

C0. Introduction

C0.1

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

AECI is a South African-based company focused on providing products and services to a broad spectrum of customers in the mining, water treatment, plant and animal health, food and beverage, infrastructure and general industrial sectors. It has regional and international businesses in Africa, South East Asia, the USA and Australia. AECI was registered as a company in South Africa in 1924 and has been listed on the JSE since 1966. The Group has five growth pillars. The focus of four of the growth pillars is on domestic growth as well as ongoing expansion outside South Africa in the Group's chosen strategic areas of Mining Solutions, Water & Process, Plant & Animal Health, and Food & Beverage. The fifth growth pillar focuses on the proactive management of a portfolio of Chemicals business. Mining Solutions comprises AEL Mining Services ("AEL"), Senmin and Experse, Water & Process is anchored in ImproChem and Plant & Animal Health in Nulandis and Schirm. Lake Foods ("Lake") and Southern Canned Products ("SCP") constitute the Food & Beverage pillar. Extreme and unpredictable weather events and the failure of climate change mitigation and adaptation has been identified by the Group as a top risk. As such, AECI is committed to effective management of climate-related risks, energy consumption and associated greenhouse gas (GHG) emissions. Total Scopes 1 and 2 emissions for the 2017 financial year (01 January 2017 to 31 December 2017) were 583 251 tCO₂e which represents an increase of 9.7% from the prior year. This increase was largely due to higher Scope 1 emissions from AEL's nitric acid facility. The increase was attributable to significantly higher online time at the No. 9 Nitric Acid Plant in 2017. There have been no changes to its reporting year. AECI continues to report in line with its financial 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	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

C0.3

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

- Australia
- Botswana
- Burkina Faso
- Congo
- Ghana
- Guinea
- Indonesia
- Malawi
- Namibia
- South Africa
- United States of America
- Zambia
- Zimbabwe

C0.4

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

ZAR

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 consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Financial control

C-CH0.7

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

Row 1

Bulk organic chemicals

Aromatics

Bulk inorganic chemicals

Ammonia

Fertilizers

Nitric acid

Other chemicals

Specialty chemicals

Specialty organic 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) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Board/Executive board	The AECI Board has over-arching responsibility for climate-related issues. Responsibility was assigned to the Board in recognition of the potential impact of climate-related risks on the organisation. The Board acknowledges that risk management is an integral part of the Group strategy-setting process and is accountable for risk management. This includes risks related to climate change. The Board has appointed the Social and Ethics Committee to consider, recommend and monitor AECI's activities with regard to safety, health and environment and report accordingly to the Board. This includes climate-related issues.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	The Social and Ethics Committee meets quarterly. It reports back to the Board on climate-related issues at all meetings of the Board. The information conveyed by the Social and Ethics Committee to the Board is used in strategy and action plan development. It is also used to inform target and budget setting. When considering new projects, climate-related risks that have the potential to impact on these projects are identified and considered. This is the case for major capital expenditures, acquisitions and mergers. Climate related issues are also discussed at the Risk Committee where Extreme and unpredictable weather events is recognised as a material issue for the business that could impact the delivery of its strategy and growth objectives both positively and negatively. One of the main functions of the Risk Committee is to ensure that proper controls and mitigations are in place to prevent risk.

C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	Quarterly

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.

The Chief Executive has an overall, primary management and leadership role in the organisation. Included in this is responsibility for climate-related issues. The Chief Executive is supported by the Group Safety, Health and Environment Manager. This Manager has day-to-day responsibility for climate-related issues, with a reporting line to the Chief Executive. This Manager reports back to the Chief Executive and the Social and Ethics Committee on environmental performance and climate-related issues. The Group Safety, Health and Environment Manager is supported by the Group Environmental Specialist who provides environmental support and advice to AECI. Along with the Chief Executive, the Social and Ethics Committee is also directly responsible for oversight and guidance on climate-related issues. It is a Board-Appointed Committee that sits directly under the Board in the organisational structure and reports back to the full Board. Responsibility for climate-related issues rests within this Committee as it fits within the mandate of this Committee. The Social and Ethics Committee is mandated to consider, recommend and monitor AECI's activities with regard to the following and report accordingly to the Board: 1. Safety, health and the environment: this includes climate change and relates specifically to the impacts of and on the AECI Group's activities and its products and services; 2. Good corporate citizenship, specifically in relation to (i) the promotion of equality; (ii) the prevention of unfair discrimination and the reduction of corruption; and (iii) AECI's record of sponsorship, donations and charitable giving; 3. Labour and employment matters: specifically in relation to AECI's standing on (i) the International Labour Organisation's protocol on decent work and working conditions; (ii) employee relations and contributions to the educational development of employees; 4. Social and economic development of defined communities: specifically in relation to (i) the 10 principles set out in the United Nations Global Compact; (ii) the Organisation for Economic Co-operation and Development's recommendations regarding corruption; (iii) the Employment Equity Act, No. 55 of 1998, (the "Employment Equity Act") in South Africa; and (iv) the Broad-Based Black Economic Empowerment Act, No. 53 of 2003, in South Africa; and consumer relations: specifically in relation to advertising, public relations and compliance with consumer protection laws. 5. To monitor and advance the implementation of policies and plans approved by the Board on matters as contemplated above. The Social and Ethics Committee meets on a quarterly-basis. In these meetings, the Committee reviews AECI's environmental performance. This includes AECI's mitigation activities and its management of climate-related risks and opportunities.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?
Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?

Director on board

Types of incentives

Recognition (non-monetary)

Activity incentivized

Other, please specify (Reducing waste, water and energy)

Comment

An environmental award is given to the Managing Director of the company that performs the best in terms of achieving targets on reducing waste (including emissions), water and energy usage. In addition, other environmental performance indicators such as management of environmental incidents and environmental legal compliance is considered. This award is accepted by the Managing Director on behalf of the company. Nulandis was named as the recipient of the award for 2017, owing to the outstanding performance across air emissions, water usage and waste parameters.

Who is entitled to benefit from these incentives?

Environment/Sustainability manager

Types of incentives

Recognition (non-monetary)

Activity incentivized

Please select

Comment

Awards were given to Safety, Health and Environmental (SHE) practitioners relating to best SHE performance at the 2017 Annual SHE Conference. Emissions performance is an important component of the environmental aspect of SHE.

Who is entitled to benefit from these incentives?

Process operation manager

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction project

Comment

Operational personnel are rewarded as part of their Key Performance Indicators on successful management of the Clean Development Mechanism (CDM) projects at AEL Modderfontein.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	2	Short-term is defined as up to two years. This is in line with the other business practice time horizons.
Medium-term	2	5	Medium-term is defined as two to five years. This is in line with the other business practice time horizons.
Long-term	5	10	Long-term is defined as five years or longer This is in line with the other business practice time horizons.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Given the Group's competitive and rapidly evolving external environment, risk management is an ongoing process. Risks, including climate-related risks, are identified and assessed on an ongoing basis in line with Group Risk Management Policy and the Group Enterprise Risk Management Framework. Consideration is given to risks that have the potential to impact on AECI's operations as far into the future as 6 years or more.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

The Group follows the risk management methodology comprising both bottom-up and top-down processes. The risk management methodology adopts a holistic approach in identifying, analysing, evaluating, treating, monitoring and reviewing risks.

- How climate-related risks are identified and assessed at a site-level (asset-level): Site-level risks are identified and assessed using a bottom-up process. Management teams of the various businesses within the Group are asked to identify risks and quantify the likelihood, timeline and magnitude of each risk. These teams are also asked to provide information on plans in place to manage these risks. Management teams are supported in this risk identification and prioritisation process by the relevant individuals at Corporate Head Office through risk identification and management workshops.

- How climate-related risks are identified and assessed at a company-level: The top-down process (company-level) involves management at Corporate Head Office. Management at Corporate Head Office review the risks identified at site-level and also identify Group-level risks. The identification of risks at Group-level is informed by the assessment and monitoring of the broader context in which the Group operates in terms of the political and economic landscape, industry, labour and financial market trends. Work includes the analysis of research materials and industry benchmarking studies by institutions such as the World Economic Forum, the World Bank and Control Risk. These serve as an early warning system or a mechanism for the identification of future risks and opportunities.

- The process you have in place for assessing the potential size and scope of identified risks: At site-level, the size and scope of each risk is determined by the management teams of the various businesses. The management teams allocate each risk a rating based on the likelihood of occurrence and the magnitude of impact. These risks are reported up to management at Corporate Head Office who consolidate and prioritise the risks identified by the assigned rating.

- The process by which your organization determines the relative significance of climate-related risks in relation to other risks: Risks, including climate-related risks, are prioritised on a 5 x 5 rating scale that sets out potential impacts (magnitude of impact) and estimated probabilities (likelihood of occurrence). The potential impacts are classified as minor, moderate, serious, major or severe which are linked to both a qualitative and quantitative residual risk value. The estimated probability is classified as almost certain (monthly basis), likely (once in one year), possible (once in three years), unlikely (once in five years) or rare (once in more than five years). Opportunities are also prioritised using a similar approach based on impact and likelihood.

- The definitions of risk terminologies used (or references to existing risk classification frameworks utilized by your company): The risks assessment process is underpinned by the Group Risk Management Policy and the Group Enterprise Risk Management Framework which are based on the principles of ISO 31000 and King IV. The risk terminologies align with this international standard and King IV.

- How your organization defines substantive financial or strategic impact on your business: Substantive financial impact is defined in the consequence scales. A rating ranging from minor to severe is included in the consequence table with an associated financial amount.

It is outlined below the ratings and associated financial impact:

Severe >R120 million (loss or gain) , Major >R80 – R120 million (loss or gain) , Serious >R40 – R80 million (loss or gain) , Moderate >R5 – R40 million (loss or gain) , Minor R0 – R5 million (loss or gain)

A substantive financial impact is considered as a rating of higher than moderate; i.e. serious, major or severe rating.

Opportunities are identified by employing the same bottom-up and top-down approach. Opportunities are also assessed and prioritised in the same way as risks.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current regulation is included in the climate-related risk assessment. Both business and corporate management are asked to consider whether the business and/or AECI as a whole are exposed to regulatory risks. An example of a risk associated with current regulation is the achievement of the minimum emission standards at AEL Modderfontein. This facility was unable to meet all the minimum emissions standards that came into effect on 1 April 2015 in terms of the National Environmental Management: Air Quality Act, No.39 of 2004. To address this, AEL submitted an application to the regulatory authorities for the postponement of the compliance timeframes, so as to allow the company sufficient time to make the necessary commitments of capital required to achieve full compliance. In 2017, the Department of Environmental Affairs responded to this request by issuing a letter outlining alternative limits to be adhered to between 24 April 2017 and 30 March 2020. AEL has since commenced installing abatement equipment, and will continue to do so over the next two years, in order to meet the 2020 Minimum Emission Standards.
Emerging regulation	Relevant, always included	As with current regulation, emerging or pending regulation is also considered in the risk assessment process. Both business and corporate management are asked to consider whether the business and/or AECI as a whole are exposed to regulatory risks. In the 2017 financial year, one such risk is the pending introduction of a carbon tax in South Africa. If a carbon tax is implemented on Scope 1 emissions, AECI could be required to pay in excess of R8 million, assuming a tax rate of R120/tonne CO ₂ e and an allowance of 80%.
Technology	Relevant, always included	All risks associated with technological improvements or innovations that support the transition to a lower-carbon, energy-efficient economic system are included in the risk assessment process. Management is asked to identify risks related to technology and technological advancements that may arise as a result of climate change. Opportunities related to technology are also identified. For example, In the 2017 financial year, AECI invested US\$5 million in Origin Materials that has new technology in renewable chemicals. It uses underutilised feedstocks to invent better materials and its production processes are more efficient with higher yields and fewer processing steps than traditional approaches.
Legal	Relevant, always included	The risk of litigation relating to non-compliance with climate-related regulation is considered in the risk assessment. Management of the various businesses within the Group are asked to identify if the businesses are exposed to risks from litigation. In the 2017 financial year, one of the material risks identified was 'litigation, penalties, criminal prosecution and reputational damage caused by a lack of understanding of the applicable legislative universe.'
Market	Relevant, always included	Market-related risks are factored into the climate-related risk assessment process. Management at business-level is asked to identify if the products and services are exposed to risks from shifts in supply and demand as a result of climate change. Some of the business identified market-related opportunities presented by climate change. One example is ImproChem which provides integrated water treatment and process chemicals, and equipment solutions, for a diverse range of applications in Africa. These include, inter alia, public and industrial water, desalination and utilities. It identified an opportunity associated with increased demand for its products and services as a result of the physical effects of climate change. In the 2017 financial year, for example, the drought in the Western Cape resulted in four contracts for the installation of desalination plants, with additional opportunities having been identified.
Reputation	Relevant, always included	Reputational risks are evaluated at site and Group-level. Reputational risks are anticipated to arise in the event that AECI is unable to meet regulatory requirements and effectively manage its GHG emissions and climate-related risks and opportunities.
Acute physical	Relevant, always included	Increased frequency and severity of extreme weather events resulting from climate change is included in the risk assessment process. Management of the various AECI businesses are asked to identify if these businesses are exposed to acute physical risks. In the 2017 financial year, one of the material risks to the Group was 'extreme and unpredictable weather events, and failure of climate change mitigation and adaptation, leading to drought or floods, water shortages and reduced agricultural output.' In addition, the severe and persistent drought in the Western Cape curtailed growth in some of the Group's businesses including Nulandis which manufactures and supplies an extensive range of crop production products, plant nutrients and services for the agricultural sector.
Chronic physical	Relevant, always included	Changes in rainfall patterns and ambient temperature are considered by management when identifying risks to the businesses and the Group. Again, relevant examples are the plant and animal health pillar and water and process businesses. The plant and animal businesses sell products into the agricultural sector, the success of which is heavily reliant on weather and associated rainfall patterns. On the other hand, changes in rainfall patterns could present opportunities to ImproChem which specialises in the provision of water-related services and products. An additional example of is the severe storms (hail combined with rain and wind) in KwaZulu Natal (KZN) which had a significant impact on AECI's KZN facilities in terms of property and equipment damage as well as business interruption.
Upstream	Relevant, always included	Risks in the value chain are considered in the risk assessment process with the various businesses being asked to report on any risks relating to supply of raw materials. SCP, for example, manufactures and distributes a broad-range of juice-based products and drinks. Owing to the drought in the Western Cape, it was necessary to purchase strategic consignments of raw materials for the juice business. This ultimately impacted on the trade working capital of the business, although this could be corrected by the middle of 2018.
Downstream	Relevant, always included	Risks relating to our customers and other stakeholders in the value chain are considered in the risk assessment process. This includes risks relating to shifts in customer and consumer attitudes and demands. We attempt to anticipate these shifts through assessing and monitoring the broader context in which the Group operates in terms of the political and economic landscape, industry, labour and financial market trends. This has led us to investing in Origin Materials and also developing new products and services to meet the ever-evolving needs of our customers.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Within AECI, climate-related risks and opportunities as identified by the management teams of the various businesses are managed at a business-level by these same management teams. These management teams prioritise risks and opportunities on a 5 x 5 rating scale and decide whether to mitigate, transfer, accept or control climate-related risks and whether to and how best to capitalise on opportunities. Support is provided by Corporate Head Office in the form of workshops with the management teams of the businesses.

For example, some of the businesses identified risks relating to current or pending regulation. AEL Modderfontein, for example, reports that it was unable to meet all the minimum emissions standards in terms of the National Environmental Management: Air Quality Act, No. 39 of 2004. To manage this risk, an application for postponement was submitted to the Department of Environmental Affairs and alternative limits were agreed to by the Department. AEL is in the process of installing abatement equipment at a cost of R200 million to reach these proposed limits. More generally, one way in which AECI manages risks relating to current and pending regulation is by regularly engaging with government either directly or through the Chemical and Allied Industries' Association (CAIA). AECI has also identified risks and opportunities relating to the impact of climate change on rainfall patterns and the increased occurrence and severity of droughts. Nulandis, for example, supplies crop protection products, plant nutrients and services into the agricultural sector in Africa. Any changes in rainfall patterns or any droughts would impact on the sales of Nulandis products. In order to manage this risk, Nulandis is pursuing water use efficiency and preservation of top soil through its NU-Way® programme. It is developing products and farm management services to support farmers. At the same time, changes in rainfall patterns could result in increased demand for ImproChem's products and services. In the Western Cape, for example, the drought led to increased demand for desalination plants. In order to capitalise on these opportunities, ImproChem is focused on assessing and monitoring the broader context, researching trends, considering investment in plant and equipment to serve new and existing markets and developing strong relationships with its customers by delivering high-quality products and services.

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

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

It is expected that a carbon tax will be introduced in South Africa in 2019. National Treasury has released a second draft of the Carbon Tax Bill. The current design will see the introduction of a tax of R120 per t CO₂e on Scope 1 emissions. It is anticipated that 80% of emissions will be tax-exempt for the chemical industry until 2020 to allow for a smooth transition. Not only will AECI be paying a direct tax on its Scope 1 emissions, but there may also be indirect cost implications as a result of increased prices of fuels and raw materials.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

8800000

Explanation of financial impact

Under the current design, the carbon tax would cost AECI in the region of R8.8m. It is expected that this would increase with time as the rate increases and the allowances reduce. The financial impact was calculated by taking the Scope 1 emissions for the 2017 financial year and multiplying it by the anticipated tax rate and the allowances.

Management method

The risk of a carbon tax is managed by AECI through the introduction of emission reduction initiatives which reduce its potential carbon tax liability. This is done in line with the Going Green Programme. In 2017, the National Cleaner Production Centre (NCPC) has commenced assessment at AECI facilities in identifying further opportunities to reduce energy consumption and GHG emissions at the Group's facilities in South Africa.

Cost of management

20000000

Comment

It is expected that the Going Green Programme will require investment from companies in excess of R20 million.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Exposure to litigation

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

One of the key short-term risks is uncertainty regarding the timing and nature of fiscal, regulatory and legislative frameworks governing climate change in South Africa. The Government recognises the country's responsibility to reduce emissions, and, as such, has and continues to develop climate change-related regulation and frameworks. Examples include the proposed carbon tax, the carbon budgeting process, mandatory reporting and pollution prevention plans. Given the number and nature of the climate-related regulation and frameworks under development, there is a lack of clarity on what will be implemented, the timing thereof and the interaction between various regulations and frameworks. This uncertainty presents a risk to AECI as it does not allow AECI to effectively prepare for and mitigate the effects of the introduction of the regulations and frameworks.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

5000000

Explanation of financial impact

The financial implications of the impact of uncertainty associated with new regulation are difficult to quantify. New regulation may require various mitigation actions to be taken which may be costly. For example, the recently promulgated pollution prevention plans prompted the AEL business to plan for mitigation in the form of using secondary catalysts in its Nitric Acid Plant from 2019 onwards in order to reduce its N2O emissions. The potential financial impact reported here is the annual cost associated with purchasing the secondary catalyst to reduce N2O emissions.

Management method

In order to manage the risk associated with uncertainty surrounding new regulation, AECI engages with the regulators through CAIA on an ongoing basis to ensure that we stay ahead of any climate-related regulation and frameworks and ensure that our

concerns are raised with the relevant government departments.

Cost of management

1100000

Comment

The management cost is the annual CAIA membership fee.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact driver

Reduced revenues from lower sales/output

Company- specific description

Changes in precipitation patterns pose a risk to our businesses. Our Agrochemical Business and ImproChem may experience reduced demand for products and services as a result of changes in precipitation patterns. Our operations that rely on a continuous supply of good quality water may also be at risk. Changes in precipitation patterns may disrupt production, reduce revenue and/or increase operating costs.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

39000000

Explanation of financial impact

The potential financial impact is the reduced profit from Nulandis, primarily as a consequence of the drought in the Western Cape. Nulandis manufactures and supplies an extensive range of crop protection products, plant nutrients and services for the agricultural sector in Africa. Changes in rainfall patterns negatively impact on the agricultural sector.

Management method

This risk is managed through engagement with customers to understand their climate-related risks and to identify how best AECI can support them. An example would be the provision of agricultural chemicals specifically for water-stressed areas. This risk is also managed through investment in research and development which allows our businesses to diversify their product mix. In terms of the risk associated with water use in our own operations, we implement initiatives to reduce water withdrawals, increase recycling and rainwater harvesting. For example, ImproChem has embarked on an effluent reduction and water re-use programme in the Group.

Cost of management

50000000

Comment

AECI's spend on the research and development of new products was in the region of R50 million for 2017. The costs associated with water optimising initiatives implemented within the Group have been estimated to be in excess of R50 million.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact driver

Reduced revenue from decreased production capacity (e.g., transport difficulties, supply chain interruptions)

Company- specific description

Our supply chain and labour force could be affected by physical climate change risks such as floods and/or extreme weather events. Flash floods could have a knock-on effect on food supply and pose a health risk to the workforce as well as result in damage to road infrastructure in the area which may affect the supply chain. Disrupted access to site and/or disruptions at suppliers' sites due to flooding or extreme weather events can result in supply chain disruption and non-delivery of raw material, a loss of production time and a loss of revenue. Flooding may also disrupt AECI's ability to supply key chemicals to clients, thereby disrupting clients operations.

Time horizon

Long-term

Likelihood

Likely

Magnitude of impact

Medium-high

Potential financial impact

1000000000

Explanation of financial impact

The financial impact is taken as the cover for flooding per company under AECI's insurance policy.

Management method

In order to manage the risk associated with changes in precipitation extremes and droughts, AECI conducts risk assessments to quantify the potential impacts. AECI implements measures to mitigate the impacts where necessary. In addition, AECI businesses have insurance in place to protect against some of the potential impact of changes in precipitation extremes and droughts.

Cost of management

2000000

Comment

The cost reported is the cost associated with conducting a risk assessment of the impacts of flooding on AECI's businesses.

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Increased stakeholder concern or negative stakeholder feedback

Type of financial impact driver

Market: Reduced demand for goods and/or services due to shift in consumer preferences

Company- specific description

There is a possible reputational risk associated with increased public awareness of and focus on what the industry is doing in response to climate change.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Medium-high

Potential financial impact

184000000

Explanation of financial impact

The financial impact is estimated at 1% of revenue.

Management method

AECI is managing the potential reputational risks by reducing its GHG emissions, actively managing risks and opportunities and reporting on these to stakeholders. An example would be the use of secondary catalysts on its Nitric Acid Plant which is planned for 2019.

Cost of management

5000000

Comment

The management cost is the cost associated with the installation of secondary catalysts on the Nitric Acid Plant. It is an annual cost.

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact driver

Increased capital costs (e.g., damage to facilities)

Company- specific description

Our operations could be affected by physical climate change risks such as significant hail, flash floods and strong winds. Floods and storms could result in plant and property damage as well as disrupt operations resulting in loss of production time and a loss of revenue.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

1000000000

Explanation of financial impact

The financial impact is taken as the cover for flooding per company under AECI's insurance policy.

Management method

AECI conducts risk assessments to quantify the potential impacts and implements mitigation measures to mitigate the impact where necessary. AECI businesses have insurance in place to protect against some of the potential impact of changes in precipitation extremes and droughts.

Cost of management

2000000

Comment

This represents the cost associated with conducting a risk assessment of the impacts of flooding on AECI's businesses.

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

Products and services

Primary climate-related opportunity driver

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

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

Increasing environmental regulation has resulted in customers looking at ways to minimise their environmental impacts. This has led to a focus on Green Chemistry by AECI. Examples include: 1. Initiation of Ecologika which focuses on specialty products and services for sustainable agriculture; 2. Development of environmentally-friendly fertilizer coatings; and 3. Development and sale of a series of emulsions.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Potential financial impact

80000000

Explanation of financial impact

The focus on Green Chemistry will most likely result in increased sales. We have estimated that new products and services are likely to contribute between 2% and 5% of the Group's profits in the next five years which is equivalent to between R32 million and R80 million based on 2017 operating profit numbers.

Strategy to realize opportunity

AECI has placed a high priority on Green Chemistry to encourage the design of products and services that reduce environmental impacts for customers. This focus is supported by ongoing research and development at individual business level. AECI also introduced the Ideation Platform during 2017 which allows employees to submit innovative ideas. We made significant progress in advancing four of the ideas received through this platform in 2017.

Cost to realize opportunity

50000000

Comment

AECI's spend on the research and development of new products was in the region of R50 million for 2017.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

The rising cost and tighter regulation of water supply, coupled with concerns about adequate long-term availability in many geographies, is prompting companies to view water conservation as an imperative in terms of business sustainability. AECI believes that this is an opportunity especially as the countries in which we operate are considered water scarce. Due to water shortages, water treatment is an attractive option for activities that use water as a raw material and generate significant quantities of effluent. ImproChem, AECI's water treatment business, aims to benefit from increased demand for water treatment. AECI also has the opportunity to reduce its own water usage which could result in a competitive advantage for the Group.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

46000000

Explanation of financial impact

Between 2016 and 2017, ImproChem's revenue increased by 3.2% to R1.454 billion. The increase in revenue for ImproChem is reported as the financial impact of this opportunity. AECI also has the opportunity to reduce its own water usage which would lower operating costs for the businesses within the Group. An example would be the ImproChem water optimisation project being implemented across AECI businesses.

Strategy to realize opportunity

In order to maximise the opportunities, AECI's businesses are continually conducting research and developing new products and services to offer the market. ImproChem has also embarked on an effluent reduction and water re-use programme within the Group. ImproChem assesses the water and effluent systems at AECI's facilities and facilitates the implementation of optimisation projects to reduce water withdrawals and discharges.

Cost to realize opportunity

50000000

Comment

AECI's spend on the research and development of new products was in the region of R50 million for 2017. The cost associated with water optimisation projects has been greater than R10 million thus far.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

The recent drought conditions experienced in Southern Africa have impacted the agricultural sector, resulting in livestock not necessarily getting full nutritional value from the veld grass. AECI has identified this as an opportunity to provide products that supplement the nutrients that the livestock have been lacking due to the drought conditions. This could result in an increased demand for products.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

1100000

Explanation of financial impact

The financial impact has been quantified as the revenue from the sales of the new Savannah range.

Strategy to realize opportunity

Savannah grazing supplements have been launched Chemfit, a division of AECl, to farmers in the Karoo. The supplement can be used by farmers to counteract the effects of dry, woody stalks in grass which result from the drought.

Cost to realize opportunity

50000000

Comment

AECl's spend on the research and development of new products was in the region of R50 million for 2017.

Identifier

Opp4

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

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

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

Resource management at the farm-gate level is critical in responding to climate change. Water use efficiency and preservation of top soil are two such strategies being pursued by Nulandis through their NuWay® programme. As part of Nulandis' NuWay strategy to develop sustainable agricultural practices across its client base, the company is evaluating a technology developed by Israeli company SupPlant to better manage the water requirements of irrigated crops using Growth-Based Irrigation and Big-Data Irrigation technology. The combination of in-field crop growth monitoring, real time weather data and autonomous irrigation scheduling can promote improved crop production and water savings. These services are followed up by the application of products such as Biocults' mycorrhizae to enhance root mass and supply nutrients or Nulandis' Dekompakt to prevent soil crusting and hence water run-off or Genie Boost which assists with the conversion of crop residues into valuable soil humus. All of these products and services aim to build soil structures that give the farmer the best chance to manage the challenges posed by changing climatic conditions.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

80000000

Explanation of financial impact

Nulandis sees massive opportunity to grow the services and products in support of our NU-Way® programme offered to farmers both locally and throughout Africa. Overall, we have estimated that new products and services are likely to contribute between 2% and 5% of the Group's profits in the next three years which is equivalent to between R32 million and R80 million based on 2017 operating profit numbers.

Strategy to realize opportunity

This opportunity is managed by investment in the necessary skills needed to develop new products and investment into research and development activities. Nulandis, a division of AECl, has boosted its crop health capability with the acquisition of a Precision Science Team, which provides a comprehensive range of in-field soil analysis and precision science services. In-house products are built into the solutions offered by this team and our Technical Advisors and Agents. New products are constantly under

investigation and testing to broaden the product offering and provide cutting edge technology in crop management.

Cost to realize opportunity

50000000

Comment

AECI's spend on the research and development of new products was in the region of R50 million for 2017.

Identifier

Opp5

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

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

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

ImproChem, AECI's water solutions division, provides water treatment chemicals and services to municipalities and water boards such as Rand Water Board. Due to the recent drought, the demand for chemicals required to treat turbidity decreased resulting in reduced revenue for ImproChem in this area. However, opportunities arose due to, for example, an increase in other contaminants causing a concern relating to water taste and odour and treatment of borehole water and grey water due to water restrictions. Opportunities also arose as a result of the drought in the Western Cape. ImproChem secured contracts to install 4 desalination plants in the City of Cape Town as a result.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

46000000

Explanation of financial impact

Between 2016 and 2017, ImproChem's revenue increased by 3.2% to R1.454 billion. The increase in revenue for ImproChem is reported as the financial impact of this opportunity.

Strategy to realize opportunity

ImproChem responded to these challenges by setting up a Sustainable Water Solutions service looking at treatment using chlorine dioxide as well as in-house solutions to treat borehole water and grey water.

Cost to realize opportunity

1000000

Comment

The estimated financial implication of setting up the Sustainable Water Solutions service in terms of Research and Development is estimated at approximately R1 million.

Identifier

Opp6

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Other

Type of financial impact driver

Reduced operating costs (e.g., through efficiency gains and cost reductions)

Company- specific description

The increasing demand on the grid and rising cost of energy, especially electricity, is driving businesses to consider energy reduction initiatives in their activities.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

282000

Explanation of financial impact

The roll out of the new Going Green Programme across businesses within the Group is likely to realise significant cost savings. One example would be the conversion of the coal-fired boiler to gas by Acacia to increase efficiency and reduce GHG emissions. This project resulted in a saving of R282 000 over the period of one year.

Strategy to realize opportunity

The Going Green programme, in line with AECI's values, was introduced in 2017. In 2017, the National Cleaner Production Centre (NCPC) has commenced assessment at AECI facilities in identifying further opportunities to reduce energy consumption at the Group's facilities in South Africa.

Cost to realize opportunity

20000000

Comment

It is expected that the Going Green Programme will require investment from companies in excess of R20 million.

Identifier

Opp7

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Ability to diversify business activities

Type of financial impact driver

Increased revenue through demand for lower emissions products and services

Company- specific description

The Group has the opportunity to invest in new businesses that exist as a result of climate-related issues. One example is the investment into Origin Materials which is a privately-owned company with new technology in renewable chemicals.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Medium-high

Potential financial impact

80000000

Explanation of financial impact

Overall, we have estimated that new products and services are likely to contribute between 2% and 5% of the Group's profits in the next three years which is equivalent to between R32 million and R80 million based on 2017 operating profit numbers.

Strategy to realize opportunity

We are continually looking for new investment opportunities. This is done through our Business of Tomorrow focus.

Cost to realize opportunity

65000000

Comment

This is the quantum invested in Origin Materials.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	Risks and opportunities associated with climate change have the potential to lead to changes in demand for goods and services. In fact, in the reporting year, the drought in the Western Cape impacted on several of our businesses. Nulandis, for example, reports that revenue was flat and profit declined primarily due to the drought in the Western Cape which resulted in reduced demand for products. Nulandis supplies products into the agricultural sector which was negatively impacted by the drought. On the other hand, the drought also created opportunities for ImproChem which reports having contracts in place for four desalination plants. Climate-related opportunities have also given rise to our investment in Origin Materials, which produces bio-based chemicals from sustainable and renewable resources. The magnitude of the impact is high, with profit from Nulandis down by 22.9% from R172 million to R133 million in the 2017 financial year. The investment into Origin Materials by AECI was R65 million.
Supply chain and/or value chain	Impacted	Risks and opportunities associated with climate change have impacted on our supply chain. One clear example of this is in the juice business where SCP was required to purchase strategic consignments of raw materials owing to extreme weather events such as the drought in the Western Cape and severe flooding in Argentina. This had a negative impact on trade working capital, but a correction should be evident by the middle of 2018. The magnitude of this impact is high.
Adaptation and mitigation activities	Impacted	Climate-related risks and opportunities have led us to implement and plan to implement various mitigation activities. One example is the call by the South African Department of Environmental Affairs for the submission of pollution prevention plans for GHG emissions. This led AEL Modderfontein to plan to use secondary catalysts on its No 9 Nitric Acid Plant. N2O emissions removal efficiency of approximately 70% can be achieved using secondary catalysts. This will reduce AECI Group's Scope 1 emissions by approximately 15%. The magnitude of the financial impact is high. The cost associated with the secondary catalyst is estimated to be in the region of R5 million per annum.
Investment in R&D	Impacted	Climate-related risks and opportunities have increased our investment in R&D. One example is the investment made by Nulandis into the development of new products. It is estimated that 70% of the world's freshwater goes into agriculture for crop production and livestock rearing. Given the impact of climate change on water security, it is essential that farmers look to improve water efficiency. As part of Nulandis' NuWay strategy to develop sustainable agricultural practices across its client base, it is evaluating a technology developed by Israeli company SupPlant to better manage the water requirements of irrigated crops using Growth-Based Irrigation and Big-Data Irrigation Technology. The combination of in-field crop growth monitoring, real-time weather data and autonomous irrigation scheduling can promote improved crop production and water savings. The financial impact is significant, with AECI spending in the region of R50 million on R&D in the 2017 financial year.
Operations	Impacted	Our operations have been impacted by climate-related risks and opportunities. One risk is related to changes in precipitation patterns. Given that AECI's operations rely on a continuous supply of good quality water, changes in precipitation patterns may put these operations at risk. This risk is managed through obtaining an alternate source of water; e.g. borehole abstraction from a sister company in the Western Cape and treating this water so that it can be used in the process. In the 2017 financial year, our ImproChem, Nulandis and SCP businesses were all impacted by the drought in the Western Cape.
Other, please specify	We have not identified any risks or opportunities	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Climate-related risks and opportunities are factored into revenue expectations as we understand that they have the potential to impact on our revenues. This has been clearly seen in the 2017 financial year with the drought in the Western Cape. Nulandis reports that revenue for the 2017 financial year was flat and profits reduced as a result of the impact of the drought on the agricultural sector and the associated reduced demand for products. The magnitude is significant with profits for Nulandis having declined by 22.9% from R172 million in 2016 to R133 million in 2017.
Operating costs	Impacted	Operating costs are impacted by climate-related risks. As such, when we forecast operating costs for the business, we consider these risks. Examples include the increased price of water as a result of the water restrictions in the Western Cape and the higher-than-inflation electricity price increases. The increase in fuel and raw material prices as a result of the carbon tax will also be factored into our financial planning process. The magnitude is significant. In the Western Cape, our operations have seen water prices increase by greater than 100% in the last year.
Capital expenditures / capital allocation	Impacted	Capital allocation is impacted by climate-related risks and opportunities. As such, we consider these risks and opportunities in the capital allocation process. One example is the call by the South African government for pollution prevention plans which has led to money being allocated to AEL Modderfontein to use secondary catalysts in its No 9. Nitric Acid Plant. The magnitude is significant. An example would be the cost allocated to the secondary catalyst project which is in excess of R5 million per annum.
Acquisitions and divestments	Impacted	AECI's acquisitions and divestments are impacted by climate-related risks and opportunities. AECI assesses all potential divestments, acquisitions or investments through a sustainability lens to ensure that they align with the company's commitment to Green Chemistry and its drive to service new markets opening up as a result of climate change impacts. An example would be the investment in Origin Materials. AECI took the decision to invest partly given the company's focus on using sustainable and renewable raw materials. The investment was R65 million which is considered significant.
Access to capital	Not yet impacted	Access to capital has not yet been impacted. For mitigation and abatement projects, we typically use internal company funds. However, it is acknowledged that access to capital may be impacted should AECI not be seen to be effectively managing its climate change risks and opportunities and/or AECI invests in products or projects that are not considered environmentally-friendly. However, this is not anticipated. If it did occur then the magnitude of the impact would be significant.
Assets	Not yet impacted	We understand assets to be property, plant and equipment in this context. At this stage, AECI's assets have not been impacted by climate-related risks and opportunities. However, with the increased occurrence of extreme weather events brought about by climate change, it is likely that our assets may be impacted going forward. For example, our assets may be damaged from flooding. The impact could be significant. We have insured against this risk and have cover of R1 billion per company under AECI's insurance policy which is a significant monetary value.
Liabilities	Not yet impacted	Our liabilities have not yet been impacted by climate-related risks and opportunities. However, it is possible that this may change going forward if climate change impacts on our ability to repay long-term borrowings etc. This is not anticipated.
Other	We have not identified any risks or opportunities	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

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

No, but we anticipate doing so in the next two years

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)
Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

No, we do not have a low-carbon transition plan

C3.1c

C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

- i. A company-specific explanation of how business objectives and strategy have been influenced by climate-related issues: AECI's business strategy focuses on domestic growth as well as ongoing expansion outside South Africa in the Group's chosen strategic areas of Mining Solutions, Water & Process, Plant & Animal Health, Food & Beverage and Chemicals. AECI understands that its business strategy can only be fully achieved if environmental risks such as climate-related risks are identified and addressed. For this reason, management of climate-related risks, reduction of GHG emissions and partnerships with stakeholders underpin the business strategy. Not only does management of climate change support the business strategy, but climate change, in terms of Green Chemistry, has had a significant influence on the business strategy. One of AECI's priorities is Green Chemistry which is focused on encouraging the design of products and processes that minimise the use and generation of hazardous substances. AECI aims to provide products that are not only superior in terms of functionality and quality, but also exert minimal impact on the environment.
- ii. Explanation of whether your business strategy is linked to an emissions reductions target or energy reduction target: AECI has recently introduced a new target for reduction of its Scope 1 emissions. The last target can to an end at the end of 2015. Part of the business strategy will include a focus on realising this new target.
- iii. What have been the most substantial business decisions made during the reporting year that have been influenced by the climate change driven aspects of the strategy: In the reporting year, the most substantial business decision made that was influenced by climate-related concerns was the R65 million investment into Origin Materials. This company has new technology in renewable chemicals. It uses underutilised feedstocks to invent better materials and its production processes are more efficient with higher yields and fewer processing steps than traditional approaches.
- iv. What aspects of climate change have influenced the strategy: Various aspects of climate change have influenced the business strategy. Perhaps the aspect that has most influenced the business strategy is the focus on opportunities to develop green products and services that allow customers to reduce emissions and/or minimise the impact of climate-related risks. AECI has also made a concerted effort to minimise its environmental impact by improving efficiencies in production processes, logistics management, offerings to customers, office activities etc. There has also been a renewed focus on Innovation with 'Going Green' featuring as an important aspect of innovation
- v. How the short-term strategy has been influenced by climate change: Short-term is defined as up to 2 years in this context. In the short term, AECI focuses on reducing its GHG emissions. Previously, AECI implemented the Going Green Programme. The targets and associated GHG emission reduction initiatives under the Going Green Programme are in the process of being determined. Energy audits are in the process of being undertaken by the National Cleaner Production Centre ("NCPC-SA") to assist AECI in identifying further opportunities to reduce energy consumption at the Group's facilities in South Africa. In addition, AEL Modderfontein is planning to use secondary catalysts on its No. 9 Nitric Acid Plant in 2019 in response to a call by the South African Government for pollution prevention plans from companies conducting specific processes.
- vi. How the long-term strategy has been influenced by climate change: Long-term is defined as 5 to 10 years in this context. The long-term strategy has been influenced primarily through the focus on Green Chemistry and Innovation with the objective of developing products and services that have a minimal impact on the environment. One example is the water treatment products and processes offered by AECI's ImproChem business that assists companies in reducing their water withdrawals and maximising their use of water. This is particularly important for customers in countries that are experiencing water scarcity which is likely to be further exacerbated by climate change. One of AECI's subsidiaries also manufactures products for insulating materials which assists customers in reducing energy required for heating. The long-term strategy has also been influenced by a focus on investing in sustainable businesses. One example is the investment made into Origin Materials in the 2017 financial year. AECI chose to invest in this company given its use of sustainable and renewable raw materials.
- vii. How this is gaining a strategic advantage over your competitors: AECI's drive towards Green Chemistry provides AECI a competitive advantage. Examples where this can be seen are the eco-emulsions and "Green Blasting" options provided by the Mining Solutions Pillar.
- viii. How the Paris Agreement has influenced the business strategy: AECI understands that has made commitments to reduce GHG emissions under the Paris Agreement. These commitments are likely to lead to the introduction of regulation governing GHG emissions such as the proposed carbon tax. Our business strategy is influenced by opportunities to develop new products that have a minimal impact on the environment. These opportunities will be further driven by South Africa's commitments under the Paris Agreement.

C3.1g

(C3.1g) Why does your organization not use climate-related scenario analysis to inform your business strategy?

Although climate-related scenario analysis is not used to inform our business strategy, climate-related risks and opportunities are considered in the development of our strategy. We understand the importance of limiting the rise in average global temperature to below 2°C and the important role that business plays in this regard. As such, we have implemented and will continue to implement projects that reduce our GHG emissions. This will be done through our Going Green Programme and also through the use of secondary catalysts in the No. 9 Nitric Acid Plant. We anticipate a reduction in the region of 10 to 15% in both our Scope 1 and 2 emissions over the next few years. It is important to note that our strategy does consider various scenarios that may occur in the future to allow for agility should the environment in which we operate change. We are considering including climate-related scenarios in this going forward, possibly in the next two years.

C4. Targets and performance

C4.1

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

No target

C4.1c

(C4.1c) Explain why you do not have emissions target and forecast how your emissions will change over the next five years.

	Primary reason	Five-year forecast	Please explain
Row 1	Other, please specify (Recently introduced a new target:scope 1)	We anticipate that our Scope 1 emissions will decrease by 15% between 2018 and 2022. Our recently introduced emission reduction target reflects this (15% reduction by 2022 from 2018 baseline). It is anticipated that this decrease in Scope 1 emissions will result from emission reduction activities, including the use of secondary catalysts at AEL Modderfontein's No. 9 Nitric Acid Plant. We anticipate that our Scope 2 emissions will also decrease due to the implementation of initiatives under our Going Green Programme. It is expected that we will see a reduction of an estimated 10 to 15% off an adjusted baseline.	Our last target came to an end at the end of 2015. We have recently introduced a target for our Scope 1 emissions. We are working on a target for our Scope 2 emissions in collaboration with the NCPC which is currently conducting energy audits at several of our sites. AECI has committed to reducing its scope 1 emissions from Nitric Acid production by installing secondary catalysts on its No.9 Nitric Acid Plant. N2O emissions removal efficiency of approximately 70% can be achieved using secondary catalysts. Therefore, it has been calculated that the expected reduction for AECI Group Scope1 emissions will 15% by 2022. Our Scope 2 emissions are also anticipated to decrease due to the Going Green Programme.

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

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 projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	4	
To be implemented*	3	1
Implementation commenced*	0	0
Implemented*	1	420.19
Not to be implemented	0	0

C4.3b

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

Activity type

Energy efficiency: Building services

Description of activity

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

420.19

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

428768

Investment required (unit currency – as specified in CC0.4)

5000000

Payback period

<1 year

Estimated lifetime of the initiative

<1 year

Comment

This refers to the installation of energy efficient lighting by AEL Modderfontein. In the 2017 financial year, AEL Modderfontein installed in excess of 5 600 fluorescent and LED lights. The savings have been calculated assuming an efficiency of 77% for fluorescents and 83% for LEDs. Annual monetary savings have been calculated using an average electricity price of R1/kWh. Investment is estimated.

C4.3c

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

Method	Comment
Financial optimization calculations	Under the Going Green Programme, several resource efficiency assessments are being conducted at various sites within the Group. As part of the assessments, possible projects for achieving savings are being identified, business cases developed and the plan is to implement several projects where the business cases make sense. The business cases will include the calculation of the financial indicators such as Net Present Value (NPV), Return on Investment (ROI), opportunity cost, payback periods etc. Identified projects will be prioritised for implementation based on these financial indicators.
Employee engagement	As part of the Going Green Programme, SHE Practitioners within the various businesses will be regularly involved in initiatives aimed at achieving the targets set under the programme. Employees will also be engaged by means of awareness training sessions. The approach followed is likely to be in line with the train-the-trainer concept. This will involve training of SHE Practitioners so that they could train their respective businesses.
Compliance with regulatory requirements/standards	AECI is committed to complying with all legislation pertaining to GHG emissions. Regulatory compliance is a top priority for the Group. AECI submitted its first Pollution Prevention Plan to the South African Department of Environmental Affairs in December 2017. This Plan outlines mitigation measures to reduce CO2e emissions by 2020. It will also drive investment in emission reduction and abatement projects.

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

Group of products

Description of product/Group of products

Several of the businesses within the Group are manufacturing products that will reduce environmental impacts for customers. One example would be the provision of improved blasting services initiatives at AEL to minimise the customer's carbon footprint. These initiatives include - (i) The mine to mill concept is a well-known method for increasing profitability of mining operations. By tailoring the explosives and initiating systems to suit the mine's process requirements, improved blast results are achieved that add value to mine operations by reducing shovel cycle times, increasing haul truck fill factors and improving the efficiency of crushing and milling operations. By creating the best fragmentation distribution for a specific mill and by inducing internal micro-fractures in the rocks, the mill power consumption can be reduced dramatically. (ii) The replacement of conventional shock tube initiation with an electronic detonating system can result in significant savings. By using this approach at a quarry, even though the total mining cost increased by 2%, the productivity of earth-moving equipment increased by 24.7% and the crusher throughput went up by 14.7%. The operation would have realised carbon footprint savings of 4 500 tonnes CO₂e per annum (which is a 33% reduction and the monetary value associated with the equivalent electrical and fuel reductions is estimated to be \$428 472 per annum). (iii) AEL has developed a simple model to relate the change in blasting parameters to the savings in energy consumption, electricity demand and GHG emissions. A number of simplifying assumptions are made to grapple with the concepts and to identify the main drivers and trends. The mass of gases with global warming potential are calculated per kg of explosive. The GWP factors for 100 years are used to calculate the equivalent carbon emission resulting in a higher value of the carbon emission due to the high weighting of the methane. The higher value of 0.25 kgCO₂-e per kg of explosives was used for the surface bulk product in this assessment.

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 (Internal company expertise)

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

5

Comment

5% of revenue is an estimate of the revenue from low-carbon products for the 2017 financial year. Internal company expertise is used to classify the products as low-carbon and to calculate the potential avoided emissions.

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 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

314780

Comment

Scope 2 (location-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

217088

Comment

Scope 2 (market-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

217088

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

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

Row 1

Gross global Scope 1 emissions (metric tons CO2e)

366280

End-year of reporting period

<Not Applicable>

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

We have operations in the United States of America and Australia that purchase electricity from a specific supplier and, therefore, have supplier specific emission rates/regional or subnational grid average emission factors.

C6.3

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

Row 1

Scope 2, location-based

216971

Scope 2, market-based (if applicable)

216971

End-year of reporting period

<Not Applicable>

Comment

For this year, the value for the Scope 2 emissions calculated using the market-based approach is the same as the value for the Scope 2 emissions calculated using the location-based approach. The reason for this is that a supplier-specific emission factor was used for electricity purchased in the United States of America when calculating the emissions under the location-based approach.

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?

No

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

476612

Emissions calculation methodology

For ammonia - Calculated using the IPCC 2006 Guidelines, Volume 3, Chapter 3. The calculation assumes conventional reforming using natural gas. Ammonium Nitrate - Calculated on a mass balance - one mole of ammonia reacts with one mole of nitric acid to make one mole of ammonium nitrate. This includes emissions associated with production of ammonia and nitric acid used to produce the ammonium nitrate. These emission factors were sourced from the IPCC 2006 Guidelines, Volume 3, Chapter 3. The emission factor for ammonium nitrate was from another external publication.

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

100

Explanation

This includes the emissions associated with the production of ammonia and ammonium nitrate as used by AECI in the production of chemicals.

Capital goods

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

N/A

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

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

All fuel and energy related activities have been accounted for in Scope 1 and 2 emissions.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

3608

Emissions calculation methodology

2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting

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

100

Explanation

This is applicable to well-to-tank fuels associated with extraction, refining and transportation of the raw fuel sources (petrol & diesel) to AECI Group companies prior to their combustion.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

2107

Emissions calculation methodology

2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting

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

100

Explanation

This refers to effluent or wastewater from our operations being treated by the municipality

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO2e

4547

Emissions calculation methodology

2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting

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

100

Explanation

AECI's Property, Explosives and ImproChem from the Specialty Chemicals segment reported business travel. It is estimated that reporting covers 75% of Group operations.

Employee commuting

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

Employees decide on where to live in relation to their work place. The emissions are not deemed to be relevant as they are most likely insignificant in relation to the total emissions.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECI does not have any upstream leased assets.

Downstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECI does not have financial or management control over transportation.

Processing of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECI does not have financial or management control over sold products.

Use of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECI does not have financial or management control over use of sold products.

End of life treatment of sold products

Evaluation status

Relevant, not yet calculated

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECl does not have financial or management control over end of life treatment of sold products.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECl does not have downstream leased assets

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECl does not have any franchises.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

AECl does not have any investments.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

No other upstream emissions.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

0

Emissions calculation methodology

N/A

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

0

Explanation

No other downstream emissions.

C6.7

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

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.0000316

Metric numerator (Gross global combined Scope 1 and 2 emissions)

469250

Metric denominator

unit total revenue

Metric denominator: Unit total

18482000000

Scope 2 figure used

Location-based

% change from previous year

10.34

Direction of change

Increased

Reason for change

Increase predominantly due to significantly higher online time at No. 9 Nitric Acid Plant in 2017.

Intensity figure

89

Metric numerator (Gross global combined Scope 1 and 2 emissions)

469250

Metric denominator

full time equivalent (FTE) employee

Metric denominator: Unit total

6522

Scope 2 figure used

Location-based

% change from previous year

11.5

Direction of change

Increased

Reason for change

There was an increase in emissions intensity per FTE of 11.5%. This was due to a 1.6% decrease in FTE and a 9.7% increase in Scopes 1 and 2 emissions. Scope 1 emissions reported by AEL increased due to significantly higher online time at No. 9 Nitric Acid Plant in 2017.

Intensity figure**Metric numerator (Gross global combined Scope 1 and 2 emissions)****Metric denominator**

Please select

Metric denominator: Unit total**Scope 2 figure used**

Please select

% change from previous year**Direction of change**

<Not Applicable>

Reason for change**Intensity figure**

0.056

Metric numerator (Gross global combined Scope 1 and 2 emissions)

26589

Metric denominator

Other, please specify (steam generated (tonnes))

Metric denominator: Unit total

104830

Scope 2 figure used

Location-based

% change from previous year

23

Direction of change

Decreased

Reason for change

The decrease in intensity is for the property business which used a higher proportion of natural gas to coal as fuel for the boilers in 2017 financial year. Given that natural gas is less emissions intensive than coal, the use of natural gas as opposed to coal resulted in emission reductions.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?

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	140856	IPCC Third Assessment Report (TAR - 100 year)
CH4	57	IPCC Third Assessment Report (TAR - 100 year)
N2O	222872	IPCC Third Assessment Report (TAR - 100 year)
HFCs	2495	IPCC Third Assessment Report (TAR - 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 CO2e)
South Africa	361581
Africa	2418
United States of America	44
Indonesia	1524
Australia	713

C7.3

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

By business division

C7.3a

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

Business division	Scope 1 emissions (metric ton CO2e)
Pillar 1: Mining Solutions	327965
Pillar 2: Water & Process	579
Pillar 3: Plant & Animal Health	331
Pillar 4: Food & Beverage	3474
Pillar 5: Chemicals	11266
Property	22665

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

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

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	366280	<Not Applicable>	All AECI businesses fall into chemical production activities, therefore the figure reported represents the total scope 1 emissions.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
South Africa	192512	192512	299065	0
Africa	8458	8458	6230	0
United States of America	15727	15727	33022	0
Indonesia	188	188	191	0
Australia	86	86	88	

C7.6

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

By business division

C7.6a

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

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Pillar 1: Mining Solutions	140204	140204
Pillar 2: Water & Process	3342	3342
Pillar 3: Plant & Animal Health	1490	1490
Pillar 4: Food & Beverage	4778	4778
Pillar 5: Chemicals	63233	63233
Property	3924	3924

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

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	216971	216971	All AECI businesses fall into chemical production activities, therefore the figure reported represents the total scope 2 emissions.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-CH7.8

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

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
Ammonia	100	Calculated using the IPCC 2006 Guidelines, Volume 3, Chapter 3. The calculation assumes conventional reforming using natural gas
Other (please specify) (Ammonium Nitrate Solution)	100	Calculated on a mass balance - one mole of ammonia reacts with one mole of nitric acid to make one mole of ammonium nitrate. This includes emissions associated with production of ammonia and nitric acid used to produce the ammonium nitrate. These emission factors were sourced from the IPCC 2006 Guidelines, Volume 3, Chapter 3. The emission factor for ammonium nitrate was from another external publication.
Other (please specify) (Ammonium Nitrate Porous Prill)	100	Assumed to be the same as Ammonium Nitrate Solution for the purpose of calculating the emissions.

C-CH7.8a

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

	Sales, metric tons	Comment
Carbon dioxide (CO2)		
Methane (CH4)		
Nitrous oxide (N2O)		
Hydrofluorocarbons (HFC)		
Perfluorocarbons (PFC)		
Sulphur hexafluoride (SF6)		
Nitrogen trifluoride (NF3)		

C7.9

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

Increased

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	not applicable - no renewable energy consumption at any of the businesses.
Other emissions reduction activities	19581	Decreased	4	The decrease was due to increased use of natural gas as opposed to coal to produce steam in the 2017 financial year. Natural gas is less emissions-intensive compared to coal and, as such, the increased use of natural gas as opposed to coal resulted in emission reduction. The percentage has been calculated as change in emissions divided by 2016 Scope 1 and 2 emissions (-4% = -19 581/ 531 868).
Divestment	0	No change	0	This is not applicable
Acquisitions	0	No change	0	There were no acquisitions for the reporting period.
Mergers	0	No change	0	There were no mergers in the reporting period.
Change in output	64863	Increased	12	Nitric acid production increased, resulting in an increase in emissions. There was also an increase in explosives production by AEL Modderfontein which resulted in increased emissions. The percentage has been calculated as change in emissions divided by 2016 Scope 1 and 2 emissions (12% = 64 863 / 531 868).
Change in methodology	0	No change	0	Not applicable
Change in boundary	0	No change	0	Not applicable
Change in physical operating conditions	0	No change	0	Not applicable
Unidentified	0	No change	0	Not applicable
Other	6101	Increased	1	There was an increase in diesel consumed for steam generation as a result of the coal-fired boiler being under maintenance. There were other small increases and decreases. The percentage has been calculated as change in emissions divided by 2016 Scope 1 and 2 emissions (1% = 6 101 / 531 868).

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 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	0	465172	465172
Consumption of purchased or acquired electricity	<Not Applicable>	0	211635	211635
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	56962	56962
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	0	733769	733769

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)	465172
Consumption of purchased or acquired electricity	<Not Applicable>	211635
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	56962
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0
Total energy consumption	<Not Applicable>	733769

C8.2b

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

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

C8.2c

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

Fuels (excluding feedstocks)

Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

225213

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

225213

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Petrol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1249

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

1249

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

65161

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

42353

MWh fuel consumed for self-generation of steam

22808

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

168612

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

168612

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

244

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

12

MWh fuel consumed for self-generation of steam

232

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Kerosene

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4549

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

4549

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Other, please specify (Heavy Fuel Oil)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

140

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

140

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

Fuels (excluding feedstocks)

Acetylene

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4

MWh fuel consumed for the self-generation of electricity

<Not Applicable>

MWh fuel consumed for self-generation of heat

4

MWh fuel consumed for self-generation of steam

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

<Not Applicable>

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Acetylene

Emission factor

2.86

Unit

Please select

Emission factor source

kg CO2e per kg IPCC 2006 Guidelines

Comment

Coal

Emission factor

2.45

Unit

metric tons CO2e per metric ton

Emission factor source

IPCC 2006 Guidelines

Comment

Diesel

Emission factor

2.72

Unit

kg CO2e per liter

Emission factor source

IPCC 2006 Guidelines

Comment

A factor for 2.87 kg CO2e per litre was used for combustion of diesel in mobile applications.

Kerosene

Emission factor

2.37

Unit

kg CO2e per liter

Emission factor source

IPCC 2006 Guidelines

Comment

Liquefied Petroleum Gas (LPG)

Emission factor

2.99

Unit

kg CO2e per liter

Emission factor source

IPCC 2006 Guidelines

Comment

A factor of 0.92 kg CO2e per kg was used for combustion of LPG in mobile applications.

Natural Gas

Emission factor

0.0019

Unit

metric tons CO2e per m3

Emission factor source

IPCC 2006 Guidelines

Comment

Petrol

Emission factor

2.43

Unit

kg CO2e per liter

Emission factor source

Comment

Other

Emission factor

2.93

Unit

kg CO2e per liter

Emission factor source

IPCC 2006 Guidelines

Comment

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	0	0	0	0
Heat	0	0	0	0
Steam	228822	209487	0	0
Cooling	0	0	0	0

C-CH8.2e

(C-CH8.2e) 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	0	0
Heat	0	0
Steam	228822	209487
Cooling	0	0

C8.2f

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

Basis for applying a low-carbon emission factor

No purchases or generation of low-carbon electricity, heat, steam or cooling accounted with a low-carbon emission factor

Low-carbon technology type

<Not Applicable>

MWh consumed associated with low-carbon electricity, heat, steam or cooling

<Not Applicable>

Emission factor (in units of metric tons CO₂e per MWh)

<Not Applicable>

Comment

Not applicable

C-CH8.3

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

C-CH8.3a

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

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

C9. Additional metrics

C9.1

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

C-CH9.3a

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

Output product

Nitric acid

Production (metric tons)

263572

Capacity (metric tons)

306000

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

0.84

Electricity intensity (MWh per metric ton of product)

0.24

Steam intensity (MWh per metric ton of product)

1.95

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

Comment

We have reported on nitric acid as this activity is the most GHG emissions-intensive of all of our chemical products. Please note that electricity and steam used in the calculation is for the entire site and not only for the nitric acid production process alone. It is challenging to isolate the GHG emissions for nitric acid production from those associated with the other chemicals produced on-site.

C-CH9.6

(C-CH9.6) Disclose your organization's low-carbon investments for chemical production activities.

Investment start date

January 1 2019

Investment end date

January 1 2022

Investment area

Property, plant and equipment

Technology area

Other, please specify (Use of secondary catalyst)

Investment maturity

Large scale commercial deployment

Investment figure

5000000

Low-carbon investment percentage

81 - 100%

Please explain

AEL Modderfontein will make use of secondary catalysts in its No. 9 Nitric Acid Plant to reduce its N2O emissions. The investment is estimated at R5 million per annum. It is an ongoing investment. It is expected to reduce AECI's Scope 1 emissions by 15%. There is no anticipated payback or return on capital, but it will assist AECI in achieving its commitment under the pollution prevention plan and also reduce its carbon tax liability when the carbon tax is implemented.

C10. Verification

C10.1

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

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

C10.1a

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

Scope

Scope 1

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

full-iar.pdf

Page/ section reference

Page 68

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope

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

Page/ section reference

Page 68

Relevant standard

ISAE3000

Proportion of reported emissions verified (%)

100

Scope

Scope 2 market-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

full-iar.pdf

Page/ section reference

Page68

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?

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

C11. Carbon pricing

C11.1

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

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

To comply with the proposed carbon tax in South Africa, we have been active in reviewing and commenting on the various drafts of the carbon tax bill. Commentary is typically submitted through CAIA on behalf of the industry. Closely following the development of the carbon tax puts us in a good position to ensure compliance when it is introduced. We have also been reporting our GHG emissions to the Department of Environmental Affairs under the regulation governing mandatory reporting on GHG emissions. It is government's intention that this regulation will be aligned with the carbon tax. Our businesses are also looking at opportunities to reduce emissions. One example is AEL Modderfontein where a call by the South African government for pollution prevention plans has led to money being allocated to use secondary catalysts in its No 9. Nitric Acid Plant which will reduce AECI's Scope 1 emissions by an estimated 15%.

C11.2

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

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit origination

Project type

N2O

Project identification

1364

Verified to which standard

CDM (Clean Development Mechanism)

Number of credits (metric tonnes CO2e)

271793

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

266357

Credits cancelled

No

Purpose, e.g. compliance

Other, please specify (Social Responsibility)

C11.3

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

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

C12. Engagement

C12.1

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

Yes, our customers

Yes, other partners in the value chain

C12.1b

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

Type of engagement

Other, please specify (Engage with customers)

Details of engagement

<Not Applicable>

Size of engagement

50

% Scope 3 emissions as reported in C6.5

0

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

We engage with our customers to share information on what we are doing in relation to identifying and managing climate-related issues. This is done through completing questionnaires given to us on behalf of some of our customers. The questionnaires ask us to disclose information on our GHG emissions and provide details on how we are managing climate-related risks. We also provide information to our customers on our management of climate-related issues in our integrated annual report.

Impact of engagement, including measures of success

We estimate that we complete questionnaires for approximately 50% of our customer base. However, we communicate with all of our customers on climate change through our integrated annual report. We have not included GHG emissions associated with the use of our products by our customers in the Scope 3 emissions disclosed as they are difficult to estimate. We measure the success of these engagements by whether our customers are comfortable to continue engaging with us as a company and purchasing our products.

Type of engagement

Collaboration & innovation

Details of engagement

Other – please provide information in column 5

Size of engagement

50

% Scope 3 emissions as reported in C6.5

0

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

We collaborate with our customers to develop new products that address challenges experienced by our customers. Examples include the development of new products to reduce water usage and preserve top soil that are being pursued by Nulandis through its NU-Way® programme. These products and other farm management services are being developed to support farmers.

Impact of engagement, including measures of success

Although we collaborate with many of our customers, we have estimated that we have engaged with approximately 50% of them in our development of new products. We have not included GHG emissions associated with the development of new products in the Scope 3 emissions disclosed as they are difficult to estimate. We measure the success of the collaboration on new products developed by whether they are able to adequately address challenges experienced by our customers. Our businesses have developed several new products and service offerings over the years that assist our clients to manage the impacts of climate change. The development of new products by Nulandis is an example. Improchem also assists customers to reduce water consumption and source alternative water supplies. In the 2017 financial year, it had secured 4 contracts for desalination plants.

C12.1c

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

AECI engages with a broad spectrum of stakeholders. These include employees, trade unions, customers, shareholders and fund managers, financiers, suppliers, technology and business partners, local and national government structures in countries where the Group operates, other regulatory and industry bodies, the communities in which the Group operates, special interest groups and the media. Our engagement with government and communities is further discussed below -

- **Government** - Legal compliance is of utmost importance to AECI and, as such, engaging with relevant authorities is a business imperative. Such engagement may range from advocacy initiatives associated with the development of legislation and standards, to cooperative work with those regulators who have the responsibility of governing the Group's activities through the application of these laws and standards. At other times, we work with government to develop solutions. An example is our Water and Process Pillar which engaged with municipalities to look at which water treatment options are best in drought conditions. To facilitate engagement, AECI and/or its businesses may choose to develop relationships with relevant government and regulatory entities in a proactive manner. This engagement typically takes place in meetings or through the provision of written commentary on various policies and regulations. We also engage with government through CAIA, the industry association for the chemicals industry. The success of our engagement is measured through our understanding of the regulations, our preparedness to comply and our compliance with the regulations. It is also measured through the consideration that government gives to our feedback on various pieces of legislation.
- **Communities** - We engage with our communities on climate-related issues. This engagement is typically done through organised projects and programmes. In the 2017 financial year, for example, ImproChem supplied containerised water plants to communities living in areas where access to potable water is a challenge. In one instance, a community in eThekweni, KwaZulu-Natal, was provided with access to potable water just 10 days after the plant had been installed. Success is measured on the difference we make to the lives of those living in these communities.

All engagement by AECI employees is subject to the Group's Code of Ethics and Business Conduct as approved by the AECI Board. This Code "is designed to provide clear guidelines for engaging with all stakeholders."

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

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
Carbon tax	Oppose	Engagement on the proposed South African carbon tax is via correspondence and meetings with CAIA	This concerns the proposed carbon tax in South Africa. AECI has and continues to prioritise energy efficiency and GHG emission reduction for both its own operations and its customers. AECI has developed products and services that assist its customers to reduce emissions and/or minimise the impacts of climate change. This is integrated into the business strategy and day-to-day operations of AECI as part of its corporate citizenship and good governance. However, AECI does not support the introduction of a carbon tax at this time in South Africa with the already onerous legislative burden on companies and the existing voluntary efforts being made by companies to reduce GHG emissions. However, should a carbon tax be implemented, we have the following proposal with regards to benchmarking. The way in which benchmarking is currently structured is not feasible as there are only a small number of companies that fall within a specific sector and there is a risk of market-sensitive information being shared with competitors. As an alternative, AECI proposes that companies who can show that they have undertaken mitigation activities to reduce CO2 emissions (e.g. CDM projects) should be exempt from the tax. This would relate only to those specific projects.
Mandatory carbon reporting	Support with minor exceptions	Engagement on mandatory reporting of GHG emissions in South Africa is via correspondence and meetings with both CAIA and Department of Environmental Affairs.	This concerns mandatory reporting of GHG emissions in South Africa. AECI has and will continue to report its GHG emissions in the public domain through both the Climate Change CDP and the Integrated Annual Report. As such, AECI is not opposed to the introduction of mandatory reporting. However, there are some concerns regarding the boundaries, thresholds, process for reporting and the penalties associated with the regulation. Currently, reporting of greenhouse gas emissions takes place at facility-level through the National Atmospheric Emissions Inventory System (NAEIS) and at group-level directly to government. We propose that reporting takes place at a national-level only as climate change and greenhouse gas emissions are a global issue. We also propose that the reporting is done at legal entity-level to align with the proposed carbon tax. We have, however, registered for mandatory reporting and submitted our first greenhouse gas emissions report to the Department of Environmental Affairs.
Cap and trade	Support with major exceptions	Engagement on carbon budgets in South Africa is via correspondence and meetings with both CAIA and Department of Environmental Affairs.	This concerns carbon budgets in South Africa. AECI has participated in the first phase of the carbon budgeting process which is voluntary and runs up to the end of 2020. Whilst AECI is committed to reducing its GHG emissions and has made great strides in this regard, we are concerned about the risk of market-sensitive information being shared with competitors, the setting of the budget and the introduction of penalties for exceeding an allocated budget. We propose that there is alignment between the various policy instruments that have been proposed or implemented by national government. We are of the opinion that the carbon budgets and carbon tax need to be aligned so that a company is only taxed for emissions exceeding the allocated budget.

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

Chemical and Allied Industries Association (CAIA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

AECI is a founder member of CAIA and its Chief Executive Officer sits on the Board. Members of CAIA seek to engage constructively with Government on the issues at hand in order to reach an acceptable outcome for industry. It must be acknowledged that an acceptable outcome may be a compromise. For the members, it is important that there is acknowledgement by Government on the voluntary investments made by businesses towards mitigating emissions and the associated impacts of climate change. It is also important that businesses' concerns with regards to existing and pending regulation are acknowledged. Reduction targets should be achievable with acceptable risk and levels of investment. Unachievable emission reduction targets place industry at significant risk for tax liability, further regulatory and economic action, loss of competitiveness, as well as reputational damage. Constructive engagements must acknowledge that achievements by companies in reducing their emissions profiles have been as a result of responsible self-regulation through the Responsible Care initiative to which signatories remain committed. Market forces should also be recognised as playing an important and increasing role in placing pressure on companies to reduce emissions. In the 2017 financial year, AECI worked with CAIA to establish a GHG emissions baseline for nitric acid production.

How have you, or are you attempting to, influence the position?

As a CAIA member, AECI is well aware that a business-as-usual approach is not feasible. AECI is committed to playing an active role in implementing the National Climate Change Response Policy that places South Africa on a low carbon growth path whilst at the same time addressing developmental imperatives. To this end, AECI participates actively via CAIA in terms of engagement with policy makers through formal meetings, dialogues, written submissions and comments on proposed policies, participation in sector specific workshops etc.

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?

AECI ensures that all of its direct and indirect activities that influence policy are consistent in terms of messaging through the following –

- i) AECI engages with its businesses to obtain feedback, consolidates this feedback and relays the message to government and/or industry associations as required. All engagement with government and industry associations such as CAIA takes place at Group-level.

- ii) AECI ensures consistent messages are conveyed to stakeholders through central coordination of stakeholder engagement. This is done in collaboration with the Group Communication and Investor Relations Manager.

- iii) AECI has introduced programmes such as the Going Green Programme to drive consistent messaging. The Going Green Programme focuses on environmental targets and production efficiencies to reduce energy and water usage. All processes related to the Going Green Programme are directly linked to AECI's vision and values and will be reviewed on a regular basis to ensure relevancy and consistency not only with the AECI strategy, but also with the constantly evolving regulatory and business regime. Performance on Going Green Programme will be regularly reported to the Executive Committee as well as the Social and Ethics Committee meetings as was the case with the Green Gauge Programme.

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

full-iar.pdf

Content elements

Strategy

Risks & opportunities

Emissions figures

C14. 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.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Executive	Chief Executive Officer (CEO)

SC. Supply chain module

SC0.0

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

AECI is a South African-based company focused on providing products and services to a broad spectrum of customers in the mining, water treatment, plant and animal health, food and beverage, infrastructure and general industrial sectors. It has regional and international businesses in Africa, South East Asia, the USA and Australia. AECI was registered as a company in South Africa in 1924 and has been listed on the JSE since 1966. The Group has five growth pillars. The focus of four of the growth pillars is on domestic growth as well as ongoing expansion outside South Africa in the Group's chosen strategic areas of Mining Solutions, Water & Process, Plant & Animal Health, and Food & Beverage. The fifth growth pillar focuses on the proactive management of a portfolio of Chemicals business. Mining Solutions comprises AEL Mining Services ("AEL"), Senmin and Experse, Water & Process is anchored in ImproChem and Plant & Animal Health in Nulandis and Schirm. Lake Foods ("Lake") and Southern Canned Products ("SCP") constitute the Food & Beverage pillar. Extreme and unpredictable weather events and the failure of climate change mitigation and adaptation has been identified by the Group as a top risk. As such, AECI is committed to effective management of climate-related risks, energy consumption and associated greenhouse gas (GHG) emissions. Total Scopes 1 and 2 emissions for the 2017 financial year (01 January 2017 to 31 December 2017) were 583 251 tCO₂e which represents an increase of 9.7% from the prior year. This increase was largely due to higher Scope 1 emissions from AEL's nitric acid facility. The increase was attributable to significantly higher online time at the No. 9 Nitric Acid Plant in 2017. There have been no changes to its reporting year. AECI continues to report in line with its financial year. Chemical initiatives Chloorkop produces for L'Oréal and falls within AECI's 5th pillar.

SC0.1

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

	Annual Revenue
Row 1	1848200000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

No

SC1.1

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

Requesting member

L'Oréal

Scope of emissions

Scope 1

Emissions in metric tonnes of CO2e

0.1

Uncertainty (±%)

10

Major sources of emissions

Major source of emissions is fuel (diesel, petrol and gas) used in the operation.

Verified

No

Allocation method

Allocation based on mass of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

Calculated based on the tonnes product sold to Loreal in proportion to the total tonnes produced by Chemical Initiatives Chloorkop facility. Please note that products sold by another AECI business, ChemSystems, are traded products. These products are not manufactured by the facility and therefore the emissions have not been included.

SC1.2

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

SC1.3

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

Allocation challenges	Please explain what would help you overcome these challenges
Customer base is too large and diverse to accurately track emissions to the customer level	AECI provides products and services to a wide range of customers due to the diversity of our business. It would make sense to allocate our emissions in terms of significance of emissions; i.e. reporting emissions relating to those operations emitting the highest tonnes of CO2 emissions.

SC1.4

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

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

Emissions will be allocated to those customers associated with our operation that contribute to the most significant emissions.

SC2.1

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

SC2.2

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

No

SC3.1

(SC3.1) Do you want to enroll in the 2018-2019 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2017-2018 Action Exchange initiative?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services, if so, what functionality will you be using?

No, I am not providing data

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Non-public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms