



METHANE
GUIDING
PRINCIPLES

Methane Guiding Principles Signatory Reporting

Woodside

January 2022

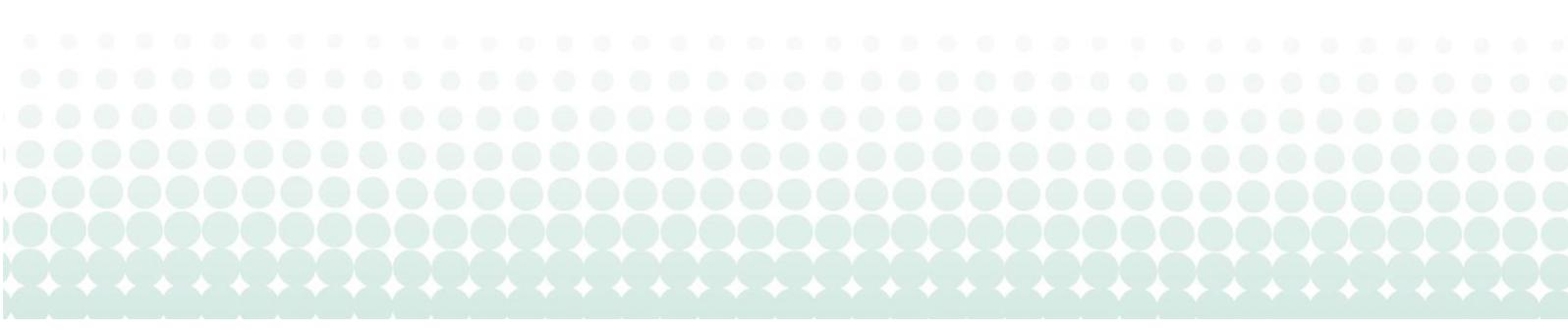




COMPANY: **Woodside Energy Ltd**

YEAR OF JOINING METHANE GUIDING PRINCIPLES: **2018**

SENIOR REPRESENTATIVE: **Dr Tom Ridsdill-Smith, SVP Climate**



Principle One: Continually reduce methane emissions

- Please state what specific activities or projects your company has undertaken to reduce methane emissions. Please refer to the previous year’s annual MGP reporting where applicable to refer to intended activity. Link to sustainability report where relevant to provide further detail.
- Describe how the reduction was achieved including description of the asset type, technology type, timeframe. What was the end result?
- Provide data to support your description e.g. the actual amount of emissions reduction achieved, or the reduction in methane intensity.

2021 completed activity	2022 intended activity
<p>During 2021, we continued to utilise our internal opportunity management processes to prioritise methane reduction projects. This prioritisation was enhanced by formalising the use of a 20-year methane Global Warming Potential in commercial evaluation tools and processes to increase the impact of internal carbon pricing for methane venting activities, making methane reduction capital projects more attractive.</p> <p>During 2021 activities completed include:</p> <ul style="list-style-type: none"> • Designed-out opportunities associated with seal oil venting and flaring including: <ul style="list-style-type: none"> • Design improvement to replace buckling pin relief valves with bursting disc on Pluto flare systems. • Rerouting compressor seal gas from Pluto end flash gas compressor from vent to flare (saving 2400tCO₂-e per annum). • Finalising installation of vapour recovery units on LNG1 compressor seal oil systems at Karratha Gas Plant • Progressed Assess phase study work to address Boil off gas compressor seal gas emissions at Karratha Gas Plant. • Procurement of handheld ultrasonic leak detection tools to support identification of fugitive leaks • Delivered methane reduction through operational excellence, examples including: <ul style="list-style-type: none"> • Finding alternative pathway to flare rather than vent as per design during depressurisation of Gas Feed Header for turnaround works. • Acid Gas Removal Unit process optimisation trial to reduce co-absorption of methane. • Reduction of fugitive emissions at facilities through excellence in operator craft. • Included methane as ‘check box’ on SAFE (See, Assess, Fix, Encourage) cards to support operational ‘find and fix’ behaviours. 	<p>We will continue to utilise our internal opportunity management processes to prioritise methane reduction projects across our operated facilities. In 2022 activities will focus on:</p> <ul style="list-style-type: none"> • Designing out opportunities associated with priority methane emissions sources on operating assets, as well as future development opportunities. • Building on existing approach for leak detection and repair strategy that can be embedded in base business processes. • Further quantification of priority methane emission sources such as passing vent valves. • Delivery of methane reduction through operational excellence.



Principle Two:

Advance strong performance across the gas supply chain

Please include answers to the following questions:

1. Did you participate in any methane research or plan to do so?
 2. Did you conduct any outreach on methane management?
- Describe what action you have taken to engage industry players across the value chain to better understand how to achieve robust methane emissions management. Outreach activity could include training sessions, participation in webinars, influencing of NOJV partners, or publication of guidance. Activity could also include commercial incentives or engagement with investors to drive better performance by others.
 - Provide details of any outcomes that resulted from your action.

2021 completed activity	2022 intended activity
<p>During 2021 we initiated a technical collaboration workshop, bringing together 10 organisations, both local operators and international joint venture partner expertise along with others across the gas value chain including gas distributors, with the objective of delivering tangible action for methane emissions reduction at all our Western Australian operations.</p> <p>We have developed a Scope 3 emissions approach for engagement with customers and suppliers to support methane emissions reduction and promote global measurement (including harmonisation of global standards) and transparent emissions reporting.</p> <p>In addition, we have collaborated with non-operated joint venture partners to support identification of methane reduction opportunities across non-operated assets.</p>	<p>We will continue collaborative engagements with local operators, including further technical collaboration workshops to deliver tangible action for methane emissions reduction at all our Western Australian operations, including gas distribution systems.</p> <p>We will also continue engagement with customers and suppliers to support methane emissions reduction and promote global measurement and reporting as components of our wider Scope 3 emissions approach.</p> <p>We will continue to support non-operated joint venture partners to improve methane emissions inventories and forecasts and identification of methane reduction opportunities.</p>



Principle Three:

Improve accuracy of methane emissions data

- Describe action taken to improve methane emissions data collection methodologies. This could be application of new technology at an operated site(s), investment and participation in R&D initiatives, development of monitoring/modelling software, or support to research that improves the accuracy of the quantification of methane emissions.
- Where new technology /software has been piloted or adopted, it is helpful to describe how it works, the reasons it was selected, and how it was deployed. Any data that can be shared to demonstrate improvements is useful.
- How these new methods/technologies has been adopted into your accounting process if at all.



2021 completed activity	2022 intended activity
<p>In 2021, we commenced satellite survey monitoring of both Pluto and Karratha Gas Plant via GHGSAT, with over 50 passes complete since the start of January. In addition, the 2020 Differential Absorption Lidar (DIAL) survey results have been followed up with additional measurements and Forward-Looking InfraRed (FLIR) survey to feed into action plans for methane reduction opportunities.</p> <p>During 2021 a gap analysis and technology assessment was undertaken to develop a roadmap to achieving Oil and Gas Methane Partnership (OGMP2.0) gold standard for methane measurement and reporting. This has included engagement with drone monitoring vendors for possible site-based drone surveys.</p> <p>In 2021, we have continued the integration of survey data and laboratory sampling to complement our inventory of site-specific methane factors, further enhancing the accuracy of our reported methane emissions. Examples include:</p> <ul style="list-style-type: none"> • Boil off gas compressor engineering calculation for methane emission, which were evaluated against satellite measurements and DIAL survey. • Executing sampling and analysis on the Pluto Gas Turbine Generators and Mixed Refrigerant / Propane Refrigerant compressors to validate DIAL methane measurements results. These results informed discussions with turbine manufacturers and has resulted in revised maintenance activities targeted at addressing methane slip during combustion. 	<p>In 2022, we will continue to report in accordance with the Australian National Greenhouse and Energy Reporting Act (NGER) on operated methane emissions, incorporating known methane source emission rates in conjunction with relevant industry approved factors.</p> <p>We will investigate options for independent certification of the methane emissions performance across our operated assets.</p> <p>We will improve emission source level measurement and reporting across all our operated facilities and will commence aerial / drone surveys of some facilities to inform a strategy to transition to specific emissions source level measurement and reporting.</p>



Principle Four: Advocate sound policy and regulations on methane emissions

Advocacy consists of active participation in legal consultation processes, external policy statements, and direct engagement with government

- Consider providing details on the region or regulation involved, how you undertook your advocacy, others involved, and the outcome.

2021 completed activity	2022 intended activity
<p>In 2021, Woodside was appointed chair of the IPIECA Net Zero Task Force. We have also participated in the APPEA Methane Task Force.</p> <p>We report methane emissions via the Australian National Greenhouse and Energy Reporting Act (NGER) and have supported revisions to the legislation relating to reporting methane emissions including:</p> <ul style="list-style-type: none"> • Providing input to the regulator via industry consultation regarding updates to the reporting framework which were implemented in FY22 (1st July 2021 to 30th June 2022). The updates more closely align the methane reporting framework with internationally recognised methods such as API and improve the completeness and accuracy of reported methane emissions nationally. • Advocating for improvements to the reporting framework to support the generation of carbon credits from methane reduction projects associated with sources occurring outside the boundaries of the existing methodology. 	<p>We will continue to chair the IPIECA Low-emissions pathways and societal journey to a net-zero emissions future task force (which is an extension of the former Net Zero Task Force) which aims to convene and disseminate knowledge and good practices for oil and gas companies in the area of net-zero emissions as a key element of the energy transition and low-emissions pathways.</p> <p>We will continue to be engaged in updates to the NGERs legislation on fugitive emissions.</p> <p>We will participate in the pilot programme for the governments voluntary Corporate Emissions Reduction Transparency (CERT) report. This is a new initiative of the Australian Federal Government with the report (CERT) supporting climate-related disclosures by Australian companies covered by the National Greenhouse and Energy Reporting (NGER) scheme, giving investors, shareholders and the public a clearer picture of action taken by companies to reduce net emissions.</p>



Principle Five: Increase transparency

Please include answers to the following question:

1. Are you participating in OGMP 2.0 or do you intend to do so? If you are participating in OGMP 2.0 you may provide a link to the website.
- Describe what activity you have carried out e.g. providing information in relevant external reports on methane emissions data, methodologies, and progress and challenges in methane emissions management.
 - If you have contributed towards the standardisation of comparable external methane reporting describe the activity you have taken.

2021 completed activity	2022 intended activity
<p>Woodside intends to put its 2021 climate reporting to a non-binding, advisory vote of shareholders at its 2022 Annual General Meeting. Woodside's climate-related disclosures are structured to align with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).</p> <p>We have also increased the level of measurement and reporting shared with customers to improve transparency and increase collaboration.</p> <p>Assets have commenced development of Methane Action Plans which identify and prioritise work scopes to address methane emissions.</p>	<p>In 2022, we will continue to enhance our Task Force on Climate-related Financial Disclosures (TCFD) reporting.</p> <p>We will complete the development of systematic Methane Action Plans across operated assets.</p> <p>We will progress a work programme to support a OGMP 2.0 membership decision in 2023.</p>



Methane Emissions

<p>Do you report absolute methane emissions within your sustainability report? <i>If so provide link.</i></p>	<p>Yes: Reports & investor briefings - Woodside Energy</p>
<p>Do you report a methane intensity within your sustainability report? <i>If so provide link.</i></p>	<p>Yes: Reports & investor briefings - Woodside Energy</p>
<p>What are your organisation's total absolute methane emissions? Provide a figure in tonnes. Provide latest data publicly available.</p>	<p>10,715 tonnes 2020 SD Report</p>
<p>State your methodology.</p>	<p>National Greenhouse Energy Reporting</p>
<p>State your reporting boundary.</p>	<p>Includes Production and Processing operated assets (100% of operated asset emissions)</p>
<p>What are your organisation's methane intensity? Provide latest data publicly available.</p>	<p>0.051 % (Sm³ methane / Sm³ marketed natural gas)</p>
<p>State your methodology.</p>	<p>National Greenhouse Energy Reporting</p>
<p>State your reporting boundary.</p>	<p>Includes Production and Processing</p>
<p>Do you have a methane emission target? If yes, please state what it is, including the boundaries and methodology. If no, are you developing such a target? Please state your intended timeline.</p>	<p>No, the adoption of external methane targets will be a focus activity during 2022</p>

Commentary

Reported data has been calculated for Woodside operated assets only. The global warming potentials and engineering calculation methods used are consistent with the Australian Federally legislated National Greenhouse and Energy Reporting scheme (NGERS) and additionally incorporates some site-specific methane emission factors.