

Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

The Mosaic Company is the world's leading producer and marketer of concentrated potash and phosphate crop nutrients. Our mission is to help the world grow the food it needs. The combination of our substantial company-owned mineral reserves, our production capacity, geographic locations and worldwide supply chain and distribution network differentiates Mosaic from other crop nutrient companies. Net sales for calendar year 2019 were approximately \$8.9 billion. Our business engages in every phase of crop nutrition development, from the mining of resources to the production of crop nutrients, feed and industrial products for customers around the globe. Our customer base includes wholesalers, retail dealers and individual growers in approximately 40 countries.

At Mosaic, we think of sustainability broadly: as the ability to sustain our business, to prosper and deliver value to our myriad stakeholders over many years. Our sustainability targets, progress toward which we report annually, allow us to stretch for meaningful long-term improvements in the areas that are most important to our business.

Mosaic's Commitment on Climate Change acknowledges that global climate change creates uncertainty for our business and poses challenges for the health and well-being of the world's populations – ecologically, socially and economically. Mosaic remains a signatory to the United Nations Global Compact and we support its ten universal principles including human rights, labor, environment and anti-corruption. In 2019, Mosaic was recognized in Corporate Responsibility Magazine's 100 Best Corporate Citizens List for the tenth consecutive year.

C0.2

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

| | Start date | End date | Indicate if you are providing emissions data for past reporting years |
|----------------|-----------------|-------------------|---|
| Reporting year | January 1, 2019 | December 31, 2019 | No |

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

Brazil

Canada
Paraguay
Peru
United States of America

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

Other chemicals

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

| Position of individual(s) | Please explain |
|-------------------------------|--|
| Board-level committee | <p>The Environmental Health, Safety, and Sustainable Development Committee (EHSS Committee) of the Mosaic Board of Directors (BoD) provides oversight of our environmental, health, safety and sustainable development (EHSS) strategic vision and performance, including the safety and health of employees and contractors; environmental performance; the systems and processes designed to manage EHSS risks, commitments, public responsibilities and compliance; relationships with and impact on communities with respect to EHSS matters; public policy and advocacy strategies related to EHSS issues; and achieving societal support of major projects. Climate-related issues are Mosaic's EHSS committee's responsibility because the subject matter is most closely aligned with this committee's expertise. Other committees of the BoD may from time to time have input on climate-related issues. In 2019-2020, the EHSS Committee provided input on Mosaic's Environment, Social and Governance (ESG) framework, which included recognition of climate-related risks and opportunities and the eventual approval and release of climate-related targets (GHG emissions reductions targets).</p> |
| Chief Executive Officer (CEO) | <p>The Senior Leadership Team (SLT) consisting as of December 31, 2019 of the CEO, President and Director; SVP – CFO ; SVP – Human Resources; SVP – Phosphate; SVP – Potash; SVP, General Counsel and Corporate Secretary; SVP – Mosaic Fertilizantes; SVP – Commercial; and SVP – Strategy and Growth, review the EHSS Committee's recommendations in order to develop new companywide policies, initiatives, targets and goals.</p> |

C1.1b

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

| Frequency with which climate-related issues are a scheduled agenda item | Governance mechanisms into which climate-related issues are integrated | Please explain |
|---|---|---|
| Scheduled – all meetings | <ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding business plans Setting performance objectives | <p>In preparation for quarterly meetings with EHSS Committee, Mosaic personnel prepare updates related to our targets performance (GHG and energy) for the BoD's review. In line with mechanism of reviewing and guiding strategy, the BoD communicates with Mosaic's management team on the development and oversight of climate-related targets (energy and GHGs). Because targets are an instrument through which Mosaic strives for risk management and companywide performance improvement in climate-related areas, the BoD's reviewing and guiding our targets strategy directly</p> |

| | | |
|--|---|---|
| | Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures | contributes to oversight of these issues. The Committee is also regularly kept apprised of regulatory developments pertaining to the implementation of a carbon tax that impacts our Saskatchewan, Canada facilities. |
|--|---|---|

C1.2

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

| Name of the position(s) and/or committee(s) | Responsibility | Frequency of reporting to the board on climate-related issues |
|---|---|---|
| Other C-Suite Officer, please specify VP EHS | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |
| Other C-Suite Officer, please specify SVP Corp. Public Affairs | Both assessing and managing climate-related risks and opportunities | More frequently than quarterly |

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Mosaic's Vice President of Environment, Health and Safety (VP EHS), a role that reports directly to Mosaic's Sr. VP Strategy and Growth, and among other things, manages the company's performance toward climate-related sustainability targets (GHGs and energy). While climate-related responsibilities are shared by many at Mosaic, the VP EHS role has purview of these issues due to the interplay between companywide EHS performance, which includes emissions performance and compliance with regulations, and our progress toward our climate-related sustainability targets. The VP EHS also communicates regularly with a cross-functional working group that is responsible for managing and monitoring the status of a carbon tax that impacts our Saskatchewan, Canada facilities. The VP EHS communicates directly with Mosaic's EHSS Committee of the BoD, providing updates on Mosaic's performance toward sustainability targets and regulatory developments pertaining to the implementation of the carbon tax in Saskatchewan. Mosaic's SVP of Government and Public Affairs, a role that reports directly to our CEO, also has direct responsibility for assessing and managing climate-related risks and opportunities. Specifically, this role has purview over the function of sustainability at Mosaic, which includes the collection and assurance of sustainability data, including GHG performance and tracking toward companywide GHG reduction targets; development of companywide sustainability strategy and the creation, implementation and

monitoring of climate-related targets (GHGs and energy); communication of sustainability results to senior leaders, the BoD and other diverse stakeholders; issuance of the companywide sustainability disclosure and satisfying other ad hoc investor requests for information about Mosaic’s performance; and the monitoring and communication of external climate issues that have the potential to impact Mosaic’s business. These responsibilities rest with the SVP of Government and Public Affairs due to the need for broad, global external perspective and the role’s extensive engagement with external stakeholders, including investors, communities, government and regulatory bodies. Also, this role is well suited for managing the broad issues of sustainability, including those related to climate change, because it interacts with and communicates heavily with the rest of the senior leadership team (SLT) and other senior leadership across geographies and business units at Mosaic.

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 | |

C1.3a

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

| Entitled to incentive | Type of incentive | Activity incentivized | Comment |
|--------------------------|-------------------|--|---|
| Corporate executive team | Monetary reward | Emissions reduction project Efficiency target | Performance measures for members of Mosaic’s executive and management teams and all salaried employees are based on financial and operational performance, including operating earnings, operating costs per tonne, incentive selling, general and administrative expenses and safety. Climate change is indirectly linked to compensation through operating cost savings that are achieved through site-specific initiatives and companywide programs aimed at reducing energy use and emissions. Further, annual incentive compensation is tied to climate through a management system effectiveness/risk reduction measure, the elements of which promote environmental, health, safety and sustainability behaviors and objectives. |
| Management group | Monetary reward | Emissions reduction target | As part of our strategic priority of developing, engaging and empowering our people, we have a performance management process called “EDGE” – Evaluating, Developing and Growing Excellence. Our performance management process has evolved to include scaled |

| | | | |
|--|--|--|---|
| | | | competencies, goal alignment and an emphasis on employee and career development. Management and employees at various levels can establish individual goals, including achievement of or progress towards energy reduction projects or targets, results of which are linked to their respective annual incentives. |
|--|--|--|---|

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 | 4 | The short-term time horizon is generally aligned with Mosaic's general strategic planning horizons. Specifically, the five-year planning process is considered "medium-term", so the time period less than five years is considered "short-term." |
| Medium-term | 5 | 9 | The medium-term time horizon is generally aligned with Mosaic's general strategic planning horizons. Specifically, the company's five-year planning process is considered "medium-term." |
| Long-term | 10 | 20 | The long-term time horizon is generally aligned with Mosaic's general strategic planning horizons. Specifically, the company's five-year planning process is considered "medium-term" so the horizon beyond that, including the company's 2030 vision, is considered "long-term." |

C2.1b

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

We define "substantive impact" as an impact, financial or non-financial, that could hinder our ability to achieve our strategy, or one that threatens Mosaic's ability to sustain our business or achieve business objectives. More specifically, though our definition of substantive varies by timing and situation, a financial impact to operational expenses (as just one example) quantified at \$1.9 billion or more would be considered substantive. In the context of climate-related risks, we consider risks across broad time horizons and assess other factors such as likelihood, speed of onset impact on business and resources required to manage potential impacts.

Regardless of speed of onset (which ranges from little or no warning to occurs over a year or more), if a risk is considered to have a major or severe impact on the results of our business, it would be considered substantive. Similarly, from a qualitative perspective, we would consider an impact substantive if it is an event a reasonable shareholder would consider when making an investment decision.

C2.2

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

Value chain stage(s) covered

Direct operations

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term

Medium-term

Long-term

Description of process

Transition climate risks such as changes in regulations (short-, medium- and long-term); and physical risks such as length of growing season or location of growing regions (medium- to long-term) and adverse weather (acute events such as floods and hurricanes) could have an impact on Mosaic's direct operations and are part of a multi-disciplinary companywide risk management process.

Climate, including climate changes, and associated risks and opportunities that apply at companywide and asset levels are monitored regularly by teams at Mosaic including EHS, public affairs, enterprise risk management and market analysis, and the results are reported to the BoD, the SLT and the EHSS Committee of the BoD, and to additional stakeholders through our annual sustainability disclosure. To identify risks that have a substantive financial or strategic impact, we consider factors such as speed of onset, resources required for management, and business impact. Climate change risks that could impact our business are reported on our Annual Report on Form 10-K and quarterly 10-Q reports. Mosaic considers risks and opportunities well into the future. Many climate-related risks are considered as part of Mosaic's identification of 10-15 year "megatrends" that present in the form of potential risks and opportunities to our business.

As an example of a long-term risk, we consider climate's impact on business cyclicality,

and the extent to which our long-term strategic decisions to optimize capital management and grow and strengthen our product portfolio will assist in our ability to adapt to long-term changes. As a short-term example, our Insurance & Risk Management department works with property insurance carriers to regularly conduct physical risk assessments to identify physical risks and make recommendations for mitigating the risk of loss associated with property damage or business interruption resulting from acute risks such as hurricanes.

We have applied these processes to other risks, including the following: a cross-functional team is assessing risk associated with the implementation of a carbon tax that affects our potash facilities in Saskatchewan, Canada. Similarly, the team is assessing potential costs from the carbon tax associated with energy and transportation that may be passed through to Mosaic. In addition to working with the provincial and federal government to determine next steps for finalizing a regulatory and policy framework, we are assessing various scenarios under consideration and evaluating strategies that could help us reduce emissions. An opportunity we have applied this process to relates to our generation of virtually GHG-free cogenerated energy, which provides benefits to Mosaic in the form of cost savings and environmental performance improvements. Specifically, by maximizing our use of cogenerated electricity we are substantively reducing Scope 2 emissions and saving costs associated with purchase of electricity (primarily fossil fuel-based) from utility grids. In 2019 we kicked off cogeneration optimization projects to improve the generation and utilization of cogenerated electricity in order to further realize these benefits. This opportunity and the associated risks were discovered as a result of our ongoing risk analyses and company awareness of regulatory climates, which may eventually result in the imposition of tax or cost structures on industrial emitters like Mosaic. The repercussions of such regulatory changes could be material to us. We manage opportunities like these by analyzing costs against potential benefits to our company, like cost savings/avoidance of fees or penalties, favorable reputation impacts, and efficiency or performance improvements.

Some additional examples of physical risks to which these processes have been applied: Mosaic conducts annual property risk engineering assessments to identify risk exposures due to effects from extreme weather events, like wind, flood and storm surge. Specifically, we have operations in locations that are prone to hurricane activity. Engineering assessments at these facilities have resulted in recommendations for mitigating risks, which are prioritized based on criteria such as cost, likelihood of occurring and extent and type of impact. The types of actions that results from these assessments include improving existing flood and emergency response plans, replacing or redesigning roof structures to meet or exceed wind uplift requirements, and making enhancements to structures. These procedures and guidelines were in place in 2019 during summer hurricane season, which affects our facilities in Florida and Louisiana; similarly, we employed these procedures in 2017 in anticipation of Hurricane Irma, which hit Florida as a Category 2 storm and caused damage to a warehouse at Mosaic's Bartow facility.

Value chain stage(s) covered

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

Transition climate risks such as changes in regulations (short-, medium- and long-term); and physical risks such as length of growing season or location of growing regions (medium- to long-term) and adverse weather (short-term or acute events such as floods and hurricanes) could have an impact on Mosaic's upstream procurement of intermediate products and other critical inputs, like energy. Similarly, climate risks and opportunities could have an impact on Mosaic's downstream transportation of products or demand for existing and potential products. Both are part of multi-disciplinary companywide risk management processes.

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 | Legal requirements and environmental regulations (driven by climate change) that Mosaic is subject to could adversely affect our business, financial condition and results of operations, and the results could be material to us. Accordingly, current regulatory risks are relevant to Mosaic's ongoing risk assessment process and are regularly included in Mosaic's broad consideration and analysis of climate-related risks. For example, future changes to air quality standards required us to start replacing catalysts at some of our Florida concentrates facilities in order to comply with new standards. Mosaic's EHS, public affairs and legal teams are responsible for interpreting and implementing these regulatory changes, while Mosaic's finance team coordinates cross-functionally with those groups to estimate the financial impact of such changes. |

| | | |
|---------------------|---------------------------|--|
| Emerging regulation | Relevant, always included | <p>Mining and fertilizer manufacturing are energy- and emissions-intensive endeavors and we are subject to complex laws and regulations. Accordingly, emerging climate regulations are relevant to Mosaic's ongoing risk assessment process and are regularly included in Mosaic's broad consideration and analysis of climate-related risks. For example, we are currently experiencing effects of indirect costs from a carbon tax in Canada associated with energy and transportation that are passed through to Mosaic. Similarly, we continue to monitor developments relating to environmental regulation (e.g. carbon tax, Clean Fuel Standard) that impacts our Saskatchewan, Canada potash facilities. A cross-functional team made up of public affairs, legal, EHS, finance and operations colleagues at Mosaic is currently working with the Saskatchewan Ministry of Environment, Environment and Climate Change Canada, industrial associations and other government stakeholders to determine next steps for finalizing a regulatory and policy framework. We are also assessing the potential impacts of the proposed Clean Fuel Standard now under development by the federal government in Canada, which will apply to liquid, gaseous, and solid fuels.</p> |
| Technology | Relevant, always included | <p>Regulatory changes could require operational changes and/or installation of new technology. For example, we may be required to make investments in technology, including burner replacements and additional heat recovery systems, in order to meet new regulatory requirements. This represents a risk to Mosaic in the form of potentially significant costs of equipment, or fines in the event that we are not compliant with regulations. Mosaic's finance team coordinates cross-functionally with EHS, legal and operations groups to estimate the financial impact of such changes. Accordingly, these risks are relevant to us and are regularly included in our consideration of climate-related risks. For example, future changes to air quality standards required us to start replacing catalysts at some of our Florida concentrates facilities in order to comply with new standards. Mosaic's EHS, public affairs and legal teams monitor for, interpret and implement regulatory changes while Mosaic's finance team coordinates cross-functionally with those groups to estimate the financial impact of such changes.</p> |
| Legal | Relevant, always included | <p>Legal requirements and environmental regulations (driven by and/or related to climate change) that Mosaic is subject to could adversely affect our business, financial condition and results of operations, and the results could be material to us. Mosaic's legal team and EHS teams monitor these legal and regulatory developments regularly to determine the operational and financial impacts on Mosaic. For example, there are laws and regulations that govern environmental controls and discharges to air at our manufacturing facilities in Florida and Louisiana. Changes to laws in the United States (or other operating jurisdictions) could significantly affect our operating activities as well as</p> |

| | | |
|------------------|---------------------------|---|
| | | <p>the level of our operating costs and operating expenditures. Accordingly, these risks are relevant to Mosaic's ongoing risk assessment process and are regularly included in Mosaic's broad consideration and analysis of climate-related risks.</p> |
| Market | Relevant, always included | <p>Market risks are relevant to Mosaic's ongoing risk assessment process and they are regularly included in Mosaic's broad consideration and analysis of climate-related risks. Mosaic's market analysis team monitors climate and growing regions, like the Midwest region of the United States, forecasting for climate-related events like droughts and floods, to determine their potential impact on fertilizer markets and Mosaic's financial performance. For example, a widespread flood might impact agricultural commodity (fertilizer or commodity crop) markets, which could in turn have a detrimental effect on Mosaic's annual net sales.</p> |
| Reputation | Relevant, always included | <p>Reputational risks are relevant to Mosaic's ongoing risk assessment process and they are regularly included in Mosaic's broad consideration and analysis of climate-related risks. For example, negative public perceptions of Mosaic or the mineral fertilizer industry that are a result of climate-related issues could potentially lead to reduced demand for goods, reduced revenue, or could negatively impact our profit. Similarly, climate-related issues could prompt permitting challenges that affect Mosaic's license to operate. Mosaic's EHS, legal and public affairs team regularly monitors issues and reputational vulnerabilities, assessing inputs such as media coverage and stakeholder perceptions of issues affecting our business.</p> |
| Acute physical | Relevant, always included | <p>Acute physical risks, such as hurricanes and acute seasonal flooding, are relevant to Mosaic's ongoing risk assessment process, and they are regularly included in Mosaic's broad consideration and analysis of climate-related risks. For example, Mosaic's market analysis team monitors climate and growing regions, like the growing regions in the Midwest region of the United States, forecasting for climate-related events like droughts and floods, to determine their potential impact on the markets and Mosaic's business performance. Our engineering, EHS and operations teams also regularly monitor acute physical risks. For example, our Phosphates facilities have a rainfall preparedness plan that forecasts how each of our concentrates facilities will perform with 30-percent above-normal rainfall rates. The plan, updated annually prior to the start of peak rainfall season, models the impact of above-average rainfall on a site's storage capacity and defines a contingency plan and necessary actions to mitigate potential risks.</p> |
| Chronic physical | Relevant, always included | <p>Chronic physical risks are relevant to Mosaic's ongoing risk assessment process and they are regularly included in Mosaic's broad consideration and analysis of climate-related risk. For example, Mosaic has approximately \$7 billion in physical assets in hurricane-prone</p> |

| | | |
|--|--|--|
| | | <p>areas. Widespread damage resulting in business interruption or facility closure to facilities within the zone(s) of risk could be detrimental to our operating activities and financial condition. Led by Mosaic's risk management group, we conduct annual property risk engineering assessments to identify and mitigate risk of loss associated with weather-related property damage or business interruption.</p> |
|--|--|--|

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

Legal

Other, please specify

Increased pricing of GHG emissions

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Various governmental initiatives to limit greenhouse gas emissions are under way or under consideration around the world. As Mosaic's mining and manufacturing operations are emissions-intensive, these initiatives could restrict Mosaic's operating activities, require us to make changes in our operating activities that would increase our operating costs, reduce our efficiency or limit our output, require us to make capital improvements to our facilities, increase our energy, raw material and transportation costs or limit their availability, or otherwise adversely affect our results of operations, liquidity or capital resources, and these effects could be material to us. Our Canadian potash mines, located in the Province of Saskatchewan, are subject to federal or provincial regulation that assigns a comprehensive tax on carbon emissions. Collectively, these facilities in Canada represented about 40% of Mosaic's total finished crop nutrient production in 2019.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1,500,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In late 2016, the Canadian federal government announced plans for a comprehensive tax on carbon emissions, under which provinces opting out of the tax would have the option of adopting a cap-and-trade system. In late 2018, the federal government implemented a federal carbon pricing backstop system that applies in any province or territory that does not have a carbon pricing system in place by 2018. The federal system applies, in part, to our Saskatchewan Potash facilities. The federal government accepted Saskatchewan's plan for regulating industrial GHG emissions and Mosaic now reports to the Saskatchewan Ministry of Environment to meet 2030 reduction targets; however, Ottawa has imposed a carbon tax on GHG emissions from electricity in Saskatchewan and Mosaic is paying for that portion of its operations. In 2019 we paid more than \$1.5 million USD (\$2.1 million CAD) in carbon levy funds to our electricity provider. The levy was in effect from April to December of 2019; we arrived at this estimate by anticipating similar full-year costs moving forward. There are other potential direct and indirect costs associated with the provincial and federal carbon plans and these could be significant to us.

Cost of response to risk

1,500,000

Description of response and explanation of cost calculation

Our Saskatchewan Potash facilities will continue to work with the Saskatchewan Ministry of Environment and Environment and Climate Change Canada, through participation in industry associations, to determine next steps, particularly around compliance mechanisms. We will also continue to monitor developments relating to the anticipated proposed legislation, as well as the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources.

Broadly, Mosaic proactively emphasizes energy efficiency in our operations as one way to manage or mitigate the potential risks of regulatory changes that are driven by climate change. As a specific example of our management efforts, Mosaic's Potash business has been working in earnest to reduce energy and greenhouse gas emissions in order to mitigate the risk brought by regulatory changes. Cross functional teams, including a designated site lead who act as the facility's sustainability "eyes and ears", meet regularly to brainstorm projects that deliver energy and emissions improvements. As part of this work, in 2019, our Carlsbad potash facility upgraded a product dryer, which reduced the facility's natural gas use and associated emissions by more than 500 tonnes per CO₂e per year. This project cost approximately \$1.5 million, which represented the equipment and engineering/contractor support. The Potash business also invested in upgraded lighting, which reduced emissions by nearly 2,000 tonnes CO₂e per year at three facilities. There are other projects and approaches under consideration, costs for which vary drastically; the \$1.5 million cited as part of this risk description was derived from actual costs associated with an efficiency project completed in 2019.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Technology

Transitioning to lower emissions technology

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Mosaic is subject to environmental regulations (some of which are driven by climate change) that could adversely affect our business, financial condition and results of operations, and the results could be material to us. There are various initiatives under consideration in the United States, Canada and internationally that, if adopted, could adversely affect our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources, and these effects could be material to us. For example, we have facilities in Saskatchewan, Canada that are affected by Canada's intended NDC, which aims to achieve, by 2030, an economy-wide target of reducing GHG emissions by 30% below 2005 levels. Collectively, these facilities in Canada represented about 40% of Mosaic's total finished crop nutrient production in 2019 and less than 35% of companywide emissions. Similar initiatives could be adopted

by the United States or Brazil, which would represent the remaining approximately 60% of Mosaic's production and approximately 60% of companywide emissions. We are monitoring developments relating to the anticipated proposed legislation, as well as the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

25,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Any agreement, regulation or program that limits or taxes direct and indirect GHG emissions from our facilities could increase operating costs directly and through suppliers. For example, in Brazil, hypothetical regulatory changes that require installation of technology such as burner replacements or additional heat recovery systems and related equipment could cost Mosaic more than \$100 million BRL (approximately \$25,000,000 USD). This cost example is based on approximate costs for a project under consideration in Brazil to upgrade heat recovery systems in order to maximize the amount of clean energy we cogenerate at our operations. Such a project would reduce our Scope 2 emissions and therefore help reduce our exposure to the risk of such potential regulatory changes.

Cost of response to risk

500,000

Description of response and explanation of cost calculation

Broadly, Mosaic proactively emphasizes energy efficiency in our operations as one way to manage or mitigate the potential risks of climate-related regulatory changes and resulting potential changes in technology requirements. As a specific example of our management efforts, the Mosaic Fertilizantes business in Brazil undertook projects to optimize processes and upgrade equipment. This initiative was part of ongoing efficiency efforts. The result of the projects was reduced fuel use and emissions savings

of approximately 15,000 tonnes CO₂e. The costs for these initiatives totaled approximately \$500,000 and delivered annual savings of approximately \$1.8 million/year. There are other projects and approaches under consideration, costs for which vary drastically; the \$500,000 cited as part of this risk was derived from actual costs (equipment and engineering/contractor support) associated with specific projects completed in 2019.

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Mosaic has approximately \$7 billion in physical assets in hurricane-prone areas of Florida and Louisiana. Mosaic's insurance deductible for a covered wind event is, at a minimum, \$50 million per occurrence for mines and fertilizer production facilities in North America. Although our containments in these areas are built to withstand storms, additional sustained hurricane activity could force a change in design standards for buildings, equipment or containments. Similarly, a severe storm could cause physical damage to our facilities or business interruption. This could result in increased capital costs or costs per tonne of product.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

50,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Mosaic's insurance deductible for a covered wind event is, at a minimum, \$50 million per occurrence for mines and fertilizer production facilities in North America. Although our containments and facilities are built to withstand storms, additional sustained hurricane activity could force a change in design standards for buildings, equipment or containments. This could result in increased capital costs or costs per tonne of product. In the event of widespread damage as a result of a severe storm, we may face costs up to or exceeding our insurance deductible of \$50 million.

Cost of response to risk

150,000

Description of response and explanation of cost calculation

We manage these potential climate change risks by focusing on hurricane preparedness at all facilities that are within the zone of risk. Each site's preparation process includes the establishment of procedures and guidelines for the direction, control, and coordination for securing, shutdown, safe evacuation (if required), and the orderly restoration of plant operations in the event of a storm. These procedures and guidelines were in place in 2019 during summer hurricane season, which affects our facilities in Florida and Louisiana; similarly, we employed these procedures in 2017 in anticipation of Hurricane Irma, which hit Florida as a Category 2 storm and caused damage to Mosaic's Bartow concentrates facility.

Part of our strategy to manage the risk of hurricanes is to conduct property risk engineering assessments on an ongoing basis to mitigate risks associated with property damage and business interruption. The types of actions that results from these assessments include improving existing flood and emergency response plans, replacing or redesigning roof structures to meet or exceed wind uplift requirements, and making enhancements to structures. The approximate cost of installing fasteners to secure roof panels as a way to reduce or avoid damage from hurricanes is 150,000. This exact cost example is based on a project we completed in 2017 at one of our distribution facilities and included the equipment and associated engineering/contractor support. As a result of installing these fasteners, the roof exceeded wind uplift requirements and thus, was theoretically less vulnerable to effects of hurricanes. The costs associated replacing or redesigning roof structures and making enhancements to structures vary widely; they do not represent full costs associated with hurricane preparedness.

Comment

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Mosaic uses freshwater in our mining and production processes. Changes in precipitation resulting in droughts or water shortages in our operating geographies across North and South America could restrict our operating activities, require us to make changes in our operating activities that would increase our operating costs, reduce our efficiency or limit our output.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

89,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Mosaic's 2019 net sales totaled approximately \$8.9 billion. A theoretical decrease in production output that resulted in 1% lower sales companywide could translate to approximately \$89 million less revenue based on 2019 performance.

Cost of response to risk

5,000,000

Description of response and explanation of cost calculation

We are committed to responsible water use. We manage these potential climate change risk of extreme changes in precipitation patterns by recycling high percentages of the water used in our operations and by exploring the use of alternative water sources like reclaimed water, where possible. We have also invested in reverse osmosis (RO) technology, which reduces our reliance on freshwater resources. For example, as part of their larger water conservation efforts, Mosaic's Bartow facility uses reverse osmosis to produce approximately 500 gallons per minute of treated water back for use at the facility's sulfuric acid plant, thereby reducing freshwater needs by the same amount. It cost approximately \$5 million to run the reverse osmosis plant at our Bartow facility in 2019. These cost estimates represent contract services, production materials, rental of equipment and required repairs and supplies for the year. Savings from reduced reagent use (achieved as a result of using RO) for that period were approximately \$500,000.

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

Increased severity and frequency of extreme weather events such as cyclones and floods

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Potential climate change risks that contribute to adverse and increasingly severe weather conditions, including the impact of potential hurricanes, floods and excess rainfall could have a negative impact on Mosaic. For example, an extreme weather event or seasonal flooding could interfere with our receipt of key production inputs, like natural gas, which could result in interruption of our operations. Weather or seasonal flooding could also affect our ability to get finished product to customers.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

19,400,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

High water conditions along the Mississippi River in 2019 restricted and delayed vessel and barge movements, which had an impact on Mosaic's ability to transport finished product to customers throughout North America. As a result, in 2019, we paid approximately \$19.4 million more in storage and demurrage expenses than the prior year primarily due to unfavorable operating conditions (flooding) in the Mississippi River.

Cost of response to risk

19,400,000

Description of response and explanation of cost calculation

We manage these potential climate change risks by engaging Mosaic's supply chain team to closely monitor product supply and demand and any weather conditions or seasonal patterns/risks (potentially climate change-related) that could interfere with our receipt of raw material inputs or with products reaching our customers. As an example of one solution we have implemented to manage this risk is to transport finished product inventory early, or to absorb additional demurrage costs associated with delays and storage. This scenario could result in increased inventory storage expenses of \$275 per day per barge. As a theoretical example, in the event of such an event, if we send 50 barges for one month (30 days) additional costs would be approximately \$412,500. In 2019, we paid approximately \$19.4 million more in storage and demurrage expenses than the prior year due, primarily, to unfavorable operating conditions (flooding) in the Mississippi River.

Comment

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Downstream

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Decreased revenues due to reduced demand for products and services

Company-specific description

Potential climate change risks that contribute to adverse and increasingly severe weather conditions, including the impact of potential hurricanes, floods and excess rainfall could have a negative impact on Mosaic. For example, an extreme weather event or seasonal flooding could interfere with demand for our products and thus, our financial performance. Specifically, changing precipitation and temperature patterns could have an impact on growing regions and consequently, demand for Mosaic's products.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

640,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Selling prices for Mosaic's phosphate products in North America were approximately 16% lower in 2019, due in part to reduced demand as a result of the adverse weather in North America that significantly delayed crop planting and harvest, and thereby impacted fertilizer demand. Non-weather events were also significant factors in the decline in selling prices, including an influx of imported product into North America, competitive dynamics, and global supply and demand conditions. Expressed in terms of net sales, the impact of lower average sales prices and lower sales volumes to Mosaic was approximately \$640 million. The impact could have been higher had it not been partially offset by our exports of finished products to other regions. This impact on our financial condition is considered high magnitude.

Cost of response to risk

412,500

Description of response and explanation of cost calculation

Mosaic's market analysis team monitors climate and growing regions, forecasting for climate-related events like droughts, floods and severe weather events, to determine their potential impact on the markets, our production, and Mosaic's overall financial performance. Mosaic's supply chain and commercial organization closely monitors product supply and demand and any weather conditions or seasonal patterns/risks (potentially climate change-related) that could interfere with transportation of products to customers. In 2019, the commercial team's sales strategy to export finished product to customers in other (unaffected or less affected) regions helped offset the impact to net sales from weather and other factors. The cost of this strategy (response) is hard to quantify. However, as an example of another solution we have implemented to manage this risk is to transport finished product inventory early, or to absorb additional demurrage costs associated with delays and storage. This scenario could result in increased inventory storage expenses of \$275 per day per barge. As a theoretical example, in the event of such an event, if we send 50 barges for one month (30 days) additional costs would be approximately \$412,500.

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

Energy source

Primary climate-related opportunity driver

Use of supportive policy incentives

Primary potential financial impact

Returns on investment in low-emission technology

Company-specific description

Proposed legislation in the United States and Brazil that promotes and incentivizes clean energy production (which reduces greenhouse gas emissions) could provide Mosaic tax incentives or fairer pricing for surplus electricity that Mosaic supplies to local utility grids. As an example, Mosaic would benefit from tax incentives or fairer pricing for surplus electricity that Mosaic supplied in 2019, specifically in the United States, where our Bartow, New Wales and Riverview concentrates facilities provided over 200,000 MWh to local utility grids.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In 2019, Mosaic produced approximately 1.5 million MWh of electrical energy from cogenerated electricity in our Phosphate business and sent approximately 200,000 MWh to local grids from our Bartow, New Wales and Riverview concentrates facilities. In this business alone, the potential positive impacts of energy legislation could be upwards of \$10 million. This financial impact estimate represents hypothetical tax incentives or fairer pricing that could happen as a result of our supplying excess electricity to local utility grids.

Cost to realize opportunity

14,000,000

Strategy to realize opportunity and explanation of cost calculation

In order to manage this opportunity, Mosaic has been actively involved in dialogues at the legislative and executive branch levels, engaging on issues such as fairer pricing for the power we export to the utility grid, tax credits, and incentives to encourage the production of clean power. Internally, Mosaic continually looks for opportunities to improve the efficiency and expand the output of our cogeneration assets. As a specific example of our management efforts, in 2016, Mosaic brought another turbo generator online at our Uncle Sam facility that is expected to provide an additional 15 megawatts

of low-GHG electrical generation capacity. This initiative cost approximately \$21 million. A power line connecting our South Pierce and South Pasture facilities, installed in 2016 at a price of \$14 million, has allowed Mosaic to increase its internal use of cogenerated electricity, specifically the addition of a tie line that connected two facilities and allowed us to increase internal use of cogenerated power (thus offsetting what we would have otherwise had to purchase from the grid, which would increase Mosaic's Scope 2 emissions).. In 2019 we produced 1.5 million MWh of cogeneration, approximately 85% of which we consumed internally.

The cost of engaging policymakers is not available as a separate line item. The investment in cogeneration examples cited above were in the range of \$14-21 million. We are reporting a cost of \$14 million for this opportunity as this is the cost for Mosaic's most recent investment in cogeneration. Other cogeneration optimization projects are under consideration, costs for which vary widely.

Comment

Identifier

Opp2

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Fertilizers like the ones Mosaic produces help produce up to 50% of crop yields. Considering that the world will have to feed nine billion people by 2050 on existing arable land, while controlling global greenhouse gas emissions, it is easy to see the importance of properly used mineral fertilizers in ensuring sustainable food security. As pressure on agriculture to reduce emissions while increasing yields escalates, Mosaic has an opportunity in the form of new markets for products related to soil health, and increased demand for existing products and services like our performance product line, MicroEssentials®, which has been shown to increase corn yields an average of 7.2 bushels per acre, or 4.3%, compared to traditional fertilizer due to product benefits such as uniform nutrient distribution. A hypothetical 2% increase in gross margin from sales of performance products as a percentage of 2019 companywide sales of \$8.9 billion, would equate to approximately \$17.9 million.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

17,900,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Mosaic's sales of performance products like MicroEssentials® as a percentage of total sales may be further improved if pressure on agricultural systems to increase yields on existing farmland escalates. Mosaic can potentially command a premium price and higher margins for our performance products, potentially resulting in an overall increase of our gross margin as a percent of net sales. Therefore, this change in sales percentage for higher yield performance products could have a positive effect on our operating results and financial condition. A hypothetical 2% increase in gross margin as a percentage of companywide net sales, based on 2019 net sales performance of \$8.9 billion, would equate to approximately \$17.9 million.

Cost to realize opportunity

1,000,000

Strategy to realize opportunity and explanation of cost calculation

In order to manage the potential opportunity of higher demand for Mosaic's performance products, which can translate to opportunities in the form of higher sales margins, we have established relationships with key universities around the globe to develop and test high-yield performance products, like MicroEssentials®. The benefits of research are data and outcomes we can use to inform Mosaic's sales/commercial strategy, which could ultimately contribute to higher sales of performance products. For example, we are analyzing the potential synergies of Mosaic's phosphate and potash products in different soils to support our product portfolio; we are also assessing micronutrient addition and their uptake in various soil conditions. The cost of response, cited as \$1,000,000 for this opportunity, represents our 2019 investment in a research partnership with a university-based Fertilizer Technology and Research Centre.

To further respond to and manage this opportunity for higher margins from sales of

performance products, Mosaic has invested in expansion projects to increase MicroEssentials® production capacity. In 2014, Mosaic announced plans to expand MicroEssentials® capacity, adding an incremental 1.2 million tonnes and bringing our total capacity to 3.5 million tonnes in 2017. In 2019 we shipped nearly 3 million tonnes of MicroEssentials® worldwide.

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Mosaic sells its products to customers in 40 countries. Changes in the length of growing seasons in certain regions, like northern Europe, may increase the productivity (and therefore planting demand) of some crops, which could improve the productivity of agriculture and result in an increased demand for agricultural inputs like the crop nutrients Mosaic supplies as its core business. In this scenario, Mosaic could see increased demand for higher-yield fertilizer products like MicroEssentials®, and the increased demand could have a positive effect on our operating results and financial condition. The effects could be significant to us.

Time horizon

Long-term

Likelihood

About as likely as not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

121,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Our Phosphates segment had sales of approximately 3.2 million tonnes of specialty products, a category which includes MicroEssentials®, during 2019. A hypothetical increase of 10% in sales volume of specialty products, including MicroEssentials®, from 2019 levels could result in over \$121 million in additional sales (calculated by using the average selling price per tonne of \$379, FOB destination, per our 2019 Form 10-K and multiplying by total Phosphate segment sales volumes for specialty products of 3.2 million tonnes).

Cost to realize opportunity

1,000,000

Strategy to realize opportunity and explanation of cost calculation

Mosaic's balanced approach to crop nutrition is a strategy to manage potential opportunities driven by the effects of climate change, such as change in temperature and the length of growing season. Mosaic has established relationships with key universities and research organizations around the globe to develop and test innovative products like our MicroEssentials® line, which features crop nutrient blends specially designed for the soils of various parts of the world. In 2019 we conducted 335 small plot trials in Argentina, Brazil, Chile, China, Canada, India, Northern Latin America (Mexico to Peru) and the United States. Further, Mosaic established and continues to fund a university-based Fertilizer Technology and Research Centre, which focuses on soil chemistry and fertilizer technology, and utilizes the latest technology to develop innovative fertilizer formulations to improve nutrient use efficiency in a variety of climates. The benefits of small plot trials and research are data and outcomes we can use to inform Mosaic's agronomy activities and our sales/commercial strategy, which could ultimately contribute to higher sales of performance products. For example, we are analyzing the potential benefits of synergy of Mosaic's phosphate and potash performance products in different soils to support our product portfolio; we are also assessing micronutrient addition and their uptake in various soil conditions. Our investment in this centre in 2019 totaled more than \$1,000,000.

Comment

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative

C3.1b

(C3.1b) Provide details of your organization’s use of climate-related scenario analysis.

| Climate-related scenarios and models applied | Details |
|--|--|
| Nationally determined contributions (NDCs) | <p>We have facilities in Saskatchewan, Canada that are affected by Canada's intended NDC, which aims to achieve, by 2030, an economy-wide target of reducing GHG emissions by 30% below 2005 levels. After negotiations between the federal and provincial governments, as of 2019, a carbon tax of \$20/tonne now applies in Canada for any emitter not covered under the federal backstop program or approved provincial program. In addition, the Province of Saskatchewan, in which our Canadian potash mines are located, has publicly stated that a carbon pricing system will not be implemented in the province and that legal action will be sought against the federal government (legal action is underway and due to be heard by Canada's Supreme Court by the end of 2020). In December 2017, Saskatchewan announced a comprehensive plan to address climate change that does not include an economy-wide price on carbon but does include a system of tariffs and credits for large emitters. The plan was reviewed and approved, in part, by the federal government in October 2018. Our Saskatchewan Potash facilities will be subject to the Saskatchewan climate change plan regarding emissions at our facilities; however, indirect costs from the carbon tax associated with energy consumption, and transportation are passed through to Mosaic. As implementation of the Paris Agreement proceeds, more stringent laws and regulations may be enacted to accomplish the goals set out in Canada's NDC, such as the Clean Fuel Standard, which is now under development in Ottawa. Our analyses included an assessment of the scenarios proposed by the provincial and federal governments, including potential financial repercussions and the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources. The current regulatory environment in Saskatchewan for the potash industry includes a 5% intensity reduction with a compliance cost of \$20 CAD per tonne of CO₂e for businesses generating more than 25,000 tonnes CO₂e. The compliance increases annually until 2022 to \$50 CAD per tonne. Accordingly, 2022 is relevant to Mosaic and the time horizon we are considering in this example. Under this scenario, the financial repercussions in the form of operating costs and CAPEX requirements</p> |

| | |
|--|---|
| | <p>for Mosaic, specifically our Potash business in Canada, could be significant to us. Under certain scenarios, we are anticipating impacts upwards of \$10 million per year. The results of our analyses, which were informed with inputs such as historic and projected facility-specific production figures and energy and emissions performance, have informed our CAPEX strategy as we plan for potential costs and continue to analyze options for reducing emissions in line with the NDC. Specifically, we have project trackers for each of our potash facilities that capture potential projects and associated costs, GHG and energy savings, and returns on investments. An example of one project from the tracker that is currently under evaluation is upgrading equipment to run on more efficient fuel sources, which would reduce Scope 1 emissions for Mosaic’s Belle Plaine facility. We are also exploring other opportunities for automation and energy efficiency, which would further drive GHG savings and contribute to progress toward our 2025 target to reduce Scope 1 and 2 GHG emissions by 20% per tonne of product.</p> <p>This is an area under development at Mosaic. We are currently investigating options for scenario analysis that would assess physical and transition risks in line with 2°C scenarios.</p> |
|--|---|

C3.1d

(C3.1d) 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 | In recognition of opportunities in the form of disruptive technologies and innovative products that meet evolving customers and growers needs, some of which are related to climate-related risks and opportunities, Mosaic made the strategic decision to formalize the priority to “Grow and Strengthen Our Product Portfolio.” Mosaic’s newly formed strategy and growth team, led by a Senior Vice President that reports directly to Mosaic’s CEO, was established to pursue diverse opportunities and yield mutual benefits for Mosaic and its customers. The group is exploring products and solutions that address agricultural challenges, some of which are driven by increasing climate-related risks and opportunities, including soil health solutions and crop nutrient products that reduce environmental impact across the agricultural value chain. Some of the opportunities associated with this strategy could be realized in the short- |

| | | |
|---------------------------------|-----|--|
| | | term (within four years), whereas others under consideration are medium- or longer-term. |
| Supply chain and/or value chain | Yes | Agriculture is susceptible to climate impacts in many ways, particularly as it relates to downstream use of our products and it is in this context that climate-related risks and opportunities have influenced our strategy across the value chain. Specifically, changing precipitation and temperature patterns could have an impact on growing regions and consequently, demand for Mosaic's products. It is too early to report on specific developments, but Mosaic's newly formed strategy and growth team is exploring solutions that address agricultural challenges, some of which are driven by increasing climate-related risks, including soil health solutions and crop nutrient products that reduce environmental impact across the agricultural value chain. In addition to informing our strategic direction as it relates to downstream product solutions, climate risks and opportunities have shaped the extent to which we invest in certain research partnerships; they have also shaped the nature of our research. Mosaic invests in research partnerships that focus on soil chemistry and fertilizer technology and develop innovative fertilizer formulations to improve nutrient use efficiency in a variety of climate regimes, which could potentially allow for growing crops in increasingly difficult growing conditions. As the speed of onset related to the risk of widespread changes in location of growing regions and length of growing season is slow, the influence on this particular strategy is longer-term. |
| Investment in R&D | Yes | Mosaic has made the strategic decision to establish relationships with key universities and research organizations around the globe to develop and test innovative products like our MicroEssentials® line. Mosaic invests in research partnerships that focus on soil chemistry and fertilizer technology and develop innovative fertilizer formulations to improve nutrient use efficiency in a variety of climate regimes, which could potentially allow for growing crops in increasingly difficult growing conditions. Climate risks and opportunities have shaped the extent to which we invest in certain research partnerships on an annual (short-term) basis; they have also shaped the nature of our ongoing (longer-term) research. |
| Operations | | In anticipation of changing weather patterns, potential shortages of water, the possibility of increasing energy costs and possible carbon/energy taxes and their potential effects on our business, Mosaic employs a strategy that focuses on |

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| | | <p>operational excellence and we have made strategic decisions about our operating activities in order to address operating efficiency and resource management. For example, we strive to lower purchased energy consumption through more efficient processes and maximizing use of cogenerated energy, which has a direct impact on our GHG emissions. Climate change considerations, and the focus on reducing energy and GHG emissions, have influenced our development and execution of our companywide 2020 Sustainability Targets to reduce energy and GHGs by 10% per tonne of finished product, progress toward which we report annually. The most substantial strategic decision in this area to date is to set new companywide targets to reduce GHG emissions by 20% per tonne of finished product by 2025 (recently completed as of the date of our drafting this report in 2020).</p> |
|--|--|--|

C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

| | Financial planning elements that have been influenced | Description of influence |
|-------|---|---|
| Row 1 | Revenues Indirect costs Capital expenditures Capital allocation Access to capital Assets | <p>Revenues: As part of our annual financial planning process, for example, a widespread flood might impact agricultural commodity markets, which could in turn affect Mosaic's annual sales. Selling prices for Mosaic's phosphate products in North America were approximately 16% lower in 2019, due in part to reduced demand as a result of the adverse weather in North America that significantly delayed crop planting and harvest, and thereby impacted fertilizer demand. Non-weather events were also significant factors in the decline in selling prices, including an influx of imported product into North America, competitive dynamics, and global supply and demand conditions. Expressed in terms of net sales, the impact of lower average sales prices and lower sales volumes to Mosaic was approximately \$640 million. The impact could have been higher had it not been partially offset by our exports of finished products to other regions. This impact on our financial condition is considered high magnitude.</p> <p>Indirect costs: One of the consequences of the carbon tax in Canada is pass-through costs to Mosaic from third parties. Specifically, in 2019 we began to see price increases for electricity consumption at our Saskatchewan facilities as a result of the regulations. Accordingly,</p> |

| | | |
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| | | <p>indirect costs are part of our financial planning process.</p> <p>Direct costs and capital expenditures (CAPEX): We consider EHS laws and regulations, some of which are climate-related, and their effect(s) on operating costs and capital expenditures. Severe climate-related events, including hurricanes, have in the past, and may in the future, adversely affect our operations, resulting in increased costs or decreased production. These impacts are part of our broad financial planning process on an annual basis. Mosaic's market analysis team monitors climate and growing regions, forecasting for climate-related events like droughts, floods and severe weather events, to determine their potential impact on the markets, our production (which translates to revenue) and Mosaic's overall financial performance. As another example that will have an impact on our operating costs, Mosaic is assessing the potential financial implications of federal and provincial carbon tax scenarios under consideration in Canada. Our evaluation is considering the operating cost impacts of direct energy consumption as well as indirect impacts of how the tax is passed on to Mosaic from third parties. Various scenarios are still under consideration and the effects of these potential tax scenarios could have a significant financial impact on us. In 2019 we began to see price increases for electricity consumption at our Saskatchewan facilities as a result of these changing regulations. Specifically, we paid more than \$1.5 million USD (\$2.1 million CAD) in the form of carbon levy funds to the utility provider in Saskatchewan – charges that are tied directly to Mosaic's electricity consumption due to pass-through costs from the utility. This impact on our operating costs is considered low magnitude. We also consider availability of CAPEX for projects that could improve our environmental performance, including energy or GHG efficiency. As an example, Mosaic is assessing changes in emission allowances that should be effective by 2023 that will have an impact on some of our Phosphate concentrate facilities. Current equipment will not meet emissions requirements and we have initiated projects requiring capital expenditures to replace or upgrade catalysts at the affected facilities. The approximate cost per catalyst replacement is \$2 million and these planned costs, as well as the timeline for replacing the catalysts, are part of Mosaic's capital expenditures planning process. As another example, Mosaic is assessing changes in boiler emission allowances that will be effective in 2026 that will have significant impact on one of our Saskatchewan potash mines. Current boilers will not meet emissions requirements and we are exploring options, including equipment alterations that would require capital investments, in order to meet compliance standards. A capital project team has been assembled to conduct detailed analyses to assess solutions and the potential cost implications, but based on preliminary estimates, the financial impact could be more than \$75 million. This impact on our capital expenditures is considered high magnitude. Moreover, these costs impact Mosaic's</p> |
|--|--|--|

| | | |
|--|--|---|
| | | <p>ability to remain competitive against other global fertilizer and mining companies that operate in lower-cost jurisdictions without similar carbon tax or environmental costs.</p> <p>Access to capital: At this time, our identified risks related to climate change have not had an impact on our company’s access to capital. However, Mosaic understands that climate-related issues can possibly have an impact on a company’s credit score, which could, in turn, affect long-term access to debt capital. Similarly, we understand that external perceptions of Mosaic’s ESG performance by the investor community, including elements related to climate, could have a positive or negative impact on our access to equity capital. We are employing adaptation and mitigation strategies at our operations and regularly engaging financial stakeholders in order to minimize or avoid negative impacts, and to impart an understanding of the criticality of fertilizer to sustainable food security. We are also contemplating the use of “green” financial instruments, tied to our sustainability performance, to further drive company progress toward ESG targets and to access lower borrowing interest rates.</p> <p>Operating assets: Severe storms, including hurricanes, have in the past, and may in the future, adversely affect our operations, resulting in damage to operating assets, increased costs or decreased production. In the past, hurricanes have resulted in minor physical damage to our facilities in Florida and Louisiana. These impacts to operating assets are part of our broad annual financial planning process. In 2017, one of our facilities (operating assets) sustained damage as a result of Hurricane Irma, specifically a product warehouse that resulted in approximately \$7 million incurred for repairs/replacement. This impact is considered moderate magnitude. As another example, Mosaic is assessing changes in emission allowances that will be effective in 2026 that will have significant impact on one of our Saskatchewan potash mines. Current boilers (operating assets) will not meet emissions requirements and we are exploring options, including equipment alterations that would require capital investments, in order to meet compliance standards. A capital project team has been assembled to conduct detailed analyses to assess solutions and the potential cost implications, but based on preliminary estimates, the financial impact could be more than \$75 million. This impact on our operating assets is considered high magnitude.</p> |
|--|--|---|

C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

C4. Targets and performance

C4.1

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

Intensity target

C4.1b

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

Target reference number

Int 1

Year target was set

2015

Target coverage

Company-wide

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Intensity metric

Metric tons CO₂e per metric ton of product

Base year

2012

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

0.27

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

10

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

0.243

% change anticipated in absolute Scope 1+2 emissions

7.6

% change anticipated in absolute Scope 3 emissions

0

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

0.232

% of target achieved [auto-calculated]

140.7407407407

Target status in reporting year

Underway

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

Please explain (including target coverage)

In 2015 we announced a target to reduce our combined Scope 1 and Scope 2 GHG emissions by 10% per tonne of finished product by 2020. In 2019 we achieved a -14.2% reduction in Scope 1 and 2 emissions from our 2012 baseline thanks to efforts of our employees to create fuel- and energy-saving projects across the business. Current GHG reduction targets are based on internal operational performance and cover Scope 1 and 2 emissions from operations in North and South America, excluding facilities acquired in our Mosaic Fertilizantes business in early 2018. Our GHG target, although not recognized by the Science Based Targets Initiative for being in line with their particular methodology, was developed with science-based models that take company and industry-specific factors into account. Our GHG target does not include Scope 3 emissions at this time. However, we made progress toward defining a more comprehensive Scope 3 emissions footprint in 2015 by engaging a third-party consultant to help us assess the relevance of Scope 3 emissions categories and calculate their respective GHG impacts. We report those emissions in Section 6. We are currently refreshing targets that will incorporate our newly acquired facilities in Brazil and considering the feasibility of science-based targets as part of this work.

C4.2

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

Other climate-related target(s)

C4.2b

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

Target reference number

Oth 1

Year target was set

2015

Target coverage

Company-wide

Target type: absolute or intensity

Intensity

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

Energy consumption or efficiency
GJ

Target denominator (intensity targets only)

metric ton of product

Base year

2012

Figure or percentage in base year

2.73

Target year

2020

Figure or percentage in target year

2.46

Figure or percentage in reporting year

2.39

% of target achieved [auto-calculated]

125.9259259259

Target status in reporting year

Underway

Is this target part of an emissions target?

This target, though considered separate from our emissions target, is directly linked to emissions because reductions in direct and indirect energy help drive emissions reductions. Both the energy and GHG emissions targets are part of Mosaic's 2020 Sustainability Targets.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

In 2019 we achieved a 12.4% reduction in energy intensity from our 2012 baseline. This reduction was due to efficiency efforts and reductions in energy use in our Potash operations.

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 | | |
| To be implemented* | 4 | 100,000 |
| Implementation commenced* | 10 | 50,000 |
| Implemented* | 17 | 51,100 |
| Not to be implemented | | |

C4.3b

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

Initiative category & Initiative type

Energy efficiency in buildings
Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

8,600

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

600,000

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

2,000,000

Payback period

4-10 years

Estimated lifetime of the initiative

6-10 years

Comment

Companywide, we upgraded lighting to more efficient LEDs, which reduces purchased electricity and GHG emissions.

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

3,500

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

300,000

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

2,250,000

Payback period

4-10 years

Estimated lifetime of the initiative

11-15 years

Comment

Our minerals and concentrates facilities completed process optimization projects that reduced fuel use, thereby reducing scope 1 GHGs.

Initiative category & Initiative type

Low-carbon energy consumption

Liquid biofuels

Estimated annual CO2e savings (metric tonnes CO2e)

35,000

Scope(s)

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

2,600,000

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

75

Payback period

<1 year

Estimated lifetime of the initiative

>30 years

Comment

Facilities completed projects to displace less efficient fuels and purchased electricity with lower-carbon substitutes. Specifically, in our North America Phosphate business, we tied several pumps to cogeneration lines, which resulted in less use of purchased electricity and scope 2 emissions. Similarly, two of the Brazil Phosphate facilities modified a process to use vegetable oil instead of heavy crude oil, resulting in scope 1 emissions savings.

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

4,000

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1,000,000

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

1,300,000

Payback period

1-3 years

Estimated lifetime of the initiative

11-15 years

Comment

Minerals and concentrates facilities invested in technologies and equipment upgrades that reduced our companywide use of purchased electricity.

C4.3c

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

| Method | Comment |
|---|--|
| Employee engagement | Mosaic emphasizes the philosophy of continuous energy improvements to reduce energy use in our manufacturing facilities and support functions, and we recognize that employees on the front line often have the best ideas. Mosaic fosters a culture which encourages employees to bring forward ideas, and this open dialogue has driven investments that result in energy savings and/or emissions reductions. In 2019, we continued an internal communications effort around "small wins" as a way to recognize employees for their efforts, large and small, in improving environmental performance and meeting companywide 2020 Sustainability Targets. |
| Other | Mosaic facilities have employees that are designated engineers and/or sustainability site leads. The role of these site leads, in part, is to identify project opportunities for improving energy efficiency and GHG emissions that will help us achieve our 2020 target to reduce energy use and GHG emissions by 10% per tonne of product. |
| Compliance with regulatory requirements/standards | New or proposed regulatory emissions requirements may require modifications to our facilities or to operating procedures and these modifications may involve significant investments. |

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

.....

Level of aggregation

Product

Description of product/Group of products

Mosaic's premium product MicroEssentials® has been shown to increase corn yields an average of 7.2 bushels per acre, or 4.3%, compared to traditional fertilizer.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

See Comment

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

30

Comment

Mosaic's premium product MicroEssentials® has been shown to increase corn yields an average of 7.2 bushels per acre, or 4.3%, compared to traditional fertilizer. Assuming a 4.3% yield advantage with MicroEssentials®, a corn farmer with a 350-acre farm can theoretically produce yields similar to those from a 365.05-acre farm. By using MicroEssentials®, this farmer could avoid approximately 0.1816 tonnes of Scope 1 carbon emissions per year, through reduced corn harvesting equipment usage, resulting in greater yields with MicroEssentials® and fewer acres farmed. This theoretical example is fleshed out below to give an idea of annual scale of avoided emissions for 100 farms. The estimate takes into consideration the tonnes of CO₂e/gallon generated by the diesel fuel needed for the operation of a corn harvester per acre. The potential yield of a 350-acre farm yielding 365.05 acres worth of crops was used as the baseline for this Scope 1 emissions savings. A 2.5 mph corn harvester (farming equipment) uses 1.15 gallons/acre of diesel fuel, which equates to 0.0120648 tonnesCO₂e/gallon of diesel fuel. Assuming a 4.3% yield advantage with MicroEssentials®, a corn farmer with a 350-acre farm can theoretically produce yields similar to those from a 365.05-acre farm. This farmer could avoid approximately 0.1816 tonnes of Scope 1 carbon emissions per year by harvesting the same yield on a smaller area. For every 100 farms similar to this example equals a combined savings of 18.16 tonnes of Scope 1 carbon emissions per year. This is a theoretical example only. The percentage of total sales is for tonnes of MicroEssentials® as a share of total Phosphates sales tonnes. Sales for MicroEssentials® are not available as a separate line item expressed as revenue.

Note for Methodology: US EPA Climate Leaders: Direct HFC and PFC Emissions from Manufacturing Refrigeration and Air Conditioning Equipment; GHG Protocol: A Corporate Accounting and Reporting Standard; US EPA Climate Leaders: Direct Emissions from Mobile Combustion Sources US EPA Mandatory Greenhouse Gas Reporting Rule: Subpart G (Ammonia) and Z (Phosph. Acid); US EPA Climate Leaders:

Indirect Emissions from Purchases/Sales of Electricity and Steam Stoichiometric mass balance for reactive species containing CO₂ or carbon compounds; Mass Balance from European Fertilizer Manufacturers Association Guidance for Ammonia.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2012

Base year end

December 31, 2012

Base year emissions (metric tons CO₂e)

2,904,196

Comment

Scope 2 (location-based)

Base year start

January 1, 2012

Base year end

December 31, 2012

Base year emissions (metric tons CO₂e)

1,605,383

Comment

Scope 2 (market-based)

Base year start

January 1, 2012

Base year end

December 31, 2012

Base year emissions (metric tons CO₂e)

1,605,383

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
- US EPA Center for Corporate Climate Leadership: Indirect Emissions From Purchased Electricity
- US EPA Center for Corporate Climate Leadership: Direct Emissions from Mobile Combustion Sources
- US EPA Mandatory Greenhouse Gas Reporting Rule
- Other, please specify
- See 5.2a for details

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

- Other 1: by stoichiometric mass balance for reactive species containing CO₂ or carbon compounds to estimate emissions from materials used in water treatment
- Other 2: mass balance from European Fertilizer Manufacturers Association Guidance for Ammonia Manufacturing to estimate emissions from ammonia production

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)

3,131,524

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 available for most locations in the United States, Brazil and Saskatchewan, representing 96% of our total Scope 2 emissions. We do not have market-based emission factors available for sites in Peru or Paraguay at this time.

C6.3

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

Reporting year

Scope 2, location-based

1,452,435

Scope 2, market-based (if applicable)

1,420,156

Comment

C6.4

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

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

China and India Facilities

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

Emissions are not relevant

Explain why this source is excluded

Historically, Scope 1 and Scope 2 emissions from these facilities have accounted for less and 0.1 percent of global company emissions. CY2019 emissions were not calculated for our China and India facilities.

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, calculated

Metric tonnes CO2e

2,600,000

Emissions calculation methodology

Ammonia purchased based on IPCC 2013 guidance for NH3 production with modern, natural gas NH3 plants.

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

0

Please explain

This figure, assured by ERM CVS for the 2019 reporting year, represents emissions associated with ammonia purchases in 2019, which we estimate are the most material component of purchased goods and services category for Mosaic. It does not include other purchased goods and services, or other relevant cradle-to-grate emissions associated with purchases related to our activities.

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

314,662

Emissions calculation methodology

Calculated with third-party proprietary hybrid EEIO/LCA model in conjunction with company spend data to calculate absolute emissions from Mosaic's capital goods (e.g., equipment).

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

0

Please explain

Figure represents emissions associated with capital expenditures data from our 10K for 2019 from our North American operations. This figure was not assured by ERM CVS.

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

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

553,000

Emissions calculation methodology

Calculated by using average DEFRA emission factors for upstream emissions per unit of consumption of the relevant fuel and energy types based on internally collected fuel use data.

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

0

Please explain

Includes companywide fuels and electricity purchases. This value was not assured by ERM CVS.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

198,000

Emissions calculation methodology

Calculated using mode-specific emissions factors from The Climate Registry for CH₄, N₂O and CO₂ for respective fuels: diesel and compressed natural gas.

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

80

Please explain

This category was assured by ERM CVS for the 2019 reporting year. It includes emissions associated with the transport of in-process and finished goods by non-company owned trucks in our Florida phosphate operations in 2019; and by non-company owned rail cars in our Brazil, Canada and United States businesses. Pipeline transportation of ammonia is excluded. 2019 figures include the addition of another rail vendor in Canada.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

3,800

Emissions calculation methodology

Applied DEFRA factors for waste categories by treatment/disposal method.

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

0

Please explain

This category was not assured by ERM CVS for the 2019 reporting year. It includes emissions associated with approximately 60,000 tonnes of non-mining wastes generated from our mines and manufacturing facilities. For wastes of "unknown" or mixed categories, we assigned an average of landfill factors for construction debris as provided by the DEFRA standard.

Business travel

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

3,868

Emissions calculation methodology

Methodology from travel management company is based on DEFRA GHG Conversion Factors for short-, medium- and long- haul flights. The method evaluated flights based on airport locations and calculates emissions based on actual distance flown.

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

100

Please explain

This category was assured by ERM CVS for the 2019 reporting year. It includes activity-specific data supplied by Mosaic's Travel Management Company for companywide air travel and excludes travel by other modes.

Employee commuting

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

30,000

Emissions calculation methodology

Figure represents approximate CO₂e associated with the commutes of employees at our Florida operations, representing approximately 30% of the total workforce. It considers an average commute distance of 22 miles, gleaned through an employee survey in 2018, and assumes gasoline use for an average size car in the United States. This represents less than 0.5% of our companywide total scope 3 emissions.

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

0

Please explain

Figure represents approximate CO₂e associated with the commutes of employees at our Florida operations, representing approximately 30% of the total workforce. It considers an average commute distance of 22 miles, gleaned through an employee survey, and assumes gasoline use for an average size car in the United States. This represents less than 0.5% of our total scope 3 emissions.

Based on a third-party evaluation to assess the greenhouse gas emissions across our value chain, employee commuting for our total workforce is estimated to represent less than 1% of total scope 3 emissions. This is logical and in line with expectations considering the emissions accounted for in purchased goods and services, fuel- and energy-related activities and use of sold products categories.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Emissions associated with leased assets under Mosaic's operational control including land, pumps, autos, mobile equipment and railcars are accounted for in Scope 1 and 2 inventories. Emissions associated with other upstream leased assets (IT equipment, copiers, etc.) are estimated to represent less than 0.1% of total scope 3 emissions. This is logical and in line with expectations considering the emissions accounted for in purchased goods and services, fuel- and energy-related activities and use of sold products categories.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

Based on Greenhouse Gas Protocol's Corporate Value Chain Accounting and Reporting Standard, a majority of Mosaic's shipments of finished products are accounted for within the Upstream Transportation category; however, we estimate that approximately 5% of

maritime movements are considered downstream, which would represent approximately 1% of companywide scope 3 emissions. To date, we have not calculated the full CO₂e impact of these movements.

Processing of sold products

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

3,641

Emissions calculation methodology

Calculated based on average emissions intensity of processing products at Mosaic blending locations.

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

0

Please explain

Includes all tonnes of crop nutrients sold in North America and assumes that they are blended at the distributor level. This value was not assured by ERM CVS.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

763,156

Emissions calculation methodology

Limited calculation based on the amount of nitrogen per tonne of finished phosphate product sold in 2019 using 2006 IPCC Guidelines for National Greenhouse Gas Inventories related to fertilizer use.

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

0

Please explain

Limited calculation based on the amount of nitrogen per tonne of finished phosphate product sold in 2019 using 2006 IPCC Guidelines for National Greenhouse Gas Inventories related to fertilizer use. This value was not assured by ERM CVS.

In 2015, we engaged third party to evaluate the environmental impacts associated with activities across our value chain. Emissions associated with use of sold products, as reported here, are based on results of a limited assessment based strictly on the amount of nitrogen per tonne of finished phosphate product sold in 2019. We continue

to engage industry resources to provide a more holistic emissions figure for this relevant scope 3 category. This value was not included in our annual data assurance process.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable. Mosaic's principle products are crop nutrients, which are applied to the soil and then taken up by plants; the plants can be used for human or animal food.

Downstream leased assets

Evaluation status

Not relevant, calculated

Metric tonnes CO₂e

233,830

Emissions calculation methodology

The total was calculated using EPA figures for enteric fermentation. It assumes two mature beef cows per acre in the South Atlantic region of the U.S. and applies a factor of 69.80 kg CH₄ per cow.

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

0

Please explain

This figure represents emissions associated with downstream cattle leases on formerly mined land in the United States. The total was calculated using EPA figures for enteric fermentation. It assumes two mature beef cows per acre in the South Atlantic region of the U.S. and applies a factor of 69.80 kg CH₄ per cow. In 2019, Mosaic leased 67,000 acres for cattle. We consider this calculation simplified as it does not take into consideration the age and type (beef or dairy) characteristics of the cattle actually grazing on Mosaic-owned land.

Most emissions from leased assets under Mosaic's operational control are included in Scope 1 and 2 inventories. The remainder are not material to total emissions footprint.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable to Mosaic operations. Mosaic does not operate franchises.

Investments

Evaluation status

Relevant, calculated

Metric tonnes CO2e

707,533

Emissions calculation methodology

Applied EPA factors for CO₂, CH₄ and N₂O related to consumption of diesel, fuel oil, gasoline, natural gas and purchased electricity and applied a 25% interest.

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

0

Please explain

This figure represents emissions associated with our 25% equity share investment in Ma'aden Wa'ad Al Shamal Phosphate Company in the Kingdom of Saudi Arabia and includes emissions associated with fuels and purchased electricity. One of the facilities in the MSWPC complex typically generates its own power, except in instances of turnaround or maintenance when supplemental purchased power is needed. Those quantities of supplemental electricity are not included for 2019 but they are expected to be negligible. We will seek to include for 2020. This figure was assured by ERM CVS for the 2019 reporting year. It does not include other equity-method investments.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable to Mosaic operations. Upstream emissions accounted for in other categories.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable to Mosaic operations. Downstream emissions accounted for in other categories.

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biogenic carbon relevant to your organization in metric tons CO2.

| | CO2 emissions from biogenic carbon (metric tons CO2) | Comment |
|-------|--|--|
| Row 1 | 158,987 | Mosaic's Brazil facilities use biofuels. |

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

0.0005147045

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

4,583,958

Metric denominator

unit total revenue

Metric denominator: Unit total

8,900,000,000

Scope 2 figure used

Location-based

% change from previous year

9.02

Direction of change

Decreased

Reason for change

In 2019 we temporarily idled one of our facilities that manufactures ammonia, which contributed to a year-over-year reduction in emissions due to significantly lower consumption of natural gas. Year-over-year reduction in emissions are also owed, in part, to efficiency and voluntary emissions reduction initiatives as reported in C4.3b.

Intensity figure

373.56

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

4,583,958

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

12,271

Scope 2 figure used

Location-based

% change from previous year

13

Direction of change

Decreased

Reason for change

Due to a relatively steeper reduction in CO2e than our reduction in employees, we were able to lower emissions per full-time employee in 2019.

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 | 3,131,524 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| N2O | 9,269 | IPCC Fourth Assessment Report (AR4 - 100 year) |
| CH4 | 5,223 | IPCC Fourth Assessment Report (AR4 - 100 year) |

C7.2

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

| Country/Region | Scope 1 emissions (metric tons CO ₂ e) |
|--------------------------|---|
| United States of America | 1,533,191 |
| Canada | 876,221 |
| Brazil | 546,430 |
| Paraguay | 113 |
| Peru | 175,569 |

C7.3

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

By business division

By facility

C7.3a

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

| Business division | Scope 1 emissions (metric ton CO ₂ e) |
|-------------------|--|
| Phosphate | 1,670,061.613 |
| Potash | 913,673.435 |
| Fertilizantes | 546,542.875 |
| Distribution | 1,245.612 |

C7.3b

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

| Facility | Scope 1 emissions (metric tons CO ₂ e) | Latitude | Longitude |
|------------------|---|-----------|------------|
| Faustina | 619,225.819 | 30.083384 | -90.914391 |
| New Wales | 432,972.371 | 27.832701 | -82.051048 |
| Bartow | 164,641.633 | 27.907545 | -81.800537 |
| Plant city | 1,505.389 | 28.168056 | -82.141667 |
| Uncle Sam | 105,470.505 | 30.037428 | -90.827377 |
| Riverview | 115,281.971 | 27.860191 | -82.3936 |
| Four Corners | 29,171.477 | 27.646202 | -82.087097 |
| Green Bay | 0 | 27.820769 | -81.784767 |
| South Fort Meade | 10,040.437 | 27.647848 | -81.756477 |

| | | | |
|-----------------|-------------|------------|-------------|
| South Pierce | 12,604.672 | 27.765583 | -81.940331 |
| South Pasture | 957.279 | 27.585763 | -81.94291 |
| Wingate | 2,369.48 | 27.504131 | -82.130203 |
| Hookers Prairie | 0 | 27.917828 | -82.437286 |
| Big Bend | 251.861 | 27.80416 | -82.397083 |
| Taft | 0 | 30.019122 | -90.774707 |
| Belle Plaine | 698,611.932 | 50.427658 | -105.198296 |
| Esterhazy K2 | 96,394.386 | 50.65768 | -101.848412 |
| Colonsay | 37,898.296 | 51.934105 | -105.763496 |
| Esterhazy K1 | 36,695.219 | 50.729282 | -101.933723 |
| Carlsbad | 37,452.462 | 32.412258 | -103.939217 |
| Esterhazy K3 | 6,621.14 | 50.646084 | -101.991946 |
| Fospar | 39,195.312 | -25.510841 | -48.521633 |
| Tampa Marine | 222.993 | 27.926672 | -82.43187 |
| Houston | 118.552 | 29.744053 | -95.114723 |
| Savage | 114.855 | 44.779415 | -93.336426 |
| Henderson | 240.935 | 37.815159 | -87.658173 |
| Paranagua | 206.512 | -25.510841 | -48.521633 |
| Uberaba | 214.822 | -19.982393 | -47.900391 |
| Alto Arguaia | 13.775 | -17.151678 | 53.192689 |
| Rio Verde | 132.865 | -17.807942 | -51.008695 |
| Candeias | 54.635 | -12.66295 | -38.51944 |
| Sorriso | 215.985 | -12.604993 | -55.749907 |
| Pekin | 68.92 | 40.587875 | -89.660637 |
| Campo Grande | 22.273 | -21.258281 | -48.492311 |
| Paranagua II | 315.394 | -25.531969 | -48.549938 |
| Uberaba II | 156.6 | -19.788737 | -47.943228 |
| Villeta | 113.215 | -25.667817 | -57.690011 |
| Rondonopolis | 338.371 | -16.619864 | -54.701082 |
| Catalao | 102.6 | -18.190415 | -47.970764 |
| Hopewell | 0 | 27.915899 | -82.131219 |
| Bonnie | 0 | 27.863068 | -81.932498 |
| Hookers Point | 97.893 | 27.917532 | -82.439013 |
| Port Sutton | 86.827 | 27.905096 | -82.410554 |
| Rio Grande II | 166.137 | -32.102711 | -52.113065 |

| | | | |
|-------------------|-------------|------------|------------|
| Cajati | 137,683.168 | -24.714879 | -48.124609 |
| Uberaba III | 215,755.746 | -19.993207 | -47.883844 |
| Araxa | 18,212.814 | -19.629278 | -46.977984 |
| Catalao II | 40,498.465 | -18.164763 | -47.905652 |
| Patrocinio | 16,309.527 | -19.015003 | -46.80879 |
| Tapira | 68,638.268 | -19.842885 | -46.852427 |
| Taquari Vassouras | 8,007.623 | -10.651971 | -37.03583 |
| Patos de Minas | 76.626 | -18.374014 | -46.913118 |
| Miski Mayo | 175,568.719 | -5.802229 | -81.05289 |
| Pine Bend | 295 | 44.740681 | -93.112228 |
| Carnalita | 112 | | |

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 CO ₂ e | Comment |
|---------------------------------|--|---|
| Chemicals production activities | 1,451,954 | This emissions total represents the sum of all phosphates concentrates (chemical manufacturing) facilities. |

C7.5

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

| Country/Region | Scope 2, location-based (metric tons CO ₂ e) | Scope 2, market-based (metric tons CO ₂ e) | Purchased and consumed electricity, heat, steam or cooling (MWh) | Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh) |
|--------------------------|---|---|--|--|
| United States of America | 673,413 | 643,270 | 1,551,838 | 58 |
| Canada | 668,522 | 666,477 | 1,022,205 | 73 |
| Brazil | 77,541 | 77,541 | 871,043 | 0 |
| Paraguay | 104 | 104 | 1,123 | 0 |

| | | | | |
|------|--------|--------|--------|---|
| Peru | 29,549 | 29,549 | 99,293 | 0 |
|------|--------|--------|--------|---|

C7.6

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

By business division

By facility

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) |
|-------------------|--|--|
| Phosphate | 621,767 | 591,803 |
| Potash | 741,487 | 739,443 |
| Distribution | 8,231 | 8,051 |
| Fertilizantes | 80,859 | 80,859 |

C7.6b

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

| Facility | Scope 2, location-based (metric tons CO2e) | Scope 2, market-based (metric tons CO2e) |
|--------------|--|--|
| Belle Plaine | 27,189 | 27,106 |
| Carlsbad | 72,965 | 72,965 |
| Big Bend | 982 | 953 |
| Bonnie | 0 | 0 |
| Bartow | 38,719 | 37,563 |
| Faustina | 29,646 | 20,561 |
| Green Bay | 0 | 0 |
| Colonsay | 82,403 | 82,151 |
| Mulberry | 0 | 0 |
| Nichols | 0 | 0 |
| New Wales | 25,806 | 25,036 |
| Plant City | 12,312 | 11,944 |
| Riverview | 12,987 | 12,599 |
| South Pierce | 1,669 | 1,619 |
| Taft | 0 | 0 |

| | | |
|------------------|---------|---------|
| Uncle Sam | 14,767 | 10,242 |
| Henderson | 1,111 | 1,111 |
| Hookers Point | 855 | 830 |
| Houston | 221 | 221 |
| Pekin | 386 | 386 |
| Port Sutton | 780 | 757 |
| Savage | 476 | 476 |
| Tampa Marine | 272 | 264 |
| Esterhazy K1 | 167,561 | 167,048 |
| Esterhazy K2 | 369,034 | 367,905 |
| Esterhazy K3 | 22,335 | 22,267 |
| Alto Araguaia | 12 | 12 |
| Candeias | 27 | 27 |
| Campo Grande | 7 | 7 |
| Catalao | 58 | 58 |
| Fospar | 2,809 | 2,809 |
| Paranagua | 75 | 75 |
| Paranagua II | 117 | 117 |
| Rondonopolis | 109 | 1,091 |
| Rio Verde | 61 | 61 |
| Sorriso | 109 | 109 |
| Uberaba | 6 | 6 |
| Uberaba II | 19 | 19 |
| Villeta | 104 | 104 |
| Four Corners | 310,203 | 300,943 |
| Fort Green | 0 | 0 |
| Hookers Prairie | 0 | 0 |
| Hopewell | 0 | 0 |
| Miski Mayo | 29,549 | 29,549 |
| Lonesome | 0 | 0 |
| South Fort Meade | 77,687 | 75,368 |
| South Pasture | 3,421 | 3,319 |
| Wingate | 64,019 | 62,108 |
| Streamsong | 4,129 | 4,006 |
| Rio Grande II | 47 | 47 |

| | | |
|-------------------|--------|--------|
| Cajati | 7,911 | 7,911 |
| Guara | 21 | 21 |
| Uberaba III | 16,934 | 16,934 |
| Araxa | 7,719 | 7,719 |
| Catalao II | 10,622 | 10,622 |
| Tapira | 20,754 | 20,754 |
| Taquari-Vassouras | 13,294 | 13,294 |
| Uberaba II | 19 | 19 |
| Patos de Minas | 26 | 26 |

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 CO ₂ e | Scope 2, market-based (if applicable), metric tons CO ₂ e | Comment |
|---------------------------------|--|--|---|
| Chemicals production activities | 136,888 | 120,517 | This emissions total represents the sum of all phosphates concentrates (chemical manufacturing) 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 tCO ₂ e from purchased feedstock | Explain calculation methodology |
|---------------------|---|--|
| Ammonia | 100 | At this time our reporting of Category 1 includes only ammonia purchases, which represents what we estimate to be our most material category 1 emissions source. |

C-CH7.8a

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

| | Sales, metric tons | Comment |
|--|--------------------|---------|
|--|--------------------|---------|

| | | |
|----------------------------|---|--|
| Carbon dioxide (CO2) | 0 | |
| 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 | Emissions value (percentage) | Please explain calculation |
|--|--|---------------------|------------------------------|--|
| Change in renewable energy consumption | 0 | No change | 0 | Our renewable energy consumption did not change from the previous year. |
| Other emissions reduction activities | 197,647 | Decreased | 3.64 | <p>Our emissions savings projects for 2019 decreased our overall emissions by 0.94%. We arrived at this percentage by dividing the reduction from projects by the 2018 total emissions, $(51,100/5,423,613)*100=0.94\%$.</p> <p>One of our Brazil facilities adopted the use of Vegetable oil instead of using Fuel oil, a high emissions fuel type. We experienced a 2.70% decrease in tonnes of CO2e as a result. We arrived at this percentage by dividing the decrease in fuel oil by the 2018 total emissions $(146,547/5,423,613)*100=2.70$.</p> |

| | | | | |
|---|---------|-----------|------|--|
| Divestment | | | | |
| Acquisitions | | | | |
| Mergers | | | | |
| Change in output | 436,941 | Decreased | 8.06 | <p>Due to a year-over-year decrease in ammonia production, we experienced a 1.58% decrease in tonnes of CO2e. We arrived at this percentage by dividing the decrease in ammonia production by the 2018 total emissions, $(85,660/5,423,613)*100=1.58$.</p> <p>A decrease in finished product tonnes accounted for 6.48% decrease in year-over-year GHG emissions. We arrived at this percentage by multiplying the decreased tonnes by the 2019 emissions rate and then dividing by the 2018 total emissions, $((1,515,710*0.23)/5,423,613)*100=6.48$.</p> |
| Change in methodology | | | | |
| Change in boundary | | | | |
| Change in physical operating conditions | | | | |
| Unidentified | 205,067 | Decreased | 3.78 | <p>Due to 'unidentified' reasons, emissions were lower than the previous year by less than 4%. Last year, 205,067 tonnes of CO2e were decreased by means we could not readily separate. Our total Scope 1 & Scope 2 emissions in the previous year were 5,423,613. We arrived at 3.78% by $(205,067/5,423,613)*100=3.78$.</p> |
| Other | | | | |

C7.9b

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

Location-based

C8. Energy

C8.1

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

More than 5% but less than or equal to 10%

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 | No |
| 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) | LHV (lower heating value) | 383,217 | 8,932,044 | 9,315,261 |
| Consumption of purchased or acquired electricity | | 131 | 3,545,501 | 3,545,632 |

| | | | | |
|---|--|---------|------------|------------|
| Consumption of self-generated non-fuel renewable energy | | 0 | | 0 |
| Total energy consumption | | 383,348 | 12,477,545 | 12,860,893 |

C-CH8.2a

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

| | Heating value | Total MWh |
|---|---------------------------|-----------|
| Consumption of fuel (excluding feedstock) | LHV (lower heating value) | 1,813,651 |
| Consumption of purchased or acquired electricity | | 331,911 |
| Consumption of self-generated non-fuel renewable energy | | 0 |
| Total energy consumption | | 2,145,561 |

C8.2b

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

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

C8.2c

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

.....

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,236,661

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

10.3

Unit

kg CO2 per gallon

Emissions factor source

source: Pg. 29 The Climate Registry Default Emission Factors, revised May 2018

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

7,131,716

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

4,390,589

MWh fuel consumed for self-generation of steam

487,843

MWh fuel consumed for self-cogeneration or self-trigeneration

2,253,284

Emission factor

53.09

Unit

kg CO2 per gallon

Emissions factor source

source: Pg. 2 The Climate Registry Default Emission Factors, revised May 2018

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Propane Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

17,033

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

5.74

Unit

kg CO2 per gallon

Emissions factor source

source: Pg. 31 The Climate Registry Default Emission Factors, revised March 2018

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

26,236

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

8.96

Unit

kg CO₂ per gallon

Emissions factor source

Pg. 29 The Climate Registry Default Emissions Factors, revised May 2018

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Fuel Oil Number 1

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

520,398

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

520,398

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

11.3

Unit

kg CO2 per gallon

Emissions factor source

Pg. 29 The Climate Registry Default Emissions Factors, revised May 2018

Comment

Number represents the summation of CO2, N2O and CH4 emissions converted to CO2e using base factors of 25 for CH4 and 298 for N2O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Other, please specify

Ethanol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

106

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

5.76

Unit

kg CO₂e per gallon

Emissions factor source

Pg. 1 of EPA Climate Leadership Emission Factors as of March 2018

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

Fuels (excluding feedstocks)

Other, please specify

Biomass

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

383,111

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-cogeneration or self-trigeneration

0

Emission factor

113.94

Unit

kg CO₂e per gallon

Emissions factor source

IPCC 2006, Volume 2, Chapter 2

Comment

Number represents the summation of CO₂, N₂O and CH₄ emissions converted to CO₂e using base factors of 25 for CH₄ and 298 for N₂O as per IPCC Fourth Assessment Report (AR4).

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 | 1,937,208 | 1,733,051 | 0 | 0 |
| Heat | 4,910,987 | 4,910,987 | 0 | 0 |
| Steam | 20,679,293 | 20,679,293 | 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.

| | Total gross generation (MWh) inside chemicals sector boundary | Generation that is consumed (MWh) inside chemicals sector boundary |
|-------------|---|--|
| Electricity | 1,530,483 | 967,358 |
| Heat | 520,398 | 520,398 |
| Steam | 16,361,365 | 16,361,365 |
| Cooling | 0 | 0 |

C8.2e

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

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator with energy attribute certificates

Low-carbon technology type

Wind

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Canada

MWh consumed accounted for at a zero emission factor

73

Comment

Mosaic's Colonsay facility has a green power purchase agreement with utility (SaskPower) to purchase low carbon electricity and it is accounted for here.

Sourcing method

Other, please specify

Off-grid energy consumption from an on-site installation or through a direct line to an off-site generator owned by another company

Low-carbon technology type

Solar

Country/region of consumption of low-carbon electricity, heat, steam or cooling

United States of America

MWh consumed accounted for at a zero emission factor

58

Comment

Solar power located on site in Carlsbad, NM. 58 MWh generated to offset the purchase of electricity.

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

168,172

Total consumption unit

thousand cubic metres

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

1.69

Heating value of feedstock, MWh per consumption unit

10.7

Heating value

LHV

Comment

Calculated using 1 MMBtu equivalent to 27.3 m³ natural gas from U.S. Energy Information Administration. Density of natural gas estimated at 0.8kg/m³.

Fuels used as feedstocks

Other, please specify

Molten Sulfur

Total consumption

4,491,574

Total consumption unit

metric tons

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

0

Heating value of feedstock, MWh per consumption unit

Heating value

LHV

Comment

Emissions from feedstock take the form of SO₂ which is consumed in the process to create an intermediary for our process. The heating value was calculated using energy generation per ton of intermediary production converted to per ton feedstock input.

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 | 3.6 |

| | |
|--|------|
| Coal | 0 |
| Biomass | 0 |
| Waste (non-biomass) | 0 |
| Fossil fuel (where coal, gas, oil cannot be distinguished) | 96.4 |
| Unknown source or unable to disaggregate | 0 |

C9. Additional metrics

C9.1

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

Description

Energy usage

Metric value

2.39

Metric numerator

Total Energy Consumption

Metric denominator (intensity metric only)

Metric tonnes finished product

% change from previous year

0.3

Direction of change

Decreased

Please explain

Decrease due to decrease in ammonia production and site idling.

Description

Other, please specify

Cogenerated power

Metric value

1,937,209

Metric numerator

MWh

Metric denominator (intensity metric only)

% change from previous year

0.03

Direction of change

Increased

Please explain

Cogenerated power is generated by harnessing waste heat from the sulfuric acid manufacturing process. Emissions associated with original source of the heat, sulfuric acid production, are accounted for in scope 1 emissions. As there are no incremental emissions associated with the production of power from this process, we are including it as a low-carbon source.

C-CH9.3a

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

Output product

Ammonia

Production (metric tons)

239,368

Capacity (metric tons)

455,000

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

0

Electricity intensity (MWh per metric ton of product)

0

Steam intensity (MWh per metric ton of product)

0

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

0

Comment

As ammonia is an input used in our finished crop nutrient products, we have not calculated the emissions intensity associated with this chemical specifically.

Output product

Other, please specify
Sulfuric Acid

Production (metric tons)

19,060,772

Capacity (metric tons)

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

Electricity intensity (MWh per metric ton of product)

Steam intensity (MWh per metric ton of product)

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

1.38

Comment

As sulfuric acid is an intermediate input used in our finished crop nutrient products, we have not calculated the emissions intensity associated with this chemical specifically. Rather, it is included in the facility, business unit and company-wide emissions figures.

Output product

Other, please specify
Phosphoric Acid

Production (metric tons)

4,598,846

Capacity (metric tons)

5,300,000

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

Electricity intensity (MWh per metric ton of product)

Steam intensity (MWh per metric ton of product)

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

Comment

As phosphoric acid is an intermediate input used in our finished crop nutrient products, we have not calculated the emissions intensity associated with this chemical specifically. Rather, it is included in the facility, business unit and company-wide emissions figures.

Output product

Other, please specify

Phosphate Crop and Animal Feed Production

Production (metric tons)

8,100,000

Capacity (metric tons)

11,700,000

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

0.206

Electricity intensity (MWh per metric ton of product)

0.19

Steam intensity (MWh per metric ton of product)

1.36

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

0

Comment

Per CDP methodology, direct emissions intensity represents the Scope 1 emissions per unit production of operations related to phosphate crop and animal feed products. Also per CDP methodology, electricity intensity represents the electrical power consumed, both purchased and electricity that is generated within the facility, per unit production of operations related to phosphate crop and animal feed products.

Output product

Other, please specify

Potash Crop Nutrient

Production (metric tons)

7,900,000

Capacity (metric tons)

10,500,000

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

0.12

Electricity intensity (MWh per metric ton of product)

0.15

Steam intensity (MWh per metric ton of product)

0

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

0

Comment

Per CDP methodology, direct emissions intensity represents the Scope 1 emissions per unit production of operations related to potash crop nutrients. Also per CDP methodology, electricity intensity represents the electrical power consumed, both purchased and electricity that is generated within the facility, per unit production of operations related to potash crop nutrients.

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 | Stage of development in the reporting year | Average % of total R&D investment over the last 3 years | R&D investment figure in the reporting year (optional) | Comment |
|---------------------|--|---|--|---|
| Waste heat recovery | Large scale commercial deployment | | | Mosaic has invested heavily in equipment that enables the internal generation of electricity in a process called cogeneration. The process of heat recovery allows several of our Phosphate plants and mines to significantly reduce the amount of third-party, primarily fossil-fuel based electricity required from utility companies. The cogeneration |

| | | | |
|--|--|--|--|
| | | | <p>process begins at our manufacturing operations, where we use sulfuric acid to liberate crop nutrients (phosphorous) from raw material inputs. This process generates a significant amount of waste heat that is recovered and converted to steam by bottoming cycle combined heat and power systems. This steam is sent to turbine generators and converted to virtually greenhouse gas emissions-free electricity that powers our manufacturing facilities and mines. In instances when we generate more clean cogenerated energy than we can use at our own operations, the excess is exported to the local grid.</p> <p>We are constantly looking for opportunities to improve the efficiency and output of our cogeneration assets, including bringing additional turbo generators online to increase our low-GHG electrical generation capacity, when possible. Accordingly, there is no "end date" for this investment. The amount of investment depends on the specific project, but as an example of an investment figure, in 2016 we brought a turbo generator online at our Uncle Sam facility that can provide up to an additional 15 megawatts of low-GHG electrical generation capacity. This initiative cost approximately \$21 million. We are investigating technology upgrades that would allow us to harness additional waste heat to enable more production of cogenerated electricity at our Brazil phosphate facilities. Multiple heat</p> |
|--|--|--|--|

| | | | | |
|--|--|--|--|--|
| | | | | recovery systems would cost \$250,000,000. |
|--|--|--|--|--|

C10. Verification

C10.1

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

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

C10.1a

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

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/ section reference

page 1/1

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1b

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

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

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/ section reference

Page 1/1

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3 (upstream)

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

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/section reference

Page 1/1

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Business travel

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

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Investments

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

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope 3 category

Scope 3: Purchased goods and services

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

 ERM CVS 2019 CDP Assurance Statement Mosaic_26Aug.pdf

Page/section reference

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100


C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

| Disclosure module verification relates to | Data verified | Verification standard | Please explain |
|---|--|-----------------------|---|
| C8. Energy | Energy consumption | ISAE3000 | Total energy use (consumption) verified by ERM CVS for the 2019 calendar year. |
| C7. Emissions breakdown | Year on year change in emissions (Scope 1 and 2) | ISAE3000 | Additional data assured in 2019 is year-on-year emissions change in Scope 1 and Scope 2. See page 1 of attached ERM CVS 2019 Assurance Statement Mosaic_Final.PDF  1 |

 1ERM CVS 2019 Assurance Statement Mosaic_Final.pdf

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.

Other carbon tax, please specify
Canadian Carbon Tax

C11.1c

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

Other carbon tax, please specify

Period start date

January 1, 2018

Period end date

December 31, 2030

% of total Scope 1 emissions covered by tax

35

Total cost of tax paid

1,600,000

Comment

In 2019 we paid approximately \$1.6 million in funds for carbon levy and transportation pass-through costs associated with Canada's carbon tax structure.

C11.1d

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

In late 2016, the Canadian federal government announced plans for a comprehensive tax on carbon emissions, under which provinces opting out of the tax would have the option of adopting a cap-and-trade system. In late 2018, the federal government also implemented a federal carbon pricing backstop system that applies in any province or territory that does not have a carbon pricing system in place by 2018. The federal system applies, in part, to our Saskatchewan Potash facilities. The federal government accepted Saskatchewan's plan for regulating industrial GHG emission and Mosaic now reports to the Saskatchewan Ministry of Environment to meet 2030 reduction targets; however, the federal government imposed a carbon tax on GHG emissions from electricity, which will affect our facilities in Saskatchewan. Mosaic will continue to work with the Saskatchewan Ministry of Environment, Environment and Climate Change Canada and other government stakeholders, through participation in industry associations, to determine next steps. We will also continue to monitor developments relating to the anticipated proposed legislation, as well as the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources. In the meantime, the facilities continue to actively work toward 2020 sustainability targets to reduce energy use and GHGs per tonne of product (as of the date of this report, we announced a target to reduce GHG emissions by 20% by 2025). Other efficiency projects and large-scale projects and partnerships that have the potential to drive further reductions in GHG emissions are under consideration.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

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

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Navigate GHG regulations

GHG Scope

Scope 1

Scope 2

Application

In anticipation of federal or provincial regulatory changes in Saskatchewan, Canada where we have potash mines, we have applied various pricing scenarios to our emissions performance in order to assess our potential exposure. For example, the Saskatchewan provincial regulatory system applies a compliance price of \$20 CAD per tonne of CO₂e for businesses whose GHG emissions are above a certain threshold. The compliance cost will increase to \$50 per tonne by 2022. We are considering this price for our Potash operations in Saskatchewan, Canada, using current/average GHG performance.

