



Climate Change 2017 Information Request Woodside Petroleum

Module: Introduction

Page: Introduction

CC0.1

Introduction

Please give a general description and introduction to your organization.

Woodside is Australia's largest independent oil and gas company with a global portfolio, recognised for our world-class capabilities – as an explorer, a developer, a producer and supplier of energy.

Our mission is to deliver superior shareholder returns through realising our vision of becoming a global leader in upstream oil and gas.

Our assets are renowned for their safety, reliability and efficiency, and we are Australia's most experienced liquefied natural gas (LNG) operator. We operate 8% of global LNG supply.

Our producing assets in Australia include the landmark North West Shelf (NWS) Project, which has been operating since 1984. In 2012, we commenced production from the Pluto LNG Plant and will add additional volumes from our non-operated Wheatstone LNG interests in mid-2017.

Today, we continue to be at the forefront of our industry by seeking to grow new markets for LNG. To achieve this we are planning for Australia's first LNG fuel hub to capture growing land and marine LNG fuel markets.

We also operate a fleet of floating production storage and offloading (FPSO) facilities.

From mid-2019, we will add additional oil production from the Greater Enfield Project via our existing Ngujima-Yin FPSO facility.

We continue to expand our capabilities in marketing, trading and shipping and have enduring relationships that span more than 25 years with foundation customers throughout the Asia-Pacific region.

As a low-cost energy supplier with a sustainable business model, we are pursuing opportunities to deliver affordable energy to the world's growing markets.

Our global exploration portfolio includes emerging and frontier provinces in Australia and the Asia-Pacific region, the Atlantic margins and Sub-Saharan Africa.

We have significant equity interests in high-quality development opportunities in Australia, Senegal, Myanmar and North America and are pursuing new concepts, technology and contracting strategies to enable the earliest commercialisation of these resources in line with global demand.

We believe that technology and innovation are essential to bringing down costs and unlocking future growth. Today, we are pioneering remote support and the application of artificial intelligence and advanced analytics across our operations.

We recognise that long-term meaningful relationships with communities are fundamental to maintaining our licence to operate, and we work to build mutually beneficial relationships.

Woodside is characterised by strong safety and environmental performance in all locations where we are active and we are committed to upholding our values of integrity, respect, working sustainably, discipline, excellence and working together.

Our success is driven by our people and we aim to attract, develop and retain a diverse high performing workforce. Our proven track record, distinctive capabilities and ability to manage risk and volatility are underpinned by more than 60 years of experience, making us a partner of choice.

CC0.2

Reporting Year

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

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

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

Work backwards from the most recent reporting year.

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

Enter Periods that will be disclosed

Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3

Country list configuration

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

Select country

Australia

Canada

CC0.4

Currency selection

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

USD(\$)

CC0.6

Modules

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

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

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

Further Information

Module: Management

Page: CC1. Governance

CC1.1

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

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

CC1.1a

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

Governance responsibility for climate change issues within Woodside rests with both the Sustainability Committee, a sub-committee established by Woodside's Board in 2007, and Woodside's Managing Director & Chief Executive Officer.

The Sustainability Committee is comprised of five independent, non-executive directors. The role of the Sustainability Committee is to assist the Board in meeting its responsibilities for oversight of the Group's sustainability policies and practices. The duties of the Sustainability Committee include reviewing, and making recommendations to the Board on the Group's policy and performance in relation to climate change. The Committee also monitors the Australian government's climate change policy developments and reviews Woodside's initiatives to reduce greenhouse gas emissions.

A copy of the Committee's charter is available on Woodside's website (<http://www.woodside.com.au/Working-Sustainably/governance-and-compliance/Documents/Sustainability%20Committee%20Charter.pdf>). This charter sets out further information on the role and duties of the Committee.

The full Board recognises climate change as a material risk and Woodside has refined its approach including adopting the Climate Change Policy in February 2017.

Responsibility for managing climate change and related issues for Woodside rests ultimately with Woodside's Chief Executive Officer and Managing Director, particularly in ensuring the Group meets its compliance obligations.

CC1.2

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

Yes

CC1.2a

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

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Facility managers	Monetary reward	Emissions reduction target Efficiency target	In 2016 Woodside had flare and fuel intensity targets, which cover over 80% of direct emissions. These targets are incorporated in to the performance agreements of relevant personnel. Achievement of performance agreements directly impacts financial remuneration.
All employees	Monetary reward	Emissions reduction target Efficiency target	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 2016 company scorecard included a fuel intensity target which contributed towards the remuneration of all employees.
Corporate executive team	Monetary reward	Emissions reduction target Efficiency target	Woodside's remuneration structure for CEO and executives has several components, including short-term reward, which is determined by reference to both individual performance and the company scorecard. The 2016 company scorecard included an energy efficiency metric (see Annual Report 2017, pp. 77).

Further Information

Page: **CC2. Strategy**

CC2.1

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

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

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

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by the Board	Not limited by geographical areas	> 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 and stakeholder expectations. A review of the corporate risk profile occurs every six months, at which time it is presented to the Board.

CC2.1b

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

The Risk and Compliance function has responsibility for the development and implementation of Woodside's risk management process, the generation and maintenance of the corporate 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. This 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 corporate risk profile, which is reviewed and endorsed by the executive committee.

The Risk and Compliance function prepares and presents risk management reports to the Audit and Risk Committee outlining Woodside's corporate 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 the management of risk across Woodside including assets and Business Units (BU). Asset risk profiles are drawn from the key risks identified in each asset risk register. The asset risk profiles are communicated to the business through monthly production reports. BU risk profiles are drawn from the key risks being managed in the BU risk registers and may include risks from relevant asset risk profiles. BU risk profiles are reviewed on a quarterly basis by the BU leadership teams and approved by the BU's Vice President or Senior Vice President.

CC2.1c

How do you prioritize the risks and opportunities identified?

Risks are identified, assessed and prioritised using a consistent Woodside-wide risk management process. Risk management is a key part of Woodside's overall management system and sets out clearly defined criteria to evaluate and report on material risks. Woodside's risk management process is aligned to ISO 31000, the international standard for risk management.

Woodside's approach to risk focuses on enhancing opportunities, reducing threats to our existing and potential business and sustaining a competitive advantage. Consequence of risk is assessed against criteria such as health and safety, environment, financial, legal and compliance, reputation and brand, and social and cultural impacts. Assessed risk is escalated to increasingly senior levels of management based on materiality thresholds.

CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

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

Woodside uses an integrated strategic planning process to assist the board and executive management team 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.

A dedicated approach to climate change was prepared to address the contributing risks identified in the Climate Change risk. This approach is consistent with the broader corporate strategy and is being implemented using the same processes and systems. A climate change steering committee has been established to provide additional focus on the implementation of the climate change components of the corporate strategy, remain up to date with current issues and ensure that the strategic response remains appropriate. This Steering Committee consists of subject matter experts, relevant Vice Presidents and Senior Vice Presidents from across the company.

Woodside's approach incorporates information on the risks and opportunities presented by each of the following climate change aspects:

- Ensuring that Woodside's portfolio remains robust to feasible technology and regulatory changes
- Improving the carbon performance of Woodside's facilities and developments; and
- Addressing stakeholder concerns about the future role of gas.

Woodside's short-term approach includes maximising production from its core assets. Emissions are managed by:

- Establishing targets and processes to reduce the emissions intensity of our operations. This has led to initiatives that have, for example, improved the energy efficiency of the power generation system and reduced flaring by applying the hierarchy of controls.
- Emissions monitoring and reporting: Emissions from all facilities are monitored and reported internally on a monthly basis. Woodside has targets and tracks KPIs to minimise emissions. Emissions are externally reported to the Federal Government on an annual basis;

Woodside's long term approach is to expand the LNG business, with a commitment to supporting a sustainable energy future. In this context, climate change creates market, physical and regulatory risks and opportunities. Specific examples include:

- Continued LNG expansion, especially as a transport fuel and in power generation. Climate change scenarios such as the IEA's 450 Scenario see global gas consumption increasing for several decades. LNG development aligns with opportunities arising from these scenarios.
- Changes to facility design. The location of Woodside's assets with regard to climatic conditions already pose significant challenges. The impact to our facilities may be exacerbated by climate change and Woodside specifies new facilities to account for the uncertainty associated with long-term changes to the physical environment.
- Woodside continues to consider technology options to reduce emissions, such as using batteries to improve electrical system efficiency.
- Woodside has established a Power and New Markets function to explore and commercialise opportunities for sustainable energy provision.

Woodside's short and long-term response to climate change may see strategic advantages leveraged in the following areas:

- Expertise supplying LNG to global markets, especially to customers in the power generation and transport sectors;
- Designing low emissions facilities and employing low emissions technologies to increase reservoir recovery and reduce cost of production through reduced fuel and carbon costs; and
- Integrating design changes into new facilities to respond to the physical impacts of climate change and reduce risk exposure and retrofit costs in the future.

CC2.2c

Does your company use an internal price on carbon?

Yes

CC2.2d

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

Woodside treats greenhouse gas emissions as a cost to our business. It does this by estimating future carbon prices, which can vary over time and according to regulatory environment. Sensitivities are also developed for cases such as aggressive climate change agreements, or rapid advances in low carbon technologies. We model carbon prices that reflect our best understanding of future costs under a variety of plausible outcomes, which may include policies that provide support for trade exposed industries, such as LNG. These carbon prices are approved by the Board along with other company wide economic assumptions (oil price, foreign exchange rates, etc).

The carbon price is applied to decisions across the whole business where required to make an informed decision.

Major capital decisions will always have a carbon price included in the commercial analysis along with sensitivity testing. For example, a major asset acquisition will be tested against a range of carbon price sensitivities.

Carbon pricing is also applied to smaller projects and operating decisions where the decision maker and commercial analyst consider it material. A carbon price is often used as an input into operational decisions such as flare reduction and fuel efficiency opportunities.

Under part of the Australian regulatory regime known as the Safeguarding Mechanism, our facilities are only exposed to carbon prices if they exceed historic emission levels. As such, many opportunities that we assess will not be impacted by carbon prices, because they do not result in emissions exceeding historic levels.

Most emission reduction projects also result in less fuel or flare gas being burnt to operate our facilities. This gas can then be converted to product and in many instances the value of the additional production is larger than the carbon benefit. None-the-less we continue to include carbon prices when assessing decisions.

CC2.3

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

- Trade associations
- Funding research organizations
- Other

CC2.3b

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

Yes

CC2.3c

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

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
Australian Petroleum Producers and Explorers Association (APPEA)	Consistent	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	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

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
		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.	Australia's emission reduction target under the Paris Agreement.

CC2.3d

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

Yes

CC2.3e

Please provide details of the other engagement activities that you undertake

We published a detailed position on climate change in our Sustainable Development Report 2016 which is available on our website.

We collaborate with several research organisations, such as the Australian Institute for Marine Science (AIMS). AIMS is a Commonwealth statutory authority operating under the Australian Institute of Marine Science Act 1972. AIMS is accountable to the Minister for Industry and Science and is governed by a Council that reports to the Minister. Woodside has funded AIMS, in part, to understand impacts and recovery of coral reefs in Western Australia (including those attributable to Climate Change). Findings from these studies have been highlighted in internal reports, international peer-reviewed publications, and a publicly available book and video. We encourage our key partners to publish their findings in international peer-reviewed journals and present at international conferences.

Our environment science partnerships are listed in a factsheet on our website: <http://www.woodside.com.au/Working-Sustainably/HSEQ/Documents/Environmental%20Understanding%20through%20Partnerships.PDF>

CC2.3f

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

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 AIMS) position on climate change policy but let the science feed into the broader policy discussion.

Further Information

We are members of IPIECA. IPIECA does not have a board so has not been listed in 2.3c, but we are represented on their Executive Committee. We align with their position on climate change.

Page: CC3. Targets and Initiatives

CC3.1

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

Intensity target

CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 1	8%	6%	Other:	2015		2016	No, and we do not anticipate setting one in the next 2 years	Target to reduce flaring intensity, measured in tonnes of gas flared per kilotonne of production. This target is set each year, in reference to expected flaring and an estimate of how far it can be lowered from the previous year.
Int2	Scope 1	74%	1%	Other:	2015		2016	No, and we do not anticipate setting one in the next 2 years	Target to reduce fuel intensity, measured in GJ per tonne production. Since fuel intensity fluctuates with production (and production can have a larger impact on fuel intensity than emissions reduction activities), the target is based on the fuel intensity that would have been achieved for actual production, prior to implementing emissions reduction activities.
Int3	Scope 1	82%	5%	Metric tonnes CO ₂ e per metric tonne of product	2015		2020	No, and we do not anticipate setting one in the next 2 years	This is an energy efficiency target which includes a 5% reduction in flaring and a 5% reduction in production adjusted fuel intensity.

CC3.1c

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

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	Decrease	1.3	Increase	0.08	For scope 3 emissions, reducing flaring will allow more reserves to be converted to product
Int2	Increase	3.2	Increase	0.07	Scope 1 emissions are expected to increase even with the target in place due to changes in the production profile. For scope 3 emissions, for the same amount of reserves, less fuel will be used, so more can be sold as product.
Int3	Increase	6.5	Increase	1.75	Scope 1 emissions are expected to increase even with the target in place due to changes in the production profile. For scope 3 emissions, reducing fuel and flare allows more reserves to be sold as product

CC3.1e

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

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Int1	100%	100%	Actual flaring intensity was 6.1t/kt. This was 33% lower than the 2015 flaring intensity, or 5 times the targeted reduction!
Int2	100%	100%	
Int3	20%	20%	By achieving the above targets, we're tracking against our 2020 target.

CC3.2

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

Yes

CC3.2a

Please provide details of your products and/or services that you classify as low carbon products or that enable a third party to avoid GHG emissions

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Product	Relative to coal, the use of LNG to produce electricity results in emissions reductions of up to 50%. Woodside estimates that 14 million tonnes CO ₂ e were avoided in 2016 as a result of our customer's use of LNG to produce electricity, in place of coal. This saving was calculated using an emission factor of 0.44 tCO ₂ e/MWh for LNG (assumes CCGT) and 0.72 for coal (assume supercritical coal generator). These emission factors were calculated by Worley Parsons in 2008.	Avoided emissions	Other:	68%	Less than or equal to 10%	This question is reported on equity basis, whilst the rest of CC3 is operated basis.

CC3.3

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

Yes

CC3.3a

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

Stage of development	Number of projects	Total estimated annual CO ₂ e savings in metric tonnes CO ₂ e (only for rows marked *)
Under investigation	0	
To be implemented*	5	154700
Implementation commenced*	0	
Implemented*	2	17269
Not to be implemented	0	

CC3.3b

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

Activity type	Description of activity	Estimated annual CO ₂ e savings (metric tonnes CO ₂ e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	GWA Condensate Stripper Cessation	5475	Scope 1	Voluntary	500000		<1 year	11-15 years	6tpd fuel gas saving from Jun 2016 (savings estimated on an operated basis)
	Pluto power generation	11794	Scope 1	Voluntary	1200000		<1 year	11-15 years	The Pluto Gas Plant modified the normal

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	spinning reserve reduction								operation strategy to run with one less power generation gas turbine generator online for an extended period during the winter months of 2016. This reduced power generation spinning reserve and improved energy efficiency.

CC3.3c

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

Method	Comment
Marginal abatement cost curve	Woodside incorporates new opportunities in its marginal abatement cost curve, known internally as the Carbon Abatement Portfolio (CAP), a database of carbon reduction opportunities.
Other	Woodside sets targets regarding fuel and flare use, which drive emission reductions, and form part of regular governance reporting.
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 LNG production, domestic gas, and in some cases, oil products.
Internal price on carbon	Woodside includes a carbon price in all its major investments and where appropriate when making other financial and operational decisions.
Other	Woodside's approach to climate change includes reducing emissions from our facilities and developments.

Further Information

Page: **CC4. Communication**

CC4.1

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

Publication	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	55	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC4.1/Annual Report 2016.pdf	
In voluntary communications	Complete	30-33, 60	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC4.1/2016 Sustainable Development Report.pdf	
In voluntary communications	Complete	All	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC4.1/CDP16 - Woodside's 2016 submission.pdf	
In voluntary communications	Complete			Webpage: http://www.woodside.com.au/Working-Sustainably/Pages/Climate-Change.aspx

Further Information

Module: **Risks and Opportunities**

Page: **CC5. Climate Change Risks**

CC5.1

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

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

CC5.1a

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty surrounding new regulation	Uncertainty surrounding domestic regulation: Australian climate policy has changed significantly in	Increased operational cost	>6 years	Direct	About as likely as not	High	Reintroduction of the previous cap and trade scheme would have an annual cost of approx. \$US20m (equity share). Both	Woodside continues to monitor developments in this space and engage with government and the opposition	The cost is largely staff time, which is embedded in existing business activities.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	recent years and remains a partisan political issue. This introduces risk of future compliance costs and complicates decision making processes by increasing uncertainty.						major political parties seem favourable to the use of significantly cheaper international permits for trade exposed industries which could reduce the cost impact. Carbon policies with a long term view are likely to increase gas demand – which is discussed as an opportunity below.	through our industry associations. We test relevant decisions against a range of plausible future outcomes.	
Uncertainty surrounding new regulation	Uncertainty surrounding international regulation: The rapid ratification of the Paris Agreement sends a strong signal that the world will reduce its emissions. If the Paris 2degC target is met, short to medium term gas demand is likely to increase, but gas use in the second half of the century will likely require its emissions to be sequestered	Reduced demand for goods/services	>6 years	Direct	Unlikely	Low	Changing the energy mix will take decades	Develop and implement a climate change and carbon approach. Test long dated investments against a range of plausible future outcomes.	The cost is largely staff time, which is embedded in existing business activities.

CC5.1b

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in temperature extremes	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 controls to ensure the health and safety of our staff.	Reduction/disruption in production capacity	>6 years	Direct	Very likely	Low	The impact of a long term temperature increases has not been modelled in detail. The projected temperature increase during the lifetime of our facilities is however well within existing temperature variation.	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.	The cost of these control measures are included in day to day operating expenses.
Tropical cyclones (hurricanes and typhoons)	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 safety of our operations as well as the cost of building new facilities.	Increased capital cost	>6 years	Direct	Unlikely	Low	Our understanding of the impacts of climate change in the north-west of Australia is that there may be fewer, more intense storms. The net impact of this change does not however materially affect the design basis for our facilities, so the financial impact is minimal	Woodside commissioned the North West Australian Climate Change Study (NWACCS) in 2005 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	The NWACCS study cost several million dollars. The cost of other control measures are included in day to day operating expenses.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								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.	
Sea level rise	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.	Increased capital cost	>6 years	Direct	Virtually certain	Low	The level of projected sea level rise over the life of our existing assets is small compared to the safety factors included in their design. As such, the additional cost of designing for sea level rise is minimal.	Woodside commissioned the North West Australian Climate Change Study (NWACCS) in 2005 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.	The NWACCS study cost several million dollars. The cost of other control measures are included in day to day operating expenses.

CC5.1c

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

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	Low carbon energy sources are being developed at least in part as a response to climate change pressures. As these become cheaper and achieve greater market share, the demand for Woodside's products may decrease. Many published scenarios (eg IEA's 450, or	Reduced demand for goods/services	>6 years	Indirect (Client)	Unlikely	Medium	We have used external analysts' estimates of LNG's long term market price consistent with a 2 degree carbon budget. When our commercial models are rerun with this price we see an erosion of value below our mid case economic assumptions.	We monitor progress in renewable energy, carbon capture and storage, energy storage and nuclear technologies, in order to provide advanced warning of impacts on Company business. Our risk assessment uses external analysts' estimates of LNG's long term market price consistent with a 2 degree	To date this only incurs minor operational expenses.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	BNEF's New Energy Outlook) show natural gas consumption increasing until at least 2040, so an absolute decrease in gas use in the foreseeable future is unlikely.							carbon budget. The risk is updated every 6 months and informs business planning and financial decision making.	

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

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

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

CC6.1a

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	If carbon prices are broadly adopted as a means to reduce carbon emissions, this is likely to favour gas consumption over other fossil fuels, since gas is the lowest emitting fossil fuel available.	Increased demand for existing products/services	>6 years	Indirect (Client)	About as likely as not	Medium	Woodside makes estimates of future market conditions for internal decision making, but does not separate out those opportunities attributable to climate change.	Woodside's current operations are focused on the exploration, production and marketing of LNG to international markets. An example of this is recent exploration of our acreage in Myanmar.	Given these actions align with our strategy, we expect no additional costs to arise in association with these actions.

CC6.1c

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

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	With increased focus on reducing both greenhouse and local air pollution impacts from the transport sector, demand for low carbon heavy transport fuels is likely to increase. LNG has the required energy density to displace more emissions intensive fuels in those applications where electrification is not likely to be viable for some time (eg mining haul trucks, long distance shipping). Similar demand will also exist in remote power applications to displace diesel in the short term	New products/business services	>6 years	Indirect (Client)	Likely	Medium-high	A significant portion of Woodside's LNG could be used by the heavy transport and remote power sectors in 5-10 years.	Woodside is currently installing an LNG truck loading facility and distribution infrastructure at the Pluto LNG park, which will allow to open up a market for LNG in the power and heavy transport sectors throughout the Pilbara region.	The principal cost for this initiatives is the truck loading facility and distribution infrastructure, which is costing up to \$50m.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	and support renewables in the long term.								

CC6.1e

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

Woodside's oil and gas fields are located in remote, offshore fields. These fields are often in areas where storms, including cyclones, can be severe and the forces of currents and waves present significant challenges for the extraction and production of natural gas. In recognising the physical risks posed by climate change, Woodside has participated in or reviewed a number of studies relating to these impacts in the areas where we operate. These include the North West Australian Climate Change Study and those released by the Commonwealth Scientific and Industrial Research Organisation (CSIRO). Given the majority of predictions indicate that conditions will deteriorate, Woodside has not yet been able to identify any other benefits to its business resulting from the physical impacts of climate change.

Further Information

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

Page: CC7. Emissions Methodology

CC7.1

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

Scope	Base year	Base year emissions (metric tonnes CO ₂ e)
Scope 1	Thu 01 Jan 2015 - Thu 31 Dec 2015	3443000
Scope 2 (location-based)	Thu 01 Jan 2015 - Thu 31 Dec 2015	6500
Scope 2 (market-based)	Thu 01 Jan 2015 - Thu 31 Dec 2015	0

CC7.2

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

Please select the published methodologies that you use

Australia - National Greenhouse and Energy Reporting Act

CC7.2a

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

CC7.3

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

Gas	Reference
CO ₂	Other: Australia - National Greenhouse and Energy Reporting Measurement Determination
CH ₄	Other: Australia - National Greenhouse and Energy Reporting Measurement Determination
N ₂ O	Other: Australia - National Greenhouse and Energy Reporting Measurement Determination
SF ₆	Other: Australia - National Greenhouse and Energy Reporting Measurement Determination

CC7.4

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

Fuel/Material/Energy	Emission Factor	Unit	Reference
Natural gas	0.05153	metric tonnes CO ₂ e per GJ	NGER Technical Guideline for 2015-2016 reporting year. Excludes Pluto and KGP
Diesel/Gas oil	0.0702	metric tonnes CO ₂ e per GJ	NGER Technical Guideline for 2015-2016 reporting year.
Crude oil	0.0699	metric tonnes CO ₂ e per GJ	NGER Technical Guideline for 2015-2016 reporting year.
Electricity	0.00067	kg CO ₂ e per MWh	For North West Australian electricity consumption, using Northern Territory grid as per NGER Technical Guideline for 2015-2016 reporting year.
Natural gas	0.0499	metric tonnes CO ₂ e per GJ	Self calculated for Pluto Gas Plant
Natural gas	0.0496	metric tonnes CO ₂ e per GJ	Self calculated for KGP
Electricity	0.00072	kg CO ₂ e per MWh	For Perth CBD office using South West Interconnected System in Western Australia as per NGER Technical Guideline for 2015-2016 reporting year.

Further Information

Page: CC8. Emissions Data - (1 Jan 2016 - 31 Dec 2016)

CC8.1

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

Equity share

CC8.2

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

3520000

CC8.3

Please describe your approach to reporting Scope 2 emissions

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

CC8.3a

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

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
8600		

CC8.4

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

Yes

CC8.4a

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

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded
Refrigerants	Emissions are relevant and calculated, but not disclosed	Emissions are not relevant	Emissions are not relevant	Refrigerants are excluded from Scope 1 emissions due to NGERs reporting regulations. However, refrigerant quantities are disclosed in the Sustainable Development Report 2016, pp. 60, with a value of 0.14 tonnes CFC-11.
Canadian scope 2 emissions	No emissions excluded	Emissions are relevant but not yet calculated	Emissions are not relevant	We do not receive scope 2 emissions from Canadian operator and do not track it for our own staff offices. It is expected to be minimal.

CC8.5

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

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 5% but less than or equal to 10%	Metering/ Measurement Constraints	We recently improved our processes to calibrate our meters more frequently. All meters calibrated under this new regime have been within 5%. We continue to investigate other sources of uncertainty such as the settings used for density correction. Use of industry average emission factors typically result in uncertainties above 10%, but Woodside calculates the emission factors for the two largest emission sources resulting in statistical uncertainty of ~1% and ~5% respectively.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Metering/ Measurement Constraints	Fiscal standard metering errors are typically less than 5%.
Scope 2 (market-based)			

CC8.6

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

Third party verification or assurance process in place

CC8.6a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC8.6a/2016 Sustainable Development Report.pdf	p 64	ASAE3000	100
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC8.6a/1400407810_V0.1_CDP17 - Assurance report summary.pdf	All	Australian National GHG emission regulation (NGER)	100

CC8.7

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

Third party verification or assurance process in place

CC8.7a

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

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Location-based	Annual process	Complete	Limited assurance	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC8.7a/2016 Sustainable Development Report.pdf	p 64	ASAE3000	100
Location-based	Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/71/20771/Climate Change 2017/Shared Documents/Attachments/CC8.7a/1400407810_V0.1_CDP17 - Assurance report summary.pdf	All	Australian National GHG emission regulation (NGER)	100

CC8.8

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

Additional data points verified	Comment

CC8.9

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

No

Further Information

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

CC9.1

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

Yes

CC9.1a

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

Country/Region	Scope 1 metric tonnes CO2e
Australia	3500000
Canada	15900

CC9.2

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

By activity

CC9.2d

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

Activity	Scope 1 emissions (metric tonnes CO2e)
Fuel combustion	2637000
Flared gas	285000
Vented CO2	565000
Other	33000

Further Information

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

CC10.1

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

No

CC10.2

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

Further Information

Page: CC11. Energy

CC11.1

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

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

CC11.2

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

Energy type	MWh
Heat	0
Steam	0
Cooling	0

CC11.3

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

13900000

CC11.3a

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

Fuels	MWh
Natural gas	13600000
Diesel/Gas oil	164000
Crude oil	119000
Liquefied petroleum gas (LPG)	593

CC11.4

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

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

CC11.5

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

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
950000	11000	939000	0	0	

Further Information

Page: CC12. Emissions Performance

CC12.1

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

Increased

CC12.1a

Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	3	Decrease	This includes the opportunities identified in CC3 as well improved flaring performance
Divestment	0.5	Decrease	Emissions reduction due to divestment of the Northern Endeavour FPSO asset.
Acquisitions	1	Increase	Emissions increase due to the acquisition of the Balnaves asset. This was operated for more of 2016 than 2015.
Mergers		No change	
Change in output	2	Increase	This is the change in fuel and venting emissions from the gas plants, which is approximately proportional to throughput changes.
Change in methodology		No change	
Change in boundary		No change	
Change in physical operating conditions		No change	
Unidentified	1	Increase	Calculated by difference
Other		No change	

CC12.1b

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

Location-based

CC12.2

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.00086	metric tonnes CO2e	4075000000	Location-based	21	Increase	Drop in revenue due to falling oil price flowing through to LNG revenue

CC12.3

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

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.321	metric tonnes CO2e	metric tonne of product	10890000	Location-based	0.1	Increase	The share of LNG increased from 60 to 65% in our product mix. Since LNG is liquefied it is much more emissions intensive than other products, hence our emissions intensity increased.
995	metric tonnes CO2e	full time equivalent (FTE) employee	3511	Location-based	0.4	Increase	Increase in emissions was slightly higher than the increase in staff numbers. FTE numbers are based on total Woodside staff, as equity share is not appropriate for this question.

Further Information

CC12.1 has been based on operated emissions data due to complexities extracting equity based data across multiple years with the required level of detail. CC12.2 and 12.3 are based on equity data.

Page: CC13. Emissions Trading**CC13.1****Do you participate in any emissions trading schemes?**

Yes

CC13.1a**Please complete the following table for each of the emission trading schemes in which you participate**

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
Other: Australian Emissions Reduction Fund	Fri 01 Jan 2016 - Sat 31 Dec 2016	52285	0	52285	Facilities we own and operate

CC13.1b**What is your strategy for complying with the schemes in which you participate or anticipate participating?**

Woodside funds a tree planting project to offset the reservoir emissions from the Pluto development. We bid into early rounds of the Australian Government's Emissions Reduction Fund auctions, but were unsuccessful and are currently banking the offsets.

CC13.2**Has your organization originated any project-based carbon credits or purchased any within the reporting period?**

No

Further Information**Page: CC14. Scope 3 Emissions****CC14.1****Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions**

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, calculated	103000	Woodside requires suppliers of drilling and seismic exploration activities to track their emissions whilst working for Woodside and to provide this data to Woodside.	100.00%	Includes drilling and completions and logistics activities. Reported using operated data
Capital goods	Not relevant, explanation provided				Not relevant as all identified emissions included as scope 1 or purchased goods and services.
Fuel and energy-related activities (not included in Scope 1 or 2)	Not relevant, explanation provided				Not relevant as all identified emissions included as scope 1 or purchased goods and services
Upstream transportation and distribution	Not relevant, explanation provided				Woodside extracts primary resources, so does not have significant upstream transportation emissions.
Waste generated in operations	Relevant, calculated	2100	Multiply waste collected by contractors by National Greenhouse Account emission factor for commercial and industrial waste.	100.00%	
Business travel	Relevant, calculated	35000	Commercial air travel uses the emissions estimates provided by the airline. Helicopter travel converts the distance travelled, to a fuel quantity assuming a burn rate estimate for each helicopter model.	100.00%	This includes commercial air travel and chartered helicopter travel. Reported using operated data.
Employee commuting	Not evaluated				
Upstream leased assets	Not relevant, explanation provided				Upstream operated assets' emissions are reported in Scope 1 or purchased

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Downstream transportation and distribution	Relevant, calculated	850000	Provided by shipping contractors	100.00%	goods and services emissions. This includes LNG shipping only. Reported using operated data.
Processing of sold products	Not relevant, explanation provided				These emissions are captured in Use of sold products.
Use of sold products	Not relevant, explanation provided	31000000	Based on total production levels, with an estimate of equity share of shipping emission subtracted.		This conservatively assumes that all sold products are combusted.
End of life treatment of sold products	Not relevant, explanation provided				These emissions are captured in Use of sold products.
Downstream leased assets	Not evaluated				Woodside does not lease any downstream assets
Franchises	Not relevant, explanation provided				Woodside does not have any franchises
Investments	Relevant, not yet calculated				Woodside only reports emissions from facilities it operates
Other (upstream)	Not evaluated				
Other (downstream)	Not evaluated				

CC14.2

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

Third party verification or assurance process in place

CC14.2a

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

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)
Annual process	Complete	Reasonable assurance	https://www.cdp.net/sites/2017/71/20771/Climate_Change_2017/Shared_Documents/Attachments/CC14.2a/1400407810_V0.1_CDP17 - Assurance report summary.pdf	All	ASAE3000	100

CC14.3

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

Yes

CC14.3a

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

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Use of sold products	Change in output	1	Increase	Increase in production

CC14.4

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

No, we do not engage

CC14.4c

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

In 2011, Woodside conducted a review into the emissions intensity of its suppliers, reviewing key emissions intensive supplies such as cement, aluminium and air transport services. This review indicated that excluding construction projects, Woodside's Scope 1 emissions were far larger than their exposure to emissions through supply chain.

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

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

Name	Job title	Corresponding job category
Michael Utsler	Chief Operating Officer	Chief Operating Officer (COO)

Further Information

Module: Oil & Gas

Page: OG0. Reference information

OG0.1

Please identify the significant petroleum industry components of your business within your reporting boundary (select all that apply)

Exploration, production & gas processing

Further Information

Page: OG1. Production, reserves and sales by hydrocarbon type - (1 Jan 2016 - 31 Dec 2016)

OG1.1

Is your organization involved with oil & gas production or reserves?

Yes

OG1.2

Please provide values for annual gross and net production by hydrocarbon type (in units of BOE) for the reporting year in the following table. The values required are aggregate values for the reporting organization

Product	Gross production (BOE)	Net production (BOE)	Production consolidation boundary	Comment
---------	------------------------	----------------------	-----------------------------------	---------

OG1.3

Please provide values for reserves by hydrocarbon type (in units of BOE) for the reporting year. Please indicate if the figures are for reserves that are proved, probable or both proved and probable. The values required are aggregate values for the reporting organization

Product	Country/region	Reserves (BOE)	Date of assessment	Proved/Probable/Proved+Probable
Light oil	Australia	50473712	Sat 31 Dec 2016	Proved
Medium oil				
Heavy oil				
Conventional non-associated natural gas	Australia	927297326	Sat 31 Dec 2016	Proved
Associated natural gas				
Natural gas condensate	Australia	94939963	Sat 31 Dec 2016	Proved
Conventional non-associated natural gas	Canada	7104031	Sat 31 Dec 2016	Proved
Associated natural gas				
Conventional non-associated natural gas	Australia	1233151781	Sat 31 Dec 2016	Proved+Probable
Associated natural gas				
Natural gas condensate	Australia	124176201	Sat 31 Dec 2016	Proved+Probable
Light oil	Australia	74445359	Sat 31 Dec 2016	Proved+Probable
Medium oil				
Heavy oil				
Conventional non-associated natural gas	Canada	10626129	Sat 31 Dec 2016	Proved+Probable
Associated natural gas				

OG1.4

Please explain which listing requirements or other methodologies you have used to provide reserves data in OG1.3. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries, please explain this

SPE PRMS guidelines.

OG1.5

Please provide values for annual sales of hydrocarbon types (in units of BOE) for the reporting year in the following table. The values required are aggregate values for the reporting organization

Product	Sales (BOE)	Comment
Natural gas condensate	9300000	Australia
Liquefied Petroleum Gas (LPG)	700000	Australia
Liquefied Natural Gas (LNG)	63600000	Australia
Conventional non-associated natural gas	12900000	Australia domestic pipeline gas
Light oil	6700000	Australia oil
Medium oil		
Heavy oil		
Conventional non-associated natural gas	1600000	Domestic gas in British Columbia

OG1.6

Please provide the average breakeven cost of current production used in estimation of proven reserves

Hydrocarbon/project	Breakeven cost/BOE	Comment
---------------------	--------------------	---------

OG1.7

In your economic assessment of hydrocarbon reserves, resources or assets, do you conduct scenario analysis and/or portfolio stress testing consistent with a low-carbon energy transition?

Yes, other

OG1.7a

Please describe your scenario analysis and/or portfolio stress testing, the inputs used and the implications for your capital expenditure plans and investment decisions

When assessing our proven reserves, allocating capital and making investment we test our decisions against a variety of economic assumptions, including product and carbon prices. These economic assumptions consider a broad range of inputs. The inputs relating to climate change include the growth of low carbon technology, current and projected carbon pricing regulations and global climate negotiations such as the Paris Agreement.

Further Information

Page: OG2. Emissions by segment in the O&G value chain - (1 Jan 2016 - 31 Dec 2016)

OG2.1

Please indicate the consolidation basis (financial control, operational control, equity share) used to report the Scope 1 and Scope 2 emissions by segment in the O&G value chain. Further information can be provided in the text box in OG2.2

Segment	Consolidation basis for reporting Scope 1 emissions	Consolidation basis for reporting Scope 2 emissions
---------	---	---

OG2.2

Please provide clarification for cases in which different consolidation bases have been used and the level/focus of disclosure. For example, a reporting organization whose business is solely in storage, transportation and distribution (STD) may use the text box to explain why only the STD row has been completed

OG2.3

Please provide masses of gross Scope 1 carbon dioxide and methane emissions in units of metric tonnes CO2 and CH4, respectively, for the organization's owned/controlled operations broken down by value chain segment

Segment	Gross Scope 1 carbon dioxide emissions (metric tonnes CO2)	Gross Scope 1 methane emissions (metric tonnes CH4)
---------	--	---

OG2.4

Please provide masses of gross Scope 2 GHG emissions in units of metric tonnes CO2e for the organization's owned/controlled operations broken down by value chain segment

Segment	Gross Scope 2 emissions (metric tonnes CO2e)	Comment
---------	--	---------

Further Information

Woodside is primarily an E&P company. Although we undertake marketing and trading activities, those activities have no scope 1 emissions and negligible scope 2 emissions, so we have not attempted to calculate these emissions.

Page: OG3. Scope 1 emissions by emissions category - (1 Jan 2016 - 31 Dec 2016)

OG3.1

Please confirm the consolidation basis (financial control, operational control, equity share) used to report Scope 1 emissions by emissions category

Segment	Consolidation basis for reporting Scope 1 emissions by emissions category
Exploration, production & gas processing	Equity Share

OG3.2

Please provide clarification for cases in which different consolidation bases have been used to report by emissions categories (combustion, flaring, process emissions, vented emissions, fugitive emissions) in the various segments

OG3.3

Please provide masses of gross Scope 1 carbon dioxide and methane emissions released into the atmosphere in units of metric tonnes CO2 and CH4, respectively, for the whole organization broken down by emissions category

Emissions category	Gross Scope 1 carbon dioxide emissions (metric tonnes CO2)	Gross Scope 1 methane emissions (metric tonnes CH4)
Combustion	2597000	200
Flaring	250000	1400
Process emissions	0	0
Vented emissions	540800	980
Fugitive emissions	0	600

OG3.4

Please describe your organization's efforts to reduce flaring, including any flaring reduction targets set and/or its involvement in voluntary flaring reduction programs, if flaring is relevant to your operations

Woodside has had annual flare targets in place for many years, which has driven a range of initiatives and embedded a continuous improvement mindset. This has seen a reduction in flare intensity of over 50% since 2013.

Further Information

Page: OG4. Transfers & sequestration of CO2 emissions - (1 Jan 2016 - 31 Dec 2016)

OG4.1

Is your organization involved in the transfer or sequestration of CO2?

No

Further Information

Page: OG5. Emissions intensity - (1 Jan 2016 - 31 Dec 2016)

OG5.1

Please provide estimated emissions intensities (Scope 1 + Scope 2) associated with current production and operations

Year ending	Segment	Hydrocarbon/product	Emissions intensity (metric tonnes CO2e per thousand BOE)	% change from previous year	Direction of change from previous year	Reason for change
2016	Exploration, production & gas processing	Conventional non-associated natural gas Associated natural gas	.037	0.1	Increase	More emissions intensive LNG made up

Year ending	Segment	Hydrocarbon/product	Emissions intensity (metric tonnes CO2e per thousand BOE)	% change from previous year	Direction of change from previous year	Reason for change
		Natural gas condensate Liquefied Natural Gas (LNG) Liquefied Petroleum Gas (LPG)				a larger share of production.

OG5.2
Please clarify how each of the emissions intensities has been derived and supply information on the methodology used where this differs from information already given in answer to the methodology questions in the main information request

Further Information

Page: OG6. Development strategy - (1 Jan 2016 - 31 Dec 2016)

OG6.1
For each relevant strategic development area, please provide financial information for the reporting year

Strategic development area	Describe how this relates to your business strategy	Sales generated	EBITDA	Net assets	CAPEX	OPEX	Comment
----------------------------	---	-----------------	--------	------------	-------	------	---------

OG6.2
Please describe your future capital expenditure plans for different strategic development areas

Strategic development area	CAPEX	Total return expected from CAPEX investments	Comment
----------------------------	-------	--	---------

OG6.3
Please describe your current expenses in research and development (R&D) and future R&D expenditure plans for different strategic development areas

Strategic development area	R&D expenses – Reporting year	R&D expenses – Future plans	Comment
----------------------------	-------------------------------	-----------------------------	---------

Further Information

Page: OG7. Methane from the natural gas value chain

OG7.1
Please indicate the consolidation basis (financial control, operational control, equity share) used to prepare data to answer the questions in OG7

Segment	Consolidation basis
Exploration, production & gas processing	Equity Share

OG7.2
Please provide clarification for cases in which different consolidation bases have been used

OG7.3
Does your organization conduct leak detection and repair (LDAR), or use other methods to find and fix fugitive methane emissions?

Yes

OG7.3a
Please describe the protocol through which methane leak detection and repair, or other leak detection methods, are conducted, including predominant frequency of inspections, estimates of assets covered, and methodologies employed

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 also been conducted in recent years at our onshore facilities. The minor fugitive sources that were detected in the surveys were rectified.

OG7.4
Please indicate the proportion of your organization's methane emissions inventory estimated using the following methodologies (+/- 5%)

Methodology	Proportion of total methane emissions estimated with methodology	What area of your operations does this answer relate to?
Direct detection and measurement Engineering calculations Source-specific emission factors (IPCC Tier 3)	25% to <50%	Other:
IPCC Tier 1 and/or Tier 2 emission factors	50% to <75%	Other:

OG7.5
Please use the following table to report your methane emissions rate

Year ending	Segment	Estimate total methane emitted expressed as % of natural gas production or throughput at given segment	Estimate total methane emitted expressed as % of total hydrocarbon production or throughput at given segment
2016	Exploration, production & gas processing	.04%	.03%

OG7.6
Does your organization participate in voluntary methane emissions reduction programs?

No

OG7.7

Did you have a methane-specific emissions reduction target that was active (ongoing or reached completion) in the reporting year and/or were methane emissions incorporated into targets reported in CC3?

Yes, methane emissions were incorporated into targets reported in CC3

OG7.7b

If methane emissions were incorporated into targets reported in CC3 (but not detailed as a separate target), please indicate which target ID(s) incorporate methane emissions, and specify the portion of those targets that is comprised of methane

All targets were based on fuel and flaring rates, with emissions calculated using regulatory emissions factors, which include methane.

Further Information

Non operated emissions (which equate to 2% on a CO₂e basis) are not available in a format that allows methane emissions to be split out, so they have been excluded from this question.

CDP: [D]--[D2]