

C0. Introduction

C0.1

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

Woodside is the pioneer of the LNG industry in Australia and the largest Australian natural gas producer. We have a global portfolio and are recognised for our world-class capabilities as an integrated upstream supplier of energy. We have a clear strategy to deliver superior shareholder returns across three distinct time horizons, characterised by cash generation from 2017, unlocking value from 2022, and repeating our successes from 2027. We are delivering on our strategy, creating an integrated LNG production centre on the Burrup Peninsula. Building on more than 30 years of operations in Western Australia, we are progressing development of the Scarborough and Browse gas resources through our producing assets, the Woodside operated Pluto LNG and North West Shelf (NWS) Project. Our operated assets are renowned for their safety, reliability and efficiency and we have a strong track record in project development. As Australia's premier LNG operator, we produced 6% of global LNG supply. We operate two floating production storage and offloading (FPSO) facilities. We also have a participating interest in Wheatstone LNG, which started production in 2017. Across our oil and gas portfolio, we have significant equity interests in high-quality development opportunities in Senegal (SNE), Myanmar, Canada (Kitimat) and Timor-Leste / Australia (Sunrise). We are pursuing new concepts and technology to enable cost-effective commercialisation of these resources. We have a renewed exploration plan with a more focused and opportunistic approach across established, emerging and future growth hubs in Australia, Myanmar, Senegal, Gabon, Peru and Bulgaria. We continue to expand our capabilities in marketing, trading and shipping and have enduring relationships that span 30 years with foundation customers throughout the Asia-Pacific region. Technology and innovation are essential to our long-term sustainability. Today we are pioneering remote support and the application of artificial intelligence, embedding advanced analytics across our operations while recognising digital security issues. We are working to improve our energy efficiency and to support the use of LNG as a low-emissions and economically viable fuel. Woodside demonstrates strong safety and environmental performance in all its operations. We are committed to upholding our values of integrity, respect, discipline, excellence, working sustainably and working together. Our success is driven by our people, and we aim to attract, develop and retain a diverse, high-performing workforce. We recognise that enduring, meaningful relationships with communities are fundamental to maintaining our licence to operate. We actively seek to build relationships with stakeholders who are interested in and affected by our activities. We help create stronger communities through programs that improve knowledge, build resilience and create shared opportunities. Our proven track record and distinctive capabilities are underpinned by almost 65 years of experience, making us a partner of choice.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2018	December 31 2018	No	<Not Applicable>

C0.3

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

Australia
Canada

C0.4

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

USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Equity share

C-OG0.7

(C-OG0.7) Which part of the oil and gas value chain and other areas does your organization operate in?

Row 1

Oil and gas value chain

Upstream

Other divisions

Please select

C1. Governance

C1.1

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

Yes

C1.1a

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

Position of individual(s)	Please explain
Board-level committee	Governance responsibility for climate change issues within Woodside rests with the Board, supported by two Board subcommittees, and Woodside's Managing Director and Chief Executive Officer. The duties of the Sustainability Committee include assisting the Board in meeting its responsibilities for oversight of the Group's sustainability-related policies and practices. The duties of the Sustainability Committee include reviewing the Group's policy and performance in relation to climate change, monitoring climate change policy developments and reviewing Woodside's initiatives to reduce greenhouse gas emissions. The Board's Audit and Risk Committee assists the Board in meeting its oversight responsibilities in relation to risk management procedures, including Woodside's climate change strategic risk, and considers this risk at least twice per year. Copies of the Board Committees' charters are available on Woodside's website.
Chief Executive Officer (CEO)	Responsibility for managing climate change and related issues for Woodside rests with Woodside's Chief Executive Officer and Managing Director. The Executive Committee (Excom) consisting of the CEO/MD, seven senior Woodside executives, including the Chief Operations Officer and the Chief Financial Officer, oversees climate-related issues.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues Other, please specify (Woodside's Climate Change Policy)	The Sustainability Committee receives an update at each meeting on material changes in climate-related performance, risks and opportunities. This includes: details of environmental performance (including emissions and emissions intensity), and progress against planned energy efficiency improvements. The Sustainability Committee conducts a review of climate-related issues and Woodside's Climate Change Policy at least annually. The Sustainability Committee oversees external communication on key climate-change related risks and opportunities and monitors external policy developments. Woodside manages climate change risk using Woodside's business risk management process. The Audit and Risk Committee considers climate change risk at least twice per year. The Board discusses strategic matters relating to climate change through the corporate strategy review process and as important matters arise.

C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other committee, please specify (Excom)	Both assessing and managing climate-related risks and opportunities	As important matters arise

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 organisation is governed through the Board, the CEO/MD and the Excom, which is a committee consisting of the CEO/MD and the CEO/MD's direct Executive reports. The Board and CEO/MD are responsible for setting values, Corporate Policies and expectations, the mission, vision, strategy and planning parameters.

Climate related issues are monitored in a variety of ways by the Board, the CEO/MD and ExCom, including strategy reviews and planning and performance updates.

The Chief Operations Officer is the member of Excom with responsibility for Woodside's response to climate change risk, including being the executive owner of the Climate Change Strategic Risk.

C1.3

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

Yes

C1.3a

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

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Emissions reduction target

Comment

Woodside's corporate scorecard is a key means of measuring our performance as a company. It sets the parameters that determine how our collective efforts are evaluated over the course of a year. The 2018 company scorecard included an emissions intensity target that cascaded through the bonus structure of the entire organisation.

C2. Risks and opportunities

C2.1

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

	From (years)	To (years)	Comment
Short-term	1	5	• Lower capital intensity developments • New revenue streams • Preparing for Horizon II (medium-term) growth • New growth platforms through exploration and acquisitions • Expanding the LNG market
Medium-term	5	10	• Developments leveraging existing infrastructure • Growth funded by base business and Horizon I (short-term) growth • Monetise exploration and acquisition success • Increase supply to new and traditional markets
Long-term	10	100	• Capital efficient developments • Unlock new major hubs • Grow and evolve business

C2.2

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

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

C2.2a

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

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Woodside operates under a company-wide risk management process which is overseen by a dedicated risk function. This function amalgamates all sufficiently material risks identified within individual facilities as well as risks applicable to the non-operating parts of the company. For climate change this includes the impact on product demand, carbon taxes, physical impacts and stakeholder expectations. Executive review of the corporate risk profile occurs every six months, followed by presentation to the Board.

C2.2b

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

The Risk and Compliance function has responsibility for the development and implementation of Woodside's risk management process, the generation and maintenance of the strategic risk profile and for facilitating the process by which risk is systematically identified and managed across Woodside and reported to management and to the Audit and Risk Committee. The process involves a review of Woodside's material risks, which are discussed with respective executive risk owners following extensive review and update of risk registers across the organisation. The process also informs the preparation and presentation of Woodside's strategic risk profile, which is reviewed and endorsed by the Excom. The Risk and Compliance function prepares and presents risk management reports to the Audit and Risk Committee, outlining: Woodside's strategic risk profile, management's assessment of the extent to which these risks are satisfactorily controlled, and progress made against the annual group risk management plan. The report also incorporates changes to the risk profile over the reporting period identified at the business unit, asset and project levels. The Woodside Risk Management Process details the requirements for management of risk across Woodside, including assets and Business Units. Asset risk profiles are drawn from the key risks identified in each asset risk register.

At the last review of the climate change risk, subject matter experts from risk, strategy, economics, environment, government relations and metocean provided input. As per response to c2.3a examples of the risks identified include potential impacts on demand due to low carbon technology, or climate change policies.

C2.2c

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	The organisation identifies regulatory obligations and develops plans to comply.
Emerging regulation	Relevant, always included	Emerging regulation is monitored through engagement with Government and regulator representatives, participation in relevant industry and interest groups, and through regulatory subscription services.
Technology	Relevant, always included	Controls include embedding low emission technology to improve the company's carbon performance and incorporating potential impacts of low carbon energy sources in our product price assumptions.
Legal	Relevant, always included	This includes regulatory compliance.
Market	Relevant, always included	We consider how climate change regulations and low emissions technology could impact product demand and incorporate these in our technology scanning work and product price assumptions.
Reputation	Relevant, always included	We consider how stakeholder expectations and our reputation impact our business, in particular with access to new developments and customers.
Acute physical	Relevant, always included	We have business resilience processes to manage acute physical risks, such as cyclones.
Chronic physical	Relevant, sometimes included	Long term physical climate change risk is considered in our facility design and regularly reviewed.
Upstream	Not relevant, explanation provided	We extract primary resources, so very little of our value chain is upstream of our operations. This has been confirmed through discussions with Lifecycle Assessment practitioners. We do however track emissions from upstream contractors and these have been disclosed in C6.5.
Downstream	Relevant, always included	See technology and market risks above.

C2.2d

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

Risks: Our risk management process is designed to manage risks that have the potential to materially impact Woodside's business objectives. The process is aligned to International Standard ISO31000 for risk management and assesses potential risks against consequence categories of health and safety, environment, financial, reputation and brand, legal and compliance, and social and cultural impacts. Climate change is a material risk on the strategic risk register. Woodside implements controls to address climate change risks and the implementation of these controls are reviewed by subject matter experts and reported to the Audit and Risk Committee every six months.

Opportunities: Woodside uses a number of different processes for managing opportunities depending on the time horizon. In the short term, we use a process to identify, screen, prioritise and govern delivery of minor modifications and improvements to existing facilities and projects in development. In the medium term, we use a risk-based, scalable and gated investment decision framework to progress and support major capital investments. Through that gated process, decisions are evaluated against technical, commercial, and Health Safety and Environment (HSE) criteria in order to reduce climate impact/risk to as low as reasonably practicable. In the long term, we conduct annual reviews of our company strategy and business plans to identify opportunities and ensure that the priorities, organisational capabilities and organisational structure are appropriate to realise these opportunities including those presented by climate change. We also have dedicated processes to develop innovative uses for technology in our business, with two key work streams being energy efficiency and low-carbon products.

C2.3

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

Yes

C2.3a

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

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Increased pricing of GHG emissions

Type of financial impact

Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

Uncertainty surrounding domestic regulation: Australian climate policy has changed significantly in recent years and remains a partisan political issue. This introduces risk of rapid changes in future compliance costs. Increasing uncertainty complicates decision making processes.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

Our climate change policy commits us to setting emission targets and embedding a culture of energy efficiency in existing operations and new developments, which reduces our exposure to carbon prices. We engage in climate policy discussions publicly, directly to politicians and through our industry associations. We test relevant decisions against a range of plausible future outcomes, including carbon prices. The cost is largely staff time, which is embedded in existing business activities. Despite carbon pricing placing direct costs on our business, we support them as an effective way to meet emission reduction targets. We understand that the net impact on our business is likely to be positive, when considering that carbon pricing is likely to support gas demand as explained in the opportunities disclosed below.

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Market: Changing customer behavior

Type of financial impact

Reduced demand for products and services

Company- specific description

Most analysts forecast gas and particularly LNG demand to grow in Asian markets until at least 2040, even in low carbon scenarios such as the International Energy Association's Sustainable Development Scenario. Global efforts to mitigate climate change and reduce greenhouse gas emissions, are however likely to reduce LNG growth rates compared to a future where efforts are not made to constrain emissions.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

We are working to create and expand markets where LNG substantially reduces emissions and lower emissions alternatives are unlikely to displace LNG. This includes use of LNG to displace diesel in remote mine sites through the Pilbara, Western Australia. We test investment decisions against a range of plausible future outcomes and in 2018 published 'Our Energy Future in a Lower Carbon World', which explains our resilience narrative. Link: <https://files.woodside/docs/default-source/sustainability-documents/climate-change/our-energy-future-in-a-lower-carbon-world.pdf>

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising mean temperatures

Type of financial impact

Other, please specify (Reduced production or increased capital spending.)

Company- specific description

The process of liquefying natural gas requires it to be chilled to below -160°C and increasing ambient temperature will reduce maximum throughput. Increases in extreme temperature events may require additional controls to protect the health and safety of our staff.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

Woodside processes exist to define and mitigate operational constraints. If temperature constraints become more severe, they would gain increased attention through these processes, potentially resulting in targeted operational changes or capital investment. Woodside is contributing to the development of an IOGP Recommended Practice Guide for the assessment of the physical risks of climate change for the oil and gas industry as a whole.

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

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

Type of financial impact

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

Company- specific description

Many of our assets are located in the north-west of Australia, which is exposed to tropical storm activity. An increase in the number or severity of storms could impact the run time of our operations as well as the cost of building new facilities.

Time horizon

Long-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

Woodside commissioned the North West Australian Climate Change Study (NWACCS) to investigate the potential physical impacts of climate change. The conclusions are broadly consistent with subsequent IPCC findings. Conclusions from the NWACCS are considered when making design decisions for our facilities. Our metocean engineers remain abreast of emerging science (eg through industry forums) and reflect any improvements in our understanding of the impacts of climate change in relevant documentation for each facility. Where necessary changes to these documents are risk assessed. Woodside has business resilience processes in place to manage events such as severe weather. Woodside is contributing to the development of an IOGP Recommended Practice Guide for the assessment of the physical risks of climate change for the oil and gas industry as a whole.

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising sea levels

Type of financial impact

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

Company- specific description

Many of our assets are located in offshore or coastal environments. A significant increase in sea level could impact on infrastructure such as offshore platforms and loading jetties. Woodside includes contingency in the design of these facilities which provides additional protection for our infrastructure.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

Woodside commissioned the North West Australian Climate Change Study (NWACCS) to investigate the potential physical impacts of climate change. The conclusions are broadly consistent with subsequent IPCC findings. Conclusions from the NWACCS are considered when making design decisions for our facilities. Our metocean engineers remain abreast of emerging science (eg through participate in industry forums) and reflect any improvements in the understanding the impacts of climate change in design documents. Where necessary changes to the design documents are risk assessed. Woodside is contributing to the development of an IOGP Recommended Practice Guide for the assessment of the physical risks of climate change for the oil and gas industry as a whole.

Cost of management

Comment

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Technology: Substitution of existing products and services with lower emissions options

Type of financial impact

Reduced demand for products and services

Company- specific description

New technologies could lead to changes in energy demand, especially due to efforts to decarbonise the energy system and mitigate climate change. Most analysts forecast continued natural gas and LNG growth in low carbon scenarios, though this may be slower than in forecasts that are not emission constrained.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

We monitor progress, and in some areas funds research, in renewable energy, carbon capture and storage, energy storage, nuclear and other technologies, to provide advanced warning of impacts on Company business.

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

Identifier

Risk 7

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Increased stakeholder concern or negative stakeholder feedback

Type of financial impact

Other, please specify (This could have various and diffuse impacts)

Company- specific description

As scientific predictions on the negative impacts of climate change become clearer and alternative fuels become more cost effective, stakeholder expectations are increasing. This may lead to challenges to our project approvals, which may result in project delays or onerous development conditions.

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?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

We do not disclose the quantification of our risks.

Management method

We maintain strategic relationships with regulators and other stakeholders and engage when appropriate for specific development applications. We have published a Climate Change Policy that includes our acknowledgement of the science, support for carbon pricing and commitment to use emission targets to encourage innovation. Link: [https://files.woodside/docs/default-source/about-us-documents/corporate-governance/woodside-policies-and-code-of-conduct/climate-change-policy-\(february-2017\).pdf](https://files.woodside/docs/default-source/about-us-documents/corporate-governance/woodside-policies-and-code-of-conduct/climate-change-policy-(february-2017).pdf)

Cost of management**Comment**

The cost of managing this risk is integrated into day-to-day business activities, so cannot be readily quantified.

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?

Customer

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Type of financial impact

Increased revenues through access to new and emerging markets (e.g., partnerships with governments, development banks)

Company-specific description

Demand for lower carbon fuels will increase, especially in sectors that have few zero-carbon alternatives, such as international shipping. This is likely to favour gas consumption over other fossil fuels, since gas is the lowest emitting fossil fuel available. Woodside is well-positioned to support the predicted changing energy demand profile.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Woodside does not disclose internal financial analysis.

Strategy to realize opportunity

Woodside continues to invest in and promote technologies that reduce emissions, partner with renewables and develop new markets. Woodside's portfolio is significantly weighted towards gas, meaning that we expect to remain competitive in regards to life-cycle emissions intensity of our assets. To accelerate development of the LNG fuels market in the north-west of Australia, we have constructed an LNG truck-loading facility at the Pluto LNG plant. This allows Woodside's LNG to be distributed by truck to customers throughout the Pilbara. The Pilbara location also gives us access to one of the largest shipping routes in the world, transporting iron ore from Western Australia to Asia. The ships on this route use five billion litres of heavy fuel oil each year. Use of heavy fuel oil will be restricted from 2020 with the introduction of International Maritime Organisation limits on sulfur emissions, forcing shippers to install emissions control systems, use low-sulfur fuels, or use LNG. To catalyse the use of LNG on this route, we are a founding participant in the "Green Corridor" Joint Industry Project. This partnership includes Rio Tinto, BHP, FMG and shipping industry participants. One of its first activities has been to design and certify an LNG fuelled ship that can operate on this trade route. This milestone was achieved in October 2017 and supports SDG 9 Industry, Innovation and Infrastructure.

Cost to realize opportunity**Comment**

Woodside makes estimates of future market conditions for internal decision making but does not specifically generate analysis of opportunities which may be attributable to climate change.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of supportive policy incentives

Type of financial impact

Returns on investment in low-emission technology

Company-specific description

Climate change and air-quality policies encourage coal to gas substitution in the power sector and also oil to gas substitution across multiple sectors such as transport and power.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

This opportunity is too intertwined in Woodside's business strategy to develop a meaningful stand-alone analysis of the financial impact.

Strategy to realize opportunity

To support a transition to cleaner, lower carbon products such as LNG, Woodside will continue to support global and national carbon pricing as a means to achieve low-cost emissions reductions. We remain supportive of market-based mechanisms in the absence of global action but note that national competitiveness issues need to be considered when implementing carbon policies before international trading competitor. We are also making significant reductions in the costs for our opportunities to ensure we remain competitively placed to supply this expanding market.

Cost to realize opportunity

Comment

Woodside makes estimates of future market conditions for internal decision making, but does not specifically generate analysis of opportunities which may be attributable to climate change.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of supportive policy incentives

Type of financial impact

Returns on investment in low-emission technology

Company-specific description

Natural gas is complementary to the growth of renewable energy, as gas is a reliable and flexible fuel to ensure power supply stability and security.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

This opportunity is too intertwined in Woodside's business strategy to develop a meaningful stand-alone analysis of the financial impact.

Strategy to realize opportunity

We have established a specific Power and New Markets team to explore new uses of LNG, new markets and new ways to deliver power to them. This includes opportunities for LNG to partner with renewables to provide integrated energy solutions. The models we are developing for integrated energy

solutions in the Pilbara can also offer a reliable and sustainable source of power in non-OECD countries, supporting SDG 7 Affordable and Clean Energy.

Cost to realize opportunity

Comment

Woodside makes estimates of future market conditions for internal decision making, but does not specifically generate analysis of opportunities which may be attributable to climate change.

Identifier

Opp4

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

Type of financial impact

Increased production capacity, resulting in increased revenues

Company-specific description

Efforts to improve our energy efficiency allow us to convert more of our reserves to saleable product.

Time horizon

Current

Likelihood

Virtually certain

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Please select

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Although we do not disclose internal financial analysis, we have provided an indicative value of the additional LNG produced through the energy efficiency measures detailed in C4.3b.

Strategy to realize opportunity

Woodside consistently seeks to improve the energy efficiency (and hence the carbon performance) of our facilities and developments and will continue to invest in and promote technologies and opportunities that reduce emissions and improve efficiency. In 2016, we set a target to improve energy efficiency by 5% by 2020. This is a challenging target that requires work-force led optimisation opportunities in our operations. These bottom-up innovations reflect and encourage a growing awareness and focus on energy efficiency, and complement step-change improvements being considered as part of new investment opportunities and life extension works. To date we have delivered 3.4% reduction and are on track to achieve the 5% target by 2020.

Cost to realize opportunity

Comment

Woodside makes estimates of future market conditions for internal decision making, but does not specifically generate analysis of opportunities which may be attributable to climate change.

Identifier

Opp5

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

Woodside has identified a hydrogen business as an opportunity given our experience in manufacturing and transporting gases. Hydrogen has no carbon emissions when used, and can be used in power generation, transportation and industrial processes.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The development of a hydrogen business is similar to the early days of the LNG business. It is important we invest time with prospective domestic and international customers to understand their needs, while building our capabilities.

Strategy to realize opportunity

We are currently focused on establishing collaborative partnerships to share and improve knowledge, and facilitate problem-solving across the hydrogen value chain. We signed non-binding MoUs in June with Korea Gas Corporation and with Pusan National University in South Korea. We are also a member of Hydrogen Mobility Australia.

Cost to realize opportunity

Comment

C2.5

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

	Impact	Description
Products and services	Impacted	We are exploring opportunities for LNG to partner with renewables to provide integrated energy solutions. Renewables are well suited to providing off-grid power but they need a reliable and flexible backup, which LNG can provide. The models we are developing for integrated remote power generation in the Pilbara can also offer a reliable and sustainable source of power in non-OECD countries, supporting SDG 7 Affordable and Clean Energy.
Supply chain and/or value chain	Impacted	To accelerate development of the LNG fuels market in the north-west of Australia, we have constructed an LNG truck-loading facility at the Pluto LNG plant. This allows Woodside's LNG to be distributed by truck to customers throughout the Pilbara. The Pilbara location also gives us access to one of the largest shipping routes in the world, transporting iron ore from Western Australia to Asia. The ships on this route use five billion litres of heavy fuel oil each year. Use of heavy fuel oil will be restricted from 2020 with the introduction of International Maritime Organisation limits on sulfur emissions, forcing shippers to install emissions control systems, use low-sulfur fuels, or use LNG. To catalyse the use of LNG on this route, we are a founding participant in the "Green Corridor" Joint Industry Project. This partnership includes Rio Tinto, BHP, FMG and shipping industry participants. One of its first activities has been to design and certify an LNG fuelled ship that can operate on this trade route. This milestone was achieved in October 2017 and supports SDG 9 Industry, Innovation and Infrastructure.
Adaptation and mitigation activities	Impacted	Adaptation: We have modelled the long-term impacts of climate change on our facilities. Our analysis shows that the main impact is sea level rise and this is accounted for in our basic design data (BDD). The BDD for each facility is formally reviewed every five years. If, upon revision, a significant change from the previous BDD is identified then a formal management-of-change process is initiated to inform stakeholders, understand the impact and if necessary, indicate remediation. The process can occur on a more frequent basis should a particular issue be identified. We participate in an industry forum led by the International Association of Oil and Gas Producers (IOGP) that is developing best practice recommendations on how to model and respond to the physical impacts of climate change. Mitigation: In 2016, we set a target to improve energy efficiency by 5% by 2020. This is a challenging target that requires work-force led optimisation opportunities in our operations. These bottom-up innovations reflect a growing awareness and focus on energy efficiency, and complement step-change improvements being considered as part of new investment opportunities and life extension works. We will continue to identify and implement additional opportunities across each of our operating assets towards this target. To date we have delivered 3.4% of the 5% target.
Investment in R&D	Impacted	Our technology strategy includes two pillars for "New Energy" and "Carbon Management". We have commenced scoping and evaluation relating to hydrogen and carbon utilisation R&D activities through Woodside FutureLab partnerships to support future energy transformation and portfolio resilience. In line with our Climate Change Policy principle of partnering with research organisations, we are a member of the CO2CRC (formerly the CO2 Cooperative Research Council) and are represented on the group's board. The CO2CRC conducts world-class research into carbon capture and storage (CCS) technology using pilot scale projects in Victoria. The CO2CRC is developing technology and expertise to support the long-term commercialisation of CCS. We are a member of the Future Fuels CRC through Australian Pipeline and Gas Association and participate on two of the technical committees and as industry advisors for a number of projects.
Operations	Impacted	Our direct emissions principally come from fuel used to power our facilities, reservoir CO ₂ that we vent, and flaring. Over 95% of this is carbon dioxide, but methane, nitrous oxide and sulfur hexafluoride also contribute small quantities. The NWS Project, our largest facility, emitted approximately 1% more than its regulated baseline in the 2017 and 2018 financial years due to increased production, major shutdowns falling outside the financial year and increased flaring. The facility applied for a 'multi-year monitoring period' and will need to surrender carbon permits if it remains above its baseline over the 3 years up to financial year 2019.
Other, please specify	Please select	

C2.6

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

	Relevance	Description
Revenues	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Operating costs	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Capital expenditures / capital allocation	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Acquisitions and divestments	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Access to capital	Not impacted	Woodside continues to achieve strong support from equity and debt markets as well as financial institutions to fund its growth projects.
Assets	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Liabilities	Impacted	Strategy and planning is integrated with the financial planning process. Therefore the risk and opportunities described in C2.3 and C2.4 are reflected in the financial outcomes including revenues, operating costs, capital investment, assets and liabilities.
Other	Please select	

C3. Business Strategy

C3.1

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

Yes

C3.1a

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

Yes, qualitative and quantitative

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

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

Yes

C3.1c

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

Woodside uses an integrated strategic planning process to assist the Board and Excom to set the direction of the company, define the associated business and functional activities and measure achievement against targets. The process incorporates input from all business units and functions. Each year, dedicated time is set aside in the corporate calendar for the Board and Executive to review and refresh the corporate strategy. In 2018, this process included a dedicated set of analyses and conversations relating to the company's ongoing response to climate change. Woodside's strategic approach to climate change incorporates information on the risks and opportunities presented by each of the following climate change elements:

1. Reduce our net emissions intensity
2. Manage physical climate change impacts
3. Maintain and build a carbon resilient portfolio
4. Advocate for a competitive lower carbon economy

To address the first element we set a target in 2016 to improve our energy efficiency by 5% by 2020, relative to business as usual levels. As of 2018, we have achieved a 3.4% improvement. We manage physical risks by conducting periodic studies to ensure our understanding of the long-term climate is current. We risk assess any updates in our understanding. Regarding our portfolio, we evaluate the resilience of our products in a decarbonising economy through scenario analysis and seek to expand the use of our products where they reduce our customers' emissions. Our advocacy for a competitive, lower carbon economy is delivered through our Sustainable Development Report, external speeches, our CDP submission, our industry associations as well as directly to government.

Woodside's most substantial business decision informed by climate change is the continued investment in LNG assets.

C3.1d

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

Climate-related scenarios	Details
IEA Sustainable development scenario BNEF NEO Other, please specify (Various industry scenarios including IHS, Woodmac, etc)	In testing the resilience of our portfolio, we consider sensitivities across a range of variables, including commodity prices, carbon prices, exchange rates and interest rates. The values of these sensitivities are based on several internal and external scenarios, including the International Energy Agency sustainable development scenario, which aligns with the "Paris Agreement ambition to hold global temperature rises below 2 degrees Celsius this century". The IEA scenarios provide outputs to 2040, which is sufficiently long to inform key Woodside decisions. In 2018, we published "Our Energy Future in a Lower Carbon World" to explain our approach in more detail. This is available online: https://files.woodside/docs/default-source/sustainability-documents/climate-change/our-energy-future-in-a-lower-carbon-world.pdf
Other, please specify (Internal, reference case)	Woodside has also developed a long-term integrated energy-economics model to quantify the impacts of potential change in energy markets, with a particular focus on the outlooks for oil and LNG demand. This provides a differentiated focus on key areas of interest to Woodside’s business, including LNG, Asian markets and the interplay of gas and renewables. Woodside defines scenarios using macroeconomics, energy supply and demand, policy, oil price and carbon price. These scenarios are modelled until at least 2040 to provide relevance to the long-term nature of Woodside’s investment decisions. This supports a robust analysis and discussion of key uncertainties around technology, energy policies, consumer behaviour and economic growth that will most strongly influence the future of energy. The robustness of our business is assessed against various business environment assumptions including oil price and operating costs. Analysis to date indicates that cost of supply and operating cash flow are key factors to enable and maintain long-term business sustainability which puts Woodside in a strong position to take advantage of the upcoming global LNG supply gap.
Other, please specify (Internal, low emissions case)	Woodside’s Low Emissions Case is built using the same model as the Energy Global Outlook, but adjusts the energy mix such that climate change is constrained to 2°C of global warming.

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

(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e) Disclose details of your organization's low-carbon transition plan.

Based on our analysis, and consistent with analysis from organisations such as the International Energy Agency, the demand for LNG, our primary product, will continue to grow through a low-carbon transition. As such, our existing business model and strategy is consistent with a global low-carbon transition. In 2017 we published a Climate Change Policy to publicly state how we approach a global transition to a lower carbon economy. In 2018 we published 'Our Energy Future in a Lower Carbon World', which explains our resilience narrative.

Woodside recognises the scientific consensus on climate change and the challenge of providing safe, clean, affordable and reliable energy whilst reducing emissions. Woodside is committed to being part of the solution. We believe hydrocarbons will continue to be vital in meeting the world's energy needs and that the benefits of natural gas, in particular, will see it play an increasingly important role globally both in the energy mix and in reducing greenhouse gas emissions. Woodside will continue to meet the challenge of supplying clean, affordable and reliable energy whilst reducing emissions by:

- Promoting natural gas in the global energy mix as a means to reduce greenhouse gas emissions, support renewable energy and improve local air quality
- Promoting and pursuing a culture of energy efficiency and improved resource use in designs and operations
- Supporting our host countries in their endeavours to set emission reduction targets in accordance with internationally accepted science and to achieve these targets using efficient and stable policies
- Supporting lowest cost abatement through global carbon pricing
- Evaluating the resilience of our portfolio and investment decisions to potential changes in global Climate Policy
- Setting and publishing targets to encourage innovation and drive reductions in our carbon footprint and energy use
- Pursuing greenhouse gas emission reduction technologies with our peers and scientific institutions.

Climate change presents a range of opportunities and risks for our business. Key opportunities for Woodside relate to demand for lower carbon fuels, such as gas, and energy efficiency. Risks for Woodside are primarily associated with our ability to adapt to different transition scenarios for gas and LNG usage. Other risks include the physical impacts of a changing climate. Lower demands for fossil fuels or stakeholder opposition may make investment for new assets more challenging. This potential risk could disproportionately impact emissions-intensive assets with high cost of supply. With our portfolio heavily weighted to gas, the life-cycle emissions intensity of our assets is relatively low. Woodside continues to invest in and promote technologies that reduce emissions and promote energy efficiency. We are evolving to meet the challenges of a low carbon economy by offering our products in a way that meets the world's requirements for reliable and sustainable energy, including partnering with renewables and developing new markets. This aligns with the SDGs Affordable and Clean Energy (7), Industry, Innovation and Infrastructure (9) and Climate Action (13).

C4. Targets and performance

C4.1

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

Intensity target

C4.1b

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

Target reference number

Int 1

Scope

Scope 1

% emissions in Scope

74

Targeted % reduction from base year

5

Metric

Other, please specify (Greenhouse gas emissions from fuel and flare per unit of production, normalised for production rates and product mix)

Base year

2015

Start year

2016

Normalized base year emissions covered by target (metric tons CO2e)

7171000

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

70

Target status

Underway

Please explain

In 2016, we set a target to improve energy efficiency by 5% below business as usual energy levels by 2020 at our operated assets. We continue to identify and implement emission and energy saving projects towards the 2020 target. As of 2018, we have achieved a 3.4% improvement.

% change anticipated in absolute Scope 1+2 emissions

% change anticipated in absolute Scope 3 emissions

C4.2

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

C-OG4.2a

(C-OG4.2a) If you do not have a methane-specific emissions reduction target for your oil and gas activities or do not incorporate methane into your target(s) reported in C4.2 please explain why not and forecast how your methane emissions will change over the next five years.

We include methane in our energy efficiency target.

C4.3

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

Yes

C4.3a

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

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	27	
To be implemented*	6	85000
Implementation commenced*	0	0
Implemented*	8	141000
Not to be implemented	9	

C4.3b

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

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

3000

Scope

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

16-20 years

Comment

By improving control of a distillation column at Pluto LNG we enabled the facility to run closer to the LNG sales specification, increasing throughput without additional energy use. The emission savings are estimated as those that would have been required to achieve an equivalent production increase. This is reported on an operated basis.

Initiative type

Fugitive emissions reductions

Description of initiative

Other, please specify (Flare reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

60000

Scope

Scope 1

Voluntary/Mandatory

Voluntary

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

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

0

Payback period

<1 year

Estimated lifetime of the initiative

6-10 years

Comment

By planning for opportunistic repair of equipment at the Karratha Gas Plant, we can prevent internal equipment leaks reaching the stage that it needs to be managed by flaring. This is reported on an operated basis.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

25000

Scope

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

16-20 years

Comment

Additional process instrumentation allows finer optimisation of the refrigeration circuits at Karratha Gas Plant, leading to additional production for no additional energy use. The emission savings are estimated as those that would have been required to achieve an equivalent production increase. This is reported on an operated basis.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

10000

Scope

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

16-20 years

Comment

Changing the operating mode to allow the Karratha Gas Plant to turn off a domestic gas export compressor when not needed. This is reported on an operated basis.

Initiative type

Fugitive emissions reductions

Description of initiative

Other, please specify (Flare reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

8000

Scope

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

16-20 years

Comment

Install and commission a new controller, to allow an improved start up procedures at Pluto Gas Plant. This delivered a step change reduction in flaring during startups. This is reported on an operated basis.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

20000

Scope

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

16-20 years

Comment

Improve and risk assess Pluto Gas Plant's electrical system to allow it to safely run with one less electricity generation turbine all year round. This is reported on an operated basis.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

6000

Scope

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

16-20 years

Comment

Increase the operating pressure of Pluto Gas Plant to allow greater production for no extra fuel or emissions. The emission savings are estimated as those that would have been required to achieve an equivalent production increase. This is reported on an operated basis.

Initiative type

Energy efficiency: Processes

Description of initiative

Cooling technology

Estimated annual CO2e savings (metric tonnes CO2e)

6000

Scope

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

16-20 years

Comment

Cleaned the air cooled heat exchangers which improved cooling efficiency and increased throughput, without additional fuel load. The emission savings are estimated as those that would have been required to achieve an equivalent production increase. This is reported on an operated basis.

C4.3c

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

Method	Comment
Financial optimization calculations	Most of the energy consumed by Woodside operations is from feed gas. There is a significant economic driver to reduce fuel gas consumption, as this reduces waste and increases production of LNG, domestic gas, and in some cases, oil products.
Internal price on carbon	Woodside includes a carbon price in its major investments based on expectations of current and future prices. We also apply these where appropriate when making other financial and operational decisions. We consider a range of scenarios in major decisions and in some of these scenarios, regulatory carbon prices are not expected to be implemented, so do not affect the decision.
Employee engagement	Woodside sets targets regarding fuel and flare use, which drive emission reductions, and form part of regular governance reporting. Woodside has set a 5% emissions target by 2020 which forms part of the Corporate Scorecard.
Dedicated budget for low-carbon product R&D	The technology function are tasked with identifying and screening innovative technologies, many of which are related to energy efficiency.

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

Relative to coal, the use of LNG to produce electricity results in emissions reductions of up to 50%. Based on WorleyParsons estimates of lifecycle emissions intensity for LNG and coal fired electricity generation, Woodside estimates that 16 million tonnes CO₂e would have been avoided in 2018 as a result of our customer's use of LNG to produce electricity if it replaced coal fired electricity. This saving was calculated using an emission factor of 0.44 tCO₂e/MWh for LNG (assumes CCGT) and 0.72 for coal (assume supercritical coal generator).

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

Avoided emissions

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

Other, please specify (Life cycle analysis)

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

Comment

C-OG4.6

(C-OG4.6) Describe your organization's efforts to reduce methane emissions from your activities.

Woodside is the first Australian signatory to the Methane Guiding Principles. One of the five guiding principles is to "continually reduce methane emissions".

Woodside has a leak management system where identified leaks are documented, prioritised and repaired. Reduction of methane emissions for subsea infrastructure commences at commissioning via hydro-testing, with pressure testing of subsea equipment during field life. Subsea infrastructure is routinely inspected and anomalies investigated. Leak detection and repair (LDAR) is described in C-OG4.7a. Options to reduce venting are investigated as part of energy and production efficiency measures.

COG4.7

(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?

Yes

C-OG4.7a

(C-OG4.7a) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.

Integrity related performance standards outline mandatory maintenance to prevent leaks. Active detection controls are in place during maintenance activities and inspection campaigns are commissioned on a risk basis to detect fugitive emissions through Forward Looking Infrared (FLIR) surveys. Assurance activities for routine inspections and equipment maintenance are used to detect emissions. Frequency for maintenance and assurance is risk based.

Woodside facilities are compact and contain a large number of gas detectors. If these gas detectors detect a leak, the source is identified and isolated on a case by case basis. Several FLIR and Snoop (bubble test) surveys have been conducted in recent years at our onshore facilities.

C-OG4.8

(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.

Woodside has a process that tracks flaring on a facility level, including total flaring and flaring per kilotonne of production. Targets are set annually and progress towards target tracked on a monthly basis. Flaring performance against target is governed at Executive level and is included in bonuses via an energy efficiency metric. In 2017 Woodside became the first Australian based company to sign the World Bank Zero Routine Flaring Initiative and has since documented a systematic approach to implementing Zero Routine Flaring.

Research to identify engineered solutions are undertaken to systematically address routine flaring. When non-routine flaring occurs, assessment of options is undertaken to document an "as low as reasonably practicable" approach, with decision taken at Executive level where targets are significantly impacted.

C5. Emissions methodology

C5.1

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

Scope 1

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

3494000

Comment

Emissions estimates have been developed in accordance with the Australian National Greenhouse and Energy Reporting (NGER) Measurement Determination 2008, except for minor exceptions that increase completeness and accuracy. Applied Global Warming Potentials are consistent with NGER Regulations. The equity portion of greenhouse gas emissions, flare, fuel and production values includes data from non-operated ventures where Woodside owns an equity portion, where data has been made available.

Scope 2 (location-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

14000

Comment

Location based factors come from NGER Measurement Determination 2008

Scope 2 (market-based)

Base year start

January 1 2016

Base year end

December 31 2016

Base year emissions (metric tons CO2e)

0

Comment

We only have location-based Scope 2 emissions

C5.2

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

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)

3530000

Start date

January 1 2018

End date

December 31 2018

Comment

C6.2

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

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

Woodside collects grid-connected electricity data via invoices for operated offices and assets where this data is accessible. Location based factors, based on National Greenhouse and Energy Reporting values are used.

C6.3

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

Reporting year

Scope 2, location-based

8000

Scope 2, market-based (if applicable)

<Not Applicable>

Start date

January 1 2018

End date

December 31 2018

Comment

Since our scope 2 emissions are a small fraction of our scope 1, we do not distinguish between operated and equity. This number is reported on an operated basis.

C6.4

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

Yes

C6.4a

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

Source

Electricity for small international offices Refrigerant leaks

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

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

No emissions excluded

Explain why this source is excluded

Some minor grid connected electricity from overseas offices is excluded due to availability of data. These values are expected to be immaterial. Refrigerant leaks from air conditioning units are not required to be reported under Australian emissions reporting regulations. We do however report refrigerant leaks on a CFC-11 equivalent basis in our Sustainable Development Report data tables.

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.**Purchased goods and services****Evaluation status**

Relevant, calculated

Metric tonnes CO2e

230000

Emissions calculation methodology

This includes contracted supply vessels based on contractor fuel consumption and drilling rigs diesel and flaring emissions based on 2018 response. Note that this source is reported on an operated basis due to data availability.

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

20

Explanation**Capital goods****Evaluation status**

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Feedback from Life Cycle Analysis experts is that embodied emissions in capital goods are not a material component of our lifecycle emissions.

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

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

All fuel and energy related activities that are not scope 1, scope 2 have been reported as sold product or downstream transportation.

Upstream transportation and distribution**Evaluation status**

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

As a primary energy producer, upstream activities are not material to Woodside's operations.

Waste generated in operations

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

3000

Emissions calculation methodology

Total waste multiplied by National Greenhouse Accounts scope 3 waste factors for commercial and industrial waste.

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

100

Explanation

Even though it's immaterial, this source can be reasonably estimated, so has been included to improve transparency. Note that this source is reported on an operated basis due to data availability.

Business travel

Evaluation status

Not relevant, calculated

Metric tonnes CO2e

35000

Emissions calculation methodology

Helicopter fuel is determined by helicopter type and distance travelled. Commercial flights emissions are based on 2018 response.

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

15

Explanation

Even though it's immaterial, this source can be reasonably estimated, so has been included to improve transparency. Note that this source is reported on an operated basis due to data availability.

Employee commuting

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

This source is immaterial and cannot be reasonably estimated.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

None have been identified.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

700000

Emissions calculation methodology

Multiply fuel use for a selection of the LNG fleet by emission factors; remaining LNG vessels have been extrapolated.

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

100

Explanation

This is reported on an operated basis due to data availability.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

The 'use of sold product' value assumes that all product is combusted, so already includes emissions from processing of sold product.

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO2e

27000000

Emissions calculation methodology

Product sales have been multiplied by emission factors from the National Greenhouse and Energy Reporting rules. This assumes that all sold product is combusted, either in shipping or product use. In reality fractions of Woodside's products will be turned into other products (resulting in an emissions overestimate) or vented (resulting in an emissions underestimate).

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

0

Explanation

All downstream emissions are included in use of sold products or downstream shipping.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

All downstream emissions are included in use of sold products.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

None have been identified.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

None have been identified.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

Emissions are reported on an equity basis, so non-operated facilities are included as scope 1 and 2 totals.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

None have been identified.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

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

<Not Applicable>

Explanation

All downstream emissions are included in use of sold products.

C6.7

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

No

C6.10

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

Intensity figure

0.00067

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

3543000

Metric denominator

unit total revenue

Metric denominator: Unit total

5250000000

Scope 2 figure used

Location-based

% change from previous year

20

Direction of change

Decreased

Reason for change

Decrease in emissions intensity due to energy efficiency portfolio as well as increase in revenue, principally due to commodity prices.

Intensity figure

0.34

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

3543000

Metric denominator

metric ton of product

Metric denominator: Unit total

10400000

Scope 2 figure used

Location-based

% change from previous year

3

Direction of change

Decreased

Reason for change

Wheatstone full year of production and ceasing commissioning activities as well as improved emissions intensity due to energy efficiency portfolio.

C-OG6.12

(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO2e) per unit of hydrocarbon category.

C-OG6.13

(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.

Oil and gas business division

Upstream

Estimated total methane emitted expressed as % of natural gas production or throughput at given division

0.05

Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division

0.04

Comment

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	3400000	IPCC Fourth Assessment Report (AR4 - 50 year)
CH4	100000	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	5700	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	35	IPCC Fourth Assessment Report (AR4 - 100 year)

C-OG7.1b

(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.

Emissions category

Combustion (excluding flaring)

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

Gross Scope 1 methane emissions (metric tons CH4)

Total gross Scope 1 emissions (metric tons CO2e)

2500000

Comment

Emissions category

Flaring

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

Gross Scope 1 methane emissions (metric tons CH4)

Total gross Scope 1 emissions (metric tons CO2e)

400000

Comment

Emissions category

Venting

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

Gross Scope 1 methane emissions (metric tons CH4)

Total gross Scope 1 emissions (metric tons CO2e)

660000

Comment

Emissions category

Other (please specify) (Primarily fugitives)

Value chain

Upstream

Product

Unable to disaggregate

Gross Scope 1 CO2 emissions (metric tons CO2)

Gross Scope 1 methane emissions (metric tons CH4)

Total gross Scope 1 emissions (metric tons CO2e)

38000

Comment

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	3500000
Canada	6100

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
North West Shelf	1300000	-20.602	116.774
Enfield	110000	-21.481	114.008
Vincent	48000	-21.434	114.033
Pluto LNG	1600000	-20.605	116.759
Non-operated Kitimat Venture	6100	53.939	-128.752
Non-operated Wheatstone Venture	530000	-21.617	115.002

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

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

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	3530000	<Not Applicable>	
Oil and gas production activities (downstream)	0	<Not Applicable>	
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
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C7.6

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

Please select

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

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	8000	0	This is reported on an operated basis due to data availability.
Oil and gas production activities (downstream)	0	0	
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.9

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

C7.9a

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

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	
Other emissions reduction activities	50000	Decreased	1.6	
Divestment	17000	Decreased	0.5	
Acquisitions	0	No change	0	
Mergers	0	No change	0	
Change in output	280000	Increased	8.4	Mostly ramp up of Wheatstone to full capacity.
Change in methodology	0	No change	0	
Change in boundary	0	No change	0	
Change in physical operating conditions	0	No change	0	
Unidentified	12000	Decreased	0.4	Calculated by difference
Other	0	No change	0	

C7.9b

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

C8. Energy

C8.1

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

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

C8.2

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

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

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	14000000	14000000
Consumption of purchased or acquired electricity	<Not Applicable>	0	12000	12000
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	0	14000000	14000000

C8.2b

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

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

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

13500000

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

65000

MWh fuel consumed for self-generation of electricity

MWh fuel consumed for self-generation of heat

MWh fuel consumed for self-generation of steam

<Not Applicable>

MWh fuel consumed for self-generation of cooling

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

C8.2d

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

Diesel

Emission factor

0.0702

Unit

metric tons CO₂e per GJ

Emission factor source

National Greenhouse and Energy Reporting (Measurement) Determination 2008

Comment

Natural Gas

Emission factor

0.05153

Unit

metric tons CO₂e per GJ

Emission factor source

National Greenhouse and Energy Reporting (Measurement) Determination 2008

Comment

C8.2e

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

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	4100000	4100000	0	0
Heat	1200000	1200000	0	0
Steam	0	0	0	0
Cooling	8300000	8300000	0	0

C8.2f

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

C9. Additional metrics

C9.1

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

C-OG9.2a

(C-OG9.2a) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).

	In-year net production	Comment
Crude oil and condensate, million barrels	13.1	
Natural gas liquids, million barrels	0	
Oil sands, million barrels (includes bitumen and synthetic crude)	0	
Natural gas, billion cubic feet	446	

C-OG9.2b

(C-OG9.2b) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries, please explain this.

Woodside's Petroleum Resources Management Procedure (PRMP) conforms to resource definitions and guidelines published in the Society of Petroleum Engineers Inc/World Petroleum Congresses/American Association of petroleum Geologists/Society of Petroleum Evaluation Engineers.

C-OG9.2c

(C-OG9.2c) Disclose your estimated total net reserves and resource base (million boe), including the total associated with subsidiaries and equity-accounted entities.

	Estimated total net proved + probable reserves (2P) (million BOE)	Estimated total net proved + probable + possible reserves (3P) (million BOE)	Estimated net total resource base (million BOE)	Comment
Row 1	1238		6750	3P not disclosed

C-OG9.2d

(C-OG9.2d) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.

	Net proved + probable reserves (2P) (%)	Net proved + probable + possible reserves (3P) (%)	Net total resource base (%)	Comment
Crude oil / condensate / Natural gas liquids	14		14	3P not disclosed Total resource base = 2P + 2C
Natural gas	86		86	3P not disclosed Total resource base = 2P + 2C
Oil sands (includes bitumen and synthetic crude)	0		0	3P not disclosed Total resource base = 2P + 2C

C-OG9.2e

(C-OG9.2e) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

Development type

Shallow-water

In-year net production (%)

2

Net proved reserves (1P) (%)

1

Net proved + probable reserves (2P) (%)

1

Net proved + probable + possible reserves (3P) (%)

Net total resource base (%)

0

Comment

3P not disclosed

Development type

Deepwater

In-year net production (%)

2

Net proved reserves (1P) (%)

4

Net proved + probable reserves (2P) (%)

4

Net proved + probable + possible reserves (3P) (%)

Net total resource base (%)

2

Comment

3P not disclosed

Development type

Ultra-deepwater

In-year net production (%)

0

Net proved reserves (1P) (%)

0

Net proved + probable reserves (2P) (%)

0

Net proved + probable + possible reserves (3P) (%)

Net total resource base (%)

3

Comment

3P not disclosed

Development type

Tight/shale

In-year net production (%)

1

Net proved reserves (1P) (%)

0

Net proved + probable reserves (2P) (%)

0

Net proved + probable + possible reserves (3P) (%)

Net total resource base (%)

39

Comment

3P not disclosed

Development type

LNG

In-year net production (%)

95

Net proved reserves (1P) (%)

95

Net proved + probable reserves (2P) (%)

94

Net proved + probable + possible reserves (3P) (%)

Net total resource base (%)

55

Comment

3P not disclosed

C-CO9.6/C-EU9.6/C-OG9.6

(C-CO9.6/C-EU9.6/C-OG9.6) Disclose your investments in low-carbon research and development (R&D), equipment, products, and services.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

Equipment

Technology area

Renewable energy

Investment maturity

Small scale commercial deployment

Investment figure

Low-carbon investment percentage

81-100%

Please explain

Karratha virtual power plant (housing roof top solar and batteries project).

Investment start date

January 31 2018

Investment end date

December 30 2018

Investment area

R&D

Technology area

Carbon capture and storage/utilisation

Investment maturity

Applied research and development

Investment figure**Low-carbon investment percentage**

61-80%

Please explain

Early stage R&D investigations into uses of captured CO2 to make carbon based products.

Investment start date

January 31 2018

Investment end date

December 31 2018

Investment area

Equipment

Technology area

Renewable energy

Investment maturity

Pilot demonstration

Investment figure**Low-carbon investment percentage**

81-100%

Please explain

Renewable energy import opportunities for Burrup LNG facilities, considering solar CST, solar PV and wind.

Investment start date

January 31 2018

Investment end date

December 31 2018

Investment area

Products

Technology area

Energy efficiency in transport

Investment maturity

Small scale commercial deployment

Investment figure**Low-carbon investment percentage**

81-100%

Please explain

LNG for transport fuel. Offshore support vessel fuelled by LNG. LNG loading facility to supply LNG fuel to market.

C-OG9.7

(C-OG9.7) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX and dividends paid/ share buybacks.

C10. Verification

C10.1

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

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

C10.1a

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

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

SD Report assurance statements 2018.pdf

Page/ section reference

Pages 2 and 3.

Relevant standard

Other, please specify (ASAE 3410 Assurance Engagements on Greenhouse Gas Statements)

Proportion of reported emissions verified (%)

100

Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

SD Report assurance statements 2018.pdf

Page/ section reference

Pages 2 and 3

Relevant standard

Other, please specify (ASAE 3410 Assurance Engagements on Greenhouse Gas Statements (ASAE 3410))

Proportion of reported emissions verified (%)

100

C10.2

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

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

C11. Carbon pricing

C11.1

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

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Australia ERF Safeguard Mechanism
BC carbon tax

C11.1b

(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.

Australia ERF Safeguard Mechanism

% of Scope 1 emissions covered by the ETS

100

Period start date

July 1 2017

Period end date

June 30 2018

Allowances allocated

0

Allowances purchased

0

Verified emissions in metric tons CO₂e

9969591

Details of ownership

Other, please specify (Facilities that we operate irrespective of ownership)

Comment

C11.1c

(C11.1c) Complete the following table for each of the tax systems in which you participate.

BC carbon tax

Period start date

Period end date

% of emissions covered by tax

Total cost of tax paid

Comment

Compliance with the BC carbon tax is managed by the facility operator.

C11.1d

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

For the Australian Emissions Reduction Fund and Safeguard Mechanism, our operated North West Shelf facility exceeded its baseline by approximately 1% in the 2016-17 and 2017-18 reporting years. The facility applied for a received a Multi Year Monitoring Period, which obligated it to keep its net emissions number below its baseline over a three year period (FY17 through FY19). We are monitoring emissions through 2018-19 reporting year to determine whether the facility will need to purchase carbon credits to keep its net emissions number below its baseline. Emissions at other operated facilities are tracking well below their baselines.

Compliance for our participation in the British Columbia carbon tax is managed by the operator of our BC facility.

C11.2

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

Yes

C11.2a

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

Credit origination or credit purchase

Credit origination

Project type

Forests

Project identification

Woodside Pluto Carbon Offset Project - Stage 1 Woodside Pluto Carbon Offset Project - Stage 3 Woodside Pluto Carbon Offset Project - Stage 2 Woodside Pluto Carbon Offset Project - Stage 4

Verified to which standard

Emissions Reduction Fund of the Australian Government

Number of credits (metric tonnes CO2e)

161093

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

161093

Credits cancelled

No

Purpose, e.g. compliance

Compliance

C11.3

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

Yes

C11.3a

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

Objective for implementing an internal carbon price

Navigate GHG regulations
Drive energy efficiency
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope

Scope 1

Application

When applying the carbon price we also consider how the price is likely to be implemented. For Australia's Safeguard Mechanism, this means that the carbon price is applied for emissions above each facilities baseline. This can result in zero cost in some instances.

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

Variance of price(s) used

We use carbon prices that reflect our expectations of future carbon prices. These vary over time and jurisdiction. We include high and low sensitivities to test major decisions, with the high sensitivity reflecting our understanding of a 2°C scenario.

Type of internal carbon price

Implicit price

Impact & implication

By including carbon prices in our commercial and operational decisions, we ensure that the actual regulatory costs associated with these decisions are considered and results in more efficient design and operation than would be the case if we did not apply carbon prices.

C12. Engagement

C12.1

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

Yes, our customers

C12.1b

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

Type of engagement

Collaboration & innovation

Details of engagement

Other – please provide information in column 5

% of customers by number

5

% Scope 3 emissions as reported in C6.5

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

As a low emissions fuel, LNG is suitable to displace more emissions intensive fuels in services with few technically feasible zero-emission options. We've identified islanded grids (e.g. remote mine sites) and marine shipping as opportunities. Our engagement to date has been to work with potential customers who operate islanded grids or out of ports near our LNG facilities. The initial capacity of Woodside's Pluto LNG truck loading facility which would provide LNG for islanded grids is 100,000 tonnes p.a., which would result in a GHG emissions benefit in excess of 100,000 tCO₂e when displacing diesel in power generation. In the marine market Woodside is actively working to convert the iron ore trade from Western Australia from heavy fuel oil to LNG. This trade is the largest bulk commodity shipping route in the world and full conversion to LNG could save in excess of 4 million tCO₂e of GHG emissions.

Impact of engagement, including measures of success

Woodside has constructed and opened an LNG truck loading facility at our Pluto LNG project in Western Australia which will provide trucked LNG to displace diesel, initially in the power generation sector. Woodside has signed a 15-year contract for 5 TJ/d of trucked LNG with Sheffield Resources for power generation, and is working with other customers to complete sales into this market. To catalyse the use of LNG in marine shipping, Woodside is a founding participant in the "Green Corridor" Joint Industry Project. The participants include the three largest bulk commodity exporters Rio Tinto, BHP, FMG. Two phases of the project have been completed through 2017-18 and the focus is now in commercialising this opportunity. Woodside is designing an LNG bunker vessel that would provide LNG into this market and is working with the potential customers to support them making a decision to commence a transition to LNG in their shipping fleets.

C12.3

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

Direct engagement with policy makers

Trade associations

Funding research organizations

Other

C12.3a

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

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other, please specify (Safeguard Mechanism)	Support	Supported the proposed changes to bring baselines up to date and simplify the application process. We have had subsequent discussions with departmental staff about how to implement the changes.	Our full submission is available online: https://www.environment.gov.au/submissions/emissions-reduction/operation-erf-safeguard-mechanism/woodside.pdf
Mandatory carbon reporting	Support	We provide a detailed submission suggesting a range of improvements to Australia's National Greenhouse and Energy Reporting (NGER) Act	Our full submission is available online: http://www.climatechangeauthority.gov.au/sites/prod.climatechangeauthority.gov.au/files/files/2018%20NGER%20Review/Submissions/Woodside.pdf
Other, please specify (International carbon trading)	Support	We have engaged with the relevant branches of the Federal Department of Environment and Energy (DoEE) as well as the Department of Foreign Affairs and Trade (DFAT). Two Woodside staff also attended COP24 in Poland.	We support Australia's engagement with international negotiations to operationalise the Paris Agreement.
Other, please specify (Hydrogen)	Support	Engaged in the development of the Western Australian and national hydrogen strategies.	While Woodside's LNG exports are already being converted to hydrogen in Japan and South Korea for manufacturing industrial chemicals, power generation, and public and private transport, Woodside believes a domestic hydrogen industry in Australia could generate cheaper and cleaner renewable energy in Australia, as well as improve Australia's liquid fuel security. We believe hydrogen has the potential to make a significant contribution to dispatchable emissions reduction targets.

C12.3b

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

Yes

C12.3c

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

Trade association

Australian Petroleum Production and Exploration Association (APPEA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

APPEA supports a national climate change policy that delivers abatement at least cost. It recognises that reliable, secure and competitively priced energy is crucial to our everyday lives in Australia and recognises that oil and gas plays a key role in meeting many of our energy needs. APPEA considers that it is vital that Australia's national climate change policy approach reflects the enormous economic and greenhouse benefit that can flow from a prosperous, vibrant and growing upstream oil and gas industry. APPEA recognises the major challenge to the industry's continued growth is maintaining Australia's international competitiveness in the face of growing global competition. A high-cost local environment and the emergence of new LNG competitors has increased the level of competition Australia faces as it seeks to win market share and attract investment.

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

We participate as members in regular information and policy discussions and encourage APPEA to offer pragmatic solutions that see our industry make a fair contribution to Australia's emission reduction target under the Paris Agreement.

Trade association

Chamber of Minerals and Energy Western Australia (CME)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

CME has consistently advocated for a measured transition to a low emissions global economy centred on the three key climate change policy pillars of global agreement, market based mechanism, and substantial investment in low emission technology and abatement.

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

We participate as members in regular information and policy discussions and encourage CME to offer pragmatic solutions that see our industry make a fair contribution to Australia's emission reduction target under the Paris Agreement.

Trade association

LNG Marine Fuels Institute (LNG-MFI)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

LNG-MFI works with and for industry and government partners to provide information, advocacy and expertise to secure the long term sustainability and impact of LNG as a marine fuel. It argues that reducing SOx, NOx, CO2 and particulate emissions from ships ensures positive environmental outcomes now and into the future.

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

We participate as members in regular information and policy discussions and encourage LNG-MFI to offer pragmatic solutions that enable LNG as a marine fuel to grow, and to explain its benefits.

Trade association

CO2CRC

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

CO2CRC is Australia's leading carbon capture and storage (CCS) research organisation. Its mission is develop carbon capture, utilisation and storage as a socially, technically and commercially viable option for net zero emissions

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

As a Partner and with a member on the Board of the CO2CRC, Woodside supports its work and engages in discussion about its strategic direction.

Trade association

Business Council of Australia (BCA)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Business Council supports action on climate change. The BCA supports Australia's commitment to the Paris Agreement, meeting Australia's 26-28 per cent emissions reduction target on 2005 levels by 2030 and achieving net-zero emissions by 2050. It supports adopting an integrated energy and climate change policy, which focuses on affordability, reliability and emissions reduction. The BCA supports a market-based, economy-wide carbon price signal to reduce emissions, deliver long-term certainty for business and send a signal to investors to enable them to plan for the future. The BCA supports an orderly transition to a low-emissions economy with action on climate change striking a balance between reducing emissions while protecting jobs and living standards, especially in regional Australia.

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

We participate in policy discussions, both through our CEO at Board level and through engaging at an organisational level, to encourage the BCA's efforts to offer constructive solutions in support of Australia's emissions reduction target under the Paris Agreement.

C12.3d

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

Yes

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

We published Our Energy Future in a Lower Carbon World as well as a position on climate change in our Sustainable Development Report 2018.

These are available on our website.

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?

Interactions with various levels of government and industry associations, are governed by our External Stakeholder Engagement Procedure and External Communications and Continuous Disclosure Procedure. For all material policy issues (including climate change) external messaging is prepared and agreed prior to external engagement, to ensure a consistent approach. This approach extends to engagements with key external stakeholders, submissions to government and input to industry submissions. It is worth noting that Woodside is involved in various industry associations (e.g. Australian Petroleum Production and Exploration Association, Australian Industry Greenhouse Network, Chamber for Minerals and Energy, Business Council of Australia and IPIECA), forums and committees in order to represent our position with regards to material policy issues. Where we work with research organisations our approach is governed by a belief that constructive conversation about climate change science and policy should be underpinned by a strong knowledge-base. We don't attempt to influence these organisations' (such as Australian Institute for Marine Science) position on climate change policy but let the science feed into the broader policy discussion.

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 communications

Status

Complete

Attach the document

Our Energy in a Lower Carbon World.pdf

Page/Section reference

Entire document

Content elements

Governance

Strategy

Risks & opportunities

Comment

As the largest Australian gas producer, Woodside has reliably supplied energy to local and global customers for more than 30 years, delivering sustainable value for shareholders, partners and communities. The world needs more energy to sustain the basics of life for billions of people. That energy needs to be delivered in new and cleaner ways to reduce emissions and avoid air pollution, which has a high cost to human health. The United Nations 17 Sustainable Development Goals (SDGs) draw attention to these and other challenges, setting targets for the provision of affordable, reliable and modern energy for all by 2030 while strengthening the global response to climate change. Woodside is playing its part in responding to these global challenges, by focusing on how we can meaningfully contribute to the SDGs. Executing our Climate Change Policy and signing up to the Methane Guiding Principles and the World Bank Zero Routine Flaring by 2030 initiative are examples of how we contribute. The oil, gas and condensate in our portfolio are energy sources the world needs. Natural gas, which makes up the largest part of our portfolio, can and should play a significant role in extending access to clean and reliable energy while reducing emissions.

Publication

In voluntary sustainability report

Status

Complete

Attach the document

SD Report 2018.pdf

Page/Section reference

Pages 26 and 27.

Content elements

Governance

Strategy

Risks & opportunities

Emissions figures

Emission targets

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

SD Report data tables 2018.pdf

Page/Section reference

Page 2.

Content elements

Emissions figures

Comment

C14. Signoff

C-FI

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

C14.1

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

	Job title	Corresponding job category
Row 1	Chief Operations Officer	Chief Operating Officer (COO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

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

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I have read and accept the applicable Terms