

Module: Introduction**Page: Introduction**

CC0.1**Introduction**

Please give a general description and introduction to your organization.

AECI is a South African-based explosives and specialty chemicals company focused on providing products and services to a broad spectrum of customers in the mining, manufacturing and agricultural 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 focus is on domestic growth as well as ongoing expansion outside South Africa in the Group's chosen strategic areas of mining solutions, water solutions, agrochemicals and food additives and ingredients. The proactive management of a portfolio of specialty chemicals business is the Group's fifth growth pillar.

Mining Solutions is led by AEL Mining Services ("AEL") and Senmin, Water Solutions by ImproChem and Agrochemicals by Nulandis. Lake Foods and Southern Canned Products ("SCP") constitute the Food Additives and Ingredients pillar.

Climate change has been identified by the Group as a top risk. As such, AECI is committed to effective management of climate change risks, energy consumption and associated greenhouse gas (GHG) emissions. Total Scopes 1 and 2 emissions for the 2016 financial year (01 January 2016 to 31 December 2016) were 531 868 t CO₂e which represents an increase of 4% from the prior year. This increase was largely due to higher scope 1 emissions where improvements made to analytical equipment resulted in the more accurate measurement of emissions.

CC0.2**Reporting Year**

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country

South Africa
United States of America
Indonesia
Australia
Burkina Faso
Botswana
Egypt
Congo, Democratic Republic of the
Namibia
Zambia
Zimbabwe

Select country
Ghana
Tanzania
Guinea

CC0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

ZAR (R)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

The Social and Ethics Committee (SEC) is directly responsible for oversight and guidance on climate change issues. It is a Board-appointed Committee that reports back to the full Board. The SEC is mandated to consider, recommend and monitor AECI's activities with regard to the following and report accordingly to the Board:

- 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;
- 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;
- 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;
- 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.
- To monitor and advance the implementation of policies and plans approved by the Board on matters as contemplated above.

The current members are:

Z Fuphe (Chairman)
GJ Cundill
MA Dytor
MVK Matshitse
AJ Morgan
R Ramashia

For the period under review, 2016, The Group Technical and Safety, Health and Environment Manager, Gary Cundill, had day-to-day responsibility for climate change issues. His responsibility was for the overall management of and co-ordination of Health, Safety and Environmental aspects for AECI. He is supported by the Group Environmental Specialist, Tredeshnee Naidu, who provides environmental support and advice to the AECI Group.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Director on board	Recognition (non-monetary)	Emissions reduction project Emissions reduction target Energy reduction project Energy reduction target Efficiency project Efficiency target Other: Behaviour change related indicator	An environmental award is given to the Managing Director of the company that performs the best in terms of achieving targets on waste (including emissions), water and energy initiatives. 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. Crest Chemicals Midrand site was named as the recipient of the award, owing to the outstanding commitment shown and results achieved in living the Going Green value by the site's management team with the support of all its employees.
Environment/Sustainability managers	Recognition (non-monetary)	Other: SHE awards	Awards were given to Safety, Health and Environmental (SHE) practitioners relating to best SHE performance at the 2016 annual SHE conference. Environmental performance is an important component of SHE.
Process operation managers	Monetary reward	Emissions reduction project	Operational personnel are rewarded as part of their Key Performance management on successful management of the CDM projects at AEL Modderfontein.

Further Information**Page: CC2. Strategy**

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	South Africa, Africa, North America, Indonesia	1 to 3 years	

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

The Group follows the risk management methodology comprising both bottom-up and top-down elements as well as a holistic approach in identifying, analysing, evaluating, treating, monitoring and reviewing risks. The bottom-up identification and prioritisation process is supported by workshops with the management teams of the Group's businesses (site level). The top-down element (company-level) involves management at Corporate Head Office level. This ensures that potential risks are discussed at the top management level and are included in subsequent reports, if found to be relevant. Through this process, complemented by with the software, AECI ensures that the management of risks is an integral part of its corporate governance system and that risk management is integrated into its day-to-day business activities.

Several key risk management enhancements were introduced to the AECI Enterprise Risk Management Framework during 2014. In 2015 these enhancements were

entrenched in all businesses, resulting in a more risk intelligent and resilient organisation.

Key points included:

- ››classifying risks according to causal categories (Preventable, Strategic and External);
- ››introducing a risk delegation of authority within the AECI risk matrix;
- ››revising risk appetite, tolerance and risk rating scales;
- ››introducing new country risk management components that will enhance high-level analysis and reporting; and
- ››upgrading certain elements of the risk management software so as to capture the risk methodology enhancements.

CC2.1c

How do you prioritize the risks and opportunities identified?

The risk analysis is depicted on a 5 x 5 risk rating scale that sets out potential impacts and estimated probabilities. The potential impacts are classified as minor, moderate, serious, major or severe and are in turn linked to a qualitative and quantitative residual risk value. The estimated probability is based on:

- › almost certain = monthly basis;
- › likely = once in one year;
- › possible = once in three years;
- › unlikely = once in five years;
- › rare = once in more than five years.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment
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CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Part of AECI's business strategy is to ensure that it remains well positioned to push its performance "above and beyond," with people of the right calibre and skills pursuing the Group's values of being bold and innovative. AECI understands that this can only be done if risks such as climate change risks are identified and addressed. For this reason, the business strategy will be supported by a climate change strategy to be finalised. AECI's values of going green and being environmentally responsible will inform our climate change strategy.

Our Climate Change strategy will be supported by the following three key pillars:

- A. Achieving targets through progressive efforts to increase efficiencies. AECI has made a concerted effort to minimise its impact by improving efficiencies in production processes, logistics management, offerings to customers, office activities etc.
- B. A high priority on green chemistry to encourage 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.
- C. Partnerships with stakeholders within and outside the company. To ensure Group-wide participation and ownership, AECI promotes environmental education and training.

(i) How the business strategy has been influenced: The AECI strategy focuses on domestic growth as well as ongoing expansion outside South Africa in the Group's chosen strategic areas of Mining Solutions, Water Solutions, Agrochemicals, Food Additives and Ingredients and Specialty Chemicals. To achieve this strategy AECI needs to act as a responsible citizen and one of the areas is managing risks and opportunities associated with climate change. In this regard AECI has commenced with a climate change strategy. Some examples of how the business strategy has been influenced by climate change is introduction of sustainable agriculture products such as Ecologika and Biocult.

(ii) Aspects of climate change that have influenced the strategy: AECI's business strategy has been influenced by the realisation that failure to adapt business practices in the current environmental and climate change sphere will have major cost implications and that many opportunities exist for the incorporation of green chemistry in the strategy. Some examples of green chemistry include the eco-emulsions range at AEL operations, green blowing agents being developed by a refrigerant manufacturing subsidiary, the Ecologika range of sustainable products. The inherent risks associated with impending climate change related regulations such as the Carbon Tax have also shaped AECI's strategic approach. AECI is cognisant of the fact that failing to take strategic action in the climate change arena could result in severe reputational damage. AECI has also recognised that the opportunities linked to efficiency projects provided by the Energy Efficiency regulations provide a good business case for upgrading and improving production equipment and infrastructure.

(iii) How climate change has influenced the short-term (1 to 5 years) strategy: In the AECI environmental target-setting process (known as Green Gauge) short term targets have been set up to 2015. Recognising the need to reduce emissions and thereby reduce the Group's overall carbon footprint, the Green Gauge process, under Key Focus Area 2 (KFA): Energy Conservation, focuses on conducting energy efficiency assessments at prioritised sites. Pursuant to confirmation based on the assessments, AECI set a target to reduce scope 1 emissions by 10% and scope 2 emissions by 15% by 2015 from a 2011 baseline. Energy audits have been completed at 15 sites in support of this target and site specific activities and interventions have been implementation.

(iv) How climate change has influenced the long-term (5 to 10 years) strategy: The Green Gauge programme has been relabelled the Going Green Programme with objectives up to 2020. A key component for the achievement of long terms objectives is the focus on green chemistry to ensure that manufacturing and production

processes consider the application of cleaner technology as well as innovative solutions in product development. It is anticipated that this focus will drive the Group's long term vision based on the fact that "Going Green" is not only part of the "Good Chemistry" brand descriptor and one of the Company values; it is also a business opportunity. AECI believes that as environmental considerations become more entrenched in society, opportunities to supply products that are aligned with this trend become more apparent and viable. A good example of this is the water treatment products and processes that assist customers in maximising their use of this scarce resource in Africa. Another subsidiary supplies products for insulating materials that assist in reducing energy consumption.

(v) How integrating climate change into our business strategy is gaining us a strategic advantage over our competitors: AECI's drive towards Green Chemistry and the development of products which are not only more environmentally friendly but which will also assist customers in reducing their carbon footprints will give AECI a competitive advantage. This is clearly evident in projects such as eco-emulsions and "Green Blasting" options provided by AEL, the development and use of green blowing agents, Ecologika products for sustainable agriculture etc.

(vi) Substantial investment decisions: AECI has invested considerable resources – both human and financial – in conducting a baseline assessment of current operational aspects which have a bearing on resource efficiency with the aim of developing a long term business strategy for its sites. AECI engaged ERM, a leading international sustainability consultancy, to assist in conducting the assessments. The site assessments carried out included estimations of energy, water and waste saving potentials based on available data and the ERM team's professional considerations. A detailed opportunities database as well as business case, inclusive of Net Present Value (NPV), opportunity cost, payback periods etc., was developed for the sites assessed. Opportunities were prioritised to enable the sites to develop management plans for implementation: Companies continued to implement initiatives. In 2017, the National Cleaner Production Centre ("NCPC-SA") will assist AECI in identifying further opportunities to reduce energy consumption at the Group's facilities in South Africa. The NCPC-SA is a national programme of government that promotes the implementation of resource efficiency and cleaner production methodologies to assist industry to lower costs through reduced energy, water and materials usage, and waste management.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

No, and we currently don't anticipate doing so in the next 2 years

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations

CC2.3a

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 is via the Chemical and Allied Industries Association (CAIA)	AECI does not support the carbon tax, however we have the following proposal should it be implemented: Benchmarking: benchmarking is not a feasible option 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. The following alternative is proposed: 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.

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Chemical and Allied Industries Association (CAIA)	Consistent	Members of CAIA seek to engage constructively with Government on the issues at hand while being clear about concerns as well as voluntary investments towards mitigating impacts that have already taken place; in order to reach an acceptable outcome for industry. It must be acknowledged that an acceptable outcome may be a compromise. 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.	As a CAIA member AECI is well aware that a business as usual approach is not feasible and 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 while 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.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

CC2.3e

Please provide details of the other engagement activities that you undertake

CC2.3f

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 has introduced the Going Green programme which focuses on environmental targets and production efficiencies to reduce impacts relating to energy, and water. All Going Green processes are directly linked to AECI's vision and values and are 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 is regularly reported to the Executive Committee as well as the Social and Ethics Committee meetings. AECI has commenced with implementing its Climate Change strategy to reinforce the focus and refine its position and align engagement activities.

Going Green is one of AECI's founding values. ImproChem's recent introduction of an effluent reduction and water re-use programme in the Group exemplifies this. ImproChem will review water and effluent systems at AECI's facilities and, thereafter, it will facilitate optimisation projects to address instances of significant water consumption and discharge volumes. In 2017, the National Cleaner Production Centre ("NCPC-SA") will assist AECI in identifying further opportunities to reduce energy consumption at the Group's facilities in South Africa. The NCPC-SA is a national programme of government that promotes the implementation of resource efficiency and cleaner production methodologies to assist industry to lower costs through reduced energy, water and materials usage, and waste management. It is hosted by the CSIR on behalf of the Department of Trade and Industry.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
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CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
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CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
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CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
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CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
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CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

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?

CC3.2a

Please 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	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
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CC3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
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CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
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CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
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CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Page: CC4. Communication

CC4.1

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	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	page 76	https://www.cdp.net/sites/2017/48/248/Climate Change 2017/Shared Documents/Attachments/CC4.1/full-iar 2016.pdf	

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	The South African National Treasury (NT) released the Draft Carbon Tax Bill for comment during 2015. Following the consideration of these comments, NT has committed to releasing an updated draft Bill in August/September 2016. Indications are that the tax will be implemented in 2017 to support SA's commitment of reducing greenhouse gas emissions by 34% by 2020 and 42% by 2025 against a business as usual scenario. It is anticipated that 80% of emissions will be tax-exempt for chemical industry until 2020 to allow for a smooth transition of businesses within this sector. Government has proposed a carbon tax of R120 per tonne of CO ₂ e on scope 1 emissions. Not only will AECI be	Increased operational cost	Unknown	Direct	Likely	Medium-high	The carbon tax proposed in the latest draft policy document is R120/tonne CO ₂ e. For AECI which falls in the Chemical Sector a tax-free threshold of 80% may apply. Therefore based on the assumption that only scope 1 emissions are taxed and considering a tax-free threshold of 80%, the tax would cost AECI approximately R8m. This would increase with time as the rate increases and the tax-free thresholds reduce.	AECI believes that the reduction and efficiency opportunities which have been identified for specific sites through the Green Gauge process will achieve energy savings by improved industrial processes and behavioral changes. A significant drive to improve plant performances, enhance pump capacities, use efficient lighting systems, etc. will greatly aid in the reduction of AECI's total carbon footprint and the associated carbon tax.	The cost of implementing Green Gauge and the associated energy efficiency projects which have been identified is calculated to be more than R 4 Million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	paying a direct tax on its scope 1 emissions, but there may also be indirect cost implications through increased prices of electricity, fossil fuels and other raw materials.								
Uncertainty surrounding new regulation	The key short term risk is uncertainty regarding the timing and nature of fiscal, regulatory and legislative frameworks which are currently under development. The South African Government recognises the country's responsibility to undertake action to reduce emissions and has announced emissions reductions by 34% below projected business as usual baseline by 2020 and by 42% by 2025. The Department of Environmental Affairs is currently implementing the	Increased operational cost	1 to 3 years	Direct	Very likely	Medium-high	It is currently unclear what the financial implications of the uncertainty associated with new regulation will be. If the new regulation is promulgated, the financial implication may be significant and would be related to pollution abatement equipment. In addition costs relating to mitigation would also be significant thereby placing financial strain on individual businesses in the Group.	As a risk mitigation measure AECI engages with the regulators through CAIA and BUSA on a regular basis to ensure that the concerns related to new legislation and the associated uncertainties are raised with the relevant Government departments.	The annual CAIA membership costs amount to approximately R1.1 million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Carbon Budget approach to contribute towards mitigating GHG emissions. Although carbon budgets - which are about to be determined with high Scope 1-emitting companies - will not carry any penalties for the first 5 years (2016 – 2020) should they not be met, they are an important first step to determining future emissions caps (for companies and sectors/sub-sectors) and instruments through the Carbon Budget / Desired Emission Reduction Outcomes / Mix of Measures Policy. Additionally, companies that have an approved carbon budget qualify for an additional 5% tax-free threshold under the proposed carbon tax.</p>								

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	Changes in precipitation patterns are particularly relevant where water is a critical resource. Impacts of changes in precipitation patterns vary regionally but significant effects are anticipated where reduced precipitation coincides with increased temperatures, causing exacerbated water stresses. Our Agriculture business may be significantly impacted by changes in precipitation patterns having a direct impact on our Agriculture customers	Reduced demand for goods/services	>6 years	Indirect (Supply chain)	Unlikely	Medium	The financial implication could not be determined	Monitoring climate related issues affecting the Agrochemicals business and engaging with relevant customers to understand their risks relating to water and how AECI can support them in terms of, for example, providing agricultural chemicals specifically for water strained areas. There is also an impact on operations that use significant amounts of water. As part of the Green Gauge programme, operations have implemented initiatives such as using recycled	The cost of water saving initiatives has been estimated to be greater than R1m.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	buying our products.							water instead of potable water, rain water harvesting and addressing storm water/effluent systems.	
Change in precipitation extremes and droughts	The AECI supply chain (as well as labour force) could well be affected by physical climate change risks such as floods, or extreme weather events. Flash floods could have a knock-on effect on food supply and disease on the workforce as well as negative effects on road infrastructure in the area which may affect the supply chain. Disrupted access to site due to flooding or extreme weather events can result in supply chain	Reduction/disruption in production capacity	>6 years	Indirect (Supply chain)	Likely	Medium	Floods will affect the supply chain and disrupt business continuity which could result in a significant loss of income from production inefficiencies. AECI's product sit in various companies supply chains and therefore if critical products cannot be delivered customers operations cannot continue to function. There is currently no quantification of the loss of revenue if these products were	AECI has calculated annual carbon footprints (and hence manages data related to carbon emissions and climate change) of operations and associated with this is a greater understanding of the risks and opportunities the company faces from climate change. AECI is currently considering a separate climate change strategy and regards this as part of the optimisation of the business. The climate change strategy will help to	A risk assessment of the implications of flood events on AECI businesses will cost approximately R 2 Million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>disruption and non-delivery of resources, a loss of production time and a loss of revenue. Disruption at suppliers' sites due to flooding or extreme weather events can also result in supply chain disruption and non-delivery of resources, the inability to operate due to lack of resources and a loss of revenue. Flooding may also disrupt AECI's ability to supply key chemicals to clients, thereby disrupting clients operations.</p>						not available, although it would be significant.	identify risks associated with climate change and the strategies that could be implemented to address these risks. The Climate Change strategy will be aligned with regulation.	

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Risk of negative impacts on reputation could pose a threat to the chemical, agricultural, food and beverage and explosives and services sector as a whole due to increased public awareness of climate change and the increased focus on what the industry is doing in response to climate change.	Reduced demand for goods/services	3 to 6 years	Direct	Unlikely	Low-medium	By not taking carbon liability into consideration when carrying out long-term planning, there is a potential risk that the financial viability of projects would not be as attractive as thought. This would also affect the sustainability of projects. The same is true if weather projections are not considered for particular areas. This could affect the financial viability of a project. The financial effects of a lack of long term planning have not been quantified.	The climate change strategy is the first step in identifying the risks and opportunities associated with climate change. In doing so, AECI will be in a position to better understand the financial effects of climate change thereby enabling the Group to incorporate carbon liability into future planning. The Green Gauge programme to reduce energy, water and waste was initiated in 2011 to identify opportunities and set targets relating to these areas. Many of the initiatives were directly linked to a saving	The costs of carbon assessments, efficiency assessments and implementation of projects amounted to approximately R 6 million.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								in GHG emissions.	
Changing consumer behavior	Shifts in consumer behaviour to purchase products with a lower carbon footprint may affect companies within the Group. There may be competitive risks from suppliers who can offer products with lower carbon footprints and which are more environmentally friendly.	Reduced demand for goods/services	>6 years	Direct	Unlikely	Low	Not evaluated	AECI has introduced the Green Gauge programme as part of its values of Going Green and being responsible. The Green Gauge programme focuses on achieving savings related to energy, water and waste with associated benefits of GHG savings. The Green Gauge programme has reached its lifespan and it has now been re-branded the Going Green programme in line with AECI's values. In 2017, the National Cleaner Production Centre (NCPC) will assist AECI in identifying	The cost of implementing Green Gauge and the associated energy efficiency projects which have been identified have cost more than R4 million to date. It is expected that further significant capital expenditure will be required to achieve additional savings going forward in line with the re-branded Going Green Programme.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								further opportunities to reduce energy consumption at the Group's facilities in South Africa.	

CC5.1d

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
General environmental regulations, including planning	Increasing and changing environmental regulation has resulted in customers looking at ways to minimise their environmental impacts. This	New products/business services	1 to 3 years	Direct	Very likely	Medium-high	The focus on 'Green Products' will result in increased sales and is likely to contribute between 2% and 5% of	AECI has placed a high priority on green chemistry to encourage the design of products and processes that minimise	The investment in Research and Development is estimated to be 2% of revenue.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	has led to the following initiatives by AECI Group companies: 1. Ecologika focuses on specialty products and services for sustainable agriculture; 2. Development of environmentally friendly fertilizer coatings; 3. Development and sale of series of emulsions						the Group's profits in the next three years, estimated at between R34m and R85m based on 2015 profit numbers.	the use and/or generation of hazardous substances. This focus is supported by ongoing research and development at individual business level	

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean	The rising cost and tighter regulation of	Increased demand for	Up to 1 year	Direct	Virtually certain	Medium-high	The potentially increased demand for	Improchem has embarked on an effluent reduction	The first effluent and reduction and water

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
(average) precipitation	<p>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 believe that this is an opportunity in the short to medium term especially as the countries we operate in are considered water scarce. AECI has identified the fact that based on lack of availability of water resources, water treatment is an attractive option for activities that use water as a</p>	existing products/services					<p>water treatment technologies and chemicals is likely to increase the demand for the services offered by AECI companies, in particular ImproChem. This increased demand will most likely result in financial benefits for the Group.</p>	<p>and water re-use programme in the Group. Improchem will review water and effluent systems at AECI's facilities, and thereafter will facilitate optimisation projects to address instances of significant water consumption and discharge volumes.</p>	<p>optimisation project has kicked off at one of AECI's sites, Chempark in Chloorkop, Johannesburg in early 2017. The scope includes improving stormwater and effluent systems, and building a new effluent treatment plant with a view to improving the effluent quality as well as reuse of treated effluent within the site processes. The cost of the Chempark project is in the region of R50 million.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	raw material and generate significant quantities of effluent.								
Change in precipitation extremes and droughts	The recent drought conditions experienced in Southern Africa has had significant impacts on the agricultural sector. AECI has identified this as an opportunity by providing products to farmers that can provide supplements to livestock that has been lacking due to the drought conditions. The drought conditions currently being experienced around the country will increase the prevalence of	Increased demand for existing products/services	Up to 1 year	Direct	Virtually certain	High	The estimated financial implication of increased products has not yet been assessed.	Savannah grazing supplements were launched recently by Chemfit, a division of AECI, to farmers in the Karoo. The supplement can be used by farmers to counteract the effects of dry, woody stalks in grass due to the drought. (To be updated by Ryan)	The revenue from the sales of the new Savannah range have not been estimated yet as the product has recently been launched.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	high fibre in veld grass (high levels of indigestible lignin fibre) resulting in animals being unable to derive the full nutritional value from veld grass.								
Change in precipitation extremes and droughts	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 NU-Way® programme. Products and farm management services are being developed to support farmers. Identifying soil	New products/business services	Up to 1 year	Direct	Virtually certain	High	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.	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 trial to broaden	The Nu-Way® services and R&D activities account for approximately 2% of turnover.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>structure deficiencies through our Precision Science team is the starting point of this process with advice on effective irrigation scheduling, if appropriate. 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</p>							<p>the product offering and provide cutting edge technology in crop management.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	products and services aim to build soil structures that give the farmer the best chance to manage the challenges posed by changing climatic conditions.								
Change in precipitation extremes and droughts	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	New products/business services	Up to 1 year	Direct	Virtually certain	High	The estimated financial implication of setting up the Sustainable Water Solutions service in terms of Research and Development is approximately R1 million.	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.	The anticipated revenue from Sustainable Water Solutions is greater than R35 million for 2017.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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. 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.</p>								

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Other drivers	The increasing demand on the grid and rising cost of energy, especially electricity is driving businesses to consider energy reduction initiatives in their activities. AECI has identified various opportunities across energy, water and waste, as part of AECI's Green Gauge programme, to not only reduce its environmental impact but which would also enable reduction in costs throughout the Group. The Green Gauge programme has reached its lifespan and it has now been re-branded the Going Green programme in line with AECI's values. In 2017, the National Cleaner Production Centre (NCPC) will assist AECI in identifying	Reduced operational costs	1 to 3 years	Direct	Very likely	Medium-high	The roll out of of the new Going Green programmes across businesses within the Group is likely to realise significant cost savings.	AECI has invested considerable resources – both human and financial – in conducting a baseline assessment of current operational aspects which have a bearing on resource efficiency with the aim of developing a long term business strategy for operational sites. AECI approached ERM, a leading international sustainability consultancy, to assist in conducting the assessments using their QUEST methodology (Quick Energy Savings Technique). The site assessments carried out were characterised by the estimations of energy, water and waste saving potentials based on available data and the ERM team's professional considerations. A	It is expected that the Going Green Programme will require investment from companies in excess of R4 million.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	further opportunities to reduce energy consumption at the Group's facilities in South Africa.							detailed opportunities database as well as business case, inclusive of Net Present Value (NPV), opportunity cost, payback periods etc., was developed for the sites assessed. Opportunities have also been prioritised in order to enable the sites to develop management plans for implementation. . A similar programme will be looked at with the NCCP focussing on energy.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Sat 01 Jan 2011 - Sat 31 Dec 2011	329909
Scope 2 (location-based)	Sat 01 Jan 2011 - Sat 31 Dec 2011	247569

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 2 (market-based)	Thu 18 May 2017 - Thu 18 May 2017	

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Second Assessment Report (SAR - 100 year)
CH4	IPCC Second Assessment Report (SAR - 50 year)
N2O	IPCC Second Assessment Report (SAR - 100 year)
HFCs	Other: GHG Protocol

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Bituminous coal	0.026	metric tonnes CO2e per GJ	GHG Protocol/2006 IPCC Guideline
Diesel/Gas oil	0.074	metric tonnes CO2e per GJ	GHG Protocol/2006 IPCC Guideline
Electricity	1.00	metric tonnes CO2 per MWh	Eskom Annual Report 2015
Electricity	0.43	metric tonnes CO2 per MWh	Duke Energy Annual Report 2015
Liquefied petroleum gas (LPG)	0.001	Other: kg CH4/GJ	GHG Protocol/2006 IPCC Guideline
Motor gasoline	0.069	metric tonnes CO2e per GJ	GHG Protocol/2006 IPCC Guideline

Further Information

Attachments

https://www.cdp.net/sites/2017/48/248/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/2016 AEL Carbon Footprint_200217.xlsm

https://www.cdp.net/sites/2017/48/248/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/2016 SCC Carbon Footprint_200217.xlsm

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

314780

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We have operations where we are able to access electricity supplier emissions factors or residual emissions factors, but are unable to report a Scope 2, market-based figure	What does 'market based' mean?

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
217088	0	

CC8.4

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

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	Less than or equal to 2%	Data Gaps	KPMG has provided a limited assurance expression for relevant sustainability parameters across the Group. An uncertainty, if any, exists in terms of gaps or errors in data would be the result of human error where data is captured manually and transferred to the data management system.
Scope 2 (location-based)	Less than or equal to 2%	Data Gaps	KPMG has provided a limited assurance expression for relevant sustainability parameters across the Group. An uncertainty, if any, exists in terms of gaps or errors in data would be the result of human error where data is captured manually and transferred to the data management system.
Scope 2 (market-based)			

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance process in place

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/48/248/Climate Change 2017/Shared Documents/Attachments/CC8.6a/full-iar 2016.pdf	Pages 80-81	ISAE3000	100

CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission

CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

Third party verification or assurance process in place

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/48/248/Climate Change 2017/Shared Documents/Attachments/CC8.7a/full-iar 2016.pdf	Pages 80-81	ISAE3000	

CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
No additional data verified	

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

Further Information

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC9.1

Do you have Scope 1 emissions sources in more than one country?

No

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Explosives segment	250511
Specialty Chemicals segment	22023
Property segment	42246

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
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CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
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CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
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Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2016 - 31 Dec 2016)

CC10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes 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				
Africa				

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes 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)
United States of America				
Indonesia				
Australia				

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
Explosives segment	75157	
Specialty Chemicals segment	137479	
Property segment	4452	

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
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CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
----------	--	--

Further Information

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	18175
Cooling	0

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

372506

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Anthracite	202187
Diesel/Gas oil	62982
Natural gas	103402
Liquefied petroleum gas (LPG)	252

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor			

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
211239	211239	0	0	0	

Further Information

Page: **CC12. Emissions Performance**

CC12.1

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

Increased

CC12.1a

Please 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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0.45	Decrease	AECI's property division saw a reduction in emissions of 2291 tonnes due to the coal to gas conversion project between 2014 and 2016. Calculation: difference between 2015 & 2016 Property scope 1&2 emissions (2291 tonnes) divided by the total scope 1&2 2015 emissions (513732) *100 = 0.45%
Divestment			
Acquisitions			
Mergers			
Change in output	0.12	Increase	0.12% increase due to higher production output at Senmin and Specialty Minerals South Africa. Calculation: Difference between scope 2 emissions from the chemical cluster (619 tonnes) divided by 2015 scope 1&2 emissions (513732) * 100 = 0.12%
Change in methodology	4.1	Increase	Due to improvements made to analytical equipment resulted in the more accurate measurement of emissions at the Nitric Acid plants - 4.1% increase from 2015. Calculation: Difference in scope 1 emissions between 2015 and 2016 (21239 tonnes) divided by 2015 scope 1&2 emissions (513732) * 100 = 4.1%.
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

CC12.1b

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.0000286	metric tonnes CO2e	18596000000	Location-based	2.7	Increase	Increase predominantly due to higher scope 1 emissions reported by AEL, where improvements made to analytical equipment resulted in the more accurate measurement of emissions.

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
80	metric tonnes CO2e	full time equivalent (FTE) employee	6630	Location-based	2.5	Decrease	The change is not significant and cannot be attributed to any process related changes.

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.69	metric tonnes CO2e	unit of production	67834	Location-based	12.86	Decrease	AECI's property division saw a reduction in emissions of 2291 tonnes due to the coal to gas conversion project between 2014 and 2016. The second Gas boiler was commissioned in the latter part of 2015.

Further Information

Page: CC13. Emissions Trading

CC13.1

Do you participate in any emissions trading schemes?

No, and we do not currently anticipate doing so in the next 2 years

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit origination	N2O	N2O abatement project at Nitric Acid plant No.11 at African Explosives Limited, South Africa	CDM (Clean Development Mechanism)			No	Voluntary Offsetting

Further Information

The number of credits (X tonnes of CO2e) is for the period 05 January 2015 to X 2016, which represents the audited period.

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, not yet calculated				
Capital goods	Relevant, not yet calculated				
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not relevant, explanation provided	0	n/a		All fuel and energy related activities have been accounted for in Scope 1 and 2 emissions.
Upstream transportation and distribution	Relevant, calculated	3484	2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting	100%	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	Relevant, calculated	1936	2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting	100%	This refers to effluent or wastewater from our operations being treated by the municipality
Business travel	Relevant, calculated	5198	2013 Guidelines to DEFRA/DECC's GHG Conversion Factors for Company Reporting	100%	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	Not relevant, explanation provided	0	n/a		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	Not relevant, explanation provided	0	n/a		AECI does not have any upstream leased assets

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Downstream transportation and distribution	Relevant, not yet calculated				AECI does not have financial or management control over transportation.
Processing of sold products	Relevant, not yet calculated				
Use of sold products	Relevant, not yet calculated				
End of life treatment of sold products	Relevant, not yet calculated				
Downstream leased assets	Not relevant, explanation provided				AECI does not have downstream leased assets
Franchises	Not relevant, explanation provided				AECI does not have any franchises
Investments	Not relevant, explanation provided				AECI does not have any investments
Other (upstream)	Not relevant, explanation provided				No other upstream emissions
Other (downstream)	Not relevant, explanation provided				No other upstream emissions

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

No third party verification or assurance

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Upstream transportation & distribution	Change in output	37	Increase	
Waste generated in operations	Change in output	3.5	Increase	
Business travel	Unidentified	20	Increase	

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our customers

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Information is provided on GHG emissions.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Mark Dytor	Chief Executive	Chief Executive Officer (CEO)

Further Information

CDP