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

50

Variance of price(s) used

Using the example above, we have applied uniform pricing for our Potash operations in Saskatchewan, Canada, using current/average GHG performance.

Type of internal carbon price

Shadow price

Impact & implication

Applying the price of \$50 per tonne of CO₂e generated at our facilities in Canada, in line with the example above and assuming current/average GHG performance for each facility, the potential price implications to Mosaic, inclusive of indirect costs, could be more than \$10 million. Uniform pricing was used for each of our Saskatchewan sites and the analysis takes into consideration the tax increase from \$20 per tonne to \$50 per tonne by 2022. Canadian potash producers are already subject to higher tax rates, higher shipping costs and higher electricity costs than the world's other major potash producers. Implementation of a carbon tax in Canada would place an additional hardship on the Canadian potash producers, reducing their competitiveness and effectively suppressing the marketability of the world's most environmentally friendly potash; while adding to the advantages already enjoyed by the major overseas potash producers. Note: this impact represents an estimate only, and it a simplification of one scenario under consideration at the time of our completing this report. Our Saskatchewan Potash facilities will continue to work with the Environment and Climate

Change Canada, the Saskatchewan Ministry of Environment and other government stakeholders, through participation in industry associations to determine next steps for this file. As part of that engagement, we are monitoring developments relating to the anticipated proposed federal legislation on national carbon pricing, as well as the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

1

% total procurement spend (direct and indirect)

10

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

38

Rationale for the coverage of your engagement

Ammonia accounts for a majority of the environmental impacts associated with Mosaic's purchased goods and services. We are engaging the industry to secure purchased ammonia from sources that are closer to our operations, which will save GHGs associated with the transportation of ammonia. Further, the manufacturers closer to our operations in the United States are generally more modern and employ advanced manufacturing technologies – which improves the plants' efficiency and energy use, thus resulting in fewer GHGs associated with manufacturing ammonia and emissions associated with Mosaic's purchased goods and services. Mosaic is enabling these GHG reductions through our engagement with these suppliers by signaling market demand for the more efficient ammonia.

Impact of engagement, including measures of success

Success will be measured as the number of ammonia tonnes purchased from suppliers closer to our U.S. operations. As of this date, we cannot quantify the impact of our engagement but expect that agreements for purchase of more efficient supply will materialize in 2020. Modern plants are approximately 20% more efficient than a mix of modern and older plants, per IPCC guidance; therefore, emissions associated with Mosaic's purchased goods and services stand to be potentially reduced by more than 500,000 tonnes CO₂e.

Comment

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

1

% total procurement spend (direct and indirect)

1

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

10

Rationale for the coverage of your engagement

Our efforts to lower our emissions footprint extend into our supply chain, and we've made investments that have resulted in significant improvements. For example, we contract a fleet of more than 50 trucks that run on clean-burning compressed natural gas (CNG), and a second Mosaic trucking partner added four CNG trailers to their fleet in 2015. Success is measured, in part, by year-over-year increase in shipping volumes transported more efficiently, and year-over-year reduction in transportation-associated emissions. We continue to explore opportunities with suppliers to convert additional shipping volumes to CNG.

Impact of engagement, including measures of success

In 2019 we moved a total of approximately 800,000 tonnes of product with CNG, contributing to fewer (>1%) year-over-year transportation-associated GHG emissions.

Comment

Percent of total procurement spend figure represents approximate spend for North America including procurement expenditures, raw materials and shipping (supply chain) costs.

C12.1b

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

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

80

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

10

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

Mosaic is committed to supporting best agricultural practices, including research and practices to minimize the environmental impact, including GHG emissions, associated with the use of our crop nutrient products. Mosaic supports the minimization of greenhouse gas emissions from the activities related to global food supply by encouraging stakeholders in the value chain, including direct retailer customers who interact directly with the end users of our products, to enhance their understanding, adoption and promotion of 4R Nutrient Stewardship. By applying the right fertilizer at the right rate, right time and in the right place, farmers minimize environmental impacts associated with fertilizer use, including potential greenhouse gas emissions. We select this group of customers due to their farming practices in key watersheds.

Impact of engagement, including measures of success

We measure success of this engagement in a variety of ways, including the number of acres under the guidance of nutrient service providers that have earned 4R Nutrient Stewardship Certification through the Nutrient Stewardship Council's 4R Nutrient Stewardship Certification Program. As of 2019, more than 75 nutrient service providers servicing 8,000 farmers are certified, representing a 14% increase in acres under management since 2018. These nutrient service providers, who are Mosaic's direct customers, represent approximately 80% of total nutrient services providers.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers

Trade associations

Funding research organizations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

| Focus of legislation | Corporate position | Details of engagement | Proposed legislative solution |
|-------------------------|-------------------------------|---|---|
| Clean energy generation | Support with minor exceptions | As one of the world's leading crop nutrient companies, Mosaic has a responsibility to be actively engaged in the promotion of sound and sustainable public policies. We are proactive in educating government officials and staff at all levels of our company's operations, the key issues our company faces, our company's importance to local communities and the critical role we play in the world's food supply. | It is Mosaic's belief that the production of electrical energy from highly efficient waste heat recovery resources should be recognized and supported at the highest tier of cost-effective clean energy resources. Mosaic could have additional opportunities for harnessing emissions-free power under a more supportive regulatory construct. We advocate for a balanced clean energy policy that encourages the generation, transmission, and consumption of existing, low-cost resources, such as waste heat recovery, protects the rights of waste heat generation under the provisions of the Public Utility Regulatory Policies Act of 1978, and promotes fairer pricing for third-party clean energy producers when selling power back to the electrical grid. |
| Carbon tax | Oppose | In 2016 the Canadian federal government announced plans for a comprehensive tax on carbon emissions, under which provinces opting out of the tax would have the option of adopting a cap-and-trade system. In addition, the Province of Saskatchewan, in which our Canadian potash mines are located, has stated that a carbon pricing system will not be implemented in the province and that legal action will be sought against the federal government, if necessary. In December 2017, Saskatchewan announced a | Production of potash in Canada results in significantly lower CO ₂ e emissions per ton of product than the potash produced by the major overseas producers. Canadian potash producers are already subject to higher tax rates, higher shipping costs and higher electricity costs than the world's other major potash producers. Implementation of a carbon tax in Canada would place an additional hardship on the Canadian potash producers, reducing their competitiveness and effectively |

| | | |
|--|--|---|
| | <p>comprehensive plan to address climate change that does not include an economy-wide price on carbon but does include a system of tariffs and credits for large emitters. The plan was subject to federal review and approved by the federal government. Our Saskatchewan Potash facilities will continue to work with the Saskatchewan Ministry of Environment and Environment and Climate Change Canada, through participation in industry associations, to determine next steps. We will also continue to monitor developments relating to the anticipated proposed legislation, as well as the potential future effect on our operating activities, energy, raw material and transportation costs, results of operations, liquidity or capital resources.</p> | <p>suppressing the marketability of the world's most environmentally friendly potash; while adding to the advantages already enjoyed by the major overseas potash producers.</p> <p>Implementation of the carbon tax will likely cause Canadian potash producers to lose market share due to inevitable operating cost increases. Overseas potash producers would be the beneficiaries of the Canadian carbon tax, resulting in increased carbon emission intensity from the global potash industry as a whole.</p> |
|--|--|---|

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Fertilizer Canada

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Per Fertilizer Canada's website, "The fertilizer industry takes seriously its responsibility as stewards of our soil, air and water resource. Sustainability can be achieved by balancing economic, social and environmental goals. Fertilizer Canada's members have

been proactive in reducing their greenhouse gas emissions. Technological investments and process improvements have resulted in a significant reduction in emissions levels since the early 1990s. Further reductions are possible on the farm where fertilizer products are applied."

How have you influenced, or are you attempting to influence their position?

Mosaic is a member and Mosaic's Vice President of Public Affairs for North America serves on the Board of Directors for Fertilizer Canada (previously Canadian Fertilizer Institute).

Trade association

The Fertilizer Institute (TFI)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Per the TFI website, "TFI is the leading voice in the U.S. fertilizer industry, representing the public policy, communication and statistical needs of producers, manufacturers, retailers and transporters of fertilizer. Issues of interest to TFI members include security, international trade, energy, transportation, the environment, worker health and safety, and farm bill and conservation programs to promote the use of enhanced efficiency fertilizer."

How have you influenced, or are you attempting to influence their position?

Mosaic is a member of TFI and Joc O'Rourke, President and Chief Executive Officer of The Mosaic Company, serves on TFI's Board of Directors. Programs of TFI are funded by member companies that are dedicated to advocating for the fertilizer industry.

Trade association

Saskatchewan Mining Association (SMA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The SMA advocates for and protects the sustainability of the mining industry in the Province of Saskatchewan. Competitiveness of Saskatchewan mining companies continues to be a significant challenge due to lower rates of international taxation and less stringent regulatory requirements in other jurisdictions. The SMA believes strongly in a robust and protective regulatory regime, but this regime must be practical and cost-effective if industry is to survive/thrive in Saskatchewan and Canada. Implementation of a carbon tax in Canada will place an additional hardship on mining companies, reducing their competitiveness in the world market.

How have you influenced, or are you attempting to influence their position?

Mosaic currently has three members on the SMA Board of Directors and is active in efforts to provide solution-based technical assistance to Environment and Climate Change Canada and the Saskatchewan Ministry of Environment.

Trade association

Saskatchewan Potash Producers Association (SPPA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The SPPA advocates for and protects the sustainability of potash producers in the Province of Saskatchewan. Canadian potash producers create fewer emissions than their competitors and are subject to higher tax rates and higher shipping costs than the world's other major potash producers. Implementation of a carbon tax in Canada would place an additional hardship on the Canadian potash producers, reducing their competitiveness and effectively suppressing the marketability of the world's most environmentally friendly potash; while adding to the advantages already enjoyed by the major overseas potash producers.

How have you influenced, or are you attempting to influence their position?

Mosaic's Vice President of Human Resources of Potash and Senior VP of Potash serve on SPPA's Board of Directors, contributing to SPPA's efforts to preserve global competitiveness of Potash industry in Saskatchewan.

Trade association

Brazilian Agribusiness Association (ABAG)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

ABAG has consistent position against illegal deforestation and respect to the Brazilian Forest Code. The association also supports the Ministry of Agriculture Plan to combat climate change, which is part of the Brazilian National Policy for Climate Change (launched in 2008). ABAG is a member of the Brazilian Coalition on Climate Forests and Agriculture, where it coordinates policy positions with other private sector organizations and environmental NGOs.

How have you influenced, or are you attempting to influence their position?

Mosaic currently participate as a member of different ABAG's Working groups: Legal Committee, Sustainability Committee and Logistics Committee.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Mosaic strives to be the global leader in the crop nutrient industry. We recognize the importance of being active in industry associations and cross-sector business forums that provide common platforms to advance cutting-edge scientific research and best management practices within our company and our industry. In addition to having a publicly available Leadership on Climate Change document that states our companywide position on climate change, Mosaic has a process in place to carefully consider, on a case-by-case basis, the relevance of the engagement opportunities and alignment with our values and business strategies and pursues mutually beneficial partnerships. For example, we participate in key cross-sector and industry partnerships through membership and Board and/or committee involvement, which allows us to influence the work done by respective organizations in a way that is consistent with our strategy. This applies across geographies and operating units. Mosaic takes part in industry efforts to address the challenges of climate change and commits to further engage with policy makers and stakeholders on the issue of climate change. Mosaic recognizes that our action on climate change is good for the environment and for the long-term financial health and viability of our company. Agronomy, EHS, and Public Affairs professionals interact with policymakers and global thought leaders to encourage the transfer of knowledge and to incorporate the latest thinking on sustainability into the Mosaic risk management process.

C12.4

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


Publication

In mainstream reports

Status

Complete

Attach the document

 2019 10K.pdf

Page/Section reference

40-41/159

Content elements

Risks & opportunities

Comment

2019 10K

Publication

In voluntary communications

Status

Complete

Attach the document

 Mosaic-2019-GRI-6-5-2020 (004).pdf

Page/Section reference

49/79

Content elements

Strategy
Emissions figures
Emission targets

Comment

2019 Sustainability Disclosure

Publication

In voluntary communications

Status

Complete

Attach the document

 2019 Performance Summary.pdf

Page/Section reference

3/3

Content elements

Governance
Strategy

Risks & opportunities
Emissions figures

Comment

2019 Performance Summary

Publication

In mainstream reports

Status

Complete

Attach the document

 2019 Proxy Statement.pdf

Page/Section reference

7-8/80

Content elements

Risks & opportunities
Emission targets

Comment

2019 Proxy Statement

C15. 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.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

| | Job title | Corresponding job category |
|-------|---------------------------------------|-------------------------------|
| Row 1 | President and Chief Executive Officer | Chief Executive Officer (CEO) |

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

| | I am submitting to | Public or Non-Public Submission |
|-----------------------------|---------------------------|--|
| I am submitting my response | Investors | Public |

Please confirm below

I have read and accept the applicable Terms