

Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

Western Areas Ltd (WSA) is Australia's class leading nickel producer, with high grade nickel production assets in Australia. Headquartered in Perth, Western Australia, WSA is listed on the Australian Securities Exchange (ASX). Production is built around two of the highest grade underground nickel mines in the world, Flying Fox and Spotted Quoll, which both form part of WSA's Forrestania Nickel Operations (FNO) in the Goldfields region of Western Australia. The high grade nature of these two mines, coupled with a consistent track record of meeting production targets, produce significant operating margins. In 2015 WSA purchased the Cosmos operation near Leinster in Western Australia which was in care & maintenance. The mine was undergoing early works construction during the FY19 CDP reporting year. The Cosmos mine has a reserve of 8.1Mt and an expected mine life of greater than 10 years which is forecast to commence first production in FY22. Western Areas also has exploration activity in South Australia with the Western Gawler project.

Western Areas acknowledges that it operates within an extractive industry, however the Company is committed to minimising any potential adverse impacts, and operating responsibly in the community. This commitment is reflected in its governance practices, its active engagement and strong relationships with stakeholders, and the resources it devotes to managing the health, safety, environmental and social impacts of the business. Western Areas' focus on sustainability is underpinned by five key principles:

1. Sustainability is a consideration in Western Areas' daily business activities and operations;
2. The key to Western Areas' success is the health, safety and targeted development of its employees;
3. Expertise, innovation and technology are important tools to ensure adverse environmental, community and social impacts are minimised;
4. The communities in which Western Areas operate are partners in the Company's development; and
5. Continual review and improvement is critical to maintaining the highest standards in sustainable business practice.

Western Areas' approach to CSR is supported by its global risk management program (RMP), which identifies and analyses material risks to the Company's sustainability objectives, and ensures that these risks are both adequately managed and reported to the Board.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	July 1, 2018	June 30, 2019	No

C0.3

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

Australia

C0.4

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

AUD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-MM0.7

(C-MM0.7) Which part of the metals and mining value chain does your organization operate in?

Row 1

Mining

Nickel

Processing metals

Nickel

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Board Chair	<p>The Board Chair has ultimate responsibility of climate related issues.. The Board has delegated to the Audit and Risk Committee, a committee of independent directors appointed by the Board, specific oversight of the Company’s Risk Management Program (RMP) which assesses, monitors and reports on the risks of climate-change risks to the business.</p> <p>Audit and Risk Committee is composed of the Board Chair (independent) and 2 independent board directors. The Board receives updates from the Audit and Risk Committee on the RMP regularly throughout the year.</p> <p>The Board takes into account the risk management assessments, including climate-related risks assessments, when preparing, evaluating and approving company wide strategy, acquisition evaluations, annual budgets and forecast and capital expenditure approvals.</p>
Chief Financial Officer (CFO)	Chief Financial Officer & Company Secretary – Reports to the Board on risk management, and when relevant, climate related risk management – standing board meeting agenda item.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – some meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets 	<p>The Audit & Risk Committee are responsible for the risk management program at Western Areas’.</p> <p>Climate related risks are assessed as part of the Group Risk Management Program. This involves an minimum annual (or 6-monthly) risk review which includes all General Managers and Group Managers. Material changes to the risk management programme are raised to the Audit and Risk Committee and the</p>

<p>Reviewing and guiding business plans</p> <p>Monitoring implementation and performance of objectives</p> <p>Overseeing major capital expenditures, acquisitions and divestitures</p>	<p>Board throughout the year as required.</p> <p>The full Board receive reports on the outcomes of risk management activities as a regular standing agenda item (Board meeting are held more often than not on a monthly basis).</p> <p>Chief Financial Officer & Company Secretary – Reports to the Board on risk management, and when relevant, climate related risk management – standing board meeting agenda item.</p>
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C1.2

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

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

C1.2a

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

The Audit & Risk Committee are responsible for the risk management program at Western Areas. CEO and Chief Financial Officer & Company Secretary – Reports to the Board on risk management and climate related risk management. During the normal course of the business the CEO and CFO regularly assess climate related risks.

Senior Executive Position – Climate related issues and risks are captured at a high level in a risk register database, the database quantifies and ranks the various risks (which climate change and regulation is a risk) on a likelihood of occurrence and consequence matrix. Depending on the severity of the outcome of the individual risk to the organisation, the controls in place to limit the risk, future actions required to control the risk and mitigating factors are assigned to the risk.

The outcome reports related to these assessments are provided to the Board on a regular basis.

Mine site managers are involved through the monitoring of climate related issues (eg weather pattern changes) and inclusion through the site based risk assessment process, which feeds into the corporate risk assessment reporting process. For example, increasing drought and increased thunder storm intensity/weather patters is observed at the operation site which has resulted in increased lightning related fires (impacting power supply to the mine site).

C1.3

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

	Provide incentives for the management of climate-related issues	Comment
Row 1	No, and we do not plan to introduce them in the next two years	CEO, CFO, General Managers and other senior managers remuneration is linked to business outcomes and shareholder returns. A short-term incentives (STI) programme comprises a number of business outcomes including ESG performance.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	We consider 0-3 year period being a short-term horizon that Western Areas has a high amount certainty of our operations and the impact of climate change related risks on our operation. This time frame reflects the current life of mine of our Flying Fox operation at Forrestania.
Medium-term	3	7	We consider 3-7 year period being a medium-term horizon that Western Areas has a fair amount certainty of our operations and the impact of climate change related risks on our operation. This time frame reflects the current life of mine of our Spotted Quoll at Forrestania and the new Cosmos Nickel operation .

Long-term	7	20	Beyond 7 years we consider this to be a long-term horizon of which we have a much lower certainty of any operational impact of climate related risks.
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C2.1b

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

Yes, Western Areas defines substantive financial or strategic impact to our business as part as our risk management process. We consider >\$10M financial impact to the business as being a substantive impact.

C2.2

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

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

WSA applies a standard risk management program (RMP) throughout all levels of the company to identify and assess all relevant business risks and opportunities, including those relating to climate.

The RMP aims to:

- 1) Identify material risks and group them into specific risk registers;
- 2) Identify established controls that mitigate the identified risks;
- 3) Regularly assess if new controls are required to manage the risk; and
- 4) Monitor that established controls remain effective and fit for purpose.

The RMP process outlined above is an iterate process that occurs regularly throughout the year, engaging senior staff and managers across the Company.

All risks, including climate risks, are captured in a consolidated corporate risk register database, where the database quantifies and ranks the various risks on a likelihood of occurrence and consequence matrix. Depending on the severity of the outcome of the individual risk to the organisation, the controls in place to limit the risk, future actions required to control the risk and mitigating factors are assigned to the risk. The outcome reports related to these assessments are provided to the Board on a regular basis.

The CFO/Company Secretary is responsible for overseeing the Company's Risk Management Program (RMP).

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>Transitioning to a low carbon economy provides a number of challenges for governments around the world. How governments will introduce and modify existing and future legislation to drive adaptation to this change is particularly relevant to the mining industry. Regulation risk is therefore a risk that WSA monitors closely. WSA's Group Manager Environment sits on a number of industry committees including the AMEC Climate Change and Water Committee which provides a good mechanism for staying abreast of proposed legislation changes.</p> <p>For example, monitoring the Renewable Energy Target (RET) and the Partial Exemption Certificates (PECs) provided to the Nickel industry due to Energy Intensive Trade Exposed (EITE) status. The change in the RET or PECs could have a cost impact to the company.</p> <p>Other relevant legislation that WSA keeps a close watch on is the existing Australia's climate safeguard mechanism and Emission Reduction Fund (ERF) and the possible implications for the company. The Emissions Reduction Fund is the Australian Government's central climate change policy tool. The Fund's objective is to help achieve Australia's greenhouse gas (GHG) emissions reduction targets of 5% below 2000 levels by 2020 and 26 to 28 per cent below 2005 levels by 2030. Western Areas facilities are currently and forecast to stay below the ERF threshold of 100,000 tonnes CO₂-e per facility.</p>
Emerging regulation	Relevant, always included	<p>Transitioning to a low carbon economy provides a number of challenges for governments around the world. How governments will introduce and modify existing and future legislation to drive adaptation to this change is particularly relevant to the mining industry. Regulation risk is therefore a risk that WSA monitors closely. WSA's Group</p>

		<p>Manager Environment sits on a number of industry committees including the AMEC Climate Change and Water Committee which provides a good mechanism for staying abreast of proposed legislation changes.</p> <p>For example, monitoring a potential carbon price or emissions trading scheme in Australia. The Australian Labor government introduced a carbon tax in 2011 which was subsequently repealed in 2014 by the Coalition government.</p>
Technology	Relevant, always included	<p>Western Areas is always monitoring and considering new technology to assist in the transition to a lower carbon economy. Some opportunities include lower carbon fuels such as gas at Cosmos rather than diesel, renewable energy opportunities at both Cosmos and Forrestania. Low carbon transportation such as electric mobile fleet or hydrogen vehicles. New technologies in the emerging nickel market for batteries in EV vehicles. Potential new products or value added products including Nickel sulphate and its variants. WSA is looking at new processing technologies such as our MREP project and bioheap demonstration project. And othe projects such as carbon capture and storage/sequestration in tailings.</p>
Legal	Relevant, always included	<p>The legal implications of a carbon pricing mechanism or other regulatory changes associated with climate change are considered. This includes legal reporting changes such as to the NGERS reporting obligations, and climate change disclosure requirements.</p>
Market	Relevant, always included	<p>WSA monitors market changes and expectations such as the emerging Nickel market for batteries in EV cars. Potential new products or value added products including Nickel sulphate and its variants. WSA is looking at new processing technologies such as our MREP project and bioheap demonstration project.</p>
Reputation	Relevant, always included	<p>There is increasing stakeholder, investor and shareholder expectation for companies to transition towards a lower carbon economy. WSA is aware of the importance of this to the business and is focusing on developing a climate change strategy to drive this transition as one of the identified controls.</p>
Acute physical	Relevant, always included	<p>Bush fires caused by ever increasing storm events (lightening) have been known to disrupt the operation by affecting power supply to the mines. The risk of prolonged business interruption due to power outages is a key risk that is considered in the risk assessment process.</p>
Chronic physical	Relevant, always included	<p>Physical risks such as the drying nature of south-west Western Australia are considered as this has a potential to exacerbate the risk and consequence of bush fires, and also impact on access to water to supply to the operations. This risk is always considered in our risk assessment process.</p>

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical
Increased likelihood and severity of wildfires

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Increased risk of the potential for an extended power outages at the Forrestania Nickel Mine caused by the increasing severity of wildfires (lightning) impacting a power line corridor. This is exacerbated by an increasing dryness index in the region.

Time horizon

Medium-term

Likelihood

Unlikely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

15,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Potential interruption to over the fence power supply for up to one month resulting in business interruption at the mill for up to 3 weeks until mobile gen sets can be installed.

Cost of response to risk

Description of response and explanation of cost calculation

There are a number of key controls in place to manage this potential risk, including: Supply agreement with Synergy and Western Power; Annual forecast of power demand; backup diesel generation capacity at mine and camp and limited generation capacity at mill; ongoing discussions with Western Power on ongoing maintenance requirements; fault reporting protocol; standby power installed at both mines (and switching programme), contingency in budget to replace one of the camp gensets. The cost of controls has not been identified.

Comment

The increasing dryness of the south Western Australia and an increase in extreme weather events are likely caused by climate change in the region.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

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

Primary potential financial impact

Increased indirect (operating) costs

Company-specific description

Climate change in the south-west Western Australia is projected to lead to a reduction in rainfall and runoff in the region. This has potential to impact the access to water to supply operations in the longer term.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

A financial figure has not been estimated.

Cost of response to risk

Description of response and explanation of cost calculation

Western Areas conducts regular annual water management reviews to understand the existing and future sustainability of our water supplies. There is no immediate or medium term risk identified for our operations however we monitor the potential for longer term risk to our operations.

Comment

Western Areas conducts regular annual water management reviews to understand the existing and future sustainability of our water supplies. There is no immediate or medium term risk identified for our operations however we monitor the potential for longer term risk to our operations.

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

Shift in consumer preferences

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

The increasing emerging market demand for electric vehicles is an opportunity for Western Areas Ltd. Nickel is a key input material in electric vehicle batteries (cathode). Nickel is a key component of lithium batteries used by Tesla and other electric vehicles which is creating a new market and increased demand for Nickel. The stainless steel market will continue to be the main market for nickel products however the battery market will continue to grow share in the future. The emerging battery market will likely increase demand for nickel and also possibly provide a price premium for battery input materials.

Time horizon

Medium-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Increased demand for Nickel product realised by a higher Nickel price and therefore increased revenue.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

WSA has constructed a new plant facility at our Forrestania operation. WSA announced the completion of commissioning of the Mill Recovery Enhancement Project (MREP) which plans to increase overall plant recoveries by 3-5%. This project opens up new

opportunities for WSA including nickel sulphate production for the expanding battery market, exploitation of lower quality resources (i.e. new projects such as New Morning and Diggers projects) and licencing the technology to third parties.

Comment

It is difficult to put an objective value to this opportunity.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Primary potential financial impact

Reduced direct costs

Company-specific description

Renewable energy reducing the cost of energy and carbon emissions for operational power supply. Renewable energy in the form of a hybrid renewable energy solution possibly involving wind, solar, gas and battery integrated with a controller and microgrid are being investigated for our Cosmos Operation. Battery storage is also being considered to reduce the spinning reserve at Cosmos for the shaft installation. Solar is also being considered for Forrestania to reduce peak capacity demand.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-low

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Reduced operational cost at Forrestania Nickel Operation.

Reduced operational cost and capital cost at Cosmos Nickel Operation.

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

A deed of agreement with a renewable supplier has been completed.

A SoDar trailer was deployed in the field at the Cosmos Nickel Operation in November 2019 to capture wind (at high elevation) and solar data for a 12 month period to inform the renewable energy power study.

A power study is underway.

A study of a solar power installation at the Forrestania Nickel Operation was completed in 2019. This project was determined to be not viable as the existing life of mine of the project did not support the opportunity.

Comment

Renewable energy investigations are currently underway and implementation cost and annual savings are still being determined for the Cosmos Nickel Operation.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of more efficient production and distribution processes

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

Construction of mining shaft infrastructure at the Cosmos Nickel Mine will provide significant economical and environmental benefits against trucking ore to the surface. The shaft will save approximately 1.5ML of diesel annually consumed by the trucking alternative, and therefore reduce the carbon footprint of the operation. The shaft will remove approximately 5W of heat generated from diesel engines which has the flow on effect of reducing the cooling demand from the ventilation cooling plant (estimated to remove a minimum of 200 m³/s of additional ventilation requirement). This also has a health and safety aspect by reducing diesel particulate emissions from underground.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

25,000,000

Potential financial impact figure – maximum (currency)

30,000,000

Explanation of financial impact figure

The capital cost of purchasing a second hand shaft is offset by the significant reduction in life of mine operating cost of the shaft versus the trucking alternative.

The shaft is estimated to save approximately 1.75 GL of diesel per year that would have otherwise been consumed by trucks hauling to the surface. In addition, the shaft is estimated to save approximately 56,000 MWh per year of electricity due to reduced electrical demand for the primary fans and refrigeration plant.

The cost savings over an estimated 10 year mine life are in the range of \$25M-\$30M AUD in total savings LOM.

In addition, the shaft is estimated to save approximately 4750 tonnes CO₂-e associated with the avoided diesel of the trucks and approximately 1250 tonnes CO₂-e per year due to reduced electricity consumption. A total saving of approximately 6000 tonnes CO₂-e per year attributed to the shaft project versus trucking to surface.

Cost to realize opportunity

20,000,000

Strategy to realize opportunity and explanation of cost calculation

Capital cost of purchasing a second hand shaft is offset by the significant reduction in life of mine operating cost of the shaft versus the trucking alternative.

Western Areas purchased a high quality second hand head gear and winder from South Africa.

The shaft infrastructure has been dismantled in South Africa and is currently being refurbished in South Africa prior to shipping to Perth.

Once in Perth the shaft infrastructure will be transported to the Cosmos Nickel Operation and installed by experienced contractors.

The shaft pilot hole is scheduled to be sunk in FY20.

Comment

The capital cost of purchasing a second hand shaft is offset by the significant reduction in life of mine operating cost of the shaft versus the trucking alternative. The shaft is expected to save significant diesel and power costs over the life of mine. In addition, the shaft project is projected to save approximately 6000 tonnes CO2-e per year.

C3. Business Strategy

C3.1

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

Yes

C3.1a

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

No, but we anticipate using qualitative and/or quantitative analysis in the next two years

C3.1c

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

Climate related issues and risks are captured risk management program (RMP) throughout the year. The database quantifies and ranks the various risks (which climate change and regulation is a risk) on a likelihood of occurrence and consequence matrix. Depending on the severity of the outcome of the individual risk to the organisation, the controls in place to limit the risk, future actions required to control the risk and mitigating factors are assigned to the risk. The risk management process has not identified scenario analysis as currently being material to the business. However, with an every changing regulatory framework and consideration of increased stakeholder expectations Western Areas is developing a Climate Change Strategy and will use climate-related scenario analysis to inform our business strategy.

C3.1d

(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.

Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence

Products and services	Yes	Western Areas produces nickel concentrate as our primary product. The historical demand for nickel has predominantly been for the stainless steel market. More recently, there has been an emerging market demand for batteries in electric vehicles. Western Areas strategy is therefore influenced by the emerging battery market to supply appropriate product. This is evidenced by Western Areas investment in the Mineral Recovery Enhancement Project (MREP) project at Forrestania. The MREP plant produces additional higher grade product (45%-50% Ni) being sold to new EV battery linked customers, mainly refineries. Western Areas has ongoing discussions with offtake parties that are linked to the Electric Vehicle battery pre-cursor sector for future MREP production of high grade premium nickel sulphide and potential for Odysseus concentrate to feed this market.
Supply chain and/or value chain	Yes	Western Areas has ongoing discussions with our supply/value chain on climate related risks and opportunities. For example, we are having discussions regarding carbon capture and storage/sequestration in tailings and heap leach pads.
Investment in R&D	Yes	As noted above, Western Areas has invested heavily in R&D around the MREP project to produce a higher grade nickel product to supply the emerging EV battery market. Western Areas is investigating low carbon renewable alternatives to our existing power supplies. At Cosmos Nickel Operation we are completing a renewable power study to determine viable renewable energy opportunities at Cosmos. We deployed a SoDar trailer in the field to gather 12 months of high elevation wind data and solar data to inform our ongoing studies.
Operations	Yes	Western Areas is investigating low carbon renewable alternatives to our existing power supplies. At Cosmos Nickel Operation we are completing a renewable power study to determine viable renewable energy opportunities at Cosmos. We deployed a SoDar trailer in the field to gather 12 months of high elevation wind data and solar data to inform our ongoing studies.

C3.1e

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Direct costs Indirect costs Capital expenditures Capital allocation Assets	<p>Financial planning at WSA certainly gives consideration to climate-related risks, for example:</p> <ol style="list-style-type: none"> 1. Financial planning and the budget process ensures the management of key risks (including climate related risks), particularly through the adequate funding of identified key controls. This links the financial planning process to key risks such as prolonged power interruption at FNO due to wildfire and the numerous controls that have been identified eg There are a number of controls in place, including: Supply agreement with Synergy and Western Power; Annual forecast of power demand; backup diesel generation capacity at mine and camp and limited generation capacity at mill; ongoing discussions with Western Power on ongoing maintenance requirements; fault reporting protocol; standby power installed at both mines (and switching programme), contingency in budget to replace one of the camp gensets. 2. Financial planning and the budget process ensures the management of key opportunities, such as the key capital projects like the shaft project at Cosmos Nickel Operation, and renewable energy opportunities at Cosmos. 3. WSA has developed a carbon forecast model including three shadow carbon price scenarios for the life of mine of each operation. The carbon forecast model informs the financial planning process to understand the financial decisions regarding key capital infrastructure and operating costs.

C3.1f

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

All aspects have been covered in the answers above.

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 did not have an emissions target, and forecast how your emissions will change over the next five years.

	Primary reason	Five-year forecast	Please explain
Row 1	Important but not an immediate business priority	<p>WSA has compiled a life of mine carbon forecasting tool that incorporates energy demand forecast data as well as 3 shadow carbon price carbon scenarios (\$30, \$60 and \$90 per tonne CO2-e). The forecast tool includes the Forrestania Nickel Operation and the Cosmos Nickel Operation.</p> <p>The forecast tool shows WSA total emissions gradually increasing to a peak in FY24 as the Cosmos Nickel Project comes online to production. The model forecasts an increase in corporate total emissions of 70% from FY19 to FY24. It should be noted that in FY19 the Cosmos Nickel Operation was in early construction and contributed 6820 tonnes CO2-e. The forecast increase from FY19 to FY24 therefore reflects the continued development and commencement of production of the Cosmos Nickel Mine. After the peak in FY24, the forecast model predicts the corporate carbon emissions to then decrease gradually.</p>	<p>WSA is currently focused on a number of climate related improvement initiatives including:</p> <ol style="list-style-type: none"> 1. Third party auditing of our Scope 1 and Scope 2 emissions for the first time; 2. Calculation of our Scope 3 emissions for the first time; 3. Development of a carbon forecast tool incorporating a shadow price of carbon to forecast our corporate carbon footprint to life of mine; and 4. Develop an overarching climate change strategy. <p>Although WSA sees the importance of objective emission targets, this is not an immediate business priority and will likely be considered in the future.</p>

C4.2

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

Other climate-related target(s)

C4.2b

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

Target reference number

Oth 1

Year target was set

2019

Target coverage

Country/region

Target type: absolute or intensity

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

Target denominator (intensity targets only)

Base year

Figure or percentage in base year

Target year

Figure or percentage in target year

Figure or percentage in reporting year

% of target achieved [auto-calculated]

Target status in reporting year

Achieved

Is this target part of an emissions target?

No.

WSA set a number of strategic climate related targets in line with the ongoing development of WSA climate change strategy.

Although not an absolute or intensity based target, the targets that were set were the following.

By end August 2020 WSA shall complete the following:

1. Facilitate the external third party verification of FY19 Scope 1 and Scope 2 emissions; (previously these emissions have not been externally verified by a third party);
2. Inaugural estimation of WSA scope 3 emissions;
3. Facilitate the development of a carbon forecasting tool to forecast life of mine carbon emissions; and
4. Incorporate 3 shadow carbon price scenarios (\$30, \$60 and \$90 per tonne CO₂-e

AUD) into the carbon forecasting tool.
 These targets have all been achieved on time.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

WSA set a number of strategic climate related targets in line with the ongoing development of WSA climate change strategy.
 Although not an absolute or intensity based target, the targets that were set were the following.

By end August 2020 WSA shall complete the following:

1. Facilitate the external third party verification of FY19 Scope 1 and Scope 2 emissions; (previously these emissions have not been externally verified by a third party);
2. Inaugural estimation of WSA scope 3 emissions;
3. Facilitate the development of a carbon forecasting tool to forecast life of mine carbon emissions; and
4. Incorporate 3 shadow carbon price scenarios (\$30, \$60 and \$90 per tonne CO₂-e AUD) into the carbon forecasting tool.

These targets have all been achieved on time.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO₂e savings.

	Number of initiatives	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	1	34,496
To be implemented*	1	6,000
Implementation commenced*		
Implemented*	5	
Not to be implemented		

C4.3b

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

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO₂e savings (metric tonnes CO₂e)

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

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

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

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

Cuff split valve in the Cosmos Boy process plant allowed for a greater production throughput for the same fixed power demand. Therefore increasing the energy efficiency of the process plant.
Emissions and cost not calculated.

Initiative category & Initiative type

Transportation
Employee commuting

Estimated annual CO₂e savings (metric tonnes CO₂e)

133

Scope(s)

Scope 3

Voluntary/Mandatory

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

572,000

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

0

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

The optimisation of FIFO planes from Perth to Forrestania Nickel Operation. Scheduling employee flights to ensure the flights are full enabled Forrestania to remove the Friday flight service. This reduced the number of flights per week from 8 to 7, a reduction of 12.5%.

The outcome is a reduction in the consumption of aviation fuel and the associated scope 3 carbon emissions.

Savings assumption. \$11K per flight. 1 flight per 52 weeks = 52 flights @ \$11K = \$572,000

Initiative category & Initiative type

Energy efficiency in production processes
Motors and drives

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

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

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

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

Turning secondary ventilation fans off in the Spotted Quoll and Flying Fox underground mines in areas that are not being used.

This reduces the energy demand and electricity consumption of the secondary fans.

Emissions and cost not calculated.

Initiative category & Initiative type

Company policy or behavioral change

Other, please specify

Employee engagement

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

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

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

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

An awareness programme was implemented at the Forresteria Nickel Operation to get employees to turn off their accommodation air conditioners when they leave site on their R&R.

This reduced the energy consumption of the village and associated scope 2 carbon emissions.

Emissions and cost not calculated.

Initiative category & Initiative type

Transportation

Company fleet vehicle efficiency

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

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

Payback period

<1 year

Estimated lifetime of the initiative

3-5 years

Comment

A trucking contractor that hauls the Nickel concentrate to one of our customers was able to increase the payload of their haul trucks. Thereby reducing the number of truck loads required, and reducing the overall diesel consumption of the fleet to haul the Nickel concentrate to the customer.
Emissions and cost not calculated.

C4.3c

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

Method	Comment
Internal incentives/recognition programs	A continuous improvement project named Safe Smart Success (SSS) was approved by the Board of Directors and commenced back in October 2016. An improvement target of \$15M savings/year was identified and a financial incentive for employees to share in a proportion of the cost savings was implemented. The programme included energy efficiency projects and by default flows on to emission reductions. Although this programme no longer formally exists, the culture of continuous improvement continues within the company.

C4.5

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

Yes

C4.5a

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

Level of aggregation

Product

Description of product/Group of products

WSA's nickel sulphide concentrate has a favorable Fe-MgO ratio compared to other suppliers, resulting in less energy intensive refining and reduced overall emissions per unit of refined nickel. The nickel sulphide product is also a substitute for "Nickel Pig Iron" which is very energy intensive during the refinery process.

Furthermore, nickel is a key requirement to produce electric vehicle batteries which assists in reducing global transportation GHG emissions.

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

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

15

Comment

More than 10% but less than or equal to 20%

C5. Emissions methodology

C5.1

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

Scope 1

Base year start

July 1, 2014

Base year end

June 30, 2015

Base year emissions (metric tons CO₂e)

17,019

Comment

Scope 2 (location-based)

Base year start

July 1, 2014

Base year end

June 30, 2015

Base year emissions (metric tons CO₂e)

44,834

Comment

The Forrestania Nickel Operation purchases grid electricity from Synergy via the South West Interconnected System (SWIS).

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO₂e)

Comment

C5.2

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

Australia - National Greenhouse and Energy Reporting Act

C6. Emissions data

C6.1

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

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

20,370

Comment

Total of scope 1 emissions including the Forrestania Nickel Operation, Cosmos Nickel Project and South Australian exploration.

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

Comment

Scope 2 emissions are based on the grid emission factor of the South West Interconnected System (SWIS).

The facilities with scope 2 emissions are the Forrestania Nickel Operation, the Perth corporate office and the Perth laboratory.

The Cosmos Nickel Operation is provided by diesel gensets.

C6.3

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

Reporting year

Scope 2, location-based

45,735

Comment

Scope 2 emissions are based on the emission factor of the South West Interconnected System (SWIS).

The facilities with scope 2 emissions are the Forrestania Nickel Operation, the Perth corporate office and the Perth laboratory.

The Cosmos Nickel Operation is provided by diesel gensets.

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 gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Capital goods

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

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

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

1,494

Emissions calculation methodology

Scope 3 emission factors provided within 2008 National Greenhouse Accounts (NGA) Factors (Australian Department of Climate Change). Applied to FY19 Scope 1 fuel consumption data.

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

0

Please explain

Scope 3 emission factors provided within 2008 National Greenhouse Accounts (NGA) Factors (Australian Department of Climate Change). Applied to FY19 Scope 1 fuel consumption data.

Upstream transportation and distribution

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Waste generated in operations

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Business travel

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions:

FIFO flights to both the Forresteria Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

1,035

Emissions calculation methodology

Number of flights and fuel consumption provided by aviation contractor. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

Number of buses and routes sourced from supplier invoices. Bus fuel efficiency sourced from Australian Bureau of Statistics for vehicles of equivalent size and weight. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

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

100

Please explain

Number of flights and fuel consumption provided by aviation contractor. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

Number of buses and routes sourced from supplier invoices. Bus fuel efficiency sourced from Australian Bureau of Statistics for vehicles of equivalent size and weight. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

The only upstream leased assets that Western Areas uses is a laboratory in Perth, Western Australia. This asset is included in the scope 2 emission calculation.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

11,997

Emissions calculation methodology

Fuel consumption provided by haulage contractors. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

Shipping emissions calculator provided by shipping contractor (MSC), based on transport origin, destination, route and container type. Emission factors applied are based on the UK Department for Business, Energy and Industrial Strategy (BEIS) greenhouse gas reporting: conversion factors 2019.

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

100

Please explain

Fuel consumption provided by haulage contractors. Energy and emission factors from NGERS Measurement Determination applied to calculated fuel consumption.

Shipping emissions calculator provided by shipping contractor (MSC), based on transport origin, destination, route and container type. Emission factors applied are based on the UK Department for Business, Energy and Industrial Strategy (BEIS) greenhouse gas reporting: conversion factors 2019.

Processing of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

70,887

Emissions calculation methodology

Emissions per tonne of product calculated and provided by Australian smelter operators, using methods aligned with Australian NGERS. Australian emission factor also applied to smelters in China, Japan and Norway. Majority of product is processed in Australian smelters.

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

100

Please explain

Emissions per tonne of product calculated and provided by Australian smelter operators, using methods aligned with Australian NGERS. Australian emission factor also applied to smelters in China, Japan and Norway. Majority of product is processed in Australian smelters.

Use of sold products

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

End of life treatment of sold products

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Western Areas has no downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Western Areas has no Franchises. Section is not relevant.

Investments

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Other (upstream)

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

Other (downstream)

Evaluation status

Relevant, not yet calculated

Please explain

This year is Western Areas first year calculating and reporting on our Scope 3 emissions. In our first year of calculation we have included the following emissions: FIFO flights to both the Forrestania Nickel Operation and the Cosmos Nickel Project, bus transportation to and from mine sites, transportation of fuel to the mine sites, truck haulage of our concentrate to a Western Australian smelter, truck haulage of our concentrate to the Esperance port facility, shipping of concentrate to a Chinese smelter, and smelting of our nickel concentrate produce in a Western Australian smelter and a Chinese smelter. Our Scope 3 emissions will be further expanded and refined in future reporting years.

C6.7

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

No

C6.10

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

Intensity figure

3.05

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

66,105

Metric denominator

metric ton of ore processed

Metric denominator: Unit total

21,675

Scope 2 figure used

Location-based

% change from previous year

12.1

Direction of change

Increased

Reason for change

The emission intensity of tonnes CO₂e- per tonne ore processed increased by 12.1% from the previous year due to the increase in emissions at the Cosmos Nickel Project that is currently not in production. The Cosmos Nickel Operation is in construction with no production until 2022 and therefore the 6820 tonnes CO₂e- from this project increased the overall group wide emission intensity.

Intensity figure

3.08

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

66,105

Metric denominator

metric ton of product

Metric denominator: Unit total

21,483

Scope 2 figure used

Location-based

% change from previous year

10

Direction of change

Increased

Reason for change

The emission intensity of tonnes CO2e- per Nickel tonnes sold increased by 10% from the previous year due to the increase in emissions at the Cosmos Nickel Project that is currently not in production and therefore doesn't produce any Nickel tonnes on the denominator. The Cosmos Nickel Operation is in construction with no production until 2022 and therefore the 6820 tonnes CO2e- from this project increased the overall group wide emission intensity.

Intensity figure

246

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

66,105

Metric denominator

unit total revenue

Metric denominator: Unit total

268.7

Scope 2 figure used

Location-based

% change from previous year

6.6

Direction of change

Increased

Reason for change

246 tonnes CO2e-/\$M revenue; Last year was 230.7; A 6.6% increase in total emissions per \$M revenue.

The emission intensity of tonnes CO2e- per \$M revenue 6.6% from the previous year due to the increase in emissions at the Cosmos Nickel Project that is currently not in production and therefore doesn't provide any revenue. The Cosmos Nickel Operation is in construction with no production until 2022 and therefore the 6820 tonnes CO2e- from this project increased the overall group wide emission intensity.

C7. Emissions breakdowns

C7.1

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

Yes

C7.1a

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

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	20,370	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	27.2	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	67.8	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	3.86	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Australia	20,370

C7.3

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

By facility

C7.3b

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

Facility	Scope 1 emissions (metric tons CO2e)	Latitude	Longitude
Forrestania Nickel Operation	13,010	32.344663	119.433835
Cosmos Nickel Operation (Care & Maintenance)	6,820	27.354021	120.345587
Exploration South Australia	540	31.495507	134.250317

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

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

	Gross Scope 1 emissions, metric tons CO2e	Comment
Metals and mining production activities	20,370	Nickel mining and processing

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 for in Scope 2 market-based approach (MWh)
Australia		45,735		

C7.6

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

By facility

C7.6b

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

Facility	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
----------	--	--

Forrestania Nickel Operations	45,622	
Perth Corporate Office	61	
Perth laboratory	52	

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
Metals and mining production activities	45,735		Nickel mining and processing

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				
Other emissions reduction activities				
Divestment				
Acquisitions				
Mergers				

Change in output				
Change in methodology				
Change in boundary				
Change in physical operating conditions	8,856	Increased	15.4	The total emissions for 2018/19 increased by 15.4% from the previous year due to the following factors: <ul style="list-style-type: none"> • Scope 1 (diesel) emissions increased by 32.5% primarily due to the increased dewatering and construction activities at Cosmos. • Scope 2 (electricity) emissions increased by 14% due to increased electricity consumption at the Forrestania Nickel Operation associated with the MREP plant and the Spotted Quoll mine vent shaft.
Unidentified				
Other				

C7.9b

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

Location-based

C8. Energy

C8.1

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

More than 15% but less than or equal to 20%

C8.2

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

Indicate whether your organization undertook this energy-related activity in the reporting year

Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	Unable to confirm heating value		88,113	88,113
Consumption of purchased or acquired electricity			65,174	65,174
Total energy consumption			153,287	153,287

C-MM8.2a

(C-MM8.2a) Report your organization’s energy consumption totals (excluding feedstocks) for metals and mining production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstocks)	Unable to confirm heating value	88,113
Consumption of purchased or acquired electricity		65,174
Consumption of self-generated non-fuel renewable energy		
Total energy consumption		153,287

C8.2b

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

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
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)

Diesel

Heating value

Unable to confirm heating value

Total fuel MWh consumed by the organization

80,451

MWh fuel consumed for self-generation of electricity

13,933

MWh fuel consumed for self-generation of heat

0

Emission factor

69.2

Unit

metric tons CO2e per GJ

Emissions factor source

National Greenhouse Emission Reduction Scheme Measurement Determination for 2018/19
<https://www.legislation.gov.au/Details/F2020C00600>

Comment

C9. Additional metrics

C9.1

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

Description

Energy usage

Metric value

25.7

Metric numerator

552,414 GJ of total energy consumed

Metric denominator (intensity metric only)

21,483 tons Nickel concentrate sold

% change from previous year

17.9

Direction of change

Increased

Please explain

Previous year: 445,712GJ of total energy consumed and 20,459 tons Nickel concentrate sold = 21.8 GJ per ton Nickel sold.

Increase of 17.9% due to the energy consumed by the rehabilitation and development of the Cosmos mine with no production/tons nickel sold.

Note, if the Cosmos Nickel Operation was excluded from this metric and only focused on the producing asset of the Forrester Nickel Operation then there is actually a decrease in the metric ie improvement in the energy intensity.

FY19 414,363GJ and 21,483 tons Nickel sold = 19.3 GJ per ton Nickel sold; vs FY18 428,957GJ and 20,459 tons Nickel sold = 21.0 GJ per ton Nickel sold.

A decrease in the intensity of 8.1%, or an improvement in energy intensity at the Forrester Nickel Operation of 8.1%.

C-MM9.3a

(C-MM9.3a) Provide details on the commodities relevant to the mining production activities of your organization.

Output product

Nickel

Capacity, metric tons

Production, metric tons

21,675

Production, copper-equivalent units (metric tons)

40,966

Scope 1 emissions

20,370

Scope 2 emissions

45,735

Scope 2 emissions approach

Location-based

Pricing methodology for copper-equivalent figure

Based on May 2019 metal prices; Nickel 5300 USD/lb and Copper 2800 USD/lb; A conversion factor of 1.89 for Copper equivalents.

Comment

Based on May 2019 metal prices; Nickel 5300 USD/lb and Copper 2800 USD/lb; A conversion factor of 1.89 for Copper equivalents.

C-MM9.3b

(C-MM9.3b) Provide details on the commodities relevant to the metals production activities of your organization.

Output product

Nickel

Capacity (metric tons)

Production (metric tons)

21,675

Annual production in copper-equivalent units (thousand tons)

40,966

Scope 1 emissions (metric tons CO2e)

20,370

Scope 2 emissions (metric tons CO2e)

45,735

Scope 2 emissions approach

Location-based

Pricing methodology for-copper equivalent figure

Based on May 2019 metal prices; Nickel 5300 USD/lb and Copper 2800 USD/lb; A conversion factor of 1.89 for Copper equivalents.

Comment

Based on May 2019 metal prices; Nickel 5300 USD/lb and Copper 2800 USD/lb; A conversion factor of 1.89 for Copper equivalents.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Western Areas is involved in a number of R&D projects over the last three years including: Research into the viability of solar power applications at our Forresteria Operation to reduce operating costs and carbon emissions; Research into the viability of heap leach production activities to produce nickel at a lower operating cost and carbon intensity. Western Areas is planning a demonstration project in this area. Research into the viability of hybrid renewable energy applications at our Cosmos Nickel Project to reduce future operating costs and carbon emissions; Continued development and improvement of the existing bioleach MREP plant at Forresteria.

C-MM9.6a

(C-MM9.6a) Provide details of your organization’s investments in low-carbon R&D for metals and mining production activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other, please specify	Applied research and development	≤20%		Western Areas is involved in a number of R&D projects over the last three years including: Research into the viability of solar power applications at our Forrestania Operation to reduce operating costs and carbon emissions; Research into the viability of heap leach production activities to produce nickel at a lower operating cost and carbon intensity. Western Areas is planning a demonstration project in this area. Research into the viability of hybrid renewable energy applications at our Cosmos Nickel Project to reduce future operating costs and carbon emissions; Continued development and improvement of the existing bioleach MREP plant at Forrestania.

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 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 200821 WSA GHG Verification Statement.pdf

Page/ section reference

Page 1

Relevant standard

Australian National GHG emission regulation (NGER)

Proportion of reported emissions verified (%)

100

C10.1b

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

Scope 2 approach

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Page/ section reference

Page 1

Relevant standard

Australian National GHG emission regulation (NGER)

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, but we are actively considering verifying within the next two years

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, and we do not anticipate being regulated in the next three years

C11.2

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

No

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Change internal behavior

Drive energy efficiency

Drive low-carbon investment

GHG Scope

Scope 1

Scope 2

Application

Western Areas carbon shadow price forecasting models is used in large projects to determine future carbon emissions and potential carbon liabilities of large projects. Western Areas carbon shadow price forecasting models have use Australian Dollars (AUD) \$30, \$60 and \$90 scenarios.

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

60

Variance of price(s) used

Western Areas carbon shadow price forecasting models is used in large projects to determine future carbon emissions and potential carbon liabilities of large projects. Western Areas carbon shadow price forecasting models have use Australian Dollars (AUD) \$30, \$60 and \$90 scenarios.

Type of internal carbon price

Shadow price

Impact & implication

Western Areas carbon shadow price forecasting models is used in large projects to determine future carbon emissions and potential carbon liabilities of large projects. Western Areas carbon shadow price forecasting models have use Australian Dollars (AUD) \$30, \$60 and \$90 scenarios.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers

C12.1a

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

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon information at least annually from suppliers

% of suppliers by number

50

% total procurement spend (direct and indirect)

90

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

80

Rationale for the coverage of your engagement

Effective stakeholder engagement is the key to Western Areas' long-term social licence to operate. Western Areas is committed to ensuring it delivers the highest possible benefits to the Company's stakeholders over the long term. We engage with suppliers and customers on various climate related aspects including data collection and scope 3 calculation discussions. We request consumption data so that we can include and verify its accuracy. WSA is a scope 3 emission for some of our customers as well so it is often a two way engagement.

Impact of engagement, including measures of success

WSA is a scope 3 emission for some of our customers as well so it is often a two way engagement. WSA has successfully had 3rd party external verification of our Scope 1 and Scope 2 data which verifies that our data collection and emission calculation procedures are effective. WSA has successfully completed our first compilation of our Scope 3 emissions. The engagement process has been successful with two way communication with suppliers and customers. Discussions are moving more towards improvement opportunities and collaboration on projects in the future.

Comment

Effective stakeholder engagement is the key to Western Areas' long-term social licence to operate. Western Areas is committed to ensuring it delivers the highest possible benefits to the Company's stakeholders over the long term. The engagement process has been successful with two way communication with suppliers and customers. Discussions are moving more towards improvement opportunities and collaboration on projects in the future.

C12.1b

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

Type of engagement

Education/information sharing

Details of engagement

Share information about your products and relevant certification schemes (i.e. Energy STAR)

% of customers by number

50

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

50

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

Effective stakeholder engagement is the key to Western Areas' long-term social licence to operate. Western Areas is committed to ensuring it delivers the highest possible benefits to the Company's stakeholders over the long term. We engage with suppliers and customers on various climate related aspects including data collection and scope 3 calculation discussions. We request consumption data so that we can include and verify its accuracy. WSA is a scope 3 emission for some of our customers as well so it is often a two way engagement.

Impact of engagement, including measures of success

Effective stakeholder engagement is the key to Western Areas' long-term social licence to operate. Western Areas is committed to ensuring it delivers the highest possible benefits to the Company's stakeholders over the long term. WSA is a scope 3 emission for some of our customers as well so it is often a two way engagement. WSA has successfully had 3rd party external verification of our Scope 1 and Scope 2 data which verifies that our data collection and emission calculation procedures are effective. WSA has successfully completed our first compilation of our Scope 3 emissions. The engagement process has been successful with two way communication with suppliers and customers. Discussions are moving more towards improvement opportunities and collaboration on projects in the future.

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?

Trade associations

C12.3b

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

No

C12.3f

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

The companies risk management process ensures a rigorous process is in place that considers all direct and indirect activities of the company and the companies commitment to a high level of ESG performance, inclusive of climate change strategy. A risk assessment is conducted regularly (quarterly) at the operations and 6-monthly at the corporate level to ensure all activities at a site and corporate level are considered. The Group Environmental Manager sits of the Water and Environment Committee for AMEC (Association of Mining and Exploration Companies) which provides oversight and alignment on Climate Change policy and strategies at a regulatory level and benchmarks against other company performance.

C12.4

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

Publication

In voluntary sustainability report

Status

Underway – previous year attached

Attach the document

 2019-Corporate-Social-Responsibility-Report.pdf

Page/Section reference

Pages 13-14

Content elements

Risks & opportunities
Emissions figures

Comment

Western Areas inaugural ESG report was released in 2019. We are currently working hard on producing the 2020 ESG report which with a release goal of October 2020.

C15. Signoff

C-FI

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

No further additions.

C15.1

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

	Job title	Corresponding job category
Row 1	Chief Financial Officer	Chief Financial Officer (CFO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

Please confirm below

I have read and accept the applicable Terms