projects and raise capital. For example, approximately 30% of our asset base in 2021 was in heavy crude oil production and this may limit interest for our shares among investors who are screening for producers who are weighted to light oil or natural gas production.
Acute physical	Relevant, always included	Canadian Natural manages for the risk of extreme weather events in its operations and emergency response plans. Our comprehensive corporate Emergency Management program is in place to coordinate Canadian Natural's response to potential incidents (including extreme weather events). This program includes Emergency Response Plans (ERPs) intended to ensure a prompt initial response and efficient management and containment of situations as they arise. Our Asset Integrity Management System also helps us identify and mitigate this risk. It includes the impact of extreme rainfall

		or flooding events when assessing the risk and associated mitigation of pipeline river crossings. This is done to reduce the risk of a flooding event or slope failure leading to a pipeline failure and the potential release of product into the environment. At our Horizon oil sands operations, we may experience physical climate change risk in the form of more frequent forest fires. The need to manage this risk was identified, with Canadian Natural addressing the risk by constructing a fire break (cleared area) around the Horizon site. The result is that the Horizon facility has not been damaged by forest fires.
Chronic physical	Relevant, sometimes included	Canadian Natural includes chronic, physical risks in its risk assessment process. For example, Canadian Natural evaluated the risk of reduced water flows in the Athabasca River and constructed additional water storage capacity at its Horizon Oil Sands Mining and Upgrading Operation in order to mitigate this risk. In the absence of a storage facility, the risk is that reduced water flows could result in lower water availability, which could cause reduced production at the Horizon facility.

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

Current regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Governments in jurisdictions where Canadian Natural operates have developed or are developing GHG regulations as part of their national and international climate change commitments. Canadian Natural considers existing GHG regulations to determine the impact of compliance costs on current and future projects. In 2021, our operations were subject to carbon pricing specific to the regions of our operations. These regions included:

- British Columbia: Provincial pricing applied to all fuel gas, vent volumes and flare volumes at our BC facilities, and to gasoline, diesel, propane and other fuels.
- Alberta: Provincial pricing applied to a portion of emissions from the following facilities: Horizon, Athabasca Oil Sands Project, Primrose/Wolf Lake in situ, Kirby South in situ, Jackfish in situ, Peace River in situ, the Brintnell power generation facility and all Conventional assets.
- Saskatchewan: Provincial pricing applied to a portion of emissions from fuel combustion at all assets in Saskatchewan
- Manitoba: The federal Output-Based Pricing System applied to a portion of emissions from fuel combustion and flaring at all assets in Manitoba.
- The UK: Pricing is variable, since the UK exited the European Union (EU) which is the compliance vehicle for the United Kingdom Allowances (UKA) which regulates our offshore North Sea oil production platforms.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

40

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

• Potential financial impact is represented by the cost per tonne of CO2 applied per the applicable regulation. In 2021, the carbon price in:
- British Columbia was $40/tonne in Q1 2021 and $45/tonne for the remainder of 2021. It applied to all fuel gas, vented gas, and flared gas at our BC facilities, and to gasoline, diesel, propane and other fuels. The tax is calculated as [(fuel/flare/vent volume x volumetric tax rate)].
- Alberta was $40/tonne and was applied to a portion of emissions from the following facilities: Horizon, Athabasca Oil Sands Project, Primrose/Wolf Lake in situ, Kirby South in situ, Jackfish in situ, Peace River in situ, the Brintnell power generation facility and all Conventional assets. The carbon cost is calculated as: carbon cost = $40/t x [Actual emissions minus emissions allocation].
- Saskatchewan: Provincial pricing applied to a portion of emissions from fuel combustion at all assets in Saskatchewan. The carbon cost is calculated as: carbon cost = $40/t x [Actual emissions minus emissions allocation]
- Manitoba: The federal Output-Based Pricing System applied to a portion of emissions from fuel combustion and flaring at all assets in Manitoba. The carbon cost is calculated as: carbon cost = $40/t x [Actual emissions minus emissions allocation].
- The UK pricing is variable, since the UK exited the EU, it is the market price of the United Kingdom Allowances (UKA) which is the compliance vehicle for the UK Emission Trading System (UK ETS – started Jan 01, 2021) which regulates our offshore North Sea oil production platforms. The UKA ranged from ~£43.20 – £88.15/tonne (CAD$74.73 - $152.73) for the time period of May 19, 2021 to April 30, 2022.
To calculate our potential impact figure, we used the subsequent carbon pricing multiplied by the specific emissions of the same facilities.

Cost of response to risk

750,000

Description of response and explanation of cost calculation

In Canada, Canadian Natural participates in both federal and provincially regulated climate and GHG emissions reporting programs and continues to quantify annual GHG emissions for internal reporting purposes to drive continuous improvement and reduce GHG emissions intensity. For example, Canadian Natural identified an opportunity to reduce operating costs, including carbon tax expense, at a natural gas plant in Northeast British Columbia in 2019. A maintenance shutdown provided an opportunity to install improved insulation on the incinerator stack. This reduces heat loss through the stack and therefore less fuel gas is required to maintain the minimum required stack-top temperature. This project reduced emissions by approximately 19,200 tCO2e in 2021, and reduced carbon tax expense by about $840,000 in 2021. The installation was successful and we were able to use a government grant program that provided capital funding for emission reduction projects. This project improved the energy efficiency of the incinerator and thereby reduced fuel gas use, reducing GHG emissions and carbon compliance costs. We also continue to expand our third party verification processes.

The internal staff time, software, and consulting services related to the annual third party verification processes of reported GHG emissions is $750,000.

Comment

No comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Wildfire

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Approximately 28% of Canadian Natural's operations are in forested areas in British Columbia and Alberta where wildfires occur periodically. Examples include the Septimus Gas Plant in northwest British Columbia and the Gold Creek Gas Plant and Brintnell Oil Battery located north of Slave Lake, Alberta. Wildfires in the proximity of our facilities may cause loss of production due to facility shutdown, either directly because of risk to people, the facility, or because of impact to required infrastructure (e.g., pipeline facilities and power lines).

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

3,285,400

Potential financial impact figure – maximum (currency)

32,854,000

Explanation of financial impact figure

Estimate of lost revenue in the event of a wildfire that would require us to shut down facilities, corporately the impact is estimated as 0.01% – 0.1% of 2021 revenue.

Cost of response to risk

200,000

Description of response and explanation of cost calculation

For example, our Horizon oil sands operation located in the boreal plains area of northern Alberta may experience physical climate change risk in the form of more frequent forest fires or, in the event of a fire, a reduced ability to withdraw water from the Athabasca River due to low stream flows. With the potential of wildfires in the area, Canadian Natural proactively identified the risk and reviewed our fire protection plans. As a result of this review, we constructed a fire break (cleared area) around the Horizon site to reduce the chance of wildfires from spreading near our operations, and constructed a water storage pond on the site to ensure a supply of fresh water at times of low stream flow. These risk mitigation efforts have resulted in the Horizon facility avoiding damage by wildfires and potential water shortages.

Maintaining the fire breaks around the Horizon site, including hiring contractors to widen the fire breaks using heavy machinery, costs an estimated $200,000.

Comment

No comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Changing precipitation patterns and types (rain, hail, snow/ice)

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

For example, Canadian Natural's Horizon oil sands facility in northeast Alberta relies on water from the Athabasca River as part of the production process. The facility currently uses up to 42% of its authorized annual withdrawal limit. Water use efficiency has improved, reducing

water demand allowing the license withdrawal limit to be reduced by approximately 30%. The water is used for extraction of bitumen from oil sands ore and for the production of hydrogen, which is used in the upgrading process. In times of low flows in the Athabasca River, the Horizon facility may be limited in the volume of water it is allowed to withdraw from the Athabasca. We mitigate this risk by having 28 days of water storage on site.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

552,000,000

Explanation of financial impact figure

If Canadian Natural did not have 28 days of water storage on site, there would a potential financial impact on production for 28 days. Potential financial impact is calculated as 28 days production x daily assumed production rate of 230,000 bbl/d x average 2021 realized sales price (CAD$77.95/bbl) with +/-10% for range.

Cost of response to risk

9,400,000

Description of response and explanation of cost calculation

For example, in times of reduced water flows in the Athabasca River due to weather events, Canadian Natural may be further limited in the volume of water it is allowed to withdraw from the Athabasca under very low flow conditions. Water use efficiency has improved, reducing water demand allowing the license withdrawal limit to be reduced by approximately 30%. Lowering the limit on the amount of water available for our operations could result in reduced production at the Horizon Oil Sands Mining and Upgrading operations. We evaluated this risk and as a result, built additional 28-day water storage capacity at Horizon to allow for continued operations at normal production rates during periods of reduced flows in the Athabasca River.

$9.4 million represents the capital spent to manage our risk through designing, hiring contractors to construct and then fill the water storage system at Horizon.

Comment

No comment

C2.4

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

Yes

C2.4a

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

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Canadian Natural is a leader in the oil and natural gas industry in carbon capture, utilization and storage (CCUS) projects, with a carbon capture capacity of 1.5 million tonnes at our Oil Sands Mining and Upgrading operations – including recovering CO2 from our hydrogen plant and adding it to our tailings at Horizon and a 70% interest in the Quest Carbon Capture and Storage (CCS) facilities at Scotford. These initiatives combined with CO2 capture at our Hays Gas Plant for use in enhanced oil recovery and a 50% stake in the Sturgeon Refinery, have a total carbon dioxide equivalent (CO2) capture capacity of 2.7 million tonnes/year, making Canadian Natural largest owner of capture capacity in the Canadian crude oil and natural gas sector, based on data from the Global Carbon Capture and Storage Institute.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

43,900,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

1.098 million tonnes of GHG offset credits earned by the Quest CCS project (net to Canadian Natural) multiplied by offset value of $40/tonne. Financial impact is calculated as Canadian Natural's share of GHG offset credits earned at Quest, multiplied by the government carbon price of $40/tonne.

Cost to realize opportunity

790,000,000

Strategy to realize opportunity and explanation of cost calculation

The decision to acquire the Athabasca Oil Sands Project (AOSP) assets in 2017 was influenced by the GHG intensity performance of this asset, including the Quest CCS. The Quest CCS project is part of the AOSP, of which, Canadian Natural has 70% ownership interest. CO2 is captured from the hydrogen plant at the Scotford upgrader, and then compressed and transported to an offsite location for long-term sequestration in a deep-saline aquifer. We work closely with our AOSP partners to ensure the facility is operating to its full potential and regularly discuss opportunities to improve. The Quest CCS facility has captured and permanently stored more than 6 million tonnes of CO2 at the end of 2021. The Quest cost of $790 million is calculated by the operator as the capital required for the project to reach commercial operation and is reported to the Government of Alberta. The cost calculation is reported at Quest Carbon Capture and Storage project: annual report, 2019 - Quest Carbon Capture and Storage project: annual summary report - Alberta Department of Energy: 2019 - Open Government. The calculation listed in this report reads as follows on page 10-1: Shell Labor & Commissioning: $147,582,000, Tie-in Work/Brownfield Work (Tie-In/Turnaround Work Capture, Tie-In Work Pipeline): $37,118,000, Capture Facility costs (Engineering, construction management, material, site labor, subcontracts, Mod Yard Labor Including Pipe Fab, Indirects/Freight, FGR Mods/HMU Revamps): $437,419,000, Subsurface wells (Injection Wells, Monitor Wells, Water Wells, Other MMV): $40,251,000, Pipelines (Materials, Engineering, and Services): $127,460,000 = $789,830,000.

Comment

No comment

Identifier

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Canadian Natural is a leader in the oil and natural gas industry in carbon capture, utilization and storage (CCUS) projects, with a carbon capture capacity of 1.5 million tonnes at our Oil Sands Mining and Upgrading operations – including recovering CO2 from our hydrogen plant and adding it to our tailings at Horizon and a 70% interest in the Quest Carbon Capture and Storage (CCS) facilities at Scotford. These initiatives combined with CO2 capture at our Hays Gas Plant for use in enhanced oil recovery and a 50% stake in the Sturgeon Refinery, have a total carbon dioxide equivalent (CO2) capture capacity of 2.7 million tonnes/year, making Canadian Natural largest owner of capture capacity in the Canadian crude oil and natural gas sector, based on data from the Global Carbon Capture and Storage Institute.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

29,280,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

0.976 million tonnes of GHG offset credits earned by the Quest CCS project (net to Canadian Natural) multiplied by offset value of $30/tonne. Financial impact is calculated as Canadian Natural's share of GHG offset credits earned at Quest, multiplied by the government carbon price of $30/tonne.

Cost to realize opportunity

790,000,000

Strategy to realize opportunity and explanation of cost calculation

The decision to acquire the Athabasca Oil Sands Project (AOSP) assets in 2017 was influenced by the GHG intensity performance of this asset, including the Quest CCS. The Quest CCS project is part of the AOSP, of which, Canadian Natural has 70% ownership interest. CO2 is captured from the hydrogen plant at the Scotford upgrader, and then compressed and transported to an offsite location for long-term sequestration in a deep-saline aquifer. We work closely with our AOSP partners to ensure the facility is operating to its full potential and regularly discuss opportunities to improve. The Quest CCS facility has captured and permanently stored more than 6 million tonnes of CO2 at the end of 2021. The Quest cost of $790 million is calculated by the operator as the capital required for the project to reach commercial operation and is reported to the Government of Alberta. The cost calculation is reported at: Quest Carbon Capture and Storage project: annual report, 2019 - Quest Carbon Capture and Storage project: annual summary report - Alberta Department of Energy: 2019 - Open Government. The calculation listed

in this report reads as follows on page 10-1: Shell Labor & Commissioning: $147,582,000, Tie-in Work/Brownfield Work (Tie-In/Turnaround Work Capture, Tie-In Work Pipeline): $37,118,000, Capture Facility costs (Engineering, construction management, material, site labor, subcontracts, Mod Yard Labor Including Pipe Fab, Indirects/Freight, FGR Mods/HMU Revamps): $437,419,000, Subsurface wells (Injection Wells, Monitor Wells, Water Wells, Other MMV): $40,251,000, Pipelines (Materials, Engineering, and Services): $127,460,000 = $789,830,000.

Comment

No comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Canadian Natural has a 50% interest in the North West Redwater Partnership (“Redwater Partnership”) which has agreements to operate the Sturgeon Refinery, a 50,000 barrel per day bitumen upgrader and refinery. Phase 1 processes 50,000 bbl/d of bitumen to finished products and incorporates an integrated CO2 management solution producing lower-intensity diesel compared to other refineries. CO2 captured from the refinery serves as an anchor supply to the Alberta Carbon Trunk Line (ACTL) where it is used for enhanced oil recovery. In 2021, almost 1.07 million tonnes of CO2 were captured, sequestered and safety stored by the Redwater Partnership.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

24,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Approximate annual value of Canadian Natural's share of GHG offset credits earned by the Redwater Partnership, calculated as 600,000 t/year at a credit value of $40/tonne.

Cost to realize opportunity

495,000,000

Strategy to realize opportunity and explanation of cost calculation

Canadian Natural works closely with the Sturgeon Refinery's operations team to ensure the refinery is working to optimize CO2 capture for permanent storage out of the environment, while producing low-carbon energy. The Alberta Trunk Line distributes the CO2 widely for use in enhanced oil recovery. Maintaining our partnership is vital to our success in capturing this CO2 and seeing the CO2 utilized and creating value. In the past two years, we also identified that this also has the potential to increase revenues due to low-carbon fuel credits in markets such as

British Columbia, and in the proposed Canadian Clean Fuel Regulation credit market.

In addition to the ongoing operating costs our 50% interest in the North West Redwater Partnership, the Alberta government provided $495 million construction and development of the Alberta Carbon Trunk Line.

Comment

No comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

Canadian Natural operates a system of solution gas compressors and pipelines in its primary heavy oil area region, in particular, single- and multi-well batteries. This reduces the amount of solution gas that is vented or flared. In 2021, we completed 250 solution gas conservation projects in our primary heavy crude oil operations, resulting in a reduction of approximately 1.4 million tonnes/year of CO2e. Over the past five years, the Canadian Natural has spent over $28.7 million in its primary heavy crude oil and in situ oil sands operations to conserve the equivalent of over 11.4 million tonnes of CO2e.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

12,017,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The potential financial impact figure comes from the revenue from sale of the incremental gas conserved (227.9 e3m3/d x $4.07/mcf gas price).

Cost to realize opportunity

6,330,000

Strategy to realize opportunity and explanation of cost calculation

In 2016, we identified the opportunity to reduce emissions from compressors and pipelines across Canadian Natural. We used technologies such as heavy oil fans, load banks, and combustors as part of our Solution Gas Conservation Program to reduce emissions from venting of solution gas. The program established processes for identifying and implementing solution gas conservation projects in our primary heavy oil operations. The Solution Gas Conservation Program has three main objectives: reduce emissions from vented solution gas, maintain compliance with regulations, and provide a positive economic return (through a combination of incremental gas revenues, reduction in propane

consumption, and potentially GHG offset credits for voluntary conservation efforts). In particular, single- and multi-well batteries located in the primary heavy oil area, ranging from 039-19W3 up to 065-07W4. As a result of this work, we have spent over $28.7 million over the past five years in our primary heavy crude oil and in situ oil sands operations to conserve the equivalent of over 11.4 million tonnes of CO2e.
The $6.33 MM in 2021 is the cost to realize the opportunity and is derived from the cost of completing the projects (installing compressors, replacing fans, and adding pipelines, etc.) at 250 solution gas conservation projects in our primary heavy crude oil operations, resulting in a reduction of approximately 1.4 million tonnes/year of CO2e.

Comment

No comment

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

Canadian Natural has ongoing engagement with our shareholders to provide updates on our business strategy and plans, including our climate/GHG emission management plans. Canadian Natural is strongly committed to doing our part to lower GHG emissions, and helping to position Canada as the supplier of choice for safe, secure, reliable and environmentally responsible energy the world needs. While we do not have a carbon transition plan as defined by this question, we believe we have a plan in place to take us into a low carbon economy. Our GHG emissions reduction plan aligns with the definition provided by the Oxford Martin Net Zero Carbon Investment Initiative based on the following principles:
- Aspirational target of net zero GHG emissions in our oil sands operations and our commitment to the Oil Sands Pathways to Net Zero

initiative's ambition of net zero GHG emissions by 2050 in Canada's oil sands operations.
- Establishment of targets, for example, a new methane target of 50% reduction in NA E&P methane emissions by 2030 from a 2016 baseline was announced in August 2021.
- Canadian Natural's balanced portfolio of light, synthetic, and heavy crude oil and natural gas represents one of the strongest and most diverse asset portfolios of any energy producer in the world. The strength of our assets, along with our integrated GHG Emissions Management Strategy, positions Canadian Natural to be resilient in a lower carbon emissions future.
- Canadian Natural has developed a pathway to reduce emissions intensity below the global crude average. This pathway includes CCUS projects, methane reduction projects, natural gas production and further advancements in technology. Leveraging technology and innovation have led to significant reductions in Canadian Natural's GHG emissions.
Canadian Natural and the Canadian crude oil and natural gas sector are delivering game-changing environmental performance. We recognized the need to reduce GHG emissions across our operations, leveraging technology and Canadian ingenuity to deliver results, and will continue to do so into the future.

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

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		IEA NZE 2050 shows a narrow but achievable pathway for the global energy sector to achieve net zero CO2 emissions by 2050, with advanced economies reaching net zero emissions in advance of others. This scenario also meets key energy-related United Nations Sustainable Development Goals (SDGs), in particular achieving universal energy access by 2030. The NZE

			does not rely on emissions reductions from outside the energy sector to achieve its goals, but assumes that non-energy emissions will be reduced in the same proportion as energy emissions. It is consistent with limiting the global temperature rise to 1.5°C without a temperature overshoot (with a 50% probability). CO2 price in Canada is assumed to be $250 USD per tonne in 2050. This external scenario does not include crude oil and gas demand projections. We used this external scenario to qualitatively assess the potential energy mix in 2050 in a 1.5°C scenario and support business planning and identification of risks and opportunities.
Transition scenarios IEA SDS	Company-wide		The IEA Sustainable Development Scenario represents a pathway to achieving the Paris Agreement. This scenario assumes advanced economies reach net zero by 2050, China around 2060 and all other countries by 2070. This scenario assumes all net zero pledges are achieved and there are increased efforts to realise near-term emission reduction. CO2 price in Canada is assumed to be $200 USD per tonne in 2050. Crude oil demand in this scenario is 47 MMbbl/d and natural gas demand is 2,452 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios IEA APS	Company-wide		The IEA Announced Policies Scenario assumes all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs - efforts made by each country to reduce national emissions and adapt to the impacts of climate change in accordance with The Paris Agreement.) and longer term net zero targets, will be met in full and on time. CO2 price in Canada is assumed to be $200 USD per tonne in 2050. Crude oil demand in this scenario is 77 MMbbl/d and natural gas demand is 3,852 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios IEA STEPS (previously IEA NPS)	Company-wide		The IEA Stated Policies scenario reflects current policy settings based on a sector-by-sector assessment of the specific policies that are in place, as well as those that have been announced by governments around the world. CO2 price in Canada is assumed to be $75 USD per tonne in 2050. Crude oil demand in this scenario is 103 MMbbl/d and natural gas demand is 5,113 BCM in 2050.

			We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios Customized publicly available transition scenario	Company-wide	2.1ºC - 3ºC	Equinor Energy Perspectives Reform scenario is market and technology driven where economic growth is prioritized and current policy momentum continues. Crude oil demand in this scenario is 84 MMbbl/d and natural gas demand is 4,621 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios Customized publicly available transition scenario	Company-wide	2.1ºC - 3ºC	Equinor Energy Perspectives Rivalry scenario focuses on energy security and models results from geopolitical uncertainty and volatility, trade tensions and isolationism. Crude oil demand in this scenario is 110 MMbbl/d and natural gas demand is 4,752 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities
Transition scenarios Customized publicly available transition scenario	Company-wide	1.6ºC – 2ºC	Equinor Energy Perspectives Rebalance scenario is consistent with well below 2°C Paris agreement target, with immediate and coordinated international action on climate change and the UN sustainable development goals are met. Crude oil demand in this scenario is 46 MMbbl/d and natural gas demand is 3,066 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios Customized publicly available transition scenario	Company-wide	2.1ºC - 3ºC	Shell Energy Transformation Waves Scenario models a world where various jurisdictions put wealth first and focus efforts on repairing the economy. Social and environmental issues receive less attention initially and there are late but fast decarbonisation efforts. Crude oil demand in this scenario is 105 MMbbl/d and natural gas demand is 4,900 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios Customized publicly available transition scenario	Company-wide	2.1ºC - 3ºC	Shell Energy Transformation Islands Scenario models a world where each country put their own security first with a new emphasis on nationalism. This scenario represents late and slow decarbonisation efforts. Crude oil demand in this scenario is 96 MMbbl/d and natural gas demand is 4,640 BCM in 2050.

			We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.
Transition scenarios Customized publicly available transition scenario	Company-wide	1.5ºC	Shell Energy Transformation Sky 1.5 Scenario models initial responses to focus on the pandemic and public well-being, putting health first including accelerated decarbonisation efforts. This scenario assumes an alignment of diverse interests and institutional improvements to create pathways for improving ESG performance. Crude oil demand in this scenario is 80 MMbbl/d and natural gas demand is 3,335 BCM in 2050. We used this external scenario to qualitatively assess the impact to crude oil and natural gas demand and support business planning and identification of risks and opportunities.

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

- How will energy demand change under various scenarios?
- Have we identified the most material climate-related risks?

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

As part of evaluating climate change related risk and opportunities, Canadian Natural reviews independent external scenario analyses developed by energy firms and agencies representing a range of global oil and natural gas demand levels through 2050. We have reviewed scenarios that model assumptions that are aligned with the commitment of the Paris Agreement, including the International Energy Agency's Net Zero Emissions by 2050 scenario.

These external scenario analyses are a tool used to support business planning and identification of risks and opportunities. As part of this process, Canadian Natural considers a number of variables and assumptions related to markets (e.g., economic and social events), commodity prices, carbon prices, policy, regulation, technology development and adoption, energy efficiency and reputation.

The scenarios reviewed show that crude oil and natural gas remains an important part of the global energy mix for the foreseeable future along with providing an outlook on global GHG emission reduction. As the world evolves toward a lower carbon emissions energy system, we are proud to be one of the leading companies producing oil and gas while reducing our GHG emissions. Canadian Natural is focused on reducing our GHG emissions through our investments in CCUS projects, co-founding the Oil Sands Pathways to Net Zero initiative, employing significant activity to reduce our methane emissions, and investing in natural gas production, a clean burning hydrocarbon.

Natural gas is an integral part of our business strategy and the pathway to a lower carbon emissions future. As one of the largest producers of natural gas in Canada, Canadian Natural's natural gas assets deliver improved environmental performance as a clean burning hydrocarbon. As the energy system transitions to integrate more renewable energy sources, natural gas will provide a reliable baseload energy supply.

Canadian Natural's balanced portfolio of light, synthetic, and heavy crude oil and natural gas represents one of the strongest and most diverse asset portfolios of any energy producer in the world. The strength of our assets, along with our integrated GHG Emissions Management Strategy, helps to mitigate climate change risks to our reserves and will position us for success in a low carbon future.

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	Climate-related risks have influenced our products and services strategy in terms of our evaluation of assets during acquisition assessments. For example, the acquisition of the Athabasca Oil Sands Project assets in 2017 was influenced by the GHG intensity performance of this asset, including the Quest CCS project. This evaluation of climate-related risk and opportunities is applied over the long-term planning time horizon of our business. An aspect of climate change risk that most influences Canadian Natural's business strategy is future compliance costs/regulatory changes. The costs of complying with environmental legislation in the future may have a material adverse effect on our financial condition. Current and potential climate change

		policies and regulations are considered when making decisions to advance the business strategy. We actively track the development of policies and regulations at the international level, and at the national and provincial level in Canada. Canadian Natural's associated environmental risk management strategies focus on working with legislators and regulators to ensure that any new or revised policies, legislation or regulations properly reflect a balanced approach to sustainable development. Climate risk management occurs at the asset level through recurring project and technology reviews, as well as economic evaluations, including forecasting GHG intensity and compliance costs, and reviewing abatement projects. We also use an internal price of carbon as a sensitivity to evaluate returns on future emission reduction projects under different potential carbon prices. The internal price varies from $0/t to $50/t, depending on the project's applicability, jurisdiction, operational duration, and implementation timelines.
Supply chain and/or value chain	Yes	Increasing GHG compliance costs and other climate-related risks contributed to our decision to partner with a midstream company (Inter Pipeline, former owners were Williams Energy) on the investment in the Horizon Liquids Extraction Project (LEP) over a long-term time horizon. They had previously developed a similar project at another oil sands mining and upgrading facility. Discussions resulted in a commercial agreement on implementation of the LEP at Horizon, with operation of the LEP beginning in 2016. It is currently owned and operated by Inter Pipeline Limited. The LEP processes off-gas from Horizon's upgrading process to recover hydrocarbon liquids (such as ethane and propane). These liquids are then transported off site for use by Inter Pipeline in their midstream business. Prior to the LEP, the off-gas stream had been used as a source of fuel gas by Horizon operations. With the LEP in operation, Horizon no longer uses the off-gas stream for fuel, and has replaced it with pipeline-quality fuel gas, which has a lower GHG intensity per gigajoule than the off-gas stream and therefore produces a product with lower GHG intensity and reduces the GHG compliance cost at Horizon. The operation of the LEP reduced GHG emissions at Horizon by approximately 140,000 t CO2e in 2021 and avoided more than 690,000 t CO2e emissions since 2016. This program is expected to last the entire time horizon of the Horizon integrated oil sands operation.
Investment in R&D	Yes	Climate-related risks influence our R&D investments, including spend for emission mitigation research. Achieving an aspirational target of net zero oil sands emissions and oil sands emissions intensity targets requires prioritizing evaluation and investment of R&D according to time horizons and actions in the near-

		, mid-, and long-term. Examples of actions include – Near-term/current: Carbon Capture Utilization and Storage (CCUS), pneumatic retrofits, as well as piloting the In-Pit Extraction Process (IPEP), Solvent Enhanced Oil Recovery (EOR), and Molten Carbonate Fuel Cells (MCFC's) ; Medium-term: commercialization of IPEP, MCFC's, and Solvent EOR; and Long-term: Expand/develop CCUS and carbon capture and conversion projects. New technology takes time to test and commercialize necessitating collaboration. As a founding member of, and one of the largest contributors to Canada's Oil Sands Innovation Alliance (COSIA), Canadian Natural has an important role in this collaborative effort. In 2021, we led 43 COSIA projects and participated in another 28. To date, we have shared technologies/innovation valued at $177 MM in tailings, $134 MM in water, $46 MM in GHG and $42 MM in reclamation through COSIA. We are a member of the Petroleum Technology Alliance Canada (PTAC) with over 670 R&D projects launched to date. Canadian Natural is also a founding member of the Clean Resource Innovation Network (CRIN), an industry-led network launched in 2017 to leverage large-scale collaboration and align research and technology priorities. Significant collaboration across industry and governments is essential to accelerate the path to net zero. This is why Canadian Natural, along with Canada's largest oil sands producers, formed the Oil Sands Pathways to Net Zero initiative in 2021. The goal of this unique alliance, working with the federal and Alberta governments, is to achieve net zero GHG emissions from oil sands operations by 2050 to help Canada meet its climate goals, including its Paris Agreement commitments. The initiative involves multiple pathways to net zero including an executable plan to build a CO2 trunkline connecting Fort McMurray and Cold Lake to a carbon sequestration hub; deploying existing/emerging reduction technologies, such as carbon capture technologies, clean hydrogen, process improvements, energy efficiency, fuel switching and electrification.
Operations	Yes	Climate-related risks have influenced our operation's strategy by focusing our efforts on actions that deliver both GHG emission reductions and effective and efficient production of oil and gas. As a specific example, beginning in 2018 we implemented a program to retrofit or remove certain pneumatic control devices within our Conventional oil and gas operations in BC and Alberta. These devices are used to maintain safe and effective operation of facilities by controlling pressures and production flow rates. The replacement pneumatic devices perform the same functions with typically 80-90% lower emissions than

		the original devices. This has provided an environmental benefit of reduced GHG emissions (from reduced methane emissions), increased volumes of gas for sale (i.e., the gas not vented is sold), and improved operability from new control devices. Since 2018, the Company has completed over 6,400 pneumatic retrofits and removals resulting in a cumulative CO2e reduction from its operations of approximately 640,000 tonnes/year, of which approximately 1,400 retrofits/removals equivalent to 140,000 tonnes/year CO2e were completed in 2021 . Emission reductions from these replacements will be realized throughout the facility lifetime. Typical facility lifetimes are in the 5-20 year time horizon. At facility end of life, equipment can be reused at other facilities and continue to generate GHG reductions.

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	Capital allocation Acquisitions and divestments Access to capital Assets Liabilities	The additional requirements of enacted or proposed GHG regulations on Canadian Natural's operations may increase capital expenditures and production expenses, including those related to our existing and planned oil sands projects. Climate-related risks and opportunities influence our capital allocation decisions. For example, the decision to acquire the Athabasca Oil Sands Project (AOSP) assets in 2017 was influenced by the GHG intensity performance of this asset, including the Quest Carbon Capture and Storage Project. Our planning included both existing and proposed climate change policies and regulations when making decisions to advance the business strategy. The carbon storage opportunities provides a planned 25 year time horizon with an estimated storage of 27 million tonnes. This provides long-term certainty to carbon reductions to offset emissions. Building on our expertise in CCUS projects, Canadian Natural identified an opportunity to collaborate with Canada's other largest oil sands producers and we co-founded the Oil Sands Pathways to Net Zero alliance. The goal of this unique alliance, working together with governments, is to achieve net zero GHG emissions from oil sands operations by 2050 to help Canada meet its climate goals, including its Paris Agreement commitments. Initially, the Pathways Alliance will focus on building a foundational carbon capture and storage network in northern Alberta. At the heart of the network is a

		proposed carbon transportation line to gather captured CO2 from more than 20 oil sands facilities and move it to a proposed hub in the Cold Lake area of Alberta for safe underground storage. The line would also be available to other industries in the region interested in capturing and storing CO2. Canadian Natural's balanced portfolio of light, synthetic, and heavy crude oil and natural gas represents one of the strongest and most diverse asset portfolios of any energy producer in the world. Our oil sands mining operations represent an important part of our business. Their long life, no decline, manufacturing-like operations represent one of the clearest paths to net zero emissions of any global crude oil asset. Our portfolio also includes natural gas, a reliable and affordable energy source for power generation, with less than half the carbon footprint of coal. For example, Canadian Natural has increased investment in low intensity natural gas assets, increasing natural gas production by 15% from 2020 to 2021. As one of the largest producers of natural gas in Canada, Canadian Natural's natural gas assets deliver strong environmental performance. The identification of climate-related risks and opportunities has also influenced our track record of investment in technology research and development, with over $83.8 million invested in technology development and implementation to reduce GHG emissions in 2021.

C4. Targets and performance

C4.1

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

Intensity target

C4.1b

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

Target reference number

Int 1

Year target was set

2019

Target coverage

Business activity

Scope(s)

Scope 1
Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Intensity metric

Metric tons CO2e per barrel of oil equivalent (BOE)

Base year

2016

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

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

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

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

0.1002

% 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

41

Target year

2025

Targeted reduction from base year (%)

25

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

0.07515

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

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

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

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

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

0.059

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

164.4710578842

Target status in reporting year

Achieved

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

This target covers our oil sands mining and thermal operations and excludes conventional oil and gas production and international production

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

CNRL's ongoing focus on steady reliable production consists of many initiatives which result in higher average production at marginal extra energy (and GHG) expense, reducing Oil Sands mining and thermal GHG intensity. Efforts to reduce low, or zero production time, through reliability initiatives, improves GHG intensity.

C4.2

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

Target(s) to reduce methane emissions

Net-zero 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

2021

Target coverage

Business activity

Target type: absolute or intensity

Absolute

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

Methane reduction target

Other, please specify

Total Methane Emissions in tonnes CH4 from North American E&P operations

Target denominator (intensity targets only)

Base year

2016

Figure or percentage in base year

184,325

Target year

2030

Figure or percentage in target year

92,163

Figure or percentage in reporting year

101,894.84

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

89.4405069334

Target status in reporting year

New

Is this target part of an emissions target?

Yes

Is this target part of an overarching initiative?

Reduce short-lived climate pollutants

Please explain target coverage and identify any exclusions

Target coverage is methane emissions from operated assets in our North American Exploration and Production segment.

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

We plan to achieve this target by reducing venting from our primary heavy oil operations, by reducing venting of gas from pneumatic-powered devices such as controllers and pumps, and by continuing with our Fugitive Emission Management Program (FEMP). To the end of 2021, we have reduced emissions by89% compared to 2016.

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

In 2018, Canadian Natural was one of the first oil companies to announce an aspirational goal of achieving net zero emissions in our oil sands operations. Canadian Natural is also a member of the Oil Sands Pathways to Net Zero initiative, an alliance of oil sands companies working

together with governments to achieve net zero GHG emissions from oil sands operations by 2050 – to help Canada meet its climate goals, including Paris Agreement commitments and 2050 net zero aspirations. The Pathways initiative considers multiple parallel pathways to net zero including a foundational project of a CO2 trunkline connecting Fort McMurray and Cold Lake to a carbon sequestration hub; deploying existing and emerging GHG reduction technology such as carbon capture, clean hydrogen, process improvements, energy efficiency, fuel switching and electrification.

Canadian Natural is one of the largest owners of carbon capture capacity in the oil and natural gas sector globally through projects at Horizon, our 70% owned Quest carbon capture facility located at Scotford, and our 50% working interest in the NWR Refinery. As part of our GHG emissions reduction strategy, our CCUS projects include CO2 storage in geological formations, using CO2 in EOR techniques and CO2 injection into tailings. Gross carbon capture capacity through these projects combined is ~2.7 Mt of CO2 annually, equivalent to taking approximately 576,000 cars off the road per year. We've made significant progress to date by investing in CCUS projects, R&D and innovation. For example: we have invested $83.8 million in 2021 in GHG technology development and implementation. Another example of a technology project on our pathway to net zero includes Canadian Natural's pilot using solvents at our Kirby South thermal oil sands operation, as a way to reduce steam use and GHG emissions per barrel of production. In our Primrose and Wolf Lake operations, we use natural gas for power through cogeneration units. Cogeneration allows these facilities to simultaneously produce electricity and recover waste heat to meet the sites' steam and electricity demands.

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

No

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

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

No comment

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	12	0
To be implemented*	3,450	1,521,302
Implementation commenced*	1,133	1,328,948
Implemented*	1,209	123,972
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Fugitive emissions reductions

Oil/natural gas methane leak capture/prevention

Estimated annual CO2e savings (metric tonnes CO2e)

1,452,920

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)

9,273,852

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

6,328,110

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

The 3-5 year time-frame is for the field implementation of the initiative. Reductions achieved will continue over the lifetime of the facilities being retrofitted. Monetary savings is the estimated value of GHG credits earned.

C4.3c

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

Method	Comment
Compliance with regulatory requirements/standards	Canadian Natural has integrated emissions reduction strategies to meet performance goals and comply with GHG emissions and air pollutant requirements. We participate in the Canadian federal and provincial regulated GHG emissions reporting programs and quantify annual GHG emissions for internal and external reporting. Canadian Natural recognizes the need to reduce GHG emissions and supports Canada's leadership in the Paris Agreement as a pathway to GHG reduction and driving innovation. We also support the federal and provincial goals to reduce methane emissions by 45% by 2025. Leveraging technology is a key part of our GHG reduction strategy. In 2021, we invested $83.8 million technology development and implementation to reduce GHG emissions. Projects span from CCS to enhancing steam efficiencies and conserving solution gas. In addition to our existing projects, we continue to explore emission reduction technologies with the potential to make a significant difference, including: • Using solvents at our Kirby and Primrose thermal

	operations to reduce steam use, and GHG emissions, per barrel of production. • Using Cyclic CO2 injection in Cold Heavy Oil Production with Sand (CHOPS) assets. Produced CO2 is captured/re-injected in the production cycle, which improves viscosity and flow rates, while CO2 remains permanently sequestered in the reservoir. Our Technology and Innovation (TI) team supports technology development efforts by managing information to accelerate technology adoption, strengthening our internal expertise through internal/external collaborations, and coordinating resources and investment. They manage external partnerships and technical collaborations to support strategic decisions, maintain transparency, and drive results. For example, senior management and TI support is embedded in our GHG Operations Strategy Committee, which oversees working groups that manage and coordinate GHG reduction and technology projects. The Committee also identifies and manages issues/risks (including regulatory/policy awareness) with a consistent approach to technology deployment. TI teams provide support to help connect the areas, advance technologies, and assist business units in delivering their emissions reductions projects. For example, the Methane Steering Committee coordinates programs and technologies to reduce venting in our Alberta heavy oil operations.
Dedicated budget for other emissions reduction activities	Canadian Natural is committed to doing our part to reduce our emissions. Canadian Natural has been the leading R&D investor for the crude oil and natural gas sector for a number of years - investing $3.9 billion since 2009 and $450 million in technology development and deployment in 2021. Leveraging technology and innovation is the best way to deliver improved environmental performance, reduced costs, and increased productivity.
Employee engagement	Climate risk management occurs at the asset level through recurring project reviews, technology reviews, and economic evaluations including forecasting GHG intensity and compliance costs, and reviewing abatement projects. Our Field Operations teams provide valuable input on new opportunities.
Internal price on carbon	Canadian Natural uses the current regulated price of carbon to evaluate returns on future projects under different potential carbon regulations and for evaluating emission reduction projects.
Internal incentives/recognition programs	Greenhouse gas emissions intensity (tonnes/BOE) is one measure in the corporate performance scorecard on which performance bonuses are based.
Marginal abatement cost curve	Canadian Natural has developed marginal abatement cost curves that guide our R&D investments.
Partnering with governments on technology development	Through Canada's Oil Sands Innovation Alliance, Canadian Natural is leading a joint industry project to develop a 1.4 megawatt Molten Carbonate Fuel Cell power generation project at the Scotford Upgrader. A typical fuel cell converts

	chemical energy from a fuel into electricity. We are exploring using fuel cells to capture CO2 from natural gas-fired processing units to generate low GHG-intensity electricity and flue gas. We will also be able to offset carbon capture costs through generating electricity for on-site use or for exporting to the Alberta grid. The project will be funded (40%) by Emissions Reduction Alberta and is targeted to begin in 2022. Canadian Natural is undertaking a field pilot of our In-Pit Extraction Process (IPEP) technology, an alternative to conventional oil sands mining and ore processing. Emissions Reduction Alberta (ERA) is a partner in this project. IPEP technology involves a relocatable, modular extraction plant that moves as the mine face advances. Ore processing and bitumen separation occurs adjacent to mining operations, significantly reducing material transportation. Canadian Natural estimates that the IPEP technology could reduce GHG emissions by up to 40% in bitumen production compared to typical oil sands surface mining and extraction processes. In addition, Canadian Natural completed an ERA-funded project to enhance the accuracy of GHG emissions measurements from large industrial area sources, typical of the oil sands region of Alberta. This research will help address some challenges faced by industry in quantifying the rates of methane and CO2 emissions, and allow the implementation of more effective strategies to reduce GHG emissions. This project deployed different working groups and approaches for measuring emissions using a holistic system of advanced sensors, laser and fiber optic technology, as well as computer models and meteorological data. The groups will deliver commercially proven technologies, guidelines for measurement and more accurate emissions profiles.
Other Scenario Analysis	As part of evaluating climate change related risk and opportunities, Canadian Natural reviews independent external scenario analyses developed by energy firms and agencies representing a range of global oil and natural gas demand levels through 2050. We have reviewed scenarios that model assumptions that are aligned with the commitment of the Paris Agreement, including the International Energy Agency's Net Zero Emissions by 2050 scenario. These external scenario analyses are a tool used to support business planning and identification of risks and opportunities. As part of this process, Canadian Natural considers a number of variables and assumptions related to markets (e.g., economic and social events), commodity prices, carbon prices, policy, regulation, technology development and adoption, energy efficiency and reputation. The scenarios reviewed show that crude oil and natural gas remains an important part of the global energy mix for the foreseeable future along with providing an outlook on global GHG emission reduction. As the world evolves toward a lower carbon emissions energy system, we are proud to be one of the leading companies producing oil and gas while

	reducing our GHG emissions. Canadian Natural is focused on reducing our GHG emissions through our investments in CCUS projects, co-founding the Oil Sands Pathways to Net Zero initiative, employing significant activity to reduce our methane emissions, and investing in natural gas production, a cleaner burning hydrocarbon. Natural gas is an integral part of our business strategy and the pathway to a lower carbon emissions future. As one of the largest producers of natural gas in Canada, Canadian Natural's natural gas assets deliver improved environmental performance as a clean burning hydrocarbon. As the energy system transitions to integrate more renewable energy sources, natural gas will provide a reliable baseload energy supply. Canadian Natural's balanced portfolio of light, synthetic, and heavy crude oil and natural gas represents one of the strongest and most diverse asset portfolios of any energy producer in the world. The strength of our assets, along with our integrated GHG Emissions Management Strategy, helps to mitigate climate change risks to our reserves and will position us for success in a low carbon future.

C4.5

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

No

C-OG4.6

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

Reducing methane emissions is a priority for Canadian Natural. Our methane reduction efforts include:

- The use of vapour combustor technology to convert methane to CO2 at our heavy oil operations reduced GHG emissions by 85% when compared to venting in 2021. In 2021, over 138,700 tCO2e of methane was converted to CO2 using this technology, reducing GHG emissions by more than 85% when compared to venting.
- At Horizon, we completed a four-year monitoring and research project for the quantification of fugitive emissions from tailings ponds and mines. This study was completed in collaboration with other companies, universities and equipment suppliers to improve the quantification of methane and CO2 emissions from mine and tailings operations. Research is revealing that new technologies can perform better than current ones (flux chambers devices) to measure source emissions over longer periods of time and to better distinguish from background levels, enabling improvements in emission source reductions.

- Solution gas conservation projects, to reduce venting through the management of compressor units and tie-in of wells and multi-well pads in our primary heavy oil operations. Since 2018, we have completed over 6,400 pneumatic retrofits and removals resulting in a cumulative CO2e reduction from our operations of approximately 640,000 tonnes, of which approximately 1,400 retrofits/removals equivalent to 140,000 tonnes/year CO2e were completed in 2021.
As part of our pneumatic retrofit program, in 2021 we identified the opportunity to use solar pumps to replace targeted pneumatic injection pumps in our Alberta and British Columbia conventional areas. Pneumatic pumps are powered by pressurized natural gas from commercial pipelines which emit small volumes of methane. Solar pumps, alternatively, are powered by solar panels to operate the pumps and eliminate the need for pressurized natural gas. When compared to pneumatic pumps, solar pumps have low associated annual operating costs and emit zero GHG emissions. A project plan was constructed, targeting converting approximately 3,000 pneumatic pumps over the next three years. The project launched in January 2022 and is targeting methane emissions reductions of up to 270,000 tonnes CO2e/yr when completed.

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.

The goal of Canadian Natural's Fugitive Emission Management and Control (FEMC) program is to reduce fugitive emissions by providing an efficient means to identify larger gas leaks and prioritize them for repair. The program consists of a combination of comprehensive fugitive surveys of facilities using optical gas imaging (OGI) cameras, screening of wellsites using auditory, visual, and olfactory (AVO) detection, and alternative detection methods using methane detectors on fixed-wing aircraft and on trucks. The program also includes a leak tracking and repair component, and record-keeping and reporting. The specific results vary by jurisdiction – typically facilities are surveyed 1-3 times per year and wellsites are screened annually. All assets except oil production facilities in Saskatchewan are included in the program.
In 2020, the Alberta Energy Regulator (AER) released stringent requirements for Fugitive Emissions Management. Compliance with this new directive could have been costly and time intensive to achieve. We saw an opportunity for industry and regulators to work together to develop made-in-Alberta

solutions to ensure regulatory compliance while delivering the most cost and time effective model for emissions measurement. Canadian Natural utilized knowledge and connections made through Petroleum Technology Alliance Canada (PTAC) and developed an Alternative Fugitive Emissions Management Program (Alt-FEMP) with the support of Emissions Reduction Alberta (ERA). This program, managed and executed in-house to add area operational knowledge to our processes to continue to improve fugitive emission detection and expedite repairs, includes over 4,700 comprehensive fugitive emission surveys using optical gas imaging cameras and fugitive emission screenings at over 21,000 wells across our North American Exploration & Production operations in 2021. The program also includes conducting pilots of emerging technologies across 1,500 facilities in our NA E&P operations to evaluate technology performance and validate forecasted emission and cost reductions. The pilots are testing the commercialization of technologies that offer accelerated detection and accurate characterization of methane emissions. They will assist industry in continuous improvement of LDAR efficiencies and overall methane emission reductions. Reductions achieved will continue over the lifetime of the facilities being retrofitted. If successful, the new Alt-FEMP will reduce methane fugitive emissions through faster detection and repairs, reduce our operating costs for methane LDAR by up to 86% and increase worker safety.

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.

Canada has among the highest flaring emissions management standards in the world. As one example of the success of these standards, the province of Alberta in 2019 achieved a 97.7% solution gas conservation rate, which is the highest conservation rate achieved since records have been kept (see Alberta Energy Regulator’s “Upstream Petroleum Industry Flaring and Venting Report for the year ending December 31, 2019”). Canadian Natural meets all compliance obligations and targets. Our strategy for managing GHG emissions focuses on improving energy conservation and efficiency, reducing emissions intensity, supporting associated research and development, and adopting innovative technologies.

To support this strategy, we have flaring, venting, fuel and natural gas conservation programs in place. For example, our fuel gas import project at our North Sea operations is reducing diesel consumption through improvements on gas compression.

Canadian Natural and the entire Canadian oil and gas sector have delivered game-changing environmental performance. Canada's oil and gas sector recognized the need to reduce GHG emissions and we have leveraged technology and Canadian ingenuity to deliver impressive results.

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?

No

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 methodology	Our methodology for calculating stationary fuel combustion in our Conventional operations changed. Specifically, we moved from using a single emission factor for fuel gas, to site-specific fuel gas emission factors that take into account the gas composition and the type of equipment that is burning the fuel gas. For our venting calculation in our Conventional operations, we moved from using a single emission factor for vented gas, to site-specific vent gas analysis (where available) that takes into account actual vented gas composition. There were no changes to the boundary or reporting year definitions.

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	Base year has been moved to 2021. This allows acquired asset data and current operation production levels to be incorporated in the new revised baseline. The base line will also incorporate additional methodology changes (moving from net to gross operated emissions reporting, inclusion of Scope 3 emissions and other gap filling adjustments).

C5.2

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

Scope 1

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

23,150,007.48

Comment

Contains all operated facilities gross Scope 1 emissions

Scope 2 (location-based)

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

3,256,767.84

Comment

Contains all operated facilities gross Scope 2 emissions

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 1: Purchased goods and services

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 5: Waste generated in operations

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 6: Business travel

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

131,871,838.26

Comment

Contains all operated facilities gross Scope 3 emissions from use of sold products.

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

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

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

American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2009
Canadian Association of Petroleum Producers, Calculating Greenhouse Gas Emissions, 2003
European Union Emission Trading System (EU ETS): The Monitoring and Reporting Regulation (MMR) – General guidance for installations
ISO 14064-1

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

23,150,007

Start date

January 1, 2021

End date

December 31, 2021

Comment

Contains all operated facilities gross Scope 1 emissions

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

23,810,000

Start date

January 1, 2020

End date

December 31, 2020

Comment

Contains all operated facilities gross Scope 1 emissions

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)

22,120,000

Start date

January 1, 2019

End date

December 31, 2019

Comment

Contains all operated facilities gross Scope 1 emissions

Past year 3

Gross global Scope 1 emissions (metric tons CO2e)

21,970,000

Start date

January 1, 2018

End date

December 31, 2018

Comment

Contains all operated facilities gross Scope 1 emissions

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

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

Comment

No comment

C6.3

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

Reporting year

Scope 2, location-based

3,256,767.84

Start date

January 1, 2021

End date

December 31, 2021

Comment

Gross operated facilities Scope 2 emissions

Past year 1

Scope 2, location-based

3,230,000

Start date

January 1, 2020

End date

December 31, 2020

Comment

Gross operated facilities Scope 2 emissions

Past year 2

Scope 2, location-based

3,090,000

Start date

January 1, 2019

End date

December 31, 2019

Comment

Gross operated facilities Scope 2 emissions

Past year 3

Scope 2, location-based

3,130,000

Start date

January 1, 2018

End date

December 31, 2018

Comment

Gross operated facilities Scope 2 emissions

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

Vapour emissions from spills of liquid hydrocarbons and accidental venting incidents

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

No emissions from this source

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

No emissions from this source

Explain why this source is excluded

Estimated to be immaterial (<1%). Difficult to track accurately.

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

Spills are rapidly cleaned up as soon as practical and this reduces the ability of spilled liquid to volatize into GHG emissions. Only a small fraction of spilled content is able to volatize into GHG emissions. Annual spilled content, even if completely volatized, would still represent far less than 1% of company fuel consumption, and reported Scope 1 + 2 emissions. This renders spilled content which actually volatizes into GHG emissions an even smaller fraction of the 1%, essentially rounding to zero %.

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

Not evaluated

Please explain

Negligible in comparison to use of sold products

Capital goods

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

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

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Upstream transportation and distribution

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Waste generated in operations

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Business travel

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Employee commuting

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Upstream leased assets

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Downstream transportation and distribution

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Processing of sold products

Evaluation status

Not evaluated

Please explain

Once products are on the market, we believe that it is impractical to determine splits between buyers and subsequent final end use product allocations. We are also not able to assign GHG intensities of the processes, considering the uncertainty with the end user product state and application.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

131,871,838

Emissions calculation methodology

Other, please specify

Category 11 in the GHG Protocol following the Production Method, Emissions for Oil and Gas, using Higher Tier emission factors

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

0

Please explain

Scope 3 GHG emissions re: indirect emissions (not included in Scope 2) that occur upstream and downstream of a company's operations. Scope 3 emissions are a function of the demand for energy products and consumer choices on how and when to consume energy. These emissions are indirect and occur outside of our control, therefore the reporting of Scope 3 emissions is less certain. We have estimated Scope 3 emissions arising from the end use of our sold products (Category 11 in the GHG Protocol) on a net working interest basis, which is the category most material to the Company. The remaining categories of Scope 3 emissions were not included due to lack of reliable third-party data. Scope 3 emissions are calculated following the GHG Protocol. Additionally, the CDP Technical Note: Guidance methodology for estimation of Scope 3 category 11 emissions for oil and gas companies is used to determine emission factors that are applied to annual volumes of our sold products: crude oil, natural gas and natural gas liquids. Following the Production Method, Higher Tier, emission factors include non-energy use and storage factors to account for a portion of our products that do not emit carbon in their final consumption phase. Scope 3 emissions should be read with caution as the potential for duplication, inaccuracies and inconsistencies exists when looking at emissions within the overall energy system. For example, when looking at reported emissions from overlapping industries such as oil and gas producers, fuel distribution companies, vehicle manufacturers and vehicle insurance providers, there is a high likelihood of significant duplication as one company's Scope 3 emissions will be another's Scope 1.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

This is the same as the use of sold products (i.e., end of life treatment is the same as combustion or usage).

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Canadian Natural does not have downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Canadian Natural does not own franchises

Investments

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Other (upstream)

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

Other (downstream)

Evaluation status

Not evaluated

Please explain

Negligible in comparison to use of sold products

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date

End date

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

Past year 2

Start date

End date

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

Past year 3

Start date

End date

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

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 CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0008037613

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

26,406,775

Metric denominator

unit total revenue

Metric denominator: Unit total

32,854,000

Scope 2 figure used

Location-based

% change from previous year

43.97

Direction of change

Decreased

Reason for change

The COVID-19 pandemic decreased demand for energy products through most of 2020, producing historic low product pricing. In response, Company production was lower than under normal demand conditions. These trends reversed in 2021 as economies rebounded from easing of COVID-19 restrictions. Energy pricing and demand returned to pre-pandemic levels. Operations returned to highly efficient, near-capacity levels.

C-OG6.12

(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.

Unit of hydrocarbon category (denominator)

Other, please specify

Thousands of barrels of oil equivalent

Metric tons CO2e from hydrocarbon category per unit specified

51.36

% change from previous year

2

Direction of change

Decreased

Reason for change

Change due to emission reduction activities (specifically: expanded pneumatic replacement and retrofit program, and solution gas conservation projects)

Comment

No comment

C-OG6.13

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

Oil and gas business division

Upstream

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

1.04

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

0.24

Comment

No comment

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	19,981,889	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	3,001,514.97	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	166,603.75	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	4,976	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	190	IPCC Fourth Assessment Report (AR4 - 100 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

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

18,050,337

Gross Scope 1 methane emissions (metric tons CH4)

12,434.97

Total gross Scope 1 emissions (metric tons CO2e)

18,527,652

Comment

No comment

Emissions category

Flaring

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

619,688

Gross Scope 1 methane emissions (metric tons CH4)

1,692.05

Total gross Scope 1 emissions (metric tons CO2e)

662,153.38

Comment

No comment

Emissions category

Venting

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

225,821

Gross Scope 1 methane emissions (metric tons CH4)

90,056.08

Total gross Scope 1 emissions (metric tons CO2e)

2,477,223.15

Comment

No comment

Emissions category

Fugitives

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

214,992

Gross Scope 1 methane emissions (metric tons CH4)

15,887.5

Total gross Scope 1 emissions (metric tons CO2e)

611,930

Comment

No comment

Emissions category

Process (feedstock) emissions

Value chain

Upstream

Product

Oil

Gross Scope 1 CO2 emissions (metric tons CO2)

871,049.58

Gross Scope 1 methane emissions (metric tons CH4)

0

Total gross Scope 1 emissions (metric tons CO2e)

871,049.58

Comment

No comment

Emissions category

Other (please specify)

Waste and wastewater emissions

Value chain

Upstream

Product

Oil

Gross Scope 1 CO2 emissions (metric tons CO2)

1,498

Gross Scope 1 methane emissions (metric tons CH4)

103

Total gross Scope 1 emissions (metric tons CO2e)

4,627

Comment

No comment

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	22,269,785
United Kingdom of Great Britain and Northern Ireland	588,895
Côte d'Ivoire	291,327

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
NA Conventional E&P	15,128,041
Oil Sands Mining	7,141,744
CNR International	880,223

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

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

	Gross Scope 1 emissions, metric tons CO2e	Comment
Oil and gas production activities (upstream)	23,150,007	All company Scope 1 emissions attributed to Upstream Oil and Gas activities
Oil and gas production activities (midstream)	0	All company Scope 1 emissions attributed to Upstream Oil and Gas activities
Oil and gas production activities (downstream)	0	All company Scope 1 emissions attributed to Upstream Oil and Gas activities

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	3,256,767.84	0

C7.6

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

By activity

C7.6c

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

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Oil and Gas Production Activities	3,256,767.84	0

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

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Oil and gas production activities (upstream)	3,256,767.84	0	All company Scope 2 emissions attributed to Upstream Oil and Gas activities
Oil and gas production activities (midstream)	0	0	All company Scope 2 emissions attributed to Upstream Oil and Gas activities
Oil and gas production activities (downstream)	0	0	All company Scope 2 emissions attributed to Upstream Oil and Gas activities

C7.9

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

Increased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	554.3	Increased	0.0287	Change in Renewable = (2021 BC hydro electricity use – 2020 BC hydro electricity use)/2020 total purchased electricity. = 1,261 MWh/4,817,939 MWh = 0.0287%
Other emissions reduction activities	1,452,920	Increased	5.79	We reduced gross global emissions by executing emission reduction activities. The largest contributor being 249 gas conservation projects in primary heavy crude oil operations Canadian Natural completed in 2021. This resulted in the reduction of approximately 1,288,125 tonnes/year of CO2e. To calculate the percentage reduction, we summed total reductions attributed to emission reduction activities and divided by the total Scope 1 + Scope 2 emissions from 2021 (26 MtCO2e). This was multiplied by 100 to give the total % reductions. Emission reductions include the following projects and reductions: Gas conservation – 1,288,125 tCO2e Pneumatic controller replacement projects – 93,607 tCO2e CO2 injected into tailings ponds – 63,835 tCO2e CO2 injection for enhanced oil recovery – 7,353 tCO2e Final numbers used for calculation are (1,452,920/25,091,574)*100 = 5.79%
Divestment	0	No change	0	No comment
Acquisitions	0	No change	0	Gross global emissions increased slightly as we acquired Storm Resources. Storm is a natural gas producing set of assets which was acquired late 2021 and two weeks of its

				emissions is being reported under Canadian Natural. This is a non-material change for company annual emissions, the impact is being estimated as zero.
Mergers	0	No change	0	No comment
Change in output	1,445,118	Increased	5.76	Production output increased by 5.5% or 24.67 MBOE. The average Scope 1 + Scope 2 GHG intensity of Canadian Natural in 2021 was 0.05859 tonnes CO2e/BOE making the increased emissions attributed to the increased output 1.45 MtCO2e, or 5.76% of total Canadian Natural 2020 emissions(25,091,574 tCO2e).
Change in methodology	940,618.47	Increased	3.75	Changed reporting from net ownership to gross facility emissions at Albian oil sands operations. This increased reported emissions from 70% ownership interest to 100%. This is calculated at 3,135,395 tCO2e * 0.3 = 940,618 tCO2e. This represents 3.75% of total company 2020 emissions (25,091,574 tCO2e).
Change in boundary	0	No change	0	No comment
Change in physical operating conditions	0	No change	0	No comment
Unidentified	0	No change	0	No comment
Other	0	No change	0	No comment

C7.9b

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

Location-based

C8. Energy

C8.1

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

More than 20% but less than or equal to 25%

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	89,193,578	89,193,578
Consumption of purchased or acquired electricity		184,949	4,632,990	4,817,939
Consumption of purchased or acquired steam		0	5,068,196	5,068,196
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		184,949	99,079,713	99,264,661

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	Yes
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

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Other renewable fuels (e.g. renewable hydrogen)

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

79,055,309

MWh fuel consumed for self-generation of electricity

899,727.5

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

9,685,611.58

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

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

Heating value

HHV

Total fuel MWh consumed by the organization

10,138,262.2

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Diesel, refinery gas, and vapor recovery unit (VRU) off-gas. We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

89,193,578

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self- cogeneration or self-trigeneration

9,685,611.58

Comment

We do not collect this level of detail, except for electricity generation at our offshore platforms, and for our cogeneration units.

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	0	0	0	0
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C8.2g

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

Country/area

Canada

Consumption of electricity (MWh)

7,051,494.94

Consumption of heat, steam, and cooling (MWh)

5,068,191.56

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

12,119,686.5

Country/area

United Kingdom of Great Britain and Northern Ireland

Consumption of electricity (MWh)

359,891

Consumption of heat, steam, and cooling (MWh)

0

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

359,891

C9. Additional metrics

C9.1

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

C-OG9.2a

(C-OG9.2a) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).

	In-year net production	Comment
Crude oil and condensate, million barrels	165.98	Production values presented in CDP are the Company's working interest share of production, before royalties. This differs from the production values in our 2021 Report to Stakeholders report, which uses the Company's gross operated production before royalties for the purposes of calculating greenhouse gas (GHG) intensities.
Natural gas liquids, million barrels	18.08	Production values presented in CDP are the Company's working interest share of production, before royalties. This differs from the production values in our 2021 Report to Stakeholders report, which uses the Company's gross operated production before royalties for the purposes of calculating greenhouse gas (GHG) intensities.
Oil sands, million barrels (includes bitumen and synthetic crude)	163.57	2021 production; includes Bitumen (Thermal Oil) and Oil Sands Mining & Upgrading Synthetic Crude Oil Production values presented in CDP are the Company's working interest share of production, before royalties. This differs from the production values in our 2021 Report to Stakeholders report, which uses the Company's gross operated production before royalties for the purposes of calculating greenhouse gas (GHG) intensities.
Natural gas, billion cubic feet	586.56	Production values presented in CDP are the Company's working interest share of production, before royalties. This differs from the production values in our 2021 Report to Stakeholders report, which uses the Company's gross operated production before royalties for the purposes of calculating greenhouse gas (GHG) intensities.

C-OG9.2b

(C-OG9.2b) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries, please explain this.

For the year ended December 31, 2021, the Company retained Independent Qualified Reserves Evaluators ("IQRE"), Sproule Associates Limited and Sproule International Limited (together, "Sproule") and GLJ Ltd. ("GLJ"), to evaluate and review all of the Company's proved and proved plus probable reserves with an effective date of December 31, 2021 and a preparation date of February 7, 2022. Sproule evaluated and reviewed the North America and International light and medium crude oil, primary heavy crude oil, Pelican Lake heavy crude oil, bitumen (thermal oil), natural gas and NGLs reserves. GLJ evaluated the Oil Sands Mining and Upgrading SCO reserves. The evaluations and reviews were conducted and prepared in accordance with the standards contained in the Canadian Oil and Gas Evaluation Handbook ("COGE Handbook") and disclosed in accordance with National Instrument 51-101 – Standards of Disclosure for Oil and Gas Activities ("NI 51-101") requirements.

C-OG9.2c

(C-OG9.2c) Disclose your estimated total net reserves and resource base (million boe), including the total associated with subsidiaries and equity-accounted entities.

	Estimated total net proved + probable reserves (2P) (million BOE)	Estimated total net proved + probable + possible reserves (3P) (million BOE)	Estimated net total resource base (million BOE)	Comment
Row 1	16,950	16,950	16,950	company gross (working interest before royalties)

C-OG9.2d

(C-OG9.2d) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.

	Net proved + probable reserves (2P) (%)	Net proved + probable + possible reserves (3P) (%)	Net total resource base (%)	Comment
Crude oil/ condensate/ natural gas liquids	10	10	10	
Natural gas	20	20	20	
Oil sands (includes bitumen and synthetic crude)	70	70	70	Includes Bitumen (Thermal Oil) and Oil Sands Mining & Upgrading SCO

C-OG9.2e

(C-OG9.2e) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

Development type

Onshore

In-year net production (%)

24

Net proved reserves (1P) (%)

7

Net proved + probable reserves (2P) (%)

8

Net proved + probable + possible reserves (3P) (%)

8

Net total resource base (%)

8

Comment

Development type

Shallow-water

In-year net production (%)

1

Net proved reserves (1P) (%)

1

Net proved + probable reserves (2P) (%)

1

Net proved + probable + possible reserves (3P) (%)

1

Net total resource base (%)

1

Comment

Development type

Deepwater

In-year net production (%)

1

Net proved reserves (1P) (%)

1

Net proved + probable reserves (2P) (%)

1

Net proved + probable + possible reserves (3P) (%)

1

Net total resource base (%)

1

Comment

Development type

Oil sand/extra heavy oil

In-year net production (%)

57

Net proved reserves (1P) (%)

75

Net proved + probable reserves (2P) (%)

70

Net proved + probable + possible reserves (3P) (%)

70

Net total resource base (%)

70

Comment

Includes Bitumen (Thermal Oil) and Oil Sands Mining & Upgrading SCO

Development type

Tight/shale

In-year net production (%)

16

Net proved reserves (1P) (%)

16

Net proved + probable reserves (2P) (%)

21

Net proved + probable + possible reserves (3P) (%)

21

Net total resource base (%)

21

Comment

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	Canadian Natural has a defined pathway to drive long-term emission intensity reductions. Leveraging technology is a key part of our GHG emissions reduction strategy. In 2021, we invested $83.8 million in research and development to reduce GHG emissions. Over and above the 2021 investment in GHG R&D, we are focused on advancing technologies in carbon capture initiatives to drive further emission intensity reductions. We integrate state-of-the-art carbon capture technologies in our projects – including CO2 capture capacity at our Horizon operations, a 70% interest in the Quest CCS facilities at the Scotford Upgrader, a 50% stake in the Sturgeon Refinery, and CO2 capture at the Hays natural gas plant. These projects combined are capable of capturing 2.7 million tonnes/year of carbon dioxide equivalent (CO2e). Canadian Natural is actively evaluating and developing a wide range of unique projects with the potential to make a significant difference in emission intensity reduction. These technologies are at different stages of readiness, from discovery to deployment. Collectively, our robust portfolio of technology projects will drive continuous improvement towards our GHG targets. Examples of 2021 technology projects: • Co-injecting solvent with steam to reduce the amount of water needed for improving bitumen viscosity, and help recover more crude oil with less steam. Our Kirby South pilot is testing solvent effectiveness to increase oil recovery in a steam-assisted gravity drainage reservoir with potential emissions intensity reduction of 50%. At Primrose, in the steam flood area, a solvent injection pilot is targeting SOR and GHG intensity reductions of 40 to 45% and solvent recoveries of greater than 70%. • Testing Horizon's In-Pit Extraction Process to determine the feasibility of bitumen separation right in the mine pit, resulting in potential GHG emissions reduction by approximately 40% for bitumen production. • Assessing global technologies and solutions to convert natural gas into a hydrogen rich fuel and a valuable co-product, with the goal of reducing carbon content. Hydrogen rich fuel, when burned in boilers, produces less CO2 and yields co-products to use in

		oil sands extraction and production processes, or to sell to offset costs. We also invest in industry research and technology sharing through Canada's Oil Sands Innovation Alliance (COSIA).

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
Carbon capture and storage/utilisation	Large scale commercial deployment	0%		At Horizon, our hydrogen production facility enables CO2 capture of up to 400,000 tonnes/year (50 tonnes/hour) for injection of CO2 in oil sands tailings. Our Quest (CCS) facility is located at the Scotford Upgrader and is part of the Athabasca Oil Sands Project (AOSP), of which Canadian Natural has a 70% ownership interest. The Quest CCS facility has captured and safely stored more than six million tonnes of CO2 in its six years of operation, from 2015 to 2021.
Enhanced Oil Recovery (EOR) techniques	Large scale commercial deployment	≤20%		At our Hays Gas Plant in Taber, Alberta, we capture up to 16,000 tonnes of CO2 per year for re-use/sequestration in our nearby Enchant Enhanced Oil Recovery (EOR) operations. Canadian Natural is a 50% partner in the North West Redwater (NWR) Sturgeon Refinery, which is part of the Alberta Carbon Trunk Line, an integrated CCUS system that can transport and store 14.6 MT CO2/year for EOR.
Methane detection and reduction	Large scale commercial deployment	≤20%		Canadian Natural is removing or converting high-emitting pneumatic controllers to low-emitting ones. Together with partners, we are also investing in the development of more accurate systems and technologies for quantifying fugitive emissions, accelerating leak

				detection and repair, and reducing venting. Since 2018, we have completed over 6,400 pneumatic retrofits and removals resulting in a cumulative CO2e reduction from our operations of approximately 640,000 tonnes, of which approximately 1,400 retrofits/removals equivalent to 140,000 tonnes/year CO2e were completed in 2021.
Hydrogen	Applied research and development	≤20%		The Canadian Natural-led study, 'Natural Gas Decarbonization Global Technology Scan and Evaluation', looked at technologies and solutions available around the world to convert natural gas into a hydrogen rich fuel and a valuable co-product, with the ultimate goal of reducing carbon content. This hydrogen rich fuel, when burned in the boilers, would produce less CO2 emissions and yield co-products to use in the oil sands extraction and production processes, or to sell to offset costs.
Smart systems	Small scale commercial deployment	≤20%		The Steam Analyzer project uses automated steam allocation technology, maximizing steam production while optimizing the allocation of steam to the best performing wells in priority. It also stabilizes steam production resulting in higher steam quality, targeting a GHG reduction of 5,200 tCO2/yr with more efficient steam generation.
Other, please specify Boiler efficiency upgrades	Large scale commercial deployment	≤20%		Canadian Natural is investing in control system upgrades that will enable tighter firing control of boilers and facilitate an increase in steam quality. The resulting increase in boiler efficiency and production results in a GHG reduction of 36,000 t/yr CO2e.
Advanced fluids	Pilot demonstration	≤20%		We are co-injecting solvent with steam to reduce the amount of water needed for improving bitumen viscosity, and help recover more crude oil with less steam. Our pilot at Kirby South is testing solvent effectiveness to increase oil recovery in a steam-assisted gravity drainage (SAGD) reservoir. This project aims to increase efficiencies to reduce steam, translating into up to 50% reduced GHG emissions intensity.

Other, please specify In-Pit Extraction Process	Pilot demonstration	≤20%		At Horizon, a field pilot is underway on an alternative bitumen extraction method — the In-Pit Extraction Process (IPEP). This involves a relocatable, modular extraction plant that processes ore and separates bitumen right in the mine pit. IPEP reduces materials transportation by truck, pipeline length and the energy needed to pump material. This process also produces stackable dry tailings, eliminating tailings ponds. IPEP could potentially reduce our bitumen production GHG emissions by up to 40% if successful.

C-OG9.7

(C-OG9.7) Disclose the breakeven price (US$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid/ share buybacks.

0

C-OG9.8

(C-OG9.8) Is your organization involved in the sequestration of CO2?

Yes

C-OG9.8a

(C-OG9.8a) Provide, in metric tons CO2, gross masses of CO2 transferred in and out of the reporting organization (as defined by the consolidation basis).

	CO2 transferred – reporting year (metric tons CO2)
CO2 transferred in	0
CO2 transferred out	0

C-OG9.8b

(C-OG9.8b) Provide gross masses of CO2 injected and stored for the purposes of CCS during the reporting year according to the injection and storage pathway.

Injection and storage pathway	Injected CO2 (metric tons CO2)	Percentage of injected CO2 intended for long-term (>100 year) storage	Year in which injection began	Cumulative CO2 injected and stored (metric tons CO2)
CO2 used for enhanced oil recovery (EOR) or enhanced gas recovery (EGR)	7,353	100	2,004	352,554
Other, please specify CO2 addition to tailings	63,835	100	2,009	349,859

C-OG9.8c

(C-OG9.8c) Provide clarification on any other relevant information pertaining to your activities related to transfer and sequestration of CO2.

CO2 has been injected into wells in the Hays field to stimulate increased production and maintain reservoir pressure since 2004. Since 2009, CO2 sourced from hydrogen production industrial process emissions has been injected into the tailings line at the Horizon mine and upgrader site. This improves tailings settling properties, and a portion of the injected CO2 remains in solution, or precipitates to the bed of the pond as carbonate solids.

C10. Verification

C10.1

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

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

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 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

Y

03 2021 Kirby South GHG Verification Report.pdf

- 02 CNRL Primrose Wolf Lake CR21 Verification Report -v3.4_signed.pdf
- 11187407-RPT-5-2021 Verification Report.pdf
- 02 CHOPS (AG0W) 2021 Verification Report.pdf
- 02 Light Oil (AG0X) Verification Report.pdf
- 05b GbBC51_MRM and JPM 2021 Verification Report.pdf
- 11149423-RPT-10-Verification Report-CNRL LFO 2021 Verification.pdf
- 11200244-RPT-4-2021 Final Verification Report CNRL SK Aggregate.pdf
- 11204344-LTR-6-Adkins-CNRL OBPS Pierson Verification Report-FINAL.pdf
- 11149423-RPT-11-Final Verification Report-CNRL Storm LFO 2021 Verification.pdf
- TIER_Horizon_CR21_V4.docx
- 02 Wapiti 2021 Verification Report.pdf
- 02 11204699-RPT-6-2021 CNRL Jackfish Final Verification Report-Stamped.pdf
- 02 Peace River Complex Verification Report.pdf
- Tiffany VOS 2021 21_03_21.pdf
- NCP VOS 2021 21_03_21.pdf
- NSP VOS 2021 21_03_21.pdf
- Kirby_North_Verification_Report_20220607_signed.pdf
- 02 Pelican (AGOY) 2021 Verification Report.pdf
- 02 Gas (AGOM) 2021 Verification Report.pdf

Page/ section reference

Annual verifications include facilities in Alberta (Under TIER), in the UK (under the UK ETS System), in Manitoba under the OBPS, and in British Columbia under GHGIRCA. Attached are verification reports indicating such.

Biannual verifications occur for facilities in Saskatchewan under the Management and Reduction of Greenhouse Gases Program
In addition, the entire Canadian Natural company portfolio (Scope 1, 2, & 3) is verified again by a third party accounting firm (PwC).

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

Y

03 2021 Kirby South GHG Verification Report.pdf

02 CNRL Primrose Wolf Lake CR21 Verification Report -v3.4_signed.pdf

11187407-RPT-5-2021 Verification Report.pdf

05b GbBC51_MRM and JPM 2021 Verification Report.pdf

TIER_Horizon_CR21_V4.docx

02 Wapiti 2021 Verification Report.pdf

02 11204699-RPT-6-2021 CNRL Jackfish Final Verification Report-Stamped.pdf

02 Peace River Complex Verification Report.pdf

Kirby_North_Verification_Report_20220607_signed.pdf

Page/ section reference

All Alberta based facilities have Scope 2 emissions verified as per the attached facility specific verification reports.
In addition to individual facility verification, the entire Canadian Natural company portfolio (Scope 1, 2, & 3) is verified again by a third party accounting firm (PwC).

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Use of sold products

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Y

Page/section reference

Entire company Scope 3 emissions verified in attached report for PwC.

Relevant standard

ISO14064-3

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?

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

C11. Carbon pricing

C11.1

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

Yes

C11.1a

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

Alberta TIER - ETS
BC carbon tax
Canada federal fuel charge
Canada federal Output Based Pricing System (OBPS) - ETS
Saskatchewan OBPS - ETS
UK 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

88.59

% of Scope 2 emissions covered by the ETS

68.74

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

18,443,379.61

Allowances purchased

1,750,533.46

Verified Scope 1 emissions in metric tons CO2e

20,507,849.44

Verified Scope 2 emissions in metric tons CO2e

2,238,598.44

Details of ownership

Facilities we own and operate

Comment

No comment

Canada federal OBPS - ETS

% of Scope 1 emissions covered by the ETS

0.06

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

7,902

Allowances purchased

5,102

Verified Scope 1 emissions in metric tons CO2e

13,004

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

No comment

Saskatchewan OBPS - ETS

% of Scope 1 emissions covered by the ETS

3.25

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

426,837

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

426,837

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

No comment

UK ETS

% of Scope 1 emissions covered by the ETS

2.54

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

388,893

Allowances purchased

200,000

Verified Scope 1 emissions in metric tons CO2e

588,895

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

No comment

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

2.27

Total cost of tax paid

23,011,571

Comment

No comment

Canada federal fuel charge

Period start date

January 1, 2021

Period end date

December 31, 2021

% of total Scope 1 emissions covered by tax

0.01

Total cost of tax paid

59,870

Comment

No comment

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

In 2021, Canadian Natural's operations were subject to carbon pricing specific to the regions of our operations. These regions included:
- British Columbia: Provincial pricing applied to all fuel gas, vent volumes and flare volumes at our BC facilities, and to gasoline, diesel, propane and other fuels.
- Alberta: Provincial pricing applied to a portion of emissions from the following facilities: Horizon, Athabasca Oil Sands Project, Primrose/Wolf Lake in situ, Kirby South in situ, Jackfish in situ, Peace River in situ, the Brintnell power generation facility and all Conventional assets.
- Saskatchewan: Provincial pricing applied to a portion of emissions from fuel combustion at all assets in Saskatchewan
- Manitoba: The federal Output-Based Pricing System applied to a portion of emissions from fuel combustion and flaring at all assets in Manitoba.
- The UK: Pricing is variable, since the UK exited the European Union (EU) which is the compliance vehicle for the United Kingdom Allowances (UKA) which regulates our offshore North Sea oil production platforms.

To comply with these systems, our strategy includes: - Considering existing carbon pricing ranges to determine the impact of compliance costs on current and future projects as part of our normal business planning process. We use an internal price of carbon as a sensitivity to evaluate returns on future emission reduction projects under different potential carbon prices. The internal price varies from $0/t to $50/t, depending on the project's applicability, jurisdiction, operational duration, and implementation timelines.
- Avoiding and minimizing emissions through integrating emissions reductions in project planning and operations, leveraging technology, enhancing performance, investing in research and development (R&D), focusing on continuous improvement through energy and process efficiencies, and considering and developing new business opportunities and trends.
- Mitigating our emissions through the purchase of carbon offsets (e.g. soil sequestration, renewable energy) and we offset emissions (relinquishment of credits or purchase of credits).

We are applying this strategy annually in our compliance obligations and in long term planning of our projected emissions, our credit portfolio and our understanding of increased emission stringency.
We also actively track the development of policies and regulations at the international, national, federal and provincial level. For example, in December 2020, the Canadian government announced its intention to surpass Canada's previously stated reduction target under the Paris Agreement, to increase the carbon price to $170 in 2030, and to establish methane reduction targets for 2030 and 2035. In addition, draft regulations under the Clean Fuel Regulation were released in 2020 and are planned to take effect in July 2023. Aspects of the Clean Fuel Regulation will increase the cost of liquid fuels consumed in the Company's operations while also providing a potential mechanism to generate offset credits. Canadian Natural's associated

environmental risk management strategies focus on working with legislators and regulators to ensure that any new or revised policies, legislation or regulations properly reflect a balanced approach to sustainable development.
Canadian Natural supports GHG crediting programs in provinces such as the Alberta and British Columbia offsets systems, and similar systems being developed in Saskatchewan as well as with the federal government. We believe these help accelerate GHG reduction opportunities in the broader economy and help spur innovation by giving a financial value to emissions reductions. Canadian Natural has been generating GHG offset credits from the Quest CCS project, for use of CO2 in enhanced oil recovery, for methane reductions from pneumatic device retrofits, for facility electrification in BC, and for engine fuel efficiency at compressor engines at sites in Alberta and British Columbia.
In 2019 Canadian Natural identified an opportunity to reduce operating costs, including carbon tax expense, at a natural gas plant in Northeast British Columbia. A maintenance shutdown provided an opportunity to install improved insulation on the incinerator stack. This reduces heat loss through the stack and therefore less fuel gas is required to maintain the minimum required stack-top temperature. This project reduced emissions by approximately 19,200 tCO2e in 2021, and reduced carbon tax expense by about $840,000 in 2021. The installation was successful and we were able to use a government grant program that provided capital funding for emission reduction projects. This project improved the energy efficiency of the incinerator and thereby reduced fuel gas use, reducing GHG emissions and carbon compliance costs.

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 origination

Project type

CO2 usage

Project identification

Enhanced Oil Recovery (EOR) using CO2 injection technology at Hays gas plant / field

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

22,058

Number of credits (metric tonnes CO2e): Risk adjusted volume

29,429

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit origination

Project type

Methane avoidance

Project identification

Pneumatic controller retrofit and replacement projects

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

181,291

Number of credits (metric tonnes CO2e): Risk adjusted volume

242,747

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit origination

Project type

Methane avoidance

Project identification

Instrument air conversion projects

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

192

Number of credits (metric tonnes CO2e): Risk adjusted volume

192

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit origination

Project type

Other, please specify

Solution gas conservation

Project identification

Solution gas conservation

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

2,742

Number of credits (metric tonnes CO2e): Risk adjusted volume

153,835

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit origination

Project type

Other, please specify

Carbon capture and storage

Project identification

Quest Carbon Capture and Storage Project

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

1,097,938

Number of credits (metric tonnes CO2e): Risk adjusted volume

1,097,938

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit origination

Project type

Other, please specify

Liquids extraction project

Project identification

Horizon Oil Sands production facility operates with a Liquids Extraction Plant which recovers liquid product from Refinery Fuel Gas and reduced site GHG emissions

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

0

Number of credits (metric tonnes CO2e): Risk adjusted volume

60,000

Credits cancelled

No

Purpose, e.g. compliance

Compliance

Credit origination or credit purchase

Credit purchase

Project type

Other, please specify

Carbon capture and storage

Project identification

Quest Carbon capture and Storage Project

Verified to which standard

Other, please specify

Alberta offset system

Number of credits (metric tonnes CO2e)

161,220

Number of credits (metric tonnes CO2e): Risk adjusted volume

161,220

Credits cancelled

No

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

Stress test investments

GHG Scope

Scope 1
Scope 2

Application

Corporate structure that price is applied to (i.e. business units, corporate divisions, facilities)

Actual price(s) used (Currency /metric ton)

40

Variance of price(s) used

BC: $40/t in Q1 2021, and $45/t for the remainder of 2021, and $50,tonne in 2022
AB/SK/MB: $40/t in 2021 and $50/t in 2022.

Type of internal carbon price

Shadow price
Offsets

Impact & implication

In our NA E&P Alberta operations, we have used the carbon price for GHG offsets credits earned from pneumatic controller retrofits to enhance the project economics and increase the amount of controllers retrofit or removed. This reduced emissions by an estimated 140,000 tonnes in 2021.

C12. Engagement

C12.1

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

Yes, other partners in the value chain

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Canadian Natural promotes local and regional business development opportunities through the procurement of goods and services for our operations. Hiring local workers and suppliers is mutually beneficial, leading to long-lasting partnerships, economic development and emissions reductions.

We continue to work closely with many Indigenous communities near our operations in Western Canada to enhance the opportunities for economic participation in oil and natural gas developments. In 2021, we worked with 144 local Indigenous companies and awarded more than $572 million in contracts to Indigenous businesses and contractors. For example, we have been working with many First Nations and Métis communities in Alberta, Saskatchewan and British Columbia to abandon inactive wells, pipelines and facilities and to reclaim sites and access roads in these communities. For example, in early 2022, Canadian Natural engaged the Aseniwuche Development Corporation to reclaim 24 sites between Edson, AB and Grande Cache, AB, in northern Alberta near our operations. The project is returning former well sites back to essential habitat for wildlife while helping to avoid transportation emissions from contractors travelling many kilometres to complete the projects.

In our conventional and thermal operations, we have been using an area-based approach since our first pilot in 2013 to strategically reclaim large contiguous areas. This program geographically groups projects (well and pipeline abandonments, remediation and reclamation activities), and coordinates people, equipment and technologies. In this way, we are taking sites out of service in a safe and environmentally sound manner, while reducing reclamation costs, our GHG emissions (through reduced travel distances for workers), and reclamation times from three to five years to two to four years. Through the area-based reclamation program we've abandoned 5,570 inactive wells in the last five years. The area-based program is an industry-leading approach that has become the go-to model to accelerate the pace of reclamation. The Alberta Energy Regulator expanded this program across industry for closure of inactive sites.

To ensure health, safety and environmental standards are consistently met by all contractors, a pre-qualification process has been adopted to ensure all contractors are pre-screened and made aware of both Canadian Natural and industry's environmental and safety procedures. These procedures were developed and have been implemented across our operations to allow for a risk-based approach to selection, evaluation and ongoing

management of contractors. These screening tools (ComplyWorks at our Canadian operations and Achilles FPAL at our International operations) provide an enhanced view of compliance, communication and performance for contractors and suppliers, allowing us to manage compliance at multiple levels. This facilitates information publishing, monitoring of the accuracy of information provided in a supplier's record in various areas (such as Health, Safety and Environmental policy, a preventative maintenance program, equipment inspections, etc.), evaluation of supplier profiles, and industry-specific supplier information that is subject to assessment and site audit. This improves industry performance and reduces environmental risk within the supply chain.

At our Horizon Oil Sands project, we earlier entered into discussions with Williams Energy (a midstream company) on an opportunity for a Liquids Extraction Project (LEP). Williams had previously developed a similar project at a similar oil sands mining and upgrading facility. Discussions resulted in a commercial agreement on implementation of the LEP at Horizon, with operation of the LEP beginning in 2016. It is currently owned and operated by Inter Pipeline Limited. The LEP processes off-gas from Horizon's upgrading process to recover hydrocarbon liquids (such as ethane and propane). These liquids are then transported off site for use by Inter Pipeline in their midstream business. Prior to the LEP, the off-gas stream had been used as a source of fuel gas by Horizon operations. With the LEP in operation, Horizon no longer uses the off-gas stream for fuel, and has replaced it with pipeline-quality fuel gas, which has a lower GHG intensity per gigajoule than the off-gas stream. The operation of the LEP reduced GHG emissions at Horizon by approximately 120,000 t CO2e in 2021.

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)

Attached are webpages that reference Canadian Natural's support for Canada's leadership in the Paris Agreement. https://www.cnrl.com/corporate-responsibility/environment/climate-change and how we conduct our lobbying activities consistent with our climate change strategy https://www.cnrl.com/corporate-responsibility/sustainability-reporting/climate-governance-risk-management

Canadian Natural Resources - Paris support and Lobbying positions.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

Canadian Naturals multidisciplinary risk management process incorporates climate change risks, including potential policies and regulations. We ensure consistency between our climate change strategy/positions and engagement activities through the following process:
Management Committee(MC) is responsible for identification, assessment and management of climate change risks.
Our GHG Operations Strategy Committee, is a core technical team responsible for climate change strategy and issue prioritization. They oversee our working groups that manage and coordinate GHG reduction and technology projects across the company. They also assess and

input on GHG policy and regulation.
MC and the GHG Operations Strategy Committee provide direction to business units on climate-related risk assessment and project implementation. Business units conduct reviews to assess material changes, identify risks, opportunities, and ensure alignment on issues, including climate policy. Reports are shared with MC and the Board as appropriate. Changes/updates are approved by our President.
Representatives from company business units, including the ESG & Corporate Communications department, and Government Affairs, take direction from MC to ensure policy advocacy is consistent with our climate change strategy. This direction is reflected in public policy engagement activities,. This includes representatives providing input, advice, and analysis on regulations to policy makers, and regulators.
Industry associations (e.g. the Canadian Association of Petroleum Producers, Explorers and Producers Association of Canada, Offshore Energies UK, etc.) represent the interests of the energy industry and the broader business community. They promote public policy objectives important to us, our shareholders, Indigenous Peoples and other stakeholders. Participation as a member of these organizations comes with the understanding that we may not always support every position taken by these organizations or their members. We still work together to establish common ground.
Canadian Natural believes strong environmental policy, regulation and performance standards, together with innovation and technology, are necessary for an effective approach to GHG emissions management. We work with industry, government, and other stakeholders to maintain a cost and carbon competitive oil and natural gas sector. We engage proactively in policy and regulation to effectively manage climate risks and opportunities.

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

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Greenhouse Gas Pollution Pricing Act

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

Working with industry associations and directly with policy makers and regulators to provide advice and analysis on potential regulations. We work with governments to ensure that new and leading climate policy encourages technological innovation and deployment to achieve cost-effective GHG emissions reductions and energy efficiency while maintaining competitiveness of Canada's upstream oil and gas industry.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Support carbon pricing programs (which may or may not include a carbon tax), if there is allowance for competitiveness impacts on energy-intensive trade-exposed (EITE) sectors, and if a significant portion of revenue is used for developing technologies that will reduce carbon emissions. Propose measures for EITE sectors to minimize competitiveness impact and reduce carbon leakage. For example, we provided feedback on the proposed Federal Government Clean Fuel Regulations; and advocated with provincial and federal governments for equivalency agreements to recognize provincial regulations for federal requirements.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Focus of policy, law, or regulation that may impact the climate

Carbon tax

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Carbon Tax Act, Technology Innovation & Emissions Reduction Regulation, The Management and Reduction of Greenhouse Gases Act & Regulations

Policy, law, or regulation geographic coverage

Regional

Country/region the policy, law, or regulation applies to

Other, please specify

Select provinces in Canada,(British Columbia, Alberta, and Saskatchewan).

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Working with industry associations and directly with policy makers and regulators to provide advice and analysis on potential regulations. We work with governments to ensure that new and leading climate policy encourages technological innovation and deployment to achieve cost-effective GHG emissions reductions and energy efficiency while maintaining competitiveness of Canada's upstream oil and gas industry.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Support carbon pricing programs (which may or may not include a carbon tax), if there is allowance for competitiveness impacts on energy-intensive trade-exposed (EITE) sectors, and if a significant portion of revenue is used for developing technologies that will reduce carbon emissions. Propose measures for EITE sectors to minimize competitiveness impact and reduce carbon leakage (e.g., performance standards based on benchmarking; offsetting fiscal measures). For example, we provided input on the Alberta Technology Innovation Emissions Reduction (TIER) system to ensure provision for small facilities, and advocated with provincial and federal governments for equivalency agreements to recognize provincial regulations for federal requirements.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Focus of policy, law, or regulation that may impact the climate

Climate-related targets

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Oil and gas sector emissions cap

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

Working with industry associations and directly with policy makers and regulators to provide advice and analysis on potential regulations. We work with governments to ensure that new and leading climate policy encourages technological innovation and deployment to achieve cost-effective GHG emissions reductions and energy efficiency while maintaining competitiveness of Canada's upstream oil and gas industry.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Policy target should consider: early action on emissions reductions, time for existing policies to have an effect, incent investment in innovation and technology development and deployment (including fiscal and regulatory frameworks), and impacts to competitiveness (including the assessment of any similar policy in other jurisdictions)

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Focus of policy, law, or regulation that may impact the climate

Climate-related targets

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Canada's Emissions Reductions Plan

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

Working with industry associations and directly with policy makers and regulators to provide advice and analysis on potential regulations. We work with governments to ensure that new and leading climate policy encourages technological innovation and deployment to achieve cost-effective GHG emissions reductions and energy efficiency while maintaining competitiveness of Canada's upstream oil and gas industry.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Plan and associated policy should consider time required to build infrastructure, deploy technology, secure regulatory approvals, and implement economic incentives.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Focus of policy, law, or regulation that may impact the climate

Methane emissions

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)

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

Working with industry associations and directly with policy makers and regulators to provide advice and analysis on potential regulations. We work with governments to ensure that new and leading climate policy encourages technological innovation and deployment to achieve cost-effective GHG emissions reductions and energy efficiency while maintaining competitiveness of Canada's upstream oil and gas industry.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Support an outcome based approach to methane regulation that considers competitiveness, effectiveness, and support for technology development.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

Focus of policy, law, or regulation that may impact the climate

Other, please specify

Article 6 of Paris Agreement

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Article 6 of Paris Agreement

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

Working with the Canadian Association of Petroleum Producers and directly with Canadian policy makers and regulators to provide advice on the importance of ITMOs to achieving global GHG reductions.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Enable Internationally Transferred Mitigation Outcomes (ITMOs) under the Paris Agreement. Production of many Canadian products, including oil and natural gas, are at a lower GHG intensity than many competing suppliers globally, meaning that increased Canadian production would help lower global GHG emissions by displacing higher-intensity production.

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?

No, we have not evaluated

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

Canadian Association of Petroleum Producers

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)

CAPP's Climate Change Policy Principles which CAPP believes should guide Canada's climate change policies: 1) Collaborative and solutions-oriented. Given Canada's climate goals and industry impacts, CAPP will proactively collaborate with governments and stakeholders towards appropriate policy solutions. Policy solutions need to truly drive improvements in environmental performance, be adaptive and carefully consider environmental, economic, and social outcomes. 2) Efficient, effective and predictable. Climate policy should target reductions where they are most efficient and effective across the entire energy value chain from production to end use, and should fairly consider all sectors and jurisdictions. Climate change policies should achieve emissions reduction at the least cost to Canadians, the economy and industry. Revenues from climate policy should be fully recycled back into the economy to incent innovation, assist transition or reduce other taxes and levies. 3) Technology and innovation focused. Policy should incent technology and innovation to address climate change and capture the opportunity to export solutions to the world. Considerable future emissions reduction will stem from improving the hydrocarbon energy sector, requiring continuing strong innovation and policy in these areas. 4) Globally competitive. Canada's climate policies must ensure our resource development is cost and carbon competitive with other jurisdictions, especially the U.S. as our largest trading partner. Canada's climate policy leadership should bring proportionate benefits to Canada, including ensuring we receive full value for Canadian energy products through effective access to global markets. Canada is highly dependent on the development and trade of our natural resources, and on our ability to attract foreign investment. Canada's climate policies must be designed to maintain our ability to raise global investment capital.

Canadian Natural participates actively on CAPP committees and working groups to ensure that new policies encourage technological innovation, energy efficiency, and targeted research and development.

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?

Trade association

Other, please specify

Offshore Energies UK (OEUK)

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?

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)

Offshore Energies UK (OEUK) and its members are committed to working collaboratively toward the aims of Roadmap 2035, the pathway set out to lead the way through our energy transition and support the UK in achieving its net zero targets. OEUK works with members to develop proposals for collective action, cost and policy recommendations and potential delivery mechanisms to meet emission reduction targets. Such support is needed to bridge the gap from what is currently technically and economically feasible and the necessary accelerated emissions reduction. This includes an assessment of the options to meet the targets through operational improvement, reduced flaring, addressing emissions from power generation through step-change actions with their associated investments. OEUK's Identified Priorities for Emissions Reduction are: Continued support and recognition for role that UKCS plays in the UK's net zero future. A post-Brexit carbon pricing mechanism that recognises the need for support for step-change decarbonisation of upstream oil and gas activities and the risk of carbon leakage. Increase scope for innovation in offshore wind technology to power oil and gas production, through a separate Contract for Difference (CFD) for offshore floating wind. Cross-regulator support and commitment to establishing strategic offshore electricity networks, to support offshore energy integration. Develop regulatory model for CCS and commit to support transport and storage and infrastructure development into the 2030s, to ensure that a pipeline of projects is in place to progressively deploy at scale. Create effective business models for Industrial CCUS and hydrogen e.g. CFD that supports projects in the near term.

Canadian Natural is working with relevant parties, such as Offshore Energies UK (OEUK), to ensure that new policies encourage technological innovation, energy efficiency, and targeted research and development.

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?

Trade association

Other, please specify

Mining Association 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)

The Mining Association of Canada (MAC) supports climate action that is consistent with the ambition of the Paris Agreement to limit global warming to well below 2 degrees Celsius (above pre-industrial levels) to ensure the long-term sustainability of our shared planet.
In 2016, MAC and its members released the Principles for Climate Change Policy Design. The Principles were developed to inform the federal government as it drafted the pan-Canadian climate change framework. The document outlines elements of a successful carbon price regime: one that leads to meaningful emissions reductions while simultaneously protecting emissions-intensive and trade-exposed sectors, like the

mining industry, and being sensitive to the unique circumstances faced by Canada's remote and northern regions.
MAC's Toward Sustainable Mining (TSM) initiative is an award-winning international performance system that helps mining companies evaluate and manage their environmental and social responsibilities. TSM is the only mining program in the world that requires public reporting of site-level performance, the results of which are independently verified by a third party. Every MAC member company commits to implementing TSM at their Canadian facilities as a condition of membership. MAC's new Guide to Climate Change Adaptation for the Mining Sector supports the new TSM Climate Change Protocol added to the TSM program in 2021. It provides best practice guidance for the mining industry to assess potential future climate changes at mine sites, assess potential impacts of those changes on mine operations and infrastructure, and develop plans to implement appropriate adaptation measures.

Canadian Natural participates actively on MAC committees and working groups to ensure that new policies encourage technological innovation, energy efficiency, and targeted research and development

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?

Trade association

Other, please specify

Explorers and Producers Association 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)

Canadian Natural participates actively on EPAC committees and working groups to ensure that new policies encourage technological innovation, energy efficiency, and targeted research and development.

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?

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.

C12.4

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

Publication

In mainstream reports

Status

Complete

Attach the document

Y

2021-annual-report_t.pdf

Page/Section reference

Pages 3, 4, 40-43

Content elements

Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Annual Report, available online at https://www.cnrl.com/upload/report/149/fb4300b78f6f/2021-annual-report_t.pdf

Publication

In other regulatory filings

Status

Complete

Attach the document

Y

aif-march-23-2022.pdf

Page/Section reference

Pages 10-18, 36

Content elements

Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

Annual Information Form available online at https://www.cnrl.com/upload/report/150/5ab0be7121cc/aif-march-23-2022.pdf

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Publication

In other regulatory filings

Status

Complete

Attach the document

Y

2022-management-info-circular.pdf

Page/Section reference

6-15, 32, A-1, A-2, A-4 – A-6, B-1-5

Content elements

Governance
Risks & opportunities
Emission targets
Other metrics

Comment

Management Information Circular available online at https://www.cnrl.com/upload/report/151/095a800370c5/2022-management-info-circular.pdf

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Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

Y

2020-stewardship-report-to-stakeholders.pdf

Page/Section reference

3-7, 10-16, 25-30, 51-52

Content elements

Governance
Strategy

Risks & opportunities
Emissions figures
Other metrics

Comment

Report to Stakeholders is available online at http://webadmin.cnrl.com/upload/media_element/1313/03/2020-stewardship-report-to-stakeholders.pdf

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Publication

Other, please specify
Corporate website, TCFD Climate Disclosure

Status

Underway – previous year attached

Attach the document

Y
content-index_gri-sasb-sdg-2021_final.pdf

Page/Section reference

All

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures

Comment

GRI, SASB, and Sustainable Development Goals Content Index https://www.cnrl.com/GRI-SASB-SDG

Publication

Other, please specify

Corporate website, TCFD Climate Disclosure

Status

Underway – previous year attached

Attach the document

Y

0128_content-index_tcfd-climate-disclosure-2021_final.pdf

Page/Section reference

All

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Comment

TCFD Index http://webadmin.cnrl.com/upload/media_element/1283/04/2020-tcfd-climate-disclosure-index.pdf

Publication

Other, please specify

Technology and Innovation Case Studies

Status

Complete

Attach the document

Y

technology-and-innovation-case-studies-booklet_2021_w.pdf

Page/Section reference

All

Content elements

Strategy
Emissions figures
Other metrics

Comment

Corporate website available at http://webadmin.cnrl.com/upload/media_element/1129/04/2020-technology-and-innovation-case-studies.pdf

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
Row 1	

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
Row 1	

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	

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?
Row 1	

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		

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

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.

No comment

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	President	President

SC. Supply chain module

SC0.0

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

SC0.1

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

	Annual Revenue
Row 1	

SC1.1

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

SC1.2

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

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges

SC1.4

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

SC2.1

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

SC2.2

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

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms