



METHANE  
GUIDING  
PRINCIPLES

# Methane Guiding Principles Signatory

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Shell  
April 2024



**Company:** Shell International Exploration and Production BV (Shell)

**Year of Joining Methane Guiding Principles:** 2017

**Senior Representative:** Cederic Cremers, EVP LNG, Shell

**Shell Disclaimer:** Appendix A

## 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.

2023 Completed Activity	2024 Intended Activity
<p>We continue to reduce methane emission sources across Shell-operated assets. By the end of 2023, around 80% of fugitive emission sources at our operated oil, gas and liquefied natural gas production facilities used leak detection and repair (LDAR) programmes to tackle leaks and monitor equipment.</p> <p>We have reduced reported methane emissions by using multiple approaches to detect and prevent emissions, including reduced flaring and venting, as well as implementing more accurate methods for calculating emissions.</p> <p>Specific efforts to reduce methane emissions include:</p> <ul style="list-style-type: none"> <li>• At our QGC natural gas project in Australia, we have reduced methane emissions from gas dehydration facilities by around 2,800 tonnes since 2017.</li> <li>• Implementation of a vent-to-flare project at our Gannet facility in the UK resulting in a reduction of ~400 tonnes of methane emissions (SOV 100%-basis).</li> </ul>	<p>Shell continues to identify and track implementation of methane emissions reduction opportunities across our assets as part of a company-wide GHG abatement programme as we progress towards our target of near-zero methane emissions by 2030.</p> <p>Methane emission reductions are anticipated from delivery of routine flaring reduction projects in Nigeria and/or completion of the sale of Shell Petroleum Development Company Limited (SPDC), and further reductions in venting from well workovers and operations at QGC Upstream.</p>



- Optimisation of stripping gas in our gas dehydration facilities in Argentina reducing methane emissions by ~80 tonnes (SOV 100% basis).
- Reductions in offtake flaring at Prelude resulted in ~70 tonnes of methane emission reductions (SOV 100% basis).
- Electrification of pneumatic valves at the Groundbirch asset in Canada resulted in ~6 tonnes of methane emission reductions (SOV 100% basis).

## 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.

2023 Completed Activity	2024 Intended Activity
<p>The Methane Guiding Principles (MGP) is a coalition that Shell initiated and has led since 2017. It convenes industry and civil society with the aim to reduce methane emissions along the full gas value chain. In 2023, Shell contributed to the updating of the Best Practice Guides, Communications workstream and funded the MGP website and digital/social media activities driving awareness</p>	<p>Shell will continue to share learnings from its OGMP 2.0 reporting framework implementation journey and learning from others. Shell is planning to co-host an OGMP 2.0 NOV Engagement Workshop with UNEP in early 2024, where Shell NOVs and other companies will have the opportunity to learn more about the benefits of signing on to the OGMP 2.0 framework. Shell and other OGMP 2.0 industry</p>

and sharing best practices on reducing methane emissions across the full gas value chain.

We work with our joint ventures to help them develop emission monitoring programmes. We have encouraged our non-operated ventures to adopt the voluntary UN-led OGMP 2.0 reporting framework. Many of our non-operated venture partners became signatories to the OGMP programme in 2023. They include Nigeria LNG, Oman LNG, Atlantic LNG and North Caspian Operating Company.

Shell hosted the first annual OGMP 2.0 Implementation Conference in Amsterdam in March 2023 where OGMP member companies had an opportunity to share their learnings with OGMP 2.0 implementation and discuss challenges. Shell presented its approach to emissions reconciliation, which was recognised by UNEP and OGMP members as an industry best practice. Once source and site level emissions reconciliations are completed, collected learnings will help identify how to enhance future measurement programmes and inform further methane emissions abatement opportunities.

Shell's Continuous Methane Emissions Monitoring technology pilot was published in [Nature: Scientific Reports](#). The article show-cases how our internally developed detection, localisation and quantification algorithm, in combination with a 3rd party provided sensor from Mirico, can be used to successfully identify, localise and quantify controlled releases as well as low intensity, persistent sources of methane (0-5 kg/h range) in a mid-size gas processing facility.

