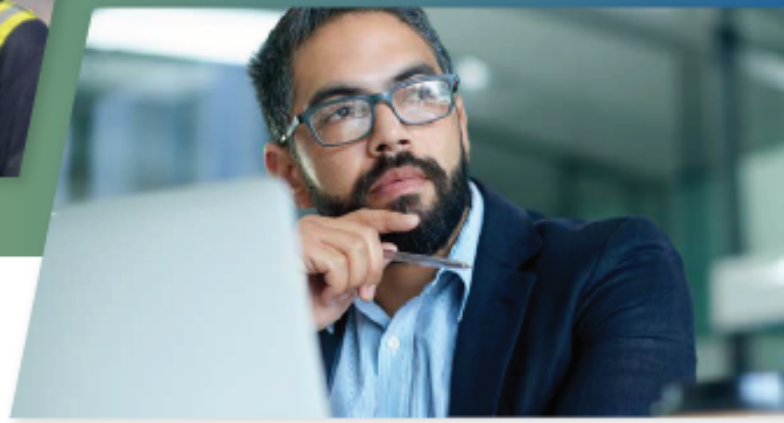
Nutrien's 2023
CDP Climate Change Disclosure



Nutrien™
Feeding the Future™

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Welcome to your CDP Climate Change Questionnaire 2023

C0. Introduction

C0.1

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

Nutrien's purpose is Feeding the Future, which is rooted in the global challenge of feeding, clothing and fueling a population of 10 billion people by 2050. As the world's largest provider of crop inputs and services, Nutrien plays a leading role in cultivating solutions for growers to meet this challenge and support a new era of sustainable agriculture. By leveraging the competitive advantages of our integrated business model, we are well positioned to efficiently meet the needs of our customers and deliver long-term value for all our stakeholders. We serve key markets in North America, South America, Asia and Europe. We have operations and investments in 13 countries with some of the highest-quality and lowest cost production assets. Our extensive distribution capabilities, supply chain and direct connection to the grower position us to deliver products efficiently to the market.
We have four reportable operating segments: Nutrien Ag Solutions ("Retail"), Potash, Nitrogen and Phosphate. Nutrien Ag Solutions distributes crop nutrients, crop protection products, seed and merchandise, and provides services directly to growers through a network of Retail locations in North America, South America and Australia. The Potash, Nitrogen and Phosphate production segments are differentiated by the chemical nutrient contained in the products that each produces. In 2022, we had manufactured sales volumes of approximately 25 million tonnes of potash, nitrogen and phosphate products for agricultural, industrial and feed customers worldwide.
Fertilizer production and use have complex and conflicting impacts on greenhouse gas ("GHG") emissions across the agricultural value chain. Fertilizer is critical for healthy crops, enhancing soil carbon (the level of carbon that is directly tied to the level of organic matter in the soil) and increasing yields, which helps to feed our growing population with the same amount of arable land, but nitrogen fertilizer also generates GHG emissions when it is produced and when it is applied to the soil.
Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the World Business Council for Sustainable Development ("WBCSD"), fertilizer peers and the SBTi to produce a sectoral decarbonization approach ("SDA") for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process.

Although we operate across the crop input value chain and produce many products, the manufacturing of fertilizer accounts for approximately 95 percent of our Company-wide direct (Scope 1) and indirect (Scope 2) emissions. Direct emissions are generated on site, from combustion of natural gas and other fuels, or from processes at our operations. Indirect emissions are from the off-site generation of purchased electricity, steam and heat. The sources of GHG emissions related to the nitrogen, potash and phosphate fertilizer we produce come from the following sources:

• Nitrogen: Nitrogen fertilizer is produced by reacting hydrogen, from natural gas, with nitrogen from the air to produce ammonia (NH3), the basic building block of all nitrogen fertilizer. Approximately 95 percent of the natural gas we consume is in the production of ammonia, with approximately two-thirds of this natural gas used as hydrogen feedstock in this process. The main Scope 1 GHG emission sources are CO2 from fuel combustion, industrial process CO2 as a byproduct of hydrogen generation, and nitrous oxide (N2O) emissions generated from nitric acid production.

• Potash: Potash is mined underground, hoisted to the surface, then crushed and purified with electricity-powered equipment to remove rock particles and salt before being dried. Potash operations result in Scope 1 emissions from the operation of gas-fired boilers and dryers, as well as mobile equipment. Scope 2 emissions are primarily associated with purchased electricity required to operate processing equipment in our mills.

• Phosphate: The production process for phosphate can generate GHG emissions in two ways. Entrained carbonates (dissolved CO2 in the phosphate rock) are released into the air as CO2 through a chemical reaction, and GHGs can also be released through the use of fossil fuels to calcine phosphate rock feedstock or dry fertilizer products. Purchased electricity required to operate processing equipment also contributes to Scope 2 emissions in phosphate production.

For further information, visit us at https://www.nutrien.com/what-we-do

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

No

C0.3

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

Argentina
Australia
Belgium
Brazil
Canada
Chile
France
Germany
Italy
Trinidad and Tobago
United States of America
Uruguay

C0.4

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

USD

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.

Operational control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Bulk inorganic chemicals

Ammonia
Fertilizers
Nitric acid

Other chemicals

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 Ticker symbol	NTR

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 or committee	Responsibilities for climate-related issues
Board-level committee	(1) Description of the committee in the corporate structure: Risk management is governed by our Board of Directors and Board committees, who oversee our Executive Leadership Team's ("ELT") understanding of the principal risks to our business and strategy, including climate-related risks. Nutrien's Safety & Sustainability Committee ("S&S Committee") Committee is the Board Committee that has primary responsibility for oversight of our general strategy and policies for the management of our climate-related risks and opportunities. It directly reports to and advises the Board on these matters. (2) Explanation of how the responsibilities of the committee are related to climate issues, including at least one example of a climate-related decision made by the committee/individual: As climate-related and environmental, social and governance ("ESG") risks and opportunities are generally longer term in nature, incorporating them into our strategic and business planning activities helps enhance our planning, decision making and resilience. Understanding climate risk, regulations and societal expectations allows us to capitalize on opportunities for growth and mitigate potential risk. Our S&S Committee has responsibility for the highest level of oversight of Nutrien's activities as they relate to sustainability. This oversight includes the ongoing monitoring and development of the Company's ESG strategy and incorporates topics such as environmental stewardship and climate change-related risks and opportunities, among others. The S&S Committee generally meets on a quarterly basis. In 2022, the S&S Committee was specifically involved with overseeing sustainability goals; overseeing Nutrien's 2022 ESG Report and supporting ESG targets and goals; and reviewing the risks, strengths and opportunities relating to safety and sustainability, as well as potential climate-related impacts to the Company and our operating environment.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Monitoring progress towards corporate targets Reviewing and guiding the risk management process	The S&S Committee generally meets on a quarterly basis and covers significant issues within its mandate, including climate. Scheduled agenda items may generally include: overseeing sustainability goals; approval of Nutrien's ESG Reports (includes Task Force on Climate-related Financial Disclosures, or "TCFD", information); reviewing progress against Nutrien's Feeding the Future Plan and associated ESG targets and goals; and review of Nutrien's climate-related risks and opportunities. (1) Reviewing and guiding strategy: The S&S Committee has responsibility for the highest level of oversight of Nutrien's activities as they relate to sustainability. This oversight includes the ongoing monitoring and development of the Company's ESG strategy and incorporates topics such as environmental stewardship and climate change-related risks and opportunities, among others. The S&S Committee was briefed by the VP of Sustainability & Stakeholder Relations and the Executive Vice President, External Affairs and Chief Sustainability and Legal Officer regarding updates on key action items related to climate strategy and disclosure. (2) Monitoring progress toward corporate targets: The S&S Committee oversaw Nutrien's ESG targets and goals, reviewed safety and sustainability performance summaries, and oversaw sustainability goals. (3) Reviewing and guiding the risk management process: Risk management is governed by our Board and Board committees, who oversee our ELT and ensure that the principal risks to our business, including ESG risks, are being appropriately identified, assessed and addressed. The S&S Committee has responsibility for oversight of Nutrien's activities as they relate to ensuring that appropriate policies, systems and personnel are in place to support safe and sustainable operations and the long-term viability of the Company, including its consideration of stakeholders relevant to the creation and preservation of long-term value. It directly reports to and advises the Board on these matters.

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	Board Competencies and Board Skills Matrix: Each director is expected to have an informed view on topics that are relevant to our business. Our Board competencies and skills matrix is an essential tool to help guide the Board on whether it has the right skills, perspectives, experience and expertise that is appropriate for proper oversight and effective decision-making by the Board as a whole, with a view in particular to take into account the long-term strategy and ongoing business operations of the Corporation. The Board competencies and skills matrix are designed to address the scale and diversity of our business, and are reviewed and updated annually as appropriate by the Corporate Governance & Nominating (CG&N) Committee. Seven Board members have core business skills in sustainability, which includes climate-related issues (defined as "experience with and responsibility for sustainable business practices, including environmental impacts and assessment and analysis of sustainability metrics"). Three of five members of the Board Safety & Sustainability Committee have sustainability as a core business skill, with the Committee Chair having this as a "top 3 skill". Please see the 2023 Proxy Circular.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee

Chief Executive Officer (CEO)

Climate-related responsibilities of this position

Integrating climate-related issues into the strategy
Monitoring progress against climate-related corporate targets
Other, please specify
Overall responsibility for the monitoring and management of climate-related risks and opportunities as part of providing leadership and strategic direction for our business.

Coverage of responsibilities

Reporting line

Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Rationale as to why the climate-related responsibilities selected in column 2 have been assigned to this position: The CEO is a member of Nutrien's ELT, which has the responsibility of ensuring the Company's material risks, including climate-related risks, are being appropriately identified, assessed, managed and reported. ELT members and executive-level committees play different and important roles in the monitoring of climate-related risks. The CEO provides leadership and strategic direction for our business' climate-related risks and opportunities in the effort to reduce our GHG emission footprint and improve the resilience of the business model, as well as meeting our commitments with key external stakeholders.

Position or committee

Other C-Suite Officer, please specify
EVP, External Affairs and Chief Sustainability and Legal Officer

Climate-related responsibilities of this position

Integrating climate-related issues into the strategy

Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Managing public policy engagement that may impact the climate
Other, please specify
Executive oversight of the Sustainability function, including climate, and strategic vision and leadership on sustainability-related issues. Ensures our climate-related initiatives are developed and resourced properly.

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

Rationale as to why the climate-related responsibilities selected in column 2 have been assigned to this position/committee: The EVP, External Affairs and Chief Sustainability and Legal Officer is a member of Nutrien's ELT, which has the responsibility of ensuring the Company's material risks, including climate-related risks, are being appropriately identified, assessed, managed and reported. ELT members and executive-level committees play different and important roles in the monitoring of climate-related risks. The EVP, External Affairs and Chief Sustainability and Legal Officer reports directly to the CEO and has a direct link to the S&S Committee. They provide executive-level oversight, strategic vision and leadership for sustainability-related matters, including climate. They also help to develop and monitor climate performance objectives for the Company and provide direction to the Executive ESG & Strategic Issues Committee.

Position or committee

Other committee, please specify
Executive ESG & Strategic Issues Committee

Climate-related responsibilities of this position

Assessing climate-related risks and opportunities

Other, please specify

Responsible for the materiality assessment of ESG issues, oversight of risk mitigation for ESG matters, and developing appropriate ESG-related disclosures and communications to stakeholders.

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

As important matters arise

Please explain

Rationale as to why the climate-related responsibilities selected in column 2 have been assigned to this committee: The Executive ESG & Strategic Issues Committee are members of Nutrien's ELT, which has the responsibility of ensuring the Company's material risks, including climate-related risks, are being appropriately identified, assessed, managed and reported. ELT members and executive-level committees play different and important roles in the monitoring of climate-related risks. The Executive ESG & Strategic Issues Committee provides executive-level oversight of external disclosures for material ESG- and climate-related matters and the support and direction of any required strategic, process or resource requirements related to these disclosures.

Position or committee

Other committee, please specify

Scope 1, 2 and 3 Emission Teams

Climate-related responsibilities of this position

Other, please specify

Oversee the strategy and implementation of action on the Scope 1, 2 and 3 GHG emissions reduction initiatives

Coverage of responsibilities

Reporting line

Other, please specify

ESG & Strategic Issues Cross-Functional Working Group

Frequency of reporting to the board on climate-related issues via this reporting line

As important matters arise

Please explain

Position or committee

Other committee, please specify

ESG & Strategic Issues Cross-Functional Working Group

Climate-related responsibilities of this position

Other, please specify

Responsible for elevating significant climate-related issues and providing support to our Scope 1, 2 and 3 Emission Teams, and for coordinating action on key issues with Nutrien executives on our Executive ESG & Strategic Issues Committee.

Coverage of responsibilities

Reporting line

Other, please specify

Executive ESG & Strategic Issues Committee

Frequency of reporting to the board on climate-related issues via this reporting line

As important matters arise

Please explain

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	Since 2020, a component of executive short-term compensation has been tied to demonstrated ESG performance to support our focus on key ESG topics and progress across our sustainability strategic pillars, including the addition of progress on GHG emission projects in 2021.

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

Corporate executive team

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Progress towards a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Annual incentive targets are set as a percentage of salary, with actual payouts based on a performance multiplier dependent on the achievement of predetermined annual goals.

Our Annual Incentive Plan is a key element in supporting our pay-for-performance philosophy. Each Named Executive Officer's ("NEO's") annual incentive opportunity is determined by performance in various components, with an emphasis on key operating and financial metrics. The corporate performance component includes the execution and delivery of strategic growth initiatives, portfolio optimization and ESG initiatives. Strategic KPIs in 2022 represent outcome based, in-year activities that contribute to the achievement of Nutrien's longer-term Strategic Plan. Metrics include ESG initiatives including reduction of greenhouse gas emissions, among others.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

In accordance with our compensation philosophy, the salary, benefits, perquisites and retirement arrangements for executives provide the secure fixed compensation component necessary to attract and retain key executive talent. The combination of annual and long-term incentives is designed to motivate the execution of our business strategy in a manner that creates shareholder value while retaining executive talent and aligning executive interests with those of our shareholders. The combination of the fixed and variable/at-risk compensation components provides our executives with a competitive compensation package that is designed to meet Nutrien's needs and shareholders' expectations. Our short-term incentives are structured to integrate with our ESG strategy and address several environmental, social and governance topics including greenhouse gas emissions reductions, among others. We continue to evaluate and refine the most effective way to incorporate ESG metrics within both our short-term and long-term incentive programs.

Entitled to incentive

Other, please specify

Nutrien Ag Solutions ("NAS") crop consultants

Type of incentive

Non-monetary reward

Incentive(s)

Other, please specify

Employees on an annual basis can be recognized for efforts that lead to material change within company processes that impact climate positively.

Performance indicator(s)

Implementation of an emissions reduction initiative

Increased engagement with customers on climate-related issues

Incentive plan(s) this incentive is linked to

Not part of an existing incentive plan

Further details of incentive(s)

In Nutrien’s Retail operating segment (Nutrien Ag Solutions, “NAS”), we established the Sustainable Success Champions Program to recognize and reward growers and crop consultants who implement and champion sustainable agriculture solutions like nitrogen management, cover crops, reduced tillage and more. Ten NAS crop consultants and their grower received the award in 2022, which were given based on the work completed towards carbon, water, soil, and sustainable management practices that the crop consultant works with the grower to implement on the ground.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

This incentive supports Nutrien’s 2030 Commitment to “enable growers to adopt sustainable and productive agricultural products and practices on 75 million acres globally.”

Entitled to incentive

Chief Executive Officer (CEO)

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Progress towards a climate-related target
Implementation of an emissions reduction initiative

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

Annual incentive targets are set as a percentage of salary, with actual payouts based on a performance multiplier dependent on the achievement of predetermined annual goals.

Our Annual Incentive Plan is a key element in supporting our pay-for-performance philosophy. Each NEO's annual incentive opportunity is determined by performance in various components, with an emphasis on key operating and financial metrics. The corporate performance component includes the execution and delivery of strategic growth initiatives, portfolio optimization and ESG initiatives. Strategic KPIs in 2022 represent outcome based, in-year activities that contribute to the achievement of Nutrien's longer-term Strategic Plan. Metrics include ESG initiatives including reduction of greenhouse gas emissions, among others.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

In accordance with our compensation philosophy, the salary, benefits, perquisites and retirement arrangements for executives provide the secure fixed compensation component necessary to attract and retain key executive talent. The combination of annual and long-term incentives is designed to motivate the execution of our business strategy in a manner that creates shareholder value while retaining executive talent and

aligning executive interests with those of our shareholders. The combination of the fixed and variable/at-risk compensation components provides our executives with a competitive compensation package that is designed to meet Nutrien's needs and shareholders' expectations. Our short- term incentives are structured to integrate with our ESG strategy and address several environmental, social and governance topics including greenhouse gas emissions reductions, among others. We continue to evaluate and refine the most effective way to incorporate ESG metrics within both our short-term and long-term incentive programs.

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	Nutrien's time horizons are representative of timelines associated with our short-term climate-related targets, our medium-term 2030 commitments on emissions reductions, and our Enterprise Risk Management ("ERM") framework.
Medium-term	3	10	Nutrien's time horizons are representative of timelines associated with our short-term climate-related targets, our medium-term 2030 commitments on emissions reductions, and our Enterprise Risk Management ("ERM") framework.
Long-term	10	30	Nutrien's time horizons are representative of timelines associated with our short-term climate-related targets, our medium-term 2030 commitments on emissions reductions, and our Enterprise Risk Management ("ERM") framework.

C2.1b

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

We characterize a significant risk as a risk or combination of risks that could threaten the achievement of our vision, our business model, future performance or ability to deliver on our strategy. Risks are assessed based on their likelihood or probability of impacting our business and the potential severity of impact. Our assessment criteria are embedded in our ERM framework allowing comparability to other non-climate-related risks.
Criteria for substantial impact includes financial, reputational, and safety, health, and environmental impacts. For financial impacts, Adjusted EBITDA, calculated as net earnings (loss) before finance costs, income taxes, depreciation and amortization, share-based compensation and certain foreign exchange gain/loss (net of related derivatives) is used as a key quantifiable indicator. Financial impact may be assessed at the corporate level and/or at the individual segment level, depending on the nature of the climate-related risk. Reputation impacts are based on a number of factors with the key drivers being stakeholder or media attention/concern, legal concerns, effect on corporate value and potential credit rating impacts. SHE impacts are based on the potential for safety or health impacts to our employees or communities and/or the potential impact to the environment.
An overall risk assessment is determined for each risk in accordance with our enterprise risk framework and prioritized using a risk matrix and managed by the organization accordingly.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

Annually

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Process for Identification and Assessment of Climate-Related Risks
We identify and assess climate-related risks using our global risk management framework, which requires the identification, assessment and monitoring of risks to be embedded in business activities across the organization and updated at least annually. These risks are reviewed by senior leadership and executives for completeness. Our Executive ESG & Strategic Issues Committee, ESG & Strategic Issues Cross-Functional Working Group and ERM teams are involved in the escalation of climate-related risks and opportunities to our ELT and the Board.

Risk Identification:
Our identification and assessment of climate-related risks is an integrated process that includes critical input from our enterprise risk assessment process, subject matter experts, specialized working groups and our ESG material topic analysis, which brings in critical perspective and information on stakeholder expectations and external context related to climate matters. For completeness, we also cross-reference our identified risks with SASB Standards for Chemicals and Metals and Mining, along with TCFD recommendations.

Risk Assessment:
We characterize a significant risk as a risk or combination of risks that could threaten the achievement of our vision, business model, future performance or ability to deliver on our strategy. Risks are assessed using our common enterprise risk methodology based on their likelihood or probability of impacting our business and the potential severity of impact. Our assessment criteria are embedded in our global risk management framework allowing comparability to other non-climate-related risks. Criteria includes financial, reputational, and safety, health, an environmental impacts:

- For financial impacts, adjusted EBITDA is used as a key quantifiable indicator. Financial impact may be assessed at the corporate level and/or at the individual segment level, depending on the nature of the climate-related risk.

- Reputation impacts are based on a number of factors with the key drivers being stakeholder or media attention/concern, legal concerns, effect on corporate value and potential credit rating impacts.

- SHE impacts are based on the potential for safety or health impacts to our employees or communities and/or the potential impact to the environment.

An overall risk assessment is determined for each risk in accordance with our enterprise risk framework and prioritized using a risk matrix and managed by the organization accordingly. Key climate-related risks that have the potential to be financially significant at an enterprise level are brought to the attention of our Executive ESG & Strategic Issues Committee, ELT and Board. Through this process we regularly report on all our top risks to our ELT and the Board. As climate change can pose unique and longer-term risks to our business, we also assess physical and transitional climate-related risks by building climate models and using scenarios to understand potential financial impacts, better insight on time horizons and possible pathways from the outcomes. We create specialized working groups and leverage knowledge from subject matter experts to provide expertise and review when assessing climate-related risks and developing scenarios. Additionally, when assessing physical climate risks, we look at the exposure and vulnerability from weather variability and climate factors and assess how future climate change could impact our sites.

Governance/Response for Climate and Sustainability
The Board's S&S Committee has oversight over Nutrien's climate-related risks and opportunities. The S&S Committee generally meets on a quarterly basis and covers many sustainability-related issues within its mandate including those related to climate. Specifically, the S&S Committee's role includes overseeing: policies relating to sustainability and progress towards sustainability goals; approval of Nutrien's annual ESG Report; reviewing progress against Nutrien's Feeding the Future Plan and associated ESG targets and goals; and review of Nutrien's climate-related risks and opportunities. This committee directly advises the Board on these and other sustainability matters, including safety.

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 regulation transition risk is relevant to our assessment as Nutrien generates GHG emissions directly and indirectly through the production, distribution and use of its products. Some of these emissions are subject to existing climate change policies and regulations, all of which are developing in unique ways within various federal, provincial and state jurisdictions. Our Canadian manufacturing facilities located in the provinces of Alberta and Saskatchewan are subject to a variety of

		current federal and provincial requirements to reduce GHG emissions ranging from carbon taxes to emissions intensity reduction requirements.
Emerging regulation	Relevant, always included	Emerging regulation transition risk is relevant to our assessment as Nutrien generates GHG emissions directly and indirectly through the production, distribution and use of its products. Some of these emissions are subject to climate change policies and regulations, all of which are developing in unique ways within various federal, provincial and state jurisdictions. Increasing regulation of GHG emissions may impact our operations by requiring changes to our production processes or increasing raw material, energy, production or transportation costs in order to ensure compliance. There are also significant differences in the climate change policies of countries where Nutrien operates as only some are parties to the Paris Agreement, negotiated in December 2015, under the United Nations Framework Convention on Climate Change. Furthermore, even when Nutrien operates in a country that is a party to the Paris Agreement, different jurisdictions have different compliance obligations.
Technology	Relevant, always included	Technology transition risk is relevant as the agriculture and food systems could undergo rapid technological changes. Individuals and businesses have access to unprecedented amounts of data and information. The advancement and adoption of technology and digital innovations in agriculture and across the value chain has increased and is expected to further accelerate as grower demographics shift and pressures from consumer preferences, governments and climate change initiatives evolve. Further, Nutrien has prioritized investment in new technologies and is pursuing the transition to low-carbon fertilizers, including low-carbon and clean ammonia. Low-carbon ammonia is ammonia made with direct GHG emissions typically reduced by approximately 60 percent but up to 80 percent, produced primarily utilizing carbon capture, utilization and storage (“CCUS”) or other low-emission production technologies. To be considered clean ammonia, more than 90 percent of GHG emissions must be reduced. Other examples include the development of seeds that require less crop nutrients, development of full or partial substitutes for our products or developments in the application of crop nutrients such as improved nutrient use or efficiency through use of precision agriculture could also emerge, all of which have the potential to adversely affect the demand for our products and results of operations, or create new opportunities for us and our competitors to engage growers.

Legal	Relevant, always included	Legal transition risk is relevant as many of our operations and facilities are subject to a variety of regulatory requirements, permits and approvals, all of which vary depending on the operation in question. Licenses, permits and approvals at operating sites are obtained in accordance with applicable laws and regulations, which may limit or regulate: operating conditions, rates and efficiency; land, water and raw material use and management; product storage, quality and transportation; waste storage and disposal; and emissions and other discharges. Further, we are, and may in the future be, involved in legal and regulatory proceedings, including matters arising from our activities or activities of predecessor companies, including climate-related activities. For example, with respect to air emissions, we anticipate that additional actions and expenditures may be required to meet increasingly stringent federal, provincial and state regulatory and permit requirements in the areas in which we operate, including existing and anticipated regulations under the US federal Clean Air Act. We continue to monitor developments in these various programs and assess their potential impact on our operations.
Market	Relevant, always included	Global macroeconomic conditions and shifting market fundamentals, including trade tariffs and restrictions and increased price competition, or a significant change in agriculture production or consumption trends, could lead to a sustained environment of reduced demand for our products, and/or low commodity prices. We are also exposed to various market factors that may impact our operating results including: changes in the price of, or ability to source, raw materials and energy, which could, among other things, impact our gross margins and profitability; commodity price volatility, including the possibility of asset impairment as a result thereof; currency volatility and risk, including as a result of the translation of foreign subsidiaries' financial statements to US dollars; and fluctuations in interest rates which could negatively impact our financial results given our use of some floating rate debt, floating rate credit facilities and commercial paper, as well as the refinancing of long-term debt and anticipated future financing needs. Market risk could be impacted by climate-related issues as there is potential for production and or supply chain issues, leading to various impacts on food availability and purchase prices. These can directly impact overall market demand and shifts in agricultural production mix.
Reputation	Relevant, always included	Reputation is relevant as it is one of the key criteria we use to assess our climate-related and ESG-related risks. Further, the nature of our business makes it crucial to maintain a strong reputation and positive relationships with key stakeholders, including shareholders, customers, our employees, suppliers, landowners, local and Indigenous communities, and governments, among others. Damage to our reputation can occur from our actual or perceived actions or inactions and a

		range of events and circumstances, including through our supply chain, many of which are out of our control. Our stakeholders may place an increasing importance on the structure of our business, our ability to execute on our strategy, the customers, growers, and suppliers we do business with, and our core sustainability/ESG, social, biodiversity, and product stewardship responsibilities. For example, our ability to achieve our climate and sustainability targets is subject to numerous risks and uncertainties and our actions taken in implementing our objectives may also expose us to certain additional and/or heightened financial and operational risks. Failure to achieve our emissions, climate or sustainability targets could have a negative impact on our reputation, business, cash flows, results of operations, and on our access to, and cost of, capital.
Acute physical	Relevant, always included	Acute physical risks are relevant and include the impact that climate change could have on our operations, our grower customers, and our supply chain. Climate change may cause or result in, among other things, more frequent and severe weather events, such as storms, floods, heat waves, droughts, and/or changing weather factors such as changing temperatures, precipitation, wind, and water levels. Nutrien's sites and facilities can be impacted by weather-related risks, including hurricanes and floods, tornadoes and cyclones, wildfires and increased precipitation or snow melt. For example, Nutrien’s phosphate operations in Aurora, NC and White Springs, FL, and our nitrogen operation in Geismar, LA, are in hurricane zones and they have hurricane preparedness plans. Further our customers are impacted by changing weather patterns and more challenging growing conditions. Changing weather patterns can also have an adverse effect on growing conditions (for example, water scarcity) and crop yields, which could lower the income of growers and impair their ability to purchase our crop nutrients, crop protection, seed products and services.
Chronic physical	Relevant, always included	Chronic physical risks are relevant as they can impact the agriculture sector and our operations/facilities. Chronic physical impacts from climate change may affect the availability and suitability of arable land, including crop quality and soil health, and contribute to loss of biodiversity and unpredictable shifts in the average growing season and types of crops produced and/or crop yields, which could impact the long-term demand for our products and services. The results of climate change may also affect the water levels of certain waterways used in our supply chain network. Physical risks from climate change may also result in operational or other supply chain delays, depending on the nature of the event. These events may impact the demand for our products, availability and/or cost of transportation and distribution, resource inputs, materials or insurance, or increase the costs to our operations or capital projects.

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

Emerging regulation

Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

Current: Our Canadian manufacturing facilities located in the provinces of Alberta and Saskatchewan are subject to a variety of federal and provincial requirements to reduce GHG emissions ranging from carbon taxes to emissions intensity reduction requirements.

Emerging: Changes in regulations in the countries or jurisdictions where we operate, such as the implementation of new carbon taxes, increases in existing carbon pricing, or the establishment of absolute emissions limits, could negatively impact our business. Current and

emerging emissions regulations may impact our operations by:- requiring changes to our production processes;- increasing raw material, energy, production or transportation costs;- additional costs in the form of taxes, emission allowances or other carbon pricing mechanisms; or- increased input costs and compliance-related costs for agricultural customers.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Cost of response to risk

Description of response and explanation of cost calculation

Current: We attempt to minimize our Canadian compliance costs through the implementation of various efficiency and emissions reduction projects, including cogeneration at our Carseland, AB Nitrogen facility and at our Cory, SK Potash mine and carbon capture, utilization and storage (“CCUS”). We supply CO2 from the Redwater, AB Nitrogen facility to the Alberta Carbon Trunk Line.

Emerging: We are working to reduce Scope 1 and 2 GHG emissions intensity at our operations. Key initiatives include nitrous oxide ("N2O") abatement technologies, energy efficiency improvements, expanding our use of CCUS technology, renewable energy options and low-carbon and clean ammonia development. For more information refer to “Our Actions to Reduce GHG Emissions” on page 38 of our 2023 ESG Report.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Market

Changing customer behavior

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

The world is transitioning to lower-carbon options for consumer products, including food. Consumer and societal expectations are high for growers to drastically reduce emissions from agriculture. Meeting these expectations could increase costs for our growers and for our Company. Failure to meet these expectations can negatively impact the reputation of our Company and our customers. Government mechanisms intended to support decarbonization goals might put additional pressure on growers or our industry.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Cost of response to risk

Description of response and explanation of cost calculation

Nutrien is partnering with growers, value-chain stakeholders, governments and NGOs to support the advancement of a carbon market for the agricultural industry. Growers have the ability, through the use of best practices, to increase and maintain soil organic matter levels and optimize the application and efficiency of nitrogen fertilizer to reduce GHG emissions and sequester carbon with verifiable outcomes. Nutrien's carbon-focused solutions are positioned to help growers implement these best practices and measure outcomes, which could be verified or certified by third parties and could create a new source of income for growers.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Technology

Substitution of existing products and services with lower emissions options

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

The advancement and adoption of technology and digital innovations in agriculture and across the value chain has increased and is expected to further accelerate as grower demographics shift and pressures from consumer preferences, governments and climate change initiatives evolve. The development of seed traits, biological products and/or advancements in precision agriculture that materially improve nutrient use efficiency has the potential to adversely affect the demand for fertilizer.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Cost of response to risk

Description of response and explanation of cost calculation

Our Nutrien Ag Solutions business is focused on providing the agronomic solutions to growers to enhance sustainable productivity and profitability and will adapt to the changing technological landscape. We also have a low-cost fertilizer production base with a diversified product portfolio including enhanced efficiency fertilizers and non-agricultural products. Key initiatives include:

- Research and development: Nutrien's R&D programs are designed to provide science-based solutions to the agronomic challenges that agriculture and our growers face. Our R&D teams focus on innovative solutions for nutrient use efficiency, crop quality, sustainability and yield enhancement.

- Digital solutions: Our digital solutions combine location, agronomic information, environmental data, weather forecasting, and data science to make field-specific recommendations for growers. They also enhance data traceability and connectivity to leading agricultural, food and consumer products companies that want to measure the environmental impact of agriculture in their supply chains. We intend for our digital

tools to be instrumental in maintaining soil data related to carbon sequestration and providing growers the required documentation for carbon credit markets.

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Downstream

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 demand for products and services

Company-specific description

Our grower customers are impacted by changing regional weather factors, primarily increasing temperatures and volatile precipitation. Chronic changes in regional weather may affect the availability and suitability of arable land, including crop quality and soil health. They could also contribute to loss of biodiversity and unpredictable shifts in the average growing season, types of crops produced and/or crop yields. Individually or together, these impacts could affect the long-term demand for our products and services.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Cost of response to risk

Description of response and explanation of cost calculation

- Weather analytics: Through atmospheric science, we are able to provide new perspectives for growers and crop consultants throughout the agriculture cycle to help manage weather risk.
- Whole-acre solutions: Our whole-acre solutions and continued investment in technology can help improve soil health, increase soil organic carbon sequestration, optimize nutrient-use efficiency, reduce GHG emissions, improve water quality and retain water while conserving and restoring biodiversity.
- Financial flexibility: We currently offer flexible financing solutions to our US, Canada, Brazil and Australia customers in support of Nutrien Ag Solutions agricultural product and service sales, and provide grower credit through Nutrien Financial. Financing is often a key enabler to broad adoption of sustainable agricultural practices. These offerings can help growers endure difficult years and unanticipated climate-related events.

Comment

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Flood (coastal, fluvial, pluvial, groundwater)

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Extreme weather events can strain our upstream or downstream supply chains and disrupt our distribution and logistics network of railcars, marine vessels and trucks, and therefore our connection between our Potash, Nitrogen and Phosphate businesses with our customers and/or Nutrien Ag Solutions network

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Cost of response to risk

Description of response and explanation of cost calculation

We have contingencies in place to ensure we can continue production if our key suppliers experience disruptions due to extreme weather. We mitigate this risk by ensuring we have multiple suppliers in different locations for critical feedstocks and by using our diverse retail distribution network and expansive fertilizer terminal network to effectively manage product logistic challenges.

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

Reduced indirect (operating) costs

Company-specific description

New strategies and technologies to reduce our Scope 1 and Scope 2 GHG emissions

What is the opportunity: The energy transition is accelerating the development of technologies that can support our GHG emissions reduction efforts. Market-driven advancements and government incentives are helping these technologies become more accessible and achieve faster commercialization. Nutrien expects that it may be able to take advantage of a variety of programs and/or technologies that are available and under development to reduce our Scope 1 and 2 emissions.

Primary impacts of this opportunity include reduced emissions, carbon taxes and operating costs.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial impact not known at this time as we are currently working through several opportunities for energy efficiency projects.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

We believe a combination of strategies will be needed to meet society's decarbonization goals. Our reduction plans include activities to reduce the direct Scope 1 GHG emissions intensity at our manufacturing facilities and the indirect Scope 2 GHG intensity emissions from purchased energy, such as steam and electricity.

Nutrien's first phase of GHG emissions intensity reduction projects are on track for completion. By nature, achieving the anticipated GHG

emissions reductions is highly dependent on changes in production, electrical grid intensity and project schedules. We continually look for process improvements to reduce GHG emissions at our facilities (includes N2O abatement and reliability improvements). We aim to continually improve our energy efficiency and reliability, which directly reduces our GHG emissions and has the added benefit of improving the cost of production.

Our activities include:

- Carbon capture: CCUS provides a significant opportunity for reducing GHG emissions from our manufacturing facilities. Nutrien participates in two carbon capture projects at our Redwater, AB and Geismar, LA facilities and we are evaluating future opportunities.

- N2O abatement: We are implementing N2O abatement technologies that could remove up to 90 percent of N2O emissions from nitric acid production. We expect the use of N2O abatement technologies to be instrumental in achieving our target reduction of one million tonnes of CO2e by the end of 2023. Because N2O has a global warming potential that is significantly higher than CO2, reductions in N2O have an outsized positive impact in overall GHG emissions reductions.

- Renewable energy: Incorporating renewable energy sources into our production process can help reduce our Scope 2 emissions. Lower Scope 2 GHG emissions energy options for Nutrien include self-generated wind and solar energy projects; long-term Power Purchase Agreements (“PPAs”) with third parties to either directly or virtually supply lower- or non-emission renewable sources of energy; and purchase of emissions offset credits or Renewable Electricity Certificates (“RECs”).

Comment

These opportunities support our 2030 Commitment to achieve at least a 30 percent reduction in GHG emissions (Scope 1 + 2) per tonne of our products produced, from a baseline year of 2018.

2022 progress: We have continued with multiple initiatives to improve energy efficiency and emissions performance across our manufacturing facilities, including the completion of N2O abatement projects at Lima, OH, Kennewick, WA and Augusta, GA nitrogen sites. We also continued to evaluate a pathway for setting science-based emissions reduction targets. We continue to explore other strategic emissions abatement projects, as well as continue to evaluate current and upcoming projects. We anticipate investing more than $500 million in pursuit of our 2030 emissions intensity reduction target.

We also have supportive targets to:
(1) Reduce GHG emissions in nitrogen production by one million tonnes CO2e by the end of 2023 on an intensity basis vs 2018 baseline emissions intensity. Our priority GHG reduction projects, headlined by our CCUS and N2O abatement projects, are on track to incrementally reduce emissions.
(2) Deploy self-generated wind and/or solar energy at four Potash facilities by the end of 2025. We have deployed renewable-based wind and solar meteorological and energy resource data collection stations at four additional Potash sites, for a total of six stations since 2021. We have paused our onsite renewables program until 2024 to engage in consultations with our provincial utility provider, SaskPower (Saskatchewan Power Corporation), related to their clean energy transition initiative and the adoption of related regulations. We are exploring the most feasible access to renewable energy whether that is onsite or offsite or a combination of both. Due to the uncertainty associated with the implementation of SaskPower's clean energy transition, and the changing regulatory landscape in the province, it is possible that this target will not be met by the end of 2025.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of new products or services through R&D and innovation

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Helping growers reduce emissions from agriculture

What is the opportunity: Reducing our growers' carbon footprint from the agricultural products we manufacture and provide can help manage the increasing environmental and societal pressures we all face. We can offer growers products and services and promote sustainability programs that can facilitate the wider adoption of sustainable agronomic best practices and improve environmental outcomes, while supporting soil health, crop production and yields.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial impact not known at this time as we are currently working through several opportunities for further advancement of our Carbon Program. There are also competitive reasons for not disclosing these figures.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Nutrien's focus on sustainable agriculture helps us to identify and develop opportunities for growers to adopt improved nutrient and land management practices, and use advanced nutritional products and digital tools to measure the impact of sustainable solutions on GHG emissions at the farm level. Taking a whole-acre approach to sustainable solutions encompasses an improvement in soil quality and water management, making farms more resilient to weather extremes. The Carbon Program is one way Nutrien supports the use of products and practices that are expected to reduce emissions at the farm level and deliver more sustainable outcomes.

Our activities include:

- Carbon program: Nutrien is partnering with growers, value-chain stakeholders, governments and NGOs to scale a Carbon Program that is designed to support the advancement of a carbon market for the agricultural industry through soil organic carbon sequestration and reduced GHG emissions.
- Advanced plant nutrition: We develop enhanced nutritional products for growers that also improve environmental performance. We provide nitrogen inhibitors and stabilizers and Environmentally Smart Nitrogen® that help minimize nitrogen loss to the environment and associated GHG emissions. We also sell advanced naturally derived products (such as C2 Technology and biocatalysts) that enhance soil and plant function via increased nutrient availability.
- Precision agriculture and nutrient management: We provide digital precision agriculture services to our grower customers that include specific variable rate recommendations to help improve yields and soil health, while reducing nutrient loss to the environment. We provide advice to growers that is aligned with the 4R Nutrient Stewardship System in North America and Fertcare® in Australia.

Comment

These opportunities support our 2030 Commitment to launch and scale a comprehensive Carbon Program, empowering growers and our industry to accelerate climate-smart agriculture, reduce carbon equivalent emissions, and soil carbon sequestration while rewarding growers for their efforts.

2022 progress: In 2022, Nutrien continued to pursue opportunities to reduce emissions and expanded our Carbon Program. Nutrien continues to expand the Carbon Program in 2023 with a focus on nitrogen management practice improvements and resultant GHG emissions reduction outcomes, while incubating scalable options for soil carbon sequestration, advancing the build-out of our pilots in Australia and developing pilots in South America.

In 2022, we enabled North American pilots on approximately 685,000 acres, working with growers and collaborating with approximately 10 suppliers and downstream partners. Our whole-acre solutions approach supports a program that aims to be capable of generating high-quality carbon outcomes for both voluntary and regulated carbon markets. Although global carbon markets and protocols for agricultural systems remain immature, through our direct engagement with growers, we have advanced our capabilities to support program expansion and focused on a practical and science-based approach. Our collaboration with growers and value-chain partners will likely remain foundational to our efforts as we continue to build and scale sustainability programming going forward.

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

Reduced direct costs

Company-specific description

Low-carbon and clean ammonia opportunities

What is the opportunity: The development and use of both low-carbon and clean ammonia has the potential to reduce the carbon intensity of our fertilizer production and provide other opportunities including ammonia for industrial use, clean fuel for marine shipping, displacing coal in power generation and ammonia as a hydrogen carrier.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial impact not known at this time. Competitive reasons not to disclose current modelling.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Nutrien's Geismar, LA Nitrogen facility currently makes two grades of ammonia: conventional and low-carbon ammonia. In 2022, we announced our intention to evaluate a project to build potentially one of the world's largest clean ammonia plants at Geismar with an expected annual production capability of 1.2 million tonnes. The new plant is expected to use innovative autothermal reforming technology that allows 90 percent of the CO2 to be captured. CO2 from the new plant will be sequestered permanently in wells constructed and managed by our project partner. The new Geismar plant is expected to supply the emerging low-carbon fuels market and existing industrial and agricultural customers. The project is in the front-end engineering design ("FEED") phase and a final investment decision is expected in the second half of 2023.

We continue collaborating with our shipping partner EXMAR to evaluate building a low-carbon ammonia-powered vessel. The project has progressed to initial engine design and is subject to further analysis, validation and a final investment decision. If approved in 2023, the anticipated completion is end of 2025. We believe this is an important step forward for the wider adoption of low-carbon ammonia as a clean fuel for the maritime industry.

Nutrien also continued our partnership with the US Department of Energy (“DOE”) and other industry partners to develop a clean ammonia plant with technology developed from the Renewable Energy to Fuels Through Utilization of Energy- Dense Liquids (“REFUEL”) program.

In addition, our near-term focus is on using carbon capture, utilization and storage (“CCUS”) infrastructure, and growing our low- carbon ammonia production. As of 2022, Nutrien has annual production capability for approximately one million tonnes of low-carbon ammonia at our Geismar, LA, Redwater, AB and Joffre, AB nitrogen facilities.

We have dedicated support to the development of clear and transparent certification of low-carbon and clean ammonia.

Comment

These opportunities support our 2030 Commitment to invest in new technologies and pursue the transition to low-carbon fertilizers, including low-carbon and clean ammonia.

Low-carbon ammonia is ammonia made with direct GHG emissions typically reduced by approximately 60 percent but up to 80 percent, produced primarily utilizing carbon capture, utilization and storage (“CCUS”) or other low-emission production technologies. To be considered clean ammonia, more than 90 percent of GHG emissions must be reduced, necessitating the use of next generation of ammonia production technology such as autothermal reforming or electrolysis of water using renewable power.

Identifier

Opp4

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 resulting from increased demand for products and services

Company-specific description

Helping growers deal with chronic impacts of climate change

What is the opportunity: As weather patterns change, the ideal window of time to seed a crop and apply fertilizer can become more variable, making the selection of seed or other crop inputs especially important. Chronic impacts from climate change may also affect the availability and suitability of arable land, including crop quality and soil health, shifts in the average growing season and types of crops produced. Through specialized product development and our data-based, expert-provided service offerings, we can help growers use the right product at the right time and are positioned to adapt our offerings as growers adapt to impacts from climate change.

Time horizon

Medium-term

Likelihood

Very likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Financial impact not known at this time.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Leveraging soil sampling to improve soil health: We provide growers with extensive soil sampling services via Waypoint Analytical and we combine the results with expertise in atmospheric science and agronomy to understand impacts of crop production and soil health to deliver actionable decision support for growers. Through improved soil health, we believe we can enable climate resilient crop production with reduced environmental burden.

Optimizing our seed portfolio and Research & Development: Through our internal breeding program along with major R&D partners, we have access to the latest germplasm, trait technology and performance data across major row crops. Combining access to this product technology with our environmental data assets allows us to make recommendations for all growers' fields that optimize agronomic, economic and environmental decision making.

Improving our understanding of atmospheric science: By investing in agricultural-focused atmospheric science, we are able to provide new perspectives for growers and crop consultants throughout the agriculture cycle. Understanding historic weather on a field provides a probabilistic approach to crop planning, while in-season local weather forecasts help optimize field logistics and create real-time alerts for weather hazards. Our global short-term and long-term forecasts help growers understand agriculture markets to better plan commodity marketing strategies.

Comment

C3. Business Strategy

C3.1

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

Row 1

Climate transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

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

We are focused on supporting the development of a Science Based Target that is appropriate and specific to the fertilizer sector. Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the WBCSD, fertilizer peers and the Science Based Targets initiative ("SBTi") to produce a sectoral decarbonization approach (“SDA”) for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. Our intention to develop a climate transition plan may depend in part on the work of these third parties to develop the SDA for the fertilizer industry and assumes that the SDA for the fertilizer industry is suitable for Nutrien and can be implemented by Nutrien including, but not limited to, considering the technological and economic feasibility of the SDA. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process. The adoption of any climate transition plan would be subject to appropriate Nutrien approvals. For additional risk and assumptions, please see our response to C16.

We believe a combination of strategies will be needed to meet society’s decarbonization goals. Our current reduction plans include activities to reduce the direct GHG emissions at our manufacturing facilities and the indirect emissions from purchased energy, such as steam and electricity, while reducing other emissions that are upstream and downstream of our operations.

C3.2

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

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

C3.2a

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

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios IEA APS	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions. Transition Scenarios: - Time Horizon: Impact models cover the time horizon over the next 30 years to 2050- Potential Key Inputs: Key internal inputs include production estimates, emissions factors and discount rates. External inputs include carbon prices and CO2 emissions assumptions based on the IEA's 2021 World Energy Outlook - Areas Considered: Nitrogen, Potash and Phosphate operating segments, which account for most of our Scope 1 and 2 GHG emissions profile. Retail growers as nitrogen fertilizer application accounts for a significant portion of Scope 3 GHG emissions - Potential Risks/Opportunities: Carbon pricing mechanisms, Growers expected to reduce emissions,

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
			New technologies or products risk, New strategies and technologies to reduce GHG emissions, New markets for ammonia, Helping growers reduce emissions from agriculture
Transition scenarios IEA SDS	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions. Transition Scenarios: - Time Horizon: Impact models cover the time horizon over the next 30 years to 2050 - Potential Key Inputs: Key internal inputs include production estimates, emissions factors and discount rates. External inputs include carbon prices and CO2 emissions assumptions based on the IEA's 2021 World Energy Outlook - Areas Considered: Nitrogen, Potash and Phosphate operating segments, which account for most of our Scope 1 and 2 GHG emissions profile. Retail growers as nitrogen fertilizer application accounts for a significant portion of Scope 3 GHG emissions - Potential Risks/Opportunities: Carbon pricing mechanisms, Growers expected to reduce emissions, New technologies or products risk, New strategies and technologies to reduce GHG emissions, New markets for ammonia, Helping growers reduce emissions from agriculture
Transition scenarios IEA NZE 2050	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
			Transition Scenarios: - Time Horizon: Impact models cover the time horizon over the next 30 years to 2050 - Potential Key Inputs: Key internal inputs include production estimates, emissions factors and discount rates. External inputs include carbon prices and CO2 emissions assumptions based on the IEA's 2021 World Energy Outlook - Areas Considered: Nitrogen, Potash and Phosphate operating segments, which account for most of our Scope 1 and 2 GHG emissions profile. Retail growers as nitrogen fertilizer application accounts for a significant portion of Scope 3 GHG emissions - Potential Risks/Opportunities: Carbon pricing mechanisms, Growers expected to reduce emissions, New technologies or products risk, New strategies and technologies to reduce GHG emissions, New markets for ammonia, Helping growers reduce emissions from agriculture
Physical climate scenarios RCP 2.6	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions. Physical Scenarios: - Time Horizon: Scenario models are focused primarily between 2030- and 2050-time horizons as these relate to key milestones for global emissions reductions - Potential Key Inputs: Key internal inputs include our global operational footprint, grower regional locations, historical sales, acreage and yield data. External inputs include historical and projected acres data, inflation rates and the latest IPCC climate datasets covering flood depth, extreme wind, extreme rainfall, wildfire, drought, hail and thunderstorm, heat and cold hazards. - Areas Considered: Nutrien Ag Solutions with its direct connection to grower customers. Wholesale production operations and key transportation, storage and distribution sites.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
			- Potential Risks/Opportunities: Physical risk to growers, Physical risks to our supply chain and TD&L network, Helping growers deal with chronic impacts of climate change
Physical climate scenarios RCP 8.5	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions. Physical Scenarios: - Time Horizon: Scenario models are focused primarily between 2030- and 2050-time horizons as these relate to key milestones for global emissions reductions - Potential Key Inputs: Key internal inputs include our global operational footprint, grower regional locations, historical sales, acreage and yield data. External inputs include historical and projected acres data, inflation rates and the latest IPCC climate datasets covering flood depth, extreme wind, extreme rainfall, wildfire, drought, hail and thunderstorm, heat and cold hazards. - Areas Considered: Nutrien Ag Solutions with its direct connection to grower customers. Wholesale production operations and key transportation, storage and distribution sites. - Potential Risks/Opportunities: Physical risk to growers, Physical risks to our supply chain and TD&L network, Helping growers deal with chronic impacts of climate change
Physical climate scenarios RCP 4.5	Company-wide		We continued progress on a multi-year analysis of how different hypothetical climate scenarios may impact our Company. We anticipate using climate-related scenarios to explore and develop an understanding of the potential range of implications for Nutrien, and as a potential tool for the assessment of risks and opportunities on several dimensions. The scenarios are not intended to be used as forecasts or predictions. Physical Scenarios: - Time Horizon: Scenario models are focused primarily between 2030- and 2050-time horizons as these

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
			relate to key milestones for global emissions reductions- Potential Key Inputs: Key internal inputs include our global operational footprint, grower regional locations, historical sales, acreage and yield data. External inputs include historical and projected acres data, inflation rates and the latest IPCC climate datasets covering flood depth, extreme wind, extreme rainfall, wildfire, drought, hail and thunderstorm, heat and cold hazards. - Areas Considered: Nutrien Ag Solutions with its direct connection to grower customers. Wholesale production operations and key transportation, storage and distribution sites.- Potential Risks/Opportunities: Physical risk to growers, Physical risks to our supply chain and TD&L network, Helping growers deal with chronic impacts of climate change.

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

Agriculture is one of the sectors most impacted by physical risks due to the fundamental link between climate, weather, and agriculture productivity. The agricultural industry is also impacted by the transition risks of climate change - and those risks may be opportunities, depending on how policy, market, and regulatory forces play out in the coming years. There are contrasting risks and opportunities that could be positive or negative for Nutrien depending on which scenarios play out in practice. The key focus question surrounds what are the key insights on climate we need to drive improved resilience and to understand the magnitude of costs and benefits from climate risks or opportunities. Other focus questions include:

- How may current and emerging transitions risks, including potential carbon pricing mechanisms and emissions reduction requirements potentially affect our business?

- How may physical climate risks potentially affect our fertilizer production operations, retail distribution network and growers globally, both from a crop input demand perspective and regional crop production mix?

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

Key transition and physical risks from the analysis and focal questions include: carbon pricing mechanisms, expectations to reduce emissions from fertilizer use, new technologies or products that could displace current Nutrien products or services, physical risk to growers due to chronic changes in precipitation patterns and variability in weather patterns, and physical risks to supply chain and transportation, distribution and logistics network.

Key transition and physical opportunities from the analysis and focal questions include: new strategies and technologies to reduce our Scope 1 and Scope 2 GHG emissions, Low-carbon and clean ammonia opportunities, Helping growers reduce emissions from agriculture, and helping growers deal with chronic impacts of climate change.

Refer to pages 98 - 102 in Nutrien's 2023 ESG Report for more information.

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 and opportunities related to increasing environmental and societal pressures that our customers face have influenced our strategic decisions toward our portfolio of products and services. The main sources of environmental impacts related to the application of fertilizers at the farm level are: (1) denitrification (natural microbial reduction of soil nitrate to nitrogen gases such as N2O) and volatilization (loss of nitrogen as ammonia gas); (2) when fertilizers containing nitrogen and phosphorus are applied to crops, some nutrients may leach into groundwater or reach surface water by runoff; and (3) water use, as water is required for crop irrigation in many arid growing environments.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		Reducing the environmental impacts from the agricultural products we manufacture and sell is one way we can help our customers manage these pressures. As part of Nutrien's corporate and sustainability strategies, we are focused on being a leader in reducing carbon emissions generated along the ag value chain. For example, at our nitrogen production facilities, we have the capability to produce ~1 M tonnes of low-carbon ammonia annually, we are planning to expand our offering of sustainable and productive ag products, and we reduce our carbon footprint through energy use efficiency and abatement projects. Lower Scope 2 GHG emissions energy options for Nutrien include self-generated wind and solar energy projects; long-term Power Purchase Agreements ("PPAs") with third parties to either directly or virtually supply lower- or non-emission renewable sources of energy; and purchase of emissions offset credits or Renewable Electricity Certificates ("RECs"). Initiatives to support our growers to be more resilient to climate-related changes include our Carbon Program, weather expertise to help adapt to changing global climate and agronomic services, and our digital analytics on our digital platform. Nutrients are essential for growing healthy crops, and our crop consultants work with growers to deliver solutions and improve outcomes at the field level. Nutrien's R&D programs are designed to provide science-based solutions to the agronomic challenges that agriculture and our growers face today and in the future. Our R&D teams focus on innovative solutions for nutrient use efficiency, micronutrient deficiency, crop quality, sustainability and yield enhancement.
Supply chain and/or value chain	Evaluation in progress	We are building a greater understanding of our broader climate change impacts by starting to quantify Nutrien's Scope 3 emissions. Improved understanding is expected to enable collaboration and effective decision making that drives beneficial change. Nutrien's vision is to be the leading global integrated agriculture solutions provider. Nutrien is partnering with growers, value-chain stakeholders, governments and NGOs to support the advancement of multiple pathways for the monetization of measurable carbon improvements in the agriculture sector. Nutrien is uniquely positioned with our trusted grower relationships across our global network, broad offering of products and services, and agronomic expertise to bring companies across the agricultural value chain

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		together to incentivize grower adoption of sustainable products and practices that reduce GHG emissions and maintain or increase soil carbon stocks. The co-investment of various agriculture value-chain partners provides additional incentives to growers to accelerate the adoption of climate-smart practices, as well as generate mutual carbon footprint benefits. Consumer Packaged Goods ("CPG") companies and retail businesses are striving to characterize the sustainability of their supply chains and to influence them in ways that improve the level of sustainability over time. Farms can represent a large proportion of the environmental footprint of many consumer goods and, for Nutrien, this is an opportunity to engage with CPG and retail businesses to measure sustainability performance and build solutions to meet their needs. Through our products, solutions and services, Nutrien Ag Solutions is supporting downstream organizations that are deploying sustainability measurement programs at the farm and field level. Nutrien's systematic approach to defining and implementing sustainability measurement programs includes program establishment, data collection, data analysis, data reporting and program refinement. From this field-level data, our agronomic field teams can continually work with growers to improve their sustainable scorecard through the recommendation of whole-acre solutions. We use our Agrible® platform and a wide range of data to calculate indicators or metrics developed by recognized industry standard organizations, which include land use, biodiversity, soil carbon and GHG emissions.
Investment in R&D	Yes	Climate-related risks and opportunities related to sustainable agriculture and reducing environmental footprints have influenced our R&D investment strategy. Nutrien's R&D programs are designed to provide science-based solutions to the agronomic challenges that agriculture and our growers face today and in the future. Our R&D teams focus on innovative solutions for nutrient use efficiency, micronutrient deficiency, crop quality, sustainability and yield enhancement. In collaboration with our global marketing teams, our crop protection and nutritionals R&D group

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		develops and tests innovative and sustainable products to provide value for growers globally. This includes enhanced nutrient use efficiency products, soil amendments, proprietary crop protection products, industry-leading adjuvant platforms based on our Leci-Tech® Technology, and drift and volatility reduction products. Nutrien is well positioned with a network of owned and leased farm assets spanning more than 2,300 acres to test digital and crop input innovations that improve grower productivity, profitability and sustainability in a real farm operating environment. We use this network to support our seed breeding programs, crop protection and nutrition field trials, performance demonstrations of our full suite of third-party and proprietary products, and pilots of early-stage technologies. We also sponsor and coordinate field research to study nutrient management with university, government and independent researchers. This research aims to determine nutrient best management practices; evaluate environmental impacts and proper use of our products and all nutrient sources to minimize negative impacts; and optimize growers' return on investment with use of our products. Outcomes of this research are science-based recommendations, ongoing improvement in nutrient management practices and elevation of nutrient stewardship across the entire fertilizer industry. In 2022, Nutrien established an independent scientific advisory council of world-class academic leaders from Canada, the US and Australia that meets twice per year with our sustainable agriculture team to help steer research focus and peer review our data, results and approach to sustainable agriculture.
Operations	Yes	Fertilizer production and use have complex and conflicting impacts on GHG emissions across the agricultural value chain. Fertilizer is critical for healthy crops, enhancing soil carbon (the level of carbon that is directly tied to the level of organic matter in the soil) and increasing yields, which helps to feed our growing population with the same amount of arable land, but nitrogen fertilizer also generates GHG

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
		emissions when it is produced and when it is applied to the soil. The manufacturing of fertilizer accounts for approximately 95% of our Company-wide direct (Scope 1) and indirect (Scope 2) emissions. Nutrien's operational commitments include the following climate-related areas of focus: Reducing emissions from operations: We have committed to at least a 30% targeted reduction in Scope 1 and 2 GHG emissions intensity by 2030 from a baseline year of 2018, and Nutrien has forecasted to spend more than $500 million in pursuit of this target. Specific project execution will depend on a range of factors, including the final investment decision of the Geismar Clean Ammonia plant. Going forward, we expect to selectively execute emissions abatement projects as the compliance landscape evolves and the direct and indirect costs of carbon, as well as attractive opportunities to our business, justify incremental capital investment. Targeting emissions reduction also addresses a key transition risk in our fertilizer operations related to regulations and existing and potential regional carbon taxes. Supporting the development of a Science Based Target that is appropriate and specific to the fertilizer sector: Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the WBCSD, fertilizer peers and the SBTi to produce a sectoral decarbonization approach (“SDA”) for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process.

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	Direct costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital	Climate-related risks and opportunities have influenced our financial planning in relation to how we allocate capital and potential business acquisitions. As part of Nutrien's Strategy, we want to be a leader in agricultural sustainability. With this, Nutrien is focused on being a leader in reducing carbon emissions generated along the ag value chain. Nutrien's Carbon Program aims to create the opportunity to financially reward growers who apply best practices and climate-smart products, which is expected to drive a step change in agricultural sustainability and improved carbon management. By leveraging our unique relationship with the grower, we can deliver an end-to-end program where we can add value throughout. At our nitrogen production facilities, we have the capability to produce approximately 1 million tonnes of low-carbon ammonia annually, we are planning to expand the production of sustainable and productive agricultural products and we are further planning to reduce our carbon footprint through energy use efficiency and abatement projects. Reductions in Scope 2 emissions can be achieved at the point of energy production as well as at the point of consumption. Lower Scope 2 GHG emissions energy options for Nutrien include self-generated wind and solar energy projects; long-term PPAs with third parties to either directly or virtually supply lower- or non-emission renewable sources of energy; and purchase of emissions offset credits or RECs. At our Potash facilities, we have paused our onsite renewables program until 2024 to engage in consultations with our provincial utility provider, Saskatchewan Power Corporation, related to their clean energy transition initiative and the adoption of related regulations. We are exploring the most feasible access to renewable energy whether that is onsite or offsite or a combination of both. In recent years, we have made important investments and energy efficiency and reliability improvements at our production facilities including emission controls at our nitrogen facilities, and investments in mining automation. Opportunities to access climate-related and "green" or "sustainability" funding from banking institutions and investors is becoming more accessible for investment in climate-related projects and goals. Nutrien continues to evaluate these funding opportunities as we execute our climate strategy and will consider them when appropriate.

	Financial planning elements that have been influenced	Description of influence
		Further, we have committed to at least a 30 percent targeted reduction in Scope 1 and 2 GHG emissions intensity by 2030 from a baseline year of 2018, and Nutrien has forecasted to spend more than $500 million in pursuit of this target. Specific project execution will depend on a range of factors, including the final investment decision of the Geismar Clean Ammonia plant. Going forward, we expect to selectively execute emissions abatement projects as the compliance landscape evolves and the direct and indirect costs of carbon, as well as attractive opportunities to our business, justify incremental capital investment. Nutrien manages its capital structure, funding and allocation tactically within a 1-year time horizon and strategically over the medium and longer term. Capital allocation decisions are also part of our 5-year strategic planning process, or to meet regulatory requirements, and are approved annually by the Board. Potential acquisitions are typically analyzed and completed within a 1 to 2-year time frame, with analysis based on a long-term view of potential cash flows, risks and opportunities. Decisions around sourcing new capital, whether from the equity markets, debt markets or other sources of financing, are managed dynamically in response to market conditions and within the authority delegated from Nutrien's Board or with Board approval.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	No, but we plan to in the next two years

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

Is this a science-based target?

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

Target ambition

Year target was set

2020

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

Intensity metric

Metric tons CO2e per unit of production

Base year

2018

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

0.53

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

0.14

Intensity figure in base year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)

Intensity figure in base year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)

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

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

Intensity figure in base year for total 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)

0.67

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

100

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

100

% of total base year emissions in Scope 3, Category 1: Purchased goods and services covered by this Scope 3, Category 1: Purchased goods and services intensity figure

% of total base year emissions in Scope 3, Category 2: Capital goods covered by this Scope 3, Category 2: Capital goods intensity figure

% of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) covered by this Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) intensity figure

% of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution covered by this Scope 3, Category 4: Upstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 5: Waste generated in operations covered by this Scope 3, Category 5: Waste generated in operations intensity figure

% of total base year emissions in Scope 3, Category 6: Business travel covered by this Scope 3, Category 6: Business travel intensity figure

% of total base year emissions in Scope 3, Category 7: Employee commuting covered by this Scope 3, Category 7: Employee commuting intensity figure

% of total base year emissions in Scope 3, Category 8: Upstream leased assets covered by this Scope 3, Category 8: Upstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution covered by this Scope 3, Category 9: Downstream transportation and distribution intensity figure

% of total base year emissions in Scope 3, Category 10: Processing of sold products covered by this Scope 3, Category 10: Processing of sold products intensity figure

% of total base year emissions in Scope 3, Category 11: Use of sold products covered by this Scope 3, Category 11: Use of sold products intensity figure

% of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products covered by this Scope 3, Category 12: End-of-life treatment of sold products intensity figure

% of total base year emissions in Scope 3, Category 13: Downstream leased assets covered by this Scope 3, Category 13: Downstream leased assets intensity figure

% of total base year emissions in Scope 3, Category 14: Franchises covered by this Scope 3, Category 14: Franchises intensity figure

% of total base year emissions in Scope 3, Category 15: Investments covered by this Scope 3, Category 15: Investments intensity figure

% of total base year emissions in Scope 3, Other (upstream) covered by this Scope 3, Other (upstream) intensity figure

% of total base year emissions in Scope 3, Other (downstream) covered by this Scope 3, Other (downstream) intensity figure

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

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

100

Target year

2030

Targeted reduction from base year (%)

30

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

0.469

% change anticipated in absolute Scope 1+2 emissions

-14

% change anticipated in absolute Scope 3 emissions

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

0.51

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

0.12

Intensity figure in reporting year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)

Intensity figure in reporting year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)

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

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

Intensity figure in reporting year for total 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)

0.63

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

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

19.9004975124

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

Target: Achieve at least a 30 percent reduction in GHG emissions (Scope 1 and 2) per tonne of our products produced by 2030. The target covers 100% of Nutrien operations.

Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the WBCSD, fertilizer peers and the SBTi to produce a SDA for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process.

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

We believe a combination of strategies will be needed to meet society's decarbonization goals. Our reduction plans include activities to reduce the direct Scope 1 GHG emissions intensity at our manufacturing facilities and the indirect Scope 2 GHG intensity emissions from purchased energy, such as steam and electricity, while reducing other material emissions that are upstream and downstream of our operations.

2022 target progress: We have continued with multiple initiatives to improve energy efficiency and emissions performance across our manufacturing facilities, including the completion of N2O abatement projects at Lima, OH, Kennewick, WA and Augusta, GA nitrogen sites. We also continued to evaluate a pathway for setting science-based emissions reduction targets. We continue to explore other strategic emissions abatement projects, as well as continue to evaluate current and upcoming projects. We anticipate investing more than $500 million in pursuit of our 2030 emissions intensity reduction target.

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

C4.2

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

Target(s) to increase low-carbon energy consumption or production
Other climate-related target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number

Low 1

Year target was set

2020

Target coverage

Business division

Target type: energy carrier

Electricity

Target type: activity

Production

Target type: energy source

Renewable energy source(s) only

Base year

2020

Consumption or production of selected energy carrier in base year (MWh)

0

% share of low-carbon or renewable energy in base year

0

Target year

2025

% share of low-carbon or renewable energy in target year

% share of low-carbon or renewable energy in reporting year

0

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

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes, this target will contribute to Nutrien's intensity target, "By 2030, achieve at least a 30 percent reduction in GHG emissions (Scope 1 + 2) per tonne of our products produced from a baseline year of 2018." (CDP Climate reference: "Int 1")

Is this target part of an overarching initiative?

No, it’s not part of an overarching initiative

Please explain target coverage and identify any exclusions

Our target is to "deploy self-generated wind and/or solar energy at four Potash facilities by the end of 2025" (note, the target metric is "number of Potash sites with self-generated wind and/or solar energy deployed"). Approximately 40 percent of Nutrien’s total Scope 2 emissions are related to electricity consumption at our potash operations. Electricity to power equipment for potash processing represents approximately 15 percent of Nutrien’s potash production costs. This is a significant cost and source of energy consumption. We aim to continually improve our energy efficiency, which directly reduces our GHG emissions and has the added benefit of improving the cost of production. Reductions in Scope 2 emissions can be achieved at the point of energy production as well as at the point of consumption. Lower Scope 2 GHG emissions energy options for Nutrien include self-generated wind and solar energy projects; long-term Power Purchase Agreements (“PPAs”) with third parties to either directly or virtually supply lower- or non-emission renewable sources of energy; and purchase of emissions offset credits or Renewable Electricity Certificates (“RECs”).

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

We have deployed renewable-based wind and solar meteorological and energy resource data collection stations at four additional Potash sites, for a total of six stations since 2021. We have paused our onsite renewables program until 2024 to engage in consultations with our provincial utility provider, SaskPower (Saskatchewan Power Corporation, operating as “SaskPower”, is the principal electric utility in Saskatchewan, Canada), related to their clean energy transition initiative and the adoption of related regulations. We are exploring the most feasible access to renewable energy whether that is onsite or offsite or a combination of both. Due to the uncertainty associated with the implementation of SaskPower’s clean energy transition, and the changing regulatory landscape in the province, it is possible that this target will not be met by the end of 2025.

List the actions which contributed most to achieving this target

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

2020

Target coverage

Business activity

Target type: absolute or intensity

Absolute

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

Engagement with customers

Other, please specify

number of acres where Nutrien has enabled growers to adopt sustainable and productive agricultural products and practices globally.

Target denominator (intensity targets only)

Base year

2020

Figure or percentage in base year

0

Target year

2030

Figure or percentage in target year

75,000,000

Figure or percentage in reporting year

1,000,000

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

1.3333333333

Target status in reporting year

Underway

Is this target part of an emissions target?

No, Nutrien's current climate-related targets include Scopes 1 and 2, and we are building a greater understanding of our broader climate change impacts by starting to quantify Nutrien’s Scope 3 emissions. Our preliminary analysis estimated downstream emissions related to category 11 (Use of Sold Products) to represent approximately 70 percent of our total Scope 3 emissions, the majority of which being related to nitrogen fertilizer use. Nutrien’s focus on sustainable agriculture helps us to identify and develop opportunities for growers to adopt improved nutrient and land management practices, and use advanced nutritional products and digital tools to measure the impact of sustainable solutions on GHG emissions at the farm level. Taking a whole-acre approach to sustainable solutions encompasses an improvement in soil quality and water management, making farms more resilient to weather extremes. The Carbon Program is one way Nutrien supports the use of products and practices that reduce emissions at the farm level and deliver more sustainable outcomes.

Is this target part of an overarching initiative?

Other, please specify

This target is one of Nutrien's 2030 Sustainability Commitments, which is part to our Feeding the Future Plan.

Please explain target coverage and identify any exclusions

Nutrien's commitment is to "enable growers to adopt sustainable and productive agricultural products and practices on 75 million acres globally by 2030". To achieve this, we must first define a sustainable and productive acre, which is having one or more of our whole-acre solutions applied in a phased approach:

- Fundamental: Application of sustainable products, conservation practices, technology and/or services.
- More advanced: Use of our digital platform, including Agrible®, to track and measure outcomes such as yield, soil health, water quality and biodiversity outcomes to support precision agriculture.
- Most advanced: Verification of sustainability outcomes, including GHG emission reductions/removals through third-party verifiers such as SustainCERT and/or verified by our execution partners utilizing industry accepted protocols and standards.

The need to feed a growing population while improving the environmental and social impacts of agriculture is an opportunity for Nutrien to provide the right solutions for growers' most pressing challenges and promote safe and responsible product use. Whole-acre solutions include products, services and programs that aim to improve soil health, protect existing carbon sinks, increase soil organic carbon sequestration, optimize nutrient-use efficiency, reduce GHG emissions, improve water quality and retain water, while conserving and improving biodiversity. Additionally, crop yields can increase, further building soil organic matter, enhancing nutrient recycling and reducing land conversion.

Nutrien's whole-acre solutions involve a suite of sustainability programs including carbon, measurement and traceability projects. With these programs, Nutrien develops input strategies that increase grower profitability while also improving and measuring environmental outcomes. Our goal is to build connections and drive farm productivity, profitability and natural resource management together through customized, scalable solutions. We work with our grower customers, downstream partners and third-party experts to determine and incentivize optimal practices and products for continuous improvement. In 2022, we expanded these pilot programs into Australia to support the adoption and measurement of sustainable solutions.

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

As part of an initial phase-in of the project, by the end of 2022 we measured and documented approximately one million sustainable and productive acres in North America and Australia. We expect to significantly increase these acres in the years ahead. Our extensive grower and partner networks will enable us to scale this phased approach as we strive for global adoption by the year 2030.

We continue to advance our climate strategy. Greater reporting and transparency are required from participants across the agricultural supply chain, and by quantifying Nutrien's Scope 3 GHG emissions, we are building a greater understanding of our broader climate change impacts. Improved understanding is expected to enable collaboration and effective decision making that drives beneficial change.

In 2022, we engaged an external advisor and established both a cross-functional project team and a steering committee to develop a Scope 3

GHG emissions data collection, quantification and reporting process. Building on the initial assessment completed in 2019, we conducted a GHG Protocol-aligned screening assessment that identified nine of 15 Scope 3 categories as being potentially material and requiring further evaluation. We are currently developing GHG Protocol-aligned methodologies to quantify each material category based on the expected availability and quality of internal and external data. Due to the complexity and nascent nature of Scope 3 data, calculations and reporting environment, we expect the process of determining our indirect emissions and the quantities themselves to be iterative, and to improve and evolve over time.

List the actions which contributed most to achieving this target

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	38	
To be implemented*	6	115,000
Implementation commenced*	3	316,000

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Implemented*	5	419,000
Not to be implemented	0	

C4.3b

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

Initiative category & Initiative type

Non-energy industrial process emissions reductions

Process equipment replacement

Estimated annual CO2e savings (metric tonnes CO2e)

361,000

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

Scope 1

Voluntary/Mandatory

Voluntary

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

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

Payback period

No payback

Estimated lifetime of the initiative

21-30 years

Comment

N2O is generated from nitric acid production. Because N2O has a high global warming potential, reductions in N2O have the potential to significantly reduce GHG emissions. Nutrien has begun the process to install or upgrade N2O abatement technology at our Nitrogen sites, with three projects completed in 2022. This technology is able to remove over 90 percent of N2O emissions from nitric acid production. Our identified N2O projects are on track to contribute to our goal of reducing emissions by approximately one million tonnes of CO2e annually by the end of 2023.

Initiative category & Initiative type

Non-energy industrial process emissions reductions
Process equipment replacement

Estimated annual CO2e savings (metric tonnes CO2e)

58,000

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

Scope 1

Voluntary/Mandatory

Voluntary

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

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

Payback period

16-20 years

Estimated lifetime of the initiative

21-30 years

Comment

Includes plant reliability and efficiency improvements. We aim to continually improve our energy efficiency and reliability, which directly reduces our GHG emissions and has the added benefit of improving the cost of production. Where possible, as equipment is replaced for upgrades or due to end of life, it is upgraded to a more efficient option such as using modern designs for steam turbines, compressors, heat exchangers and catalytic reactors. In addition to capital improvements, Nutrien has centralized all ammonia plant operating data and is progressing the use of analytical tools to ensure the ammonia plants and nitrogen facilities are running at the optimum efficiency points and minimizing emissions.

C4.3c

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

Method	Comment
Dedicated budget for other emissions reduction activities	Nutrien dedicated capital in 2021 to implement a set of high-impact projects in our Nitrogen business to eliminate approximately 1 million metric tonnes of CO2e by the end of 2023 on an intensity basis vs. 2018 baseline. To achieve our 2030 commitments, we are focused on four strategic pillars: (1) Process Improvements: Implementing a range of process improvements to reduce GHG emissions at our nitrogen facilities including best available Nitrous Oxide (N2O) abatement installed by 2023. (2) Energy Efficiency Initiatives: Continuous improvement of the energy efficiency of our Nitrogen facilities with committed incremental capital to improve our energy consumption over the next decade. (3) Carbon Capture, Utilization and Storage (CCUS): We are leaders in this space, with two world-class carbon sequestration projects active at our Redwater and Geismar Nitrogen facilities. Over the next decade, we are committed to maximizing the sequestration or use of excess CO2 from our fleet. (4) Renewable Energy: We plan to deploy a range of solutions to mitigate emissions associated with the electricity consumed in operations, including opportunities to install renewable energy capacity at existing facilities. (Note, at our Potash facilities, we have paused our onsite renewables program until 2024 to engage in consultations with our provincial utility provider, Saskatchewan Power Corporation, related to their clean energy transition initiative and the adoption of related regulations. We are exploring the most feasible access to renewable energy whether that is onsite or offsite or a combination of both.)

Method	Comment
Marginal abatement cost curve	Nutrien developed a marginal abatement cost curve based upon a comprehensive list of emission reduction opportunities across the business. The curve was utilized to develop an achievable target of 30% intensity reduction by 2030. Subsequently, Nutrien has adopted a process in the Nitrogen business unit to focus on ranking projects by Net Present Value (NPV) per MT CO2 abated.

C4.5

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

Yes

C4.5a

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

Level of aggregation

Product or service

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

Other, please specify

The GHG Protocol Corporate Accounting and Reporting Standard. We consider our “low- carbon ammonia” to be low- carbon versus the alternative or baseline of steam methane reforming operations that vent all CO2 to the atmosphere

Type of product(s) or service(s)

Ammonia

Other, please specify

we define "low-carbon ammonia" as ammonia made with direct GHG emissions typically reduced by approx. 60% but up to 80%, produced primarily utilizing CCUS or other low-emission production technologies; this definition does not include end-product use

Description of product(s) or service(s)

Production of ammonia generates CO2 emissions. For low-carbon ammonia, direct GHG emissions are typically reduced by approximately 60% but up to 80%. We are exploring and investing in ammonia's potential to further reduce carbon intensity in agriculture and other hard-to-abate sectors.

As of December 31, 2022, Nutrien has annual production capability for approximately 1 million tonnes of low-carbon ammonia at our Geismar, Redwater and Joffre Nitrogen facilities via 2 different types of projects:
(1) Carbon capture, utilization and storage ("CCUS") provides a technical option for reducing GHG emissions. Captured CO2 can be used for permanent sequestration or for enhanced oil recovery ("EOR"), a process where CO2 is permanently injected into underground geological formations to maximize recovery and extend the life of oil reservoirs. Nutrien participates in 2 such projects at our Redwater, AB and Geismar, LA facilities.
(2) Since 1987 at our Joffre, AB Nitrogen facility, hydrogen is acquired from a nearby industrial producer. This allows us to eliminate the GHG-intensive step of processing natural gas into hydrogen via steam methane reforming (SMR) and results in ~15 to 20% lower GHG intensity per tonne of ammonia compared to a typical SMR facility. As a result, there are significantly less direct emissions as hydrogen is input directly into the synthesis loop of the production process for ammonia.

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

Yes

Methodology used to calculate avoided emissions

Other, please specify

The GHG Protocol Corporate Accounting and Reporting Standard

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

Gate-to-gate

Functional unit used

metric tonnes CO2e per year

Reference product/service or baseline scenario used

steam methane reforming (SMR) operations that vent all CO2 to the atmosphere

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

Gate-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

404,000

Explain your calculation of avoided emissions, including any assumptions

The avoided emissions only include Geismar and Redwater CO2 for enhanced oil recovery.

As of December 31, 2022, Nutrien has annual production capability for approximately 1 million tonnes of low-carbon ammonia at our Geismar, Redwater and Joffre Nitrogen facilities.
Nutrien's calculation methodologies are explained in our "2022 GHG Emissions - Scope 1 and 2 Inventory Management Plan", available at https://www.nutrien.com/sustainability/esg-portal/esg-document-hub

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

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Level of aggregation

Group of products or services

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

Other, please specify

Climate Action Reserve Nitrogen Management Project Protocol, Nitrous Oxide Emission Reduction Protocol and Conservation Cropping Protocols in the Alberta Carbon Registry, SustainCERT, Verra, Gold Standard

Type of product(s) or service(s)

Other

Other, please specify

Nutrien is partnering with growers, value-chain stakeholders, governments and NGOs to support the advancement of multiple pathways for the monetization of measurable carbon improvements in the agriculture sector.

Description of product(s) or service(s)

Agriculture has a critical role to play in addressing global carbon emissions. Growers have the ability, through the use of best practices, to increase and maintain soil organic matter levels and optimize the application and efficiency of nitrogen fertilizer to reduce GHG emissions and sequester carbon with verifiable outcomes. As a result, agriculture is positioned to become a leading driver of climate action and a significant source of monetizable carbon outcomes. Our goal is to help growers generate high-quality carbon outcomes (offsets or insets) that can be monetized into the voluntary or compliance carbon markets. Nutrien's Carbon Program aims to generate long-term value for growers by making each acre more profitable as a result of sustainable farming practices, helping growers meet evolving regulatory and food value chain expectations.

We primarily use our Agrible® platform to track and measure the results that growers share. Carbon outcomes will be generated using existing and emerging protocols/ frameworks, including government-endorsed frameworks when available, to independently validate/verify and validate carbon performance, leveraging proven agronomic modeling and soil sampling methods to generate high-quality outcomes.

Read more: https://www.nutrien.com/sustainability/strategy/carbon-program

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

Yes

Methodology used to calculate avoided emissions

Other, please specify

Climate Action Reserve Nitrogen Management Project Protocol, Nitrous Oxide Emission Reduction Protocol, Conservation Cropping Protocol

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

Use stage

Functional unit used

metric tonnes CO2e/acre per year

Reference product/service or baseline scenario used

agriculture acres without having as a minimum a P. Ag recommended nitrogen management plan, with no sustainability practices implemented, or "business as usual"

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

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

Explain your calculation of avoided emissions, including any assumptions

We primarily use our Agrible® platform to track and measure the results that growers share. Carbon outcomes will be generated using existing and emerging protocols/ frameworks, including government-endorsed frameworks when available, to independently validate/verify and validate carbon performance, leveraging proven agronomic modeling and soil sampling methods to generate high-quality outcomes.

• In the US: We have worked with the leading carbon registries (Climate Action Reserve, Verra, Gold Standard®) to progress our understanding of their protocols and have helped to shape their continued evolution. In addition, we have worked with SustainCERT to understand options for project designs that can be scaled in the future for Carbon Insets, also known as Supply Chain Interventions. Additionally, we have submitted a project under the Climate Action Reserve (“CAR”) Nitrogen Management Project Protocol (“NMPP”) based on a segment of 2021 pilot work, with the goal of generating verified carbon offsets for these projects in 2023.
• In Canada: We have worked with SustainCERT to understand options for GHG reduction/removal project designs that can be scaled in the future for Carbon Insets within the agri-food value chain. Additionally, we closely follow the evolution of regulated Carbon Offsets pathways at the federal and provincial levels, within the framework provided by the Conservation Cropping Protocol (“CCP”) and Nitrous Oxide Emission Reduction Protocol (“NERP”).
• In Australia: Our program is focused on abatement of N2O emissions in cropping systems and methane (CH4) emissions in livestock systems. We are investing in the development of digital tools designed for Australian farming systems, and support the development of new N2O and CH4 abatement methodologies available in Australia through the Emissions Reduction Fund, Verra and Gold Standard.

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

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 boundary	Kenai, AK is a non-operating nitrogen manufacturing facility currently in care and maintenance. Scope 1 and 2 emission information was not available during the baseline period. Energy invoices are now available and emissions associated are included as of 2022 which are 0.01% of total emissions (Scope 1 and 2). New Brunswick Potash Operations is a non-operating potash mining facility currently in care and maintenance. Scope 1 and 2 emission information was not available during the baseline period. Electricity invoice information is

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
		now available and Scope 2 Emissions from New Brunswick are included as of 2022. The emissions change due to the change in operational boundary is 0.11% of total emissions. . Actagro Biola facility has been added into the operational boundary with scope 1 and 2 emissions based on estimation which accounted for 0.01% of total emissions.

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	No, because the impact does not meet our significance threshold	Nutrien's base year emissions will be recalculated if structural changes or improvements in calculation methodologies or emissions factors, or errors/cumulative errors affect the historical Scope 1 and Scope 2 emission profile by 10 percent or more. The threshold for baseline recalculation is outlined in Nutrien's Inventory Management Plan (https://nutrien-prod-asset.s3.us-east-2.amazonaws.com/s3fs-public/uploads/2023-02/Nutrien%20Inventory%20Management%20Plan%20%282022%29.pdf)	No

C5.2

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

Scope 1

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

11,192,000

Comment

The 2018 base year Scope 1 and Scope 2 (location-based) emissions were third-party verified to a Limited Level of Assurance in Q1 2020. Nutrien's Inventory Management Plan used to quantify Scope 1 emissions is available on Nutrien's website at https://www.nutrien.com/sustainability/esg-portal/esg-document-hub

Scope 2 (location-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

3,046,000

Comment

The 2018 base year Scope 1 and Scope 2 (location-based) emissions were third-party verified to a Limited Level of Assurance in Q1 2020.

Scope 2 (market-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

2,801,000

Comment

Scope 2 (market-based) emissions for 2018 have been updated since the 2019 submission to account for electricity purchased in 2018 from a third-party cogeneration facility for Alberta nitrogen manufacturing operations. Market-based Scope 2 emissions have not been third-party verified.

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

Base year end

Base year emissions (metric tons CO2e)

Comment

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.

IPCC Guidelines for National Greenhouse Gas Inventories, 2006
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
US EPA Center for Corporate Climate Leadership: Direct Emissions from Mobile Combustion Sources
US EPA Mandatory Greenhouse Gas Reporting Rule
US EPA Emissions & Generation Resource Integrated Database (eGRID)
Other, please specify
Alberta Greenhouse Gas Quantification Methodologies, Alberta Environment and Parks, as updated (Alberta); Canada's Greenhouse Gas Quantification Requirements, Greenhouse Gas Reporting Program, as updated (Canada)

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)

10,269,000

Comment

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

Market-based emissions are not third-party verified

C6.3

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

Reporting year

Scope 2, location-based

2,490,000

Scope 2, market-based (if applicable)

2,368,000

Comment

Market-based emissions are quantified using 2022 published Green-e® Residual Mix Emission Rates for US facilities. Alberta nitrogen facilities considered emissions associated with electricity provided by a third-party cogeneration facility. Remaining Canadian and international operations used regional grid factors.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 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, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions

Decommissioned Agrium Kapuskasing phosphate Mine

Scope(s) or Scope 3 category(ies)

Scope 1
Scope 2 (market-based)
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: Processing of sold products
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products
Scope 3: Downstream leased assets
Scope 3: Franchises
Scope 3: Investments
Scope 3: Other (upstream)
Scope 3: Other (downstream)

Relevance of Scope 1 emissions from this source

Emissions are not evaluated

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Emissions are not evaluated

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

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

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

This facility is not operational and has no material emissions associated with it.

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

---

Source of excluded emissions

Brazil Retail facilities (Casa do Adubo S.A.)

Scope(s) or Scope 3 category(ies)

Scope 1

Scope 2 (market-based)

Relevance of Scope 1 emissions from this source

Emissions excluded due to a recent acquisition or merger

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Emissions excluded due to a recent acquisition or merger

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

July 20, 2022

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

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Acquisition was completed in second half of 2022. Emission data is not available.

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

---

Source of excluded emissions

Brazil Retail facilities (Marca Agro Mercantil)

Scope(s) or Scope 3 category(ies)

Scope 1

Scope 2 (market-based)

Relevance of Scope 1 emissions from this source

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Emissions excluded due to a recent acquisition or merger

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

January 9, 2022

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

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Acquisition was completed in second half of 2022. Emission data is not available.

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

---

Source of excluded emissions

European Wholesale Distribution network

Scope(s) or Scope 3 category(ies)

Scope 1

Scope 2 (market-based)

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Relevance of market-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

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

0

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Emissions associated with the European distribution network are not included. Nutrien operates a small number of storage and sales offices in four European countries. Emissions from these activities are negligible.

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

Conservatively estimated facility emissions based on quantified facilities with similar operations. "Estimated percentage of total Scope 1+2 emissions this excluded source represents" is approximately 0.03%.

C6.5

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

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, emissions from purchased goods and services (Category 1) are estimated to be the second largest source of emissions in our Scope 3 inventory. Hence, these emissions are considered material and relevant for Nutrien.

Capital goods

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, Category 2 emissions are considered material and relevant for Nutrien.

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

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, Category 3 emissions from fuel and energy related activities are estimated to be small but account for more than one percent of total Scope 3 emissions and are thus considered potentially material and relevant for Nutrien.

Upstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, Category 4 emissions from upstream transportation of materials to Nutrien's facilities are estimated to be small but account for more than one percent of total Scope 3 emissions, thus they are considered potentially material and relevant for Nutrien.

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, it is estimated that GHG emissions from waste generated in Nutrien's operations represent less than one percent of total Scope 3 emissions and are therefore

considered likely immaterial and not relevant to Nutrien. The majority of waste generated in Nutrien operations is related to mine tailings, which would have few direct GHG emissions. Office waste is also insignificant compared to other waste streams.

Business travel

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, it is estimated that GHG emissions associated with business travel represent less than one percent of total Scope 3 emissions and are therefore considered likely immaterial and not relevant to Nutrien. Company spend on business travel is low compared to other parts of the business.

Employee commuting

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, it is estimated that GHG emissions associated with employee commuting represent less than one percent of total Scope 3 emissions and are therefore considered likely immaterial and not relevant to Nutrien. Nutrien has limited influence over employee commuting patterns and, based on the number of Nutrien employees globally compared to common commuting patterns for industrialized nations, this category would have low estimated emissions compared to the rest of Nutrien’s GHG emissions profile.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Nutrien does not have any upstream leased assets, therefore GHG emissions from this source are zero (0).

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, GHG emissions from downstream transportation of materials from Nutrien’s facilities are estimated to be small but account for more than one percent of total Scope 3 emissions and is thus considered potentially material and relevant for Nutrien.

Processing of sold products

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope

and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, GHG emissions from processing of sold products are estimated to be small but account for more than one percent of total Scope 3 emissions and are thus considered potentially material and relevant for Nutrien.

Use of sold products

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. Based on preliminary and ongoing work, downstream emissions related to the use of sold products (category 11) are estimated to represent approximately 60-70 percent of Nutrien's total Scope 3 emissions. This was estimated using a global Tier 1 approach with broadly applicable emission factors. The majority of Scope 3 emissions are from nitrogen fertilizer after it is applied to soil. This estimation approach generally used by agri-food value-chain companies contains significant limitations as it does not account for parameters such as application methods, soil composition, crop type, agricultural practices, or innovative products, and therefore, cannot measure or demonstrate the result of emissions reduction efforts by Nutrien. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. We are also working with growers through our Carbon Program to better understand and quantify potential emissions reductions through nitrogen management.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Nutrien's products are primarily used in agriculture or

are consumed in industrial processes, and therefore do not require end of life treatment. Emissions associated with end-of-life treatment are zero (0).

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Nutrien does not have downstream leased assets, therefore, GHG emissions from this source are zero (0).

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. It is expected that GHG emissions from franchises account for less than 1% of total Scope 3 emissions, therefore they are not considered material or relevant to Nutrien.

Investments

Evaluation status

Relevant, not yet calculated

Please explain

We are currently developing GHG Protocol-aligned methodologies to quantify each material Scope 3 category based on the expected availability and quality of internal and external data. We are working with external GHG accounting experts and internal subject matter experts to refine our quantification methodologies from our preliminary analysis (completed previously for 2018) so that they better represent the scope and nature of our operations and are aligned with accepted principles for GHG accounting. Based on our preliminary analysis, GHG emissions from downstream transportation of materials from Nutrien's facilities are estimated to be small but account for more than one percent of total Scope 3 emissions and is thus considered potentially material and relevant for Nutrien.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

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

0.00033

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

12,637,000

Metric denominator

unit total revenue

Metric denominator: Unit total

37,884,000,000

Scope 2 figure used

Market-based

% change from previous year

32

Direction of change

Decreased

Reason(s) for change

Other emissions reduction activities
Change in revenue

Please explain

The decrease in revenue emission intensity was a result of a 37% increase in revenue (denominator) and a 7% decrease in Scope 1 + Scope 2 emissions (numerator). The increase in revenue was mainly driven by increases in commodity prices as a result in global supply disruptions.

Intensity figure

0.63

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

12,637,000

Metric denominator

unit of production

Metric denominator: Unit total

20,117,000

Scope 2 figure used

Market-based

% change from previous year

2

Direction of change

Decreased

Reason(s) for change

Other emissions reduction activities
Change in output

Please explain

The decrease in production emission intensity was mainly due to nitrous oxide abatement projects implemented at some nitric acid manufacturing plants, typical year to year variations in production volumes across business units, and improvements to purchased electricity grid factors.

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	9,397,000	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	144,000	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	728,000	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Canada	2,902,000
United States of America	4,474,000

Country/area/region	Scope 1 emissions (metric tons CO2e)
Trinidad and Tobago	2,856,000
South America	16,000
Australia	21,000

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)
Nitrogen	8,728,000
Phosphate	647,000
Potash	505,000
Retail	382,000
Corporate Offices	7,000

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
Chemicals production activities	9,871,000	Includes all Scope 1 emissions from Nitrogen, Phosphate, and Potash (NPK) manufacturing facilities as well as Upgrading facilities, Loveland Products Inc. (LPI) and Actagro Retail manufacturing facilities. It excludes emissions associated with corporate offices, NPK Transportation & Distribution operations, and non-manufacturing Retail facilities.

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Canada	1,625,700	1,493,200
United States of America	718,500	729,400
Trinidad and Tobago	136,600	136,600
South America	2,400	2,400
Australia	6,800	6,800
Belgium	10	10

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Nitrogen	1,077,000	954,000
Phosphate	256,000	256,000
Potash	1,088,000	1,088,000
Retail	67,000	67,000
Corporate Offices	2,000	2,000

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

No

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
Chemicals production activities	2,415,000	2,294,000	Includes all Scope 2 emissions from Nitrogen, Phosphate, and Potash (NPK) manufacturing facilities as well as Upgrading facilities, Loveland Products Inc. (LPI) and Actagro Retail manufacturing facilities. It excludes emissions associated with corporate offices, NPK Transportation & Distribution operations, and non-manufacturing Retail facilities.

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
		(not disclosed)

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)	1,089,000	Includes CO2 sold to third parties for enhanced oil recovery (EOR) and other industrial uses.
Methane (CH4)	0	
Nitrous oxide (N2O)	0	
Hydrofluorocarbons (HFC)	0	
Perfluorocarbons (PFC)	0	
Sulphur hexafluoride (SF6)	0	
Nitrogen trifluoride (NF3)	0	

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?

Decreased

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 in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	1,000	Decreased	0.01	The firewood used in Brazil in stationary combustion scope 1 category decreased in 2022
Other emissions reduction activities	548,200	Decreased	4.03	The emission reduction projects in Augusta, Lima, and Kennewick nitric acid plants decreased scope 1 emissions in 2022.
Divestment	5,400	Decreased	0.04	Americus upgrading facility was divested in 2021 and this led to decrease in emissions by 0.04% in 2022.
Acquisitions	0	No change	0	There were acquisitions of two Brazil companies in 2022. Emissions from these acquisitions are not yet quantified and not included in Nutrien's organizational boundary.
Mergers	0	No change	0	There were no mergers or acquisitions in 2022 that significantly impacted emissions.
Change in output	492,200	Decreased	3.62	Potash production dropped approximately by 6% over 2021 resulting in a decrease of 219kT scope 1+2 emissions. A 4% decrease in Nitrogen production resulted in decrease of 135kT emissions which does not include emissions reduction associated with N2O abatement projects. Production of phosphate production dropped by 11% in 2022 compared to 2021 resulting in decrease in 139kT scope 1+2 emissions. In addition, annual emissions can vary year to year

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
				due to normal variations in production volumes and facility maintenance activities at manufacturing plants.
Change in methodology	0	No change	0	
Change in boundary	16,800	Increased	0.12	The inclusion of emissions from non-operational facilities and facilities with previously unavailable data led to a change in the operational boundary.
Change in physical operating conditions	0	No change	0	
Unidentified	51,900	Increased	0.38	The annual emissions can fluctuate year-over-year due to normal variations at the corporate offices, NPK Transportation & Distribution operations, and non-manufacturing Retail facilities.
Other				

C7.9b

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

Market-based

C8. Energy

C8.1

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

More than 0% but less than or equal to 5%

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)	2,000	30,601,000	30,603,000

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of purchased or acquired electricity		0	4,748,000	4,748,000
Consumption of purchased or acquired steam		0	993,000	993,000
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		2,000	36,342,000	36,344,000

C-CH8.2a

(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

Consumption of fuel (excluding feedstocks)

Heating value

HHV (higher heating value)

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

28,888,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

365,000

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

29,253,000

Consumption of purchased or acquired electricity

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

4,338,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

4,338,000

Consumption of purchased or acquired steam

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

993,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

993,000

Consumption of self-generated non-fuel renewable energy

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

0

Total energy consumption

MWh consumed from renewable sources inside chemical sector boundary

0

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

34,219,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

365,000

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

34,584,000

C8.2b

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

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

C8.2c

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

Sustainable biomass

Heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Other biomass

Heating value

HHV

Total fuel MWh consumed by the organization

2,000

MWh fuel consumed for self-generation of heat

2,000

MWh fuel consumed for self-generation of steam

0

Comment

Other renewable fuels (e.g. renewable hydrogen)

Heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Coal

Heating value

HHV

Total fuel MWh consumed by the organization

274,000

MWh fuel consumed for self-generation of heat

274,000

MWh fuel consumed for self-generation of steam

0

Comment

Oil

Heating value

HHV

Total fuel MWh consumed by the organization

1,688,000

MWh fuel consumed for self-generation of heat

1,688,000

MWh fuel consumed for self-generation of steam

0

Comment

Gas

Heating value

HHV

Total fuel MWh consumed by the organization

28,638,000

MWh fuel consumed for self-generation of heat

21,796,000

MWh fuel consumed for self-generation of steam

6,842,000

Comment

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

Heating value

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Comment

Total fuel

Heating value

HHV

Total fuel MWh consumed by the organization

30,602,000

MWh fuel consumed for self-generation of heat

23,760,000

MWh fuel consumed for self-generation of steam

6,842,000

Comment

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	365,000	365,000	0	0
Heat	21,385,000	21,385,000	0	0
Steam	6,158,000	6,158,000	0	0
Cooling	0	0	0	0

C-CH8.2d

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

365,000

Generation that is consumed inside chemicals sector boundary (MWh)

365,000

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Heat

Total gross generation inside chemicals sector boundary (MWh)

19,400,000

Generation that is consumed inside chemicals sector boundary (MWh)

19,400,000

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Steam

Total gross generation inside chemicals sector boundary (MWh)

5,829,000

Generation that is consumed inside chemicals sector boundary (MWh)

5,829,000

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Cooling

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

C8.2e

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

Country/area of low-carbon energy consumption

Sourcing method

None (no active purchases of low-carbon electricity, heat, steam or cooling)

Energy carrier

Low-carbon technology type

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

Tracking instrument used

Country/area of origin (generation) of the low-carbon energy or energy attribute

Are you able to report the commissioning or re-powering year of the energy generation facility?

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Argentina

Consumption of purchased electricity (MWh)

5,000

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

32,000

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

37,000

Country/area

Australia

Consumption of purchased electricity (MWh)

10,000

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

75,000

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

85,000

Country/area

Brazil

Consumption of purchased electricity (MWh)

9,000

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

20,000

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

29,000

Country/area

Canada

Consumption of purchased electricity (MWh)

2,353,000

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

10,388,000

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

12,741,000

Country/area

Chile

Consumption of purchased electricity (MWh)

124

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

3,000

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

3,124

Country/area

Trinidad and Tobago

Consumption of purchased electricity (MWh)

201,000

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

6,915,000

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

7,116,000

Country/area

Uruguay

Consumption of purchased electricity (MWh)

84

Consumption of self-generated electricity (MWh)

0

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

4,000

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

4,084

Country/area

United States of America

Consumption of purchased electricity (MWh)

2,170,000

Consumption of self-generated electricity (MWh)

312,000

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

0

Consumption of self-generated heat, steam, and cooling (MWh)

11,097,000

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

13,579,000

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

Yes

C-CH8.3a

(C-CH8.3a) Disclose details on your organization's consumption of fuels as feedstocks for chemical production activities.

Fuels used as feedstocks

Natural gas

Total consumption

3,687,000

Total consumption unit

thousand cubic metres

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

1.89

Heating value of feedstock, MWh per consumption unit

10.79

Heating value

HHV

Comment

As natural gas feedstock compositions vary between manufacturing sites, an approximate weighted average emission factor and heat value is provided.

C-CH8.3b

(C-CH8.3b) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.

	Percentage of total chemical feedstock (%)
Oil	0
Natural Gas	100
Coal	0
Biomass	0
Waste (non-biomass)	0
Fossil fuel (where coal, gas, oil cannot be distinguished)	0
Unknown source or unable to disaggregate	0

C9. Additional metrics

C9.1

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

C-CH9.3a

(C-CH9.3a) Provide details on your organization’s chemical products.

Output product

Ammonia

Production (metric tons)

5,760,000

Capacity (metric tons)

7,100,000

Direct emissions intensity (metric tons CO2e per metric ton of product)

1.39

Electricity intensity (MWh per metric ton of product)

0.33

Steam intensity (MWh per metric ton of product)

0

Steam/ heat recovered (MWh per metric ton of product)

Comment

Direct emission intensity is based on Scope 1 emissions associated with production of all nitrogen fertilizer products, excluding N2O industrial process emissions from nitric acid production, and using gross ammonia production as the denominator. The vast majority of nitrogen manufacturing emissions are associated with ammonia production, and exclude CO2 captured for urea manufacturing, export for enhanced oil recovery or sale to third parties.

Electricity consumption is tracked at the facility level, not at the product level. Electricity intensity is based on electricity consumption associated with all activities at nitrogen manufacturing facilities, including manufacturing of nitric acid, which is primarily produced as an intermediate feedstock for manufacturing other fertilizer products. Ammonia manufacturing is typically a net steam exporting process, however the amount of steam recovered is not tracked.

Output product

Nitric acid

Production (metric tons)

1,594,000

Capacity (metric tons)

1,920,000

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.45

Electricity intensity (MWh per metric ton of product)

Steam intensity (MWh per metric ton of product)

0

Steam/ heat recovered (MWh per metric ton of product)

Comment

Nitric acid is primarily an intermediate product used for producing other nitrate end products.

Nitrous oxide industrial process emissions associated with nitric acid production are quantified using a site-specific emission factor that is

updated annually by stack testing. Annual test results can vary year to year, which can result in some year-to-year variation in direct emissions intensity. Several N2O abatement projects were implemented in 2022 leading to a reduction in the emissions intensity compared to previous years.

Electricity consumption is tracked at the facility level, not at the product level. Electricity consumption specifically associated with nitric acid production has not been quantified since nitric acid production facilities also produce other products.

Nitric acid manufacturing is generally an exothermic process where excess heat is captured for use in other operations, however the quantity of steam / heat recovered has not been quantified.

Output product

Other, please specify

Potash

Production (metric tons)

13,006,000

Capacity (metric tons)

14,600,000

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.04

Electricity intensity (MWh per metric ton of product)

0.13

Steam intensity (MWh per metric ton of product)

0.04

Steam/ heat recovered (MWh per metric ton of product)

0

Comment

Output product

Other, please specify

Phosphate fertilizer products (as P2O5)

Production (metric tons)

1,351,000

Capacity (metric tons)

1,700,000

Direct emissions intensity (metric tons CO2e per metric ton of product)

0.41

Electricity intensity (MWh per metric ton of product)

0.79

Steam intensity (MWh per metric ton of product)

Steam/ heat recovered (MWh per metric ton of product)

Comment

The intensity associated with steam consumed or captured in the manufacturing of phosphate fertilizer products has not been quantified.

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	

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area

Radical process redesign

Stage of development in the reporting year

Large scale commercial deployment

Average % of total R&D investment over the last 3 years

15

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

Average % of total R&D investment planned over the next 5 years

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Nutrien has set a 2030 Commitment to “invest in new technologies and pursue the transition to low-carbon fertilizers, including low-carbon and clean ammonia”. 2022 progress is as follows:

• We are evaluating the construction of a new clean ammonia facility at our existing Geismar, LA site, which would produce 1.2 million tonnes of clean ammonia annually and potentially be among the world’s largest clean ammonia production facilities if approved. The project is in the front-end engineering design (“FEED”) phase and a final investment decision is expected in the second half of 2023. In addition, our near-term focus is on using carbon capture, utilization and storage (“CCUS”) infrastructure, and growing our low-carbon ammonia production. As of 2022, Nutrien has annual production capability for approximately one million tonnes of low-carbon ammonia at our Geismar, LA, Redwater, AB and Joffre, AB nitrogen facilities.

• We continue collaborating with our shipping partner EXMAR to evaluate building a low-carbon ammonia-powered vessel. The project has progressed to initial engine design and is subject to further analysis, validation and a final investment decision. If approved in 2023, the anticipated completion is end of 2025. We believe this is an important step forward for the wider adoption of low-carbon ammonia as a clean fuel for the maritime industry.

• Nutrien continued our partnership with the US Department of Energy (“DOE”) and other industry partners to develop a clean ammonia plant with technology developed from the Renewable Energy to Fuels Through Utilization of Energy- Dense Liquids (“REFUEL”) program.

Read more in Nutrien’s whitepaper, “Ammonia: Transitioning to a Net-Zero Future” (https://nutrien-prod-asset.s3.us-east-2.amazonaws.com/s3fs-public/uploads/2022-04/Ammonia_Transitioning%20to%20a%20Net-Zero%20Future.pdf)

C10. Verification

C10.1

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

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No emissions data provided

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

Limited assurance

Attach the statement

2022 KPMG Independent Limited Assurance Report.pdf

Page/ section reference

Page 1/3 confirms the engagement was for Scope 1 and Scope 2 emissions; Our Conclusion, pg. 3/3

Relevant standard

ISAE 3410

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

Limited assurance

Attach the statement

2022 KPMG Independent Limited Assurance Report.pdf

Page/ section reference

Page 1/3 confirms the engagement was for Scope 1 and Scope 2 emissions; Our Conclusion, pg. 3/3

Relevant standard

ISAE 3410

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
Argentina carbon tax
BC carbon tax
Canada federal fuel charge
Saskatchewan OBPS - ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Alberta TIER - ETS

% of Scope 1 emissions covered by the ETS

23.1

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

3,402,000

Allowances purchased

246,000

Verified Scope 1 emissions in metric tons CO2e

3,616,000

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Nutrien's four Alberta nitrogen manufacturing facilities are regulated under the Alberta Technology Innovation and Emissions Reduction (TIER) Regulation. Under the TIER regulation, an emission allocation for imported electricity and steam is factored into the 'Allowances allocated' reported here, however the allocation is not aligned with methodology used to quantify Scope 2 emissions. The TIER program assigns material

specific emission allowance factors that are to be used by all large emitters in the TIER program for imported electricity and steam in determining emission allowances and for quantifying the 'Total Regulated Emissions'. The mandated output-based allocation factors under TIER are unrelated to the Location or Market-based Scope 2 quantification methods reported in this submission. While the quantity of imported electricity and steam is verified for accuracy and completeness under the TIER program, the associated Scope 2 emissions as reported in the CDP submission are not assessed as part of the TIER verification process. As such, the 'Verified Scope 2 emissions' is assigned 0, even though the quantity of energy imports are verified.

The 'Allowances allocated' under the TIER program, as reported in this question, also include considerations for industrial process related Scope 3 emissions associated with carbon dioxide consumed onsite in the production of urea, carbon dioxide exported for enhanced oil recovery (EOR), and imported hydrogen. While these TIER emission allocations are included in the 'Verified Scope 1 emissions' in this question, they represent the TIER regulation 'Total Regulated Emissions' and differ from the true Scope 1 emission total reported in Section C6.1. 100% of the CDP reported Scope 1 emissions for TIER regulated facilities are verified.

The Joffre Nitrogen facility had regulated emissions that were below its emission allowance.

Saskatchewan OBPS - ETS

% of Scope 1 emissions covered by the ETS

4.9

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

542,000

Allowances purchased

9,000

Verified Scope 1 emissions in metric tons CO2e

505,000

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

Five out of six potash facilities had regulated emissions below their emission allowance in 2022. Per the regulatory compliance submission schedule, compliance payments / allowances purchased for 2021 and 2022 reporting years have not yet been executed but will be completed prior to the compliance submission deadline in Q4 2024. The Saskatchewan OBPS – ETS does not consider Scope 2 emissions in compliance calculations.

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Argentina carbon tax

Period start date

January 1, 2022

Period end date

December 31, 2022

% of total Scope 1 emissions covered by tax

0.04

Total cost of tax paid

19,000

Comment

Carbon tax cost is estimated based on a tax rate of US$5/t CO2e applied to liquid fuel consumption.

BC carbon tax

Period start date

January 1, 2022

Period end date

December 31, 2022

% of total Scope 1 emissions covered by tax

0

Total cost of tax paid

11,000

Comment

The % of total Scope 1 emissions covered by tax is 0.003%. The BC Carbon Tax rate for fossil fuels was CDN$45/t CO2e from Jan. 1 to Mar. 31, 2022 and rose to CDN$50/t CO2e beginning Apr. 1, 2022. The BC carbon tax applies to one distribution terminal and five retail facilities. Total cost of tax paid is in USD.

Canada federal fuel charge

Period start date

January 1, 2022

Period end date

December 31, 2022

% of total Scope 1 emissions covered by tax

0.23

Total cost of tax paid

875,000

Comment

The Canadian federal fuel charge rate was CDN$40/t CO2e from Jan. 1 to Mar. 31, 2022 and rose to CDN$50/t CO2e beginning Apr. 1, 2022. The fuel charge covers Canadian TD&L, Retail and Corporate business units, excluding locations in British Columbia which are covered by the BC Carbon Tax. Canadian Nitrogen and Potash operations are exempt from the fuel charge as their emissions are covered under the large emitter emission trading system (ETS) programs (TIER in Alberta, OBPS in Saskatchewan). Total cost of tax paid is in USD.

C11.1d

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

Compliance under the Alberta Technology Innovation and Emissions Reduction (TIER) program is met through the use of Emission Performance Credits (EPCs), Offset Credits, or payment into the Alberta Climate Change and Emissions Management Fund ("the Fund") at the carbon price of the reporting year. Nutrien annually receives some Emission Performance Credits through a credit transfer agreement with a third-party co-located cogeneration facility that provides utilities to the Carseland Nitrogen facility. Nutrien also receives credits for carbon dioxide captured at the Redwater facility and transferred to a third party for sequestration in Enhanced Oil Recovery. Additional EPCs may be generated and banked for future use if a facility's emissions are below its output-based emission allocation. This was the case in 2022 for the Joffre facility which generated emission performance credits that will be used to meet a portion of future compliance obligations for any of the Alberta nitrogen facilities. The Alberta TIER program limits the use of credits for meeting compliance obligations, requiring a portion of any compliance to be met by payment into the Fund. In 2022, Nutrien met 100% of the compliance obligation through payment into the Fund. In addition, future energy efficiency projects to be implemented at Alberta facilities over the next five years will help to reduce a portion of future compliance obligations.

The Management and Reduction of Greenhouse Gases Act for large industrial facilities was established in Saskatchewan in 2018 with an initial compliance year of 2019. This Act established output-based emission standards with annually increasing stringency for regulated industrial facilities. Facilities with emissions below their output-based emission allowance may earn performance credits that can be used against future compliance obligations. Facilities with emissions exceeding their emission allowance can meet their compliance obligation through retirement of offset or performance credits, or by payment into a technology fund at the carbon price of the compliance year. In 2022, one of Nutrien’s six potash mines

exceeded the output-based emission allowance. Compliance payment, due in Q4 2024, is expected to be met through payment into the technology fund. Future compliance obligations may be met through a combination of technology fund payment, retirement of performance credits, or purchase of offset credits while continuing to minimize compliance obligations through efficiency improvements.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

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

No, and we do not currently anticipate doing so in the next two years

C12. Engagement

C12.1

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

Yes, our customers/clients

Yes, other partners in the value chain

C12.1b

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

Type of engagement & Details of engagement

Collaboration & innovation

Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

0.06

% of customer - related Scope 3 emissions as reported in C6.5

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

Our 2030 Commitment is to launch and scale a comprehensive Carbon Program, empowering growers and our industry to accelerate climate-smart agriculture and soil carbon sequestration while rewarding growers for their efforts.

GHG emissions from fertilizer use occurs with nitrogen-containing fertilizers (as well as from organic sources of nitrogen). Nitrous oxide (N2O) is the GHG of primary concern, although CO2 is also directly emitted from urea forms of nitrogen. N2O can be produced from nitrate-nitrogen under saturated soil conditions when there is an excess of nitrate-nitrogen in the soil and temperatures are warm enough for microbial activity. Microorganisms convert the nitrate to a variety of nitrogen gases, including small amounts of N2O, which can then be lost from the soil to the atmosphere. N2O can also be emitted in the nitrification step (conversion of ammonium to nitrate), which is also a biological process. For Nutrien, these emissions are significant as approximately half of the fertilizer we sell to our growers is nitrogen-based and has the potential to produce GHG emissions. Fertilizer management practices are an important way to reduce N2O emissions and one of the reasons agronomists and field experts at Nutrien provide farmers with nutrient-management planning advice.

Nutrien’s Carbon Program is designed to support the agricultural industry through soil carbon sequestration and reduced GHG emissions. Nutrien is partnering with growers, value-chain stakeholders, governments and NGOs to support the advancement of multiple pathways for the monetization of measurable carbon improvements in the agriculture sector. Nutrien is uniquely positioned with our trusted grower relationships across our global network, broad offering of products and services, and agronomic expertise to bring companies across the agricultural value chain together to incentivize grower adoption of sustainable products and practices that reduce GHG emissions and maintain or increase soil carbon stocks. The co-investment of various agriculture value-chain partners provides additional incentives to growers to accelerate the adoption of climate-smart practices, as well as generate mutual carbon footprint benefits.

Impact of engagement, including measures of success

Our goal is to help growers generate high-quality carbon outcomes (offsets or insets) that can be monetized into the voluntary or compliance carbon markets. Nutrien's Carbon Program aims to generate long-term value for growers by making each acre more profitable as a result of sustainable farming practices, helping growers meet evolving regulatory and food value chain expectations. We partner directly with growers from field planning to harvest while supporting sustainable agriculture and enhancing grower profitability. Our whole-acre solutions approach enables the Carbon Program to: increase crop input efficiency and output per acre; increase farm income; and, improve GHG, soil, biodiversity and water outcomes.

We primarily use our Agrible® platform to track and measure the results that growers share. Carbon outcomes will be generated using existing and emerging protocols/frameworks, including government-endorsed frameworks when available, to independently validate/verify and validate carbon performance, leveraging proven agronomic modeling and soil sampling methods to generate high-quality outcomes.

Key components to date include:
- approximately 685,000 pilot acres in 2022 across Canada and the US;
- growers receiving incentive payments by Nutrien for climate-smart practice implementation or carbon and water outcomes, depending on the pilot;
- our portfolio approach including three Canadian provinces and 15 US states, representing a variety of crops, soil types and climate zones.

Nutrien will continue to expand the Carbon Program in 2023 with a focus on nitrogen management practice improvements and resultant GHG emissions reduction outcomes, while incubating scalable options for soil carbon sequestration, advancing the build-out of our pilots in Australia and developing pilots in South America.

While we have made progress in developing our end-to-end approach to carbon, including significantly increasing acres enrolled in North America, building a partnership base with aligned objectives and strategies, working with leading modeling and validation/verification organizations, and pursuing verified Scope 1 offset and Scope 3 inset carbon outcomes to maximize value creation optionality, there are many challenges that need to be addressed to drive scalable solutions in carbon. We believe that Nutrien is uniquely positioned to address these challenges.

C12.1d

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

Strong partnerships are the base of achieving sustainable progress across the agricultural supply chain. As the world strives to transform our food system, and in the spirit of SDG 17: Partnerships for the Goals, Nutrien encourages ongoing collaboration, sharing of information and pooling of resources for the generation of systems-based solutions. Examples of climate-related engagement with other collaborators in Nutrien's value chain:

1. CPG companies and retail businesses are striving to characterize the sustainability of their supply chains and to influence them in ways that improve the level of sustainability over time. Farms can represent a large proportion of the environmental footprint of many consumer goods and, for Nutrien, this is an opportunity to engage with CPG and retail businesses to measure sustainability performance and build solutions to meet their needs. Through our products, solutions and services, Nutrien Ag Solutions is supporting downstream organizations that are deploying sustainability measurement programs at the farm and field level. Nutrien's systematic approach to defining and implementing sustainability measurement programs includes program establishment, data collection, data analysis, data reporting and program refinement. From this field-level data, our agronomic field teams can continually work with growers to improve their sustainable scorecard through the recommendation of whole-acre solutions. We use our Agrible® platform and a wide range of data to calculate indicators or metrics developed by recognized industry standard organizations, which include land use, biodiversity, soil carbon and GHG emissions.
Case studies:

- Maple Leaf Foods Inc. continues to partner with Nutrien to engage growers within its Western Canada supply chain to generate carbon outcomes. The companies are working with SustainCERT to validate and verify the program and outcomes measured in fields. In 2022, the partnership engaged more than 100,000 acres and more than 30 growers, worked on validation and verification, and held a Carbon Summit with growers and crop consultants to provide updates on the carbon landscape and get feedback on the programs.
- We continued to partner with Ardent Mills in their North American Regenerative Ag Program, and increased coverage to approximately 355,000 acres and more than 30 growers. The program also expanded to measure sustainability metrics on winter wheat, spring wheat, durum wheat and chickpeas. Measurement projects characterize crops using a variety of sustainability metrics. On select acres, we also integrated solutions projects that promoted soil health and improved 4R fertilizer management. Nutrien Ag Solution's field analytics will be used to evaluate management practices and environmental factors that have significant effects on sustainability outcomes to inform and shape the North American Program and grow enrollment in carbon programs.

2. Nutrien works with industry associations and government to drive climate smart agricultural practices in the developing world. Sustainable agricultural production supports the global food system and enhances grower resilience and prosperity, and crop input management based on the 4Rs is a key component. The system helps farmers around the world to meet their economic, social and environmental goals by applying regionally specific best management practices in the areas of nutrient rate, time, place and source. Through the 4Rs, farmers are able to sustainably intensify crop

production, increasing yield without bringing more land into agricultural production, while reducing nutrient losses to the environment. The 4Rs support the SDGs to enhance food security, improve water quality, enrich soils, increase economic returns for farmers and build communities.
Case Study:

- Nutrien is a major sponsor of the 4R Solution Project, a collaboration between government, industry and industry associations to advance sustainable agriculture in Sub-Saharan Africa by incorporating the 4Rs into fertilizer management practices for more than 80,000 smallholder farmers (50% women). The program helps smallholder farmers in Ethiopia, Ghana and Senegal grow more nutritious and marketable crops, increase productivity and profit margins, and support improvements in the cooperative business structure. The increased profits can be used to expand farming operations and increase access to education, health care and a more stable and nutritious food supply. We participate in 4R Solution Steering Committee meetings which provide oversight and advice. This project aligns with Nutrien's Feeding the Future Plan focus areas of Feeding the Planet Sustainably and Inclusive Agriculture, and our primary focus on UN SDG 2 Zero Hunger. See the project description: https://4rsolution.org/about/

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

No, but we 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

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may 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)

See page 35 of our 2023 ESG report. Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals.

ESG Report 2023.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

We are working internally, with government and with collaborators to lower GHG emissions across the full lifecycle of our products, from mining and manufacturing to field use. Nutrien has defined several key targets and identified numerous opportunities to reduce our emissions including the launch of our Carbon Program. We enhanced our ESG management framework by incorporating the sustainability function under our external affairs and legal portfolio, and we have further integrated ESG into our existing Enterprise Risk Management (“ERM”) and operational processes. Nutrien's external affairs and sustainability strategy (includes climate) are managed and aligned by our Executive Vice President, External Affairs and Chief Sustainability and Legal Officer. As part of Nutrien's risk management approach, we have a Government & Industry Affairs ("GIA") Team and an active engagement strategy with governments and regulators that keeps us current on regulatory developments affecting our business, allowing us to anticipate new policies and put the Company in the best position for success while leveraging our industry association peers. We have an active Issues Management Team who monitor policy developments to inform the GIA team, and our climate action plan includes analyzing and managing the impact of potential regulatory changes. Nutrien's GIA group manages all direct and indirect activities that influence government policy. We actively participate in industry efforts to address the challenges of climate change and we engage with policy makers and stakeholders on these issues. Our action to manage climate change risks and opportunities benefits the environment, our industry and customers, and the long-term profitability of our company. Nutrien participates in a wide array of organizations like the Sustainable Development Solutions Network, World Business Council for Sustainable Development, United Nations Global Compact, retail associations and other groups. We also work with other like-minded stakeholders to form new entities to effect change. This widespread involvement contributes to a synergistic network of opportunities and more far-reaching awareness about the importance of agricultural issues, including climate change. These connections mobilize and motivate action at multiple levels, which is necessary to advance sustainability effectively.

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?

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

Nutrien and the Canadian fertilizer industry are currently in discussions with the Government of Canada and relevant provinces on the industry's GHG reduction target to help meet Canada's commitment to global climate change objectives.

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

Climate change mitigation

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

Climate-related targets

Policy, law, or regulation geographic coverage

National

Country/area/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

Nutrien is continuing to take a leadership role in the fertilizer industry's consultations with governments on fair and equitable product-based emission performance standards in an effort to achieve a pragmatic and realistic compliance system that preserves the global competitiveness of the industry. To that end, Nutrien and the Canadian fertilizer industry are currently in discussions with the Government of Canada and relevant provinces on the industry's GHG reduction target to help meet Canada's commitment to global climate change objectives. We engage

by meeting directly with policy makers, through written requests for submissions from departmental officials, via industry associations as direct representatives in meetings or by providing policy guidance to association representatives.

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

We constructively engage with governments, either alone or through our industry associations, to help develop solutions to emerging regulatory or legislative issues. In terms of exceptions, the adoption of industrial emission reduction programs in both Alberta and Saskatchewan has generally alleviated concerns surrounding the feasibility of targets that were previously set.

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

No, we have not evaluated

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

The Canadian federal government is currently conducting consultations with stakeholders to implement a federal Clean Fuel Standard that will apply to liquid fuels beginning in 2022 and gaseous fuels beginning in 2023.

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

Climate change mitigation

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

Other, please specify

development and use of lower-carbon fuels

Policy, law, or regulation geographic coverage

National

Country/area/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

In late 2020 and early 2021, following the release of proposed regulations, the Canadian federal government conducted consultations with stakeholders regarding the implementation of a federal Clean Fuel Standard. In June of 2022, the Canadian federal government implemented a federal Clean Fuel Standard through the enactment of the Clean Fuel Regulations (“CFR”). The CFR applies to liquid fuels beginning in 2023. The CFR has been designed to incentivize the development and use of lower-carbon fuels. Nutrien is tracking the development of the Federal Clean Fuel Standard, CFR and associated compliance obligations and expects to remain engaged through the consultation process.

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

We constructively engage with governments, either alone or through our industry associations, to help develop solutions to emerging regulatory or legislative issues. The Canadian Government has yet to provide all the details or to begin consultation on the most impactful fuel stream. In terms of exceptions, the Clean Fuel Standard which, in its current proposed form, contains significant uncertainties and could contain penalties duplicative to the carbon price. It is difficult to provide support for this program in its current state, however Nutrien and industry associations are engaged with the government to provide feedback.

Have you evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

No, we have not evaluated

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

Sectoral Decarbonization Approach (SDA) for the chemical sector (ammonia subsector) as a method for setting science-based targets

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

Climate change mitigation

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

Climate-related targets

International agreement related to climate change mitigation

Policy, law, or regulation geographic coverage

Global

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

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

Support with minor exceptions

Description of engagement with policy makers

Fertilizer production and use have complex and conflicting impacts on GHG emissions across the agricultural value chain. Fertilizer is critical for healthy crops, enhancing soil organic carbon (the level of carbon that is directly tied to the level of organic matter in the soil) and increasing yields, which helps to feed our growing population with the same amount of arable land, but nitrogen fertilizer also generates GHG emissions during production and when it is applied to the soil.

Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the WBCSD, fertilizer peers and the SBTi to produce a sectoral decarbonization approach ("SDA") for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process.

Nutrien is engaging on the development of an SDA for the nitrogen fertilizer sector by meeting directly with SBTi and their consultants, WBCSD, industry peers, and by responding to consultations.

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

The development of an SDA for ammonia production is positioned as a subsector under the chemical sector SDA. The complexity of the chemical sector is causing a delay in the development of the SDA for the sector as a whole. The ammonia manufacturing subsector (represented by the International Fertilizer Association and World Business Council for Sustainable Development) is asking the SBTi to allow the SDA for the ammonia subsector to move ahead without waiting for the chemical sector as a whole.

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

The International Fertilizer Industry Association (IFA)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

IFA's vision is productive and sustainable agriculture systems that contribute to a world free of hunger and malnutrition. Their mission is to promote the efficient and responsible production, distribution and use of plant nutrients. IFA's approach is to provide a framework for exchanges and collaboration among members and a structure for agreeing common positions and joint actions.

As per IFA's website, IFA's position on climate change is as follows: Reducing agriculture's carbon footprint while ensuring global food security is a critical challenge that mobilizes a range of stakeholders given the complexity of the issue. The fertilizer industry and other parts of the private sector, UN Agencies, national governments, civil society and non-governmental organizations all have a role to play. The fertilizer industry is committed to playing its part in curbing global greenhouse gas (GHG) emissions below 1.5° C, the goal of the 2015 Paris Agreement.

The industry recognizes that an efficient transition to economy-wide, net-zero emissions is the only way to limit global warming. While some companies have already committed to net-zero, others are developing strategies for lower-carbon pathways.

On production sites, significant progress has already been achieved in the last 30 years thanks to the adoption of best available technologies. Now academic institutions, research and development centers and a number of IFA members are working on technologies to produce ammonia from sustainable, carbon-neutral inputs. Industry-driven, measurable efforts to reduce carbon footprint are also happening in the fertilizer transport and supply chain down to the farm level, as part of a comprehensive global engagement to decarbonize the entire food supply chain.

Nutrien works to both educate IFA members, as well as external key stakeholders, as to the benefits fertilizer has on global food security, but also how fertilizer can be used more sustainably while reducing emissions. Education is a key component of our engagement with trade associations, and as an industry leader, we work with others within our value chain for climate action alignment.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

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?

Yes, we have evaluated, and it is aligned

C12.4

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

Publication

In voluntary sustainability report

Status

Complete

Attach the document

ESG Report 2023.pdf

Page/Section reference

24-29, 34-41, 96-103, 117. Nutrien's TCFD disclosure is on pages 96-103. Our TCFD Index is on page 117.

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other, please specify
ESG management approach & materiality, TCFD Index

Comment

Nutrien supports the TCFD’s recommendations and has been working to implement them since 2019. Our 2023 ESG Report demonstrates how we are advancing ESG integration in our organization and bringing our purpose to life -- Feeding the Future. This report offers insight into the risks and opportunities most relevant to our organization. It also outlines how we develop and implement solutions and describes how we measure progress.

Publication

Other, please specify
Publication: sustainability strategy document: Nutrien's Feeding the Future Plan

Status

Complete

Attach the document

Feeding_The_Future_Plan.pdf

Page/Section reference

strategy: pages 2-4 emission targets: pages 8-9

Content elements

Strategy
Emission targets

Comment

We have developed strategic sustainability priorities that support key transformations and address our most material environmental, social and governance (ESG) risks and opportunities. This means innovating and improving to further create long-term value with measurable impacts and outcomes that drive three key areas: feeding the planet sustainably, environment and climate action, and inclusive agriculture.

Publication

In mainstream reports

Status

Complete

Attach the document

2022 Nutrien Annual Report.pdf

Page/Section reference

targets: page 5, operating environment/megatrends: pages 17-18, strategy: pages 22-27, risk governance and risks: pages 33-39

Content elements

Governance
Strategy
Risks & opportunities
Emission targets
Other, please specify
our operating environment, megatrends

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

2022 Annual Information Form (AIF).pdf

Page/Section reference

regulatory environment: 19-21, climate-related policies: 22-24, risks: 25-34

Content elements

Governance
Risks & opportunities
Emission targets

Other, please specify

regulatory environment, climate-related policies

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

2023 Managment Proxy Circular.pdf

Page/Section reference

governance: pages 41-44 and 50-51, executive compensation: pages 62-68

Content elements

Governance

Other, please specify

executive compensation

Comment

Publication

In voluntary communications

Status

Complete

Attach the document

Nutrien Inventory Management Plan (2022).pdf

Page/Section reference

all

Content elements

Other, please specify

processes and procedures Nutrien uses to prepare a corporate-wide GHG emissions inventory for Scope 1 and Scope 2 emissions

Comment

This GHG Emissions Inventory Management Plan (IMP) describes the processes and procedures implemented by Nutrien to prepare a corporate-wide greenhouse gas (GHG) emissions inventory for Scope 1 and Scope 2 emissions following methods aligned with The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard1 (GHG Protocol) and its annexes. It also describes procedures established to deal with estimation of emissions when primary data is missing, as well as variable timeframes and equipment.

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	UN Global Compact World Business Council for Sustainable Development (WBCSD)	Nutrien (and legacy companies) has been a UN Global Compact participant since 2008 and we participate in the UN Global Compact Network Canada. Nutrien is also a member of the World Business Council for Sustainable Development ("WBCSD"). Nutrien reported our climate strategy in 2021 with clear short-term and mid-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals. We continue to work with the WBCSD, fertilizer peers and the SBTi to produce a sectoral decarbonization approach ("SDA") for the fertilizer industry. An SDA is one of three possible methods for setting a science-based target. The role of nitrogen in food production, soil health and optimizing land use are unique attributes differentiating nitrogen fertilizer manufacturing from other chemical industries and these attributes need to be considered in developing the SDA process.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
Row 1	Yes, both board-level oversight and executive management-level responsibility	Risk management is governed by our Board and Board committees, who oversee our ELT and ensure that the principal risks to our business, including ESG risks, are being appropriately identified, assessed and addressed. The Board Safety and Sustainability Committee ("S&S Committee") has responsibility for

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity
		oversight of Nutrien’s activities as they relate to ensuring that appropriate policies, systems and personnel are in place to support safe and sustainable operations (including biodiversity) and the long-term viability of the Company, including its consideration of stakeholders relevant to the creation and preservation of long-term value. It directly reports to and advises the Board on these matters. The Executive Vice President, External Affairs & Chief Sustainability & Legal Officer reports directly to the CEO and has a direct link to the S&S Committee. They provide executive-level oversight, strategic vision and leadership for sustainability-related matters, including biodiversity. They also help to develop and monitor sustainability performance objectives for the Company and provide direction to the Executive ESG & Strategic Issues Committee. This role stewards Nutrien's Feeding the Future Plan and supporting ESG commitments and targets. Our Commitment to "Enable growers to adopt sustainable and productive agricultural products and practices on 75 million acres globally by 2030" includes biodiversity, and our supporting ESG target is to "Determine how digital on-farm tools can identify and track opportunities to enhance biodiversity conservation on agricultural landscapes by 2023". The Executive ESG & Strategic Issues Committee provides executive-level oversight of external disclosures for material ESG- and biodiversity-related matters and the support and direction of any required strategic, process or resource requirements related to these disclosures. Biodiversity is a level 2 material ESG topic for Nutrien. Nutrien's ESG management approach and ESG materiality process are shown on pages 13-15 of the 2023 ESG Report. Nutrien has a specific Biodiversity Issue Team which is comprised of experts from across the company whose responsibility is to develop our biodiversity strategy and implementation of action for the organization.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Other, please specify Nutrien is committed to helping protect biodiversity worldwide by leading the next wave of innovation and sustainability in agriculture. As a WBCSD member company, we commit to setting goals that contribute to nature/biodiversity recovery by 2050.	SDG Other, please specify Natural Climate Solutions Alliance

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

Yes

Value chain stage(s) covered

Direct operations
Downstream

Tools and methods to assess impacts and/or dependencies on biodiversity

ENCORE tool
TNFD – Taskforce on Nature-related Financial Disclosures
Other, please specify

WWF Risk Filter Suite (Biodiversity and Water)

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

In 2023, we started our company-wide assessment to understand nature-related dependencies, impacts, risks and opportunities in our operational footprint and downstream value chain.

This work will inform Nutrien's own goal and target setting.

Nutrien is one of 23 WBCSD member companies participating in the Taskforce for Nature-related Financial Disclosures ("TNFD") pilot program. TNFD is an emerging framework, following in the footsteps of TCFD, that can provide guidance for businesses to meet the growing expectation of nature-related risk and opportunity disclosures and encourage finance flows to improved environmental outcomes. Our role is to provide feedback from an agriculture perspective into the development of the TNFD beta framework before its expected final release in September 2023.

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

Yes

Value chain stage(s) covered

Direct operations
Downstream

Tools and methods to assess impacts and/or dependencies on biodiversity

ENCORE tool
TNFD – Taskforce on Nature-related Financial Disclosures
Other, please specify
WWF Risk Filter Suite (Biodiversity and Water)

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)

In 2023, we started our company-wide assessment to understand nature-related dependencies, impacts, risks and opportunities in our operational footprint and downstream value chain.

This work will inform Nutrien's own goal and target setting.

Nutrien is one of 23 WBCSD member companies participating in the TNFD pilot program. TNFD is an emerging framework, following in the footsteps of TCFD, that can provide guidance for businesses to meet the growing expectation of nature-related risk and opportunity disclosures and encourage finance flows to improved environmental outcomes. Our role is to provide feedback from an agriculture perspective into the development of the TNFD beta framework before its expected final release in September 2023.

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

Not assessed

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water management Species management Other, please specify We have established a framework to characterize and baseline grower performance on various metrics. The Agrible® platform has integrated Field to Market's Habitat Potential Index ("HPI") to assess on-farm habitat for plants and animals.

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Other, please specify The Agrible® platform has integrated Field to Market's Habitat Potential Index ("HPI") to assess on-farm habitat for plants and animals.

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity Details on biodiversity indicators Risks and opportunities Biodiversity strategy	ESG Report 2023 - pages 6, 10, 15, 18-33, 49-51, 86 1
In mainstream financial reports	Risks and opportunities Other, please specify our operating environment/megatrends	2022 Nutrien Annual Report - page(s) 18, 36-39 2
In other regulatory filings	Risks and opportunities	2022 Annual Information Form - pages 25-31

		3
In voluntary sustainability report or other voluntary communications	Content of biodiversity-related policies or commitments	Biodiversity is a key part of sustainable and productive agriculture, and a key part of our 2030 Commitment to "Enable growers to adopt sustainable and productive agricultural products and practices on 75 million acres globally." Page 6 4

[1]ESG Report 2023.pdf

[2]2022 Nutrien Annual Report.pdf

[3]2022 Annual Information Form (AIF).pdf

[4]Feeding_The_Future_Plan.pdf

C16. Signoff

C-FI

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

Non-financial data subtotals may not add to total figures due to rounding.
FORWARD-LOOKING STATEMENTS
Certain statements and other information included in this document constitute "forward-looking information" or "forward-looking statements" (collectively, "forward-looking statements") under applicable securities laws (such statements are often accompanied by words such as "anticipate", "forecast", "expect", "believe", "may", "will", "should", "estimate", "intend", "plan" or other similar words). All statements in this document, other than those relating to historical information or current conditions, are forward-looking statements, including, but not limited to: Nutrien's business strategies, plans, prospects, opportunities and its sustainability, climate change and ESG plans, initiatives and strategies; Nutrien's ESG opportunities and expectations and risks related thereto; expectations regarding Nutrien's Feeding the Future Plan and its ESG targets and 2030 commitments, including

the reduction 1 million tonnes of CO2e by the end of 2030; our intention to develop a climate transition plan within two years; Nutrien's 2030 GHG emissions reduction commitment, including its plans, expectations and strategies with respect thereto and anticipated capital expenditures required to achieve such commitment; the potential deployment of additional N2O abatement projects and energy efficiency improvements; Nutrien's initiatives to promote sustainable and productive agriculture, whole acre solutions and food production; expectations regarding Nutrien's water use, consumption intensity, dependency, intake and discharges, and that of our end users; expectations regarding global population growth; our 2030 commitment to invest in new technologies to support a transition to low- and zero-carbon fertilizers; our plans to invest in new technologies, including research and development; our initiatives relating to the reduction of Scope 1 and 2 GHG emissions and assessments of Scope 3 GHG emissions; Nutrien's focus on economically maximizing CO2 capture and sequestration; the implementation and anticipated launch, scaling and benefits of our Carbon Program; our commitment to leverage partnerships and investments to drive innovation and inclusion; Nutrien's evaluation of the clean ammonia plant project in Geismar, LA and the low-carbon ammonia powered vessel with EXMAR, including the costs, benefits and the timing thereof; Nutrien's ability to deploy wind and solar energy at its facilities; our intention to create and utilize create high-quality carbon and offset credits; Nutrien's plan to introduce climate-related requirements as part of its purchasing process; our plans to focus on measurement programs and data integrity as it relates to ESG metrics; our initiatives to build out ESG pilots; Nutrien's community investment initiatives; and expectations in connection with our ability to deliver long-term value for stakeholders. These forward-looking statements are subject to a number of assumptions, risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from such forward-looking statements. As such, undue reliance should not be placed on these forward-looking statements.

All of the forward-looking statements are qualified by the assumptions that are stated or inherent in such forward-looking statements, including the assumptions referred to below and elsewhere in this document. Although we believe that these assumptions are reasonable, having regard to our experience and our perception of historical trends, the assumptions set forth below are not exhaustive of the factors that may affect any of the forward-looking statements and the reader should not place undue reliance on these assumptions and such forward-looking statements. Current conditions, economic and otherwise, render assumptions, although reasonable when made, subject to greater uncertainty.

In respect of our GHG emissions reduction commitment, other sustainability and climate-related initiatives and targets and in relation to the operation of our business as currently planned and our ability to achieve our business objectives, we have made assumptions with respect to, among other things: that such target is achievable by deploying capital into N2O abatement at our nitric acid production facilities, energy efficiency improvements, carbon capture, utilization and storage and renewable energy; our ability to successfully deploy capital and pursue other operational measures, including application of existing and new technologies; the successful implementation by Nutrien of proposed or potential plans in respect thereof; projected capital investment levels, the flexibility of Nutrien's capital spending plans and the associated sources of funding; our ability to otherwise implement all technology necessary to achieve our GHG emissions reduction commitment and other sustainability and climate-related initiatives and targets; and the development, availability and performance of technology and technological innovations and expected future results.

Additional key assumptions that have been made in relation to the operation of our business as currently planned and our ability to achieve our business objectives include, among other things: that future business, regulatory and industry conditions will be within the parameters expected by us, including with respect to prices, margins, demand, supply, product availability, supplier agreements, availability and cost of labor and interest, exchange and effective tax rates; assumptions with respect to global economic conditions and the accuracy of our market outlook expectations for 2023 and in the future; assumptions regarding the impacts, direct and indirect, of the conflict between Ukraine and Russia on, among other things, the global economy; the adequacy of our cash generated from operations and our ability to access additional sources of financing; our ability to maintain investment grade ratings and achieve our performance targets; our ability to successfully negotiate sales and other contracts; and our ability to successfully implement new initiatives and programs. Additional key assumptions relating to the operation of Nutrien's business are detailed from time to time in Nutrien reports, including its management's discussion and analysis dated May 10, 2023 as at and for the three months ended March 31, 2023 ("**Interim MD&A**"), 2022 annual report dated February 16, 2023 ("**Annual Report**") and annual information form dated February 16, 2023 for the year ended December 31, 2022 ("**AIF**"), filed with the Canadian securities regulators and the Securities and Exchange Commission in the United States (the "**SEC**").

Events or circumstances could cause actual results to differ materially from those in the forward-looking statements.

Such events or circumstances include, but are not limited to: (i) with respect to Nutrien meeting its 2030 climate and GHG emissions reduction commitment and other 2030 commitments, including: our ability to deploy sufficient capital to fund the necessary expenditures to implement the necessary operational changes to achieve this commitment; our ability to implement requisite operational changes; our ability to implement some or all of the strategy and technology necessary to efficiently and effectively achieve expected future results, including in respect of such GHG emissions reduction commitment; the availability and commercial viability and scalability of emission reduction strategies and related technology and products; the development and execution of implementing strategies to meet such GHG emissions reduction commitment; and (ii) with respect to Nutrien's business generally and its ability to meet its other targets, commitments, goals, strategies and related milestones and schedules: general global economic, market and business conditions; the successful and timely implementation of capital projects and new technologies; physical and transitional climate-related risks; climate change and weather conditions, including impacts from regional flooding and/or drought conditions; crop planted acreage, yield and prices; the supply and demand and price levels for our products; governmental and regulatory requirements and actions by governmental authorities, including changes in government policy (including tariffs, trade restrictions and climate change initiatives), government ownership requirements, changes in environmental, tax and other laws or regulations and the interpretation thereof; political risks, including civil unrest, actions by armed groups, or conflict and malicious acts including terrorism; the occurrence of a major environmental or safety incident; innovation and cybersecurity risks related to our systems, including our costs of addressing or mitigating such risks and technological, regulatory, data privacy and social risks; counterparty and sovereign risk; interruptions of or constraints in availability of key inputs; risks and uncertainties associated with obtaining approvals for its operations, projects, initiatives and activities and the satisfaction of any conditions to such approvals; the accuracy of cost estimates; risks related to reputational loss; risks relating to safety, sustainability, health and the environment; certain complications that may arise in our mining

processes; and other risk factors detailed from time to time in Nutrien reports, including its Interim MD&A, Annual Report and AIF, filed with the Canadian securities regulators and the SEC.
The forward-looking statements in this document are made as of the date hereof and Nutrien disclaims any intention or obligation to update or revise any forward-looking statements in this document as a result of new information or future events, except as may be required under applicable Canadian securities legislation or applicable US federal securities laws.

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	VP, Sustainability & Stakeholder Relations	Other, please specify Senior Management

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