As a member of OGCI, Shell participated in the launch of the "Aiming for Zero Methane Emissions" by 2030 initiative in 2022 (100 signatories to date) and is currently co-funding and participating in the Satellite Monitoring Campaign targeting 50 assets globally and aiming to detect methane leaks and mitigate them. This campaign was highlighted during the Global Methane Pledge 2023 ministerial meeting at COP28 as a key ongoing industry action to reduce global methane emissions.

signatories will share their learnings from programme implementation to date.

Shell presented results from using its detection, localisation and quantification algorithm for continuous monitoring systems ([Nature: Scientific Reports](#).) at the Methane Mitigation Europe Conference, 12-14th of February 2024, in Amsterdam. In 2024, we are planning to test this code in combination with different 3rd party vendor solutions for continuous monitoring at Shell assets. The goal is to get operational experience on how these systems perform for early leak detection and site level monitoring in different operating environments and facilities, to further enhance our reporting and support our journey towards near-zero methane emissions by 2030 target.

Shell is collaborating with major maritime industry players to implement Daphne Technology's SlipPure™ methane abatement solution (an after-treatment system that reduces methane slip from LNG-fuelled engines) onto the Angelicoussis Group's LNG carrier Maran Gas Chios. Shell is the charterer of the vessel and the project co-ordinator.

As an OGCI member company, Shell is co-funding and participating in the extended Satellite Monitoring Campaign aiming to monitor and mitigate methane emissions from 50 assets globally.

Shell co-led the OGCI/IOGP/IPIECA methane detection and quantification Recommended Practices (RPs) from the OGCI side, and its technical experts contributed to the development of the Recommended Practices within the IOGP technical working group. The RPs were published in November 2023.

## 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 have been adopted into your accounting process if at all.

2023 Completed Activity	2024 Intended Activity
<p>In 2023, Shell continued to use the best available measurement-based methane emissions quantification methodologies. Shell submitted its OGMP 2.0 Implementation Plan to the UN. Shell was awarded Gold Standard status for its enhanced methane emissions measurement and reporting under OGMP 2.0 for a third consecutive year.</p> <p>As part of ongoing implementation of OGMP 2.0, we completed Level 4 (source-level) monitoring programmes and site-level measurement field surveys across a range of Integrated Gas and Upstream assets. Leveraging this data, Shell completed OGMP 2.0 Level 5 reporting, including reconciliation of cumulative Level 4 emissions with</p>	<p>Shell will continue to implement the OGMP 2.0 framework to further enhance the accuracy of reported emissions. As part of this implementation, Shell is conducting pilot studies on emerging technologies (including source and site level measurement solutions) which, if proven, would further improve the accuracy of reported emissions. This includes piloting several continuous monitoring technologies to assess them for early detection and quantification of leaks and total site emissions.</p> <p>As part of ongoing implementation of OGMP2.0, we plan to commence OGMP2.0 L5 annual reporting</p>

site level measurement. Plans for annual Level 5 reporting were developed for implementation in 2024.

Over 2023, Shell continued to support the International Methane Emissions Observatory (IMEO) in its implementation of the Methane Alert and Response System (MARS). MARS is an initiative aimed at scaling up global efforts to detect and act on major emission sources in a transparent manner and accelerate implementation of the Global Methane Pledge (GMP).

Shell has been partnering with GHGSat, a pioneer in methane detection, to determine potential methane emissions from various onshore Shell-operated and non-operated assets across the globe. In 2023, Shell successfully completed a technology pilot with GHGSat to test satellite capabilities for monitoring methane in offshore assets, with the intent to enable possible future expansion of the technology's capability in this area, addressing a well-known gap in satellite technology.

across a range of Integrated Gas and Upstream assets.

Through its membership of Oil and Gas Climate Initiative, Shell will continue to participate in enabling effective use of the VIIRS satellite for global flaring data monitoring.

## **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.

2023 Completed Activity	2024 Intended Activity
<p>Under the MGP, we are part of the Advancing Global Methane Reduction (AGMR) initiative, an effort to driving methane emissions reduction in over 20 countries, working with governments and industry to inform methane policies and regulations and share best practice. This initiative covers more than 25% of global oil and gas production. The MGP also developed the oil and gas sector toolkit for the Global Methane Pledge (joined by 155 countries representing over 50% of global anthropogenic methane emissions) which provides policymakers with resources for methane policy and regulation development in countries that joined the Pledge.</p> <p>At COP 28, the World Bank announced the Global Flaring and Methane Reduction (GFMR) Partnership, a trust fund of over \$250 million that aims to catalyse methane emissions and flaring reduction in low- and middle-income countries. Shell intends to contribute to this fund financially and by providing technical assistance to implementation through our industry associations and methane coalitions.</p> <p>The COP28 presidency announced the Oil and Gas Decarbonization Charter (OGDC) to accelerate climate action. The OGDC focuses on driving down emissions from the production of oil and gas, with ambitions for Scope 1 and Scope 2 emissions, flaring and methane. To date, 50 companies representing more than 40% of global oil production, including Shell, have signed up to the OGDC.</p> <p>MGP, IOGP, OGCI and EDF announced in a joint <a href="#">statement of intent</a> to work with other organisations and associations and technical service providers, such as IPIECA, The UNEP, and the World Bank, to help deliver the OGDC methane commitment. Shell Chairs the MGP and is a member company of OGCI, IOGP and IPIECA.</p> <p>Shell participated as a panelist at the Gastech 2023 Conference in Singapore on <i>Industry Action on methane: Meeting the goals of the Global Methane Pledge (GMP)</i>. The session was attended by representatives from industry, government, and civil society. Shell advocated for government, civil</p>	<p>Shell will continue to participate in the MGP Advancing global Methane Emissions Reduction (AGMR) initiative aiming to inform methane policies and regulations and disseminate best practice.</p> <p>Shell will continue working with the World Bank on delivering methane emissions reductions through the GFMR fund.</p> <p>Shell will continue to support the OGDC Statement of Intent effort.</p> <p>Shell will be participating in CERAWEEK 2024 panel discussion on <i>COP28 Oil &amp; Gas Decarbonization Commitments</i>. The panel will explore the significance of the COP28 commitments; what actions are being taken; and measures are being implemented to improve monitoring and measurement.</p>





# METHANE GUIDING PRINCIPLES

society and industry to work together to meet the goals of the GMP.

## 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 standardization of comparable external methane reporting describe the activity, you have taken.

2023 Completed Activity	2024 Intended Activity
<p>Shell has been co-chairing the OGMP Reporting Taskforce alongside industry partners to provide technical feedback to OGMP, and through the industry 'Mirror Groups', ensuring all companies are engaged in their development.</p> <p>Over 2023, Shell co-chaired the Cross-industry Collaboration Forum, in connection with the industry Mirror Groups, to enhance industry shared learnings on OGMP technical programme implementation.</p> <p>Shell participated in the international working group on measurement, monitoring, reporting and verification (MMRV) of greenhouse gas emissions. The working group aims to establish a framework for providing comparable and reliable information to natural gas market participants.</p>	<p>Shell will continue the implementation of programmes to increase data accuracy, with OGMP2.0 conformance playing a central role.</p> <p>Within the OGMP initiative, Shell will continue to work on the development of technical guidance and on encouraging improved methane reporting and reductions from our joint ventures.</p> <p>Shell will represent the Upstream Oil and Gas segment on the newly formed OGMP Technical Advisory Group, alongside UNEP, Environmental Defense Fund, European Commission, and others. The main function of the Advisory Group is to provide the Steering Group with recommendations on strategic issues related to the OGMP 2.0 and support the engagement of companies and governments in the Partnership.</p> <p>Shell will continue to participate in the International MMRV working group, supporting increased transparency on reported emissions.</p>

<p>Do you report absolute methane emissions within your sustainability report? <i>If so, provide link.</i></p>	<p>Yes <a href="#">Shell Sustainability Report</a></p>
<p>Do you report a methane intensity within your sustainability report? <i>If so, provide link.</i></p>	<p>Yes <a href="#">Shell Sustainability Report</a></p>
<p>What is your organization's total absolute methane emissions? Provide a figure in tons. Provide latest data publicly available.</p>	<p>In 2023, Shell's total methane emissions were 41 thousand tonnes compared with 40 thousand tonnes in 2022. The increase was due to venting (which includes maintenance at our Prelude floating LNG facility, Australia and operational issues at Sarawak Shell Berhad, Malaysia) and higher reported emissions from integrated gas assets in Canada resulting from the adoption of enhanced source level measurements in line with Oil and Gas Methane Partnership (OGMP) reporting requirements. Methane emissions were around 2% of Shell's greenhouse gas emissions on a CO<sub>2</sub> equivalent basis in 2023. More than 65% of our reported methane emissions in 2023 came from flaring and venting in our upstream and midstream operations. Our methane emissions reduction programmes cover all sources (venting, flaring, fugitives) while prioritising actions across our whole portfolio.</p>
<p>What are your organization's methane intensity? Provide latest data publicly available.</p>	<p>In 2023, we again met our target to keep methane emissions intensity below 0.2%. Our methane emissions intensity averaged 0.05% for facilities with marketed gas and 0.001% for facilities without marketed gas. It ranged from less than 0.01% to 0.6% in 2023, compared with less than 0.01% to 0.7% in 2022.</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>Yes. Maintain methane emissions intensity of Shell-operated oil and gas assets (including liquefied natural gas) to below 0.2% and achieve near-zero methane emissions by 2030.</p>

**Appendix A:**

**Cautionary Note:** The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this report “Shell”, “Shell Group” and “Group” are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this report refer to entities over which Shell plc either directly or indirectly has control. The term “joint venture”, “joint operations”, “joint arrangements”, and “associates” may also be used to refer to a commercial arrangement in which Shell has a direct or indirect ownership interest with one or more parties. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

**Forward-Looking Statements**

This report contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “aim”; “ambition”; “anticipate”; “believe”; “commit”; “commitment”; “could”; “estimate”; “expect”; “goals”; “intend”; “may”; “milestones”; “objectives”; “outlook”; “plan”; “probably”; “project”; “risks”; “schedule”; “seek”; “should”; “target”; “will”; “would” and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this report, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak, regional conflicts, such as the Russia-Ukraine war, and a significant cybersecurity breach; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this report are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc’s Form 20-F for the year ended December 31, 2023 (available at [www.shell.com/investors/news-and-filings/sec-filings.html](http://www.shell.com/investors/news-and-filings/sec-filings.html) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this report and should be considered by the reader. Each forward-looking statement speaks only as of the date of this report, 2 April 2024. Neither Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this report.

**Shell’s Net Carbon Intensity**

Also, in this report we may refer to Shell’s “Net Carbon Intensity” (NCI), which includes Shell’s carbon emissions from the production of our energy products, our suppliers’ carbon emissions in supplying energy

for that production and our customers' carbon emissions associated with their use of the energy products we sell. Shell's NCI also includes the emissions associated with the production and use of energy products produced by others which Shell purchases for resale. Shell only controls its own emissions. The use of the terms Shell's "Net Carbon Intensity" or NCI are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

**Shell's net-zero emissions target**

Shell's operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and NCI targets over the next ten years. However, Shell's operating plans cannot reflect our 2050 net-zero emissions target, as this target is currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell's operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

**Forward-Looking non-GAAP measures**

This report may contain certain forward-looking non-GAAP measures. We are unable to provide a reconciliation of these forward-looking non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc's consolidated financial statements.

The contents of websites referred to in this report do not form part of this report.

We may have used certain terms, such as resources, in this report that the United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov).