

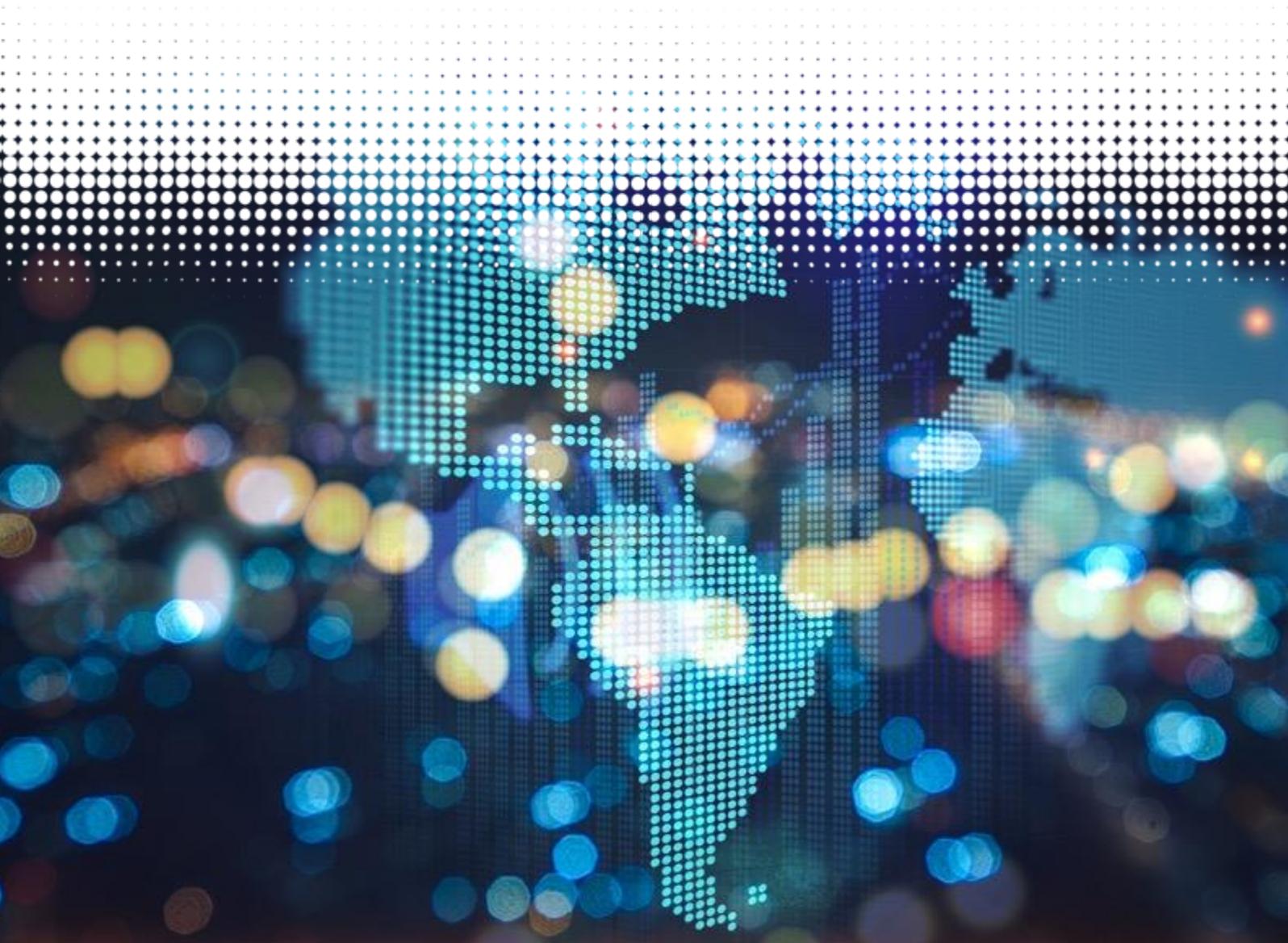


METHANE
GUIDING
PRINCIPLES

Methane Guiding Principles Signatory Reporting

Shell

January 2022





COMPANY: [Shell](#)

DATE: [January 2022](#)

YEAR OF JOINING METHANE GUIDING PRINCIPLES: [2017](#)

SENIOR REPRESENTATIVE: [Wael Sawan, Integrated Gas, Renewables & Energy Solutions Director.](#)



Principles		
	2021 completed activity	2022 intended activity
<p>Principle One: Continually reduce methane emissions</p>	<p>Example: In October 2021, Shell <u>committed</u> to bringing forward the target to eliminate routing flaring from its upstream operated assets from 2030 to 2025.</p> <p>Example: The process for ensuring gas is suitable for transportation and sale to customers includes removing moisture using dehydrator units to “strip” water content which can result in venting of methane. At QGC Upstream, located in Queensland’s Surat Basin, changes to the operating conditions and improvements to the emissions calculation methodologies has resulted in reductions of >1,200 tonnes methane for year 2021.</p> <p>Example: At the Shell operated QGC site, further improvements to the maintenance process for the site’s 3,200 wells resulted in less methane venting into the atmosphere during well workovers. This operational change reduced methane emissions by 556 tonnes in 2021, equivalent to 13,900 tonnes of CO₂.</p>	<p>Shell continues to identify and track implementation of methane improvement opportunities across our assets as part of a company-wide GHG abatement programme.</p> <p>We will continue to test and deploy new and existing technologies for detecting and quantifying methane emissions.</p>



<p>What are your organisation’s total methane emissions?</p>	<p>In 2020, total methane emissions from Shell’s operated assets were 67 thousand tonnes compared with 91 thousand tonnes in 2019, in part driven by divestments (for example, in Canada and the USA) and decreased flaring. Methane emissions were less than 5% of Shell’s greenhouse gas emissions on a CO₂-equivalent basis. More than 60% of our reported methane emissions in 2020 came from flaring and venting in our upstream and midstream operations (for example storage and processing). These numbers will be updated for 2021 following issuing of Shell’s Sustainability Report in April 2022</p>	<p>Shell will continue to implement OGMP 2.0, which requires a step change in source and site level quantification of emissions to further improve the accuracy of reported emissions. As part of this implementation, Shell plans to continue conducting pilot studies on technologies in 2022 that, if proven, would verify and improve the accuracy of reported emissions by 2023.</p>
<p>Does your organisation report methane intensity? If so, please specify the intensity.</p>	<p>Yes. In 2020, Shell’s methane intensity was 0.06% for assets with marketed gas and 0.01% for assets without marketed gas. methane emissions intensity in 2020 at individual facilities ranged from below 0.01% to 0.6%. Currently, methane emissions are calculated using a combination of standard emission factors (established emissions rates per throughput or per piece of equipment) and actual measurement. These numbers will be updated for 2021 following issuing of Shell’s Sustainability Report in April 2022.</p>	
<p>Do you have a methane emission target?</p>	<p>Yes. Shell has a target to maintain methane emissions intensity below 0.2% by 2025. This target covers all oil and gas assets for which Shell is the operator.</p>	



Principle Two:
Advance strong
performance
across the gas
supply chain

Example: Shell has been participating to three initiatives under the MGP NOJV working group participating to: Partner collaboration campaigns (led by bp), shaping deal terms (led by EDF) and MGP operator hotline (led by Repsol).

Example: Under the International Group of Liquefied Natural Gas Importers (GIIGNL), Shell contributed to the development of a comprehensive MRV and GHG neutral framework for a consistent industry approach to declaring greenhouse gas neutral LNG cargoes. [The Monitoring, Reporting, and Verification \(MRV\) and GHG \(Greenhouse Gas\) Neutral Framework](#) promotes verified and consistent quantification of GHG emissions (including methane emissions) across the entire value chain, from extraction of natural gas, liquefaction, shipping, regasification to final consumption. This was in collaboration with MGP signatories Total Energies, Eni, Enagas, Gazprom and Novatek and other companies along the value chain.

Under the MGP, Shell will continue to participate to the NOJV working group.

Under OGCI, Shell will participate to the workstream on “improving understanding of methane emissions along the value chain” through detection and quantification campaigns for selected value chains.

Under OGCI, Shell will co-fund the MGP activity on the development of a consistent and accurate identification and calculation method of methane emissions for the Oil & Gas industry, which complements the work under the OGMP 2.0 reporting framework.

Principle Three:
Improve accuracy
of methane
emissions data

Example: Shell is a founding signatory of the Oil and Gas Methane Partnership 2.0 Framework. In 2021, Shell prepared and submitted its OGMP 2.0 Implementation Plan to UN, as published in the International Methane Emissions Observatory (IMEO) first annual [report](#).

Example: Shell advanced plans to enhance equipment-level emissions reporting to Level 4 by the OGMP deadline, with technologies and approaches selected and pilots carried out in 2021.

Example: In 2021, Shell has advanced a series of internal/external collaborative pilots on Level 5 methane quantification technologies.

Example: In 2021, Shell completed several technology pilots at representative venture types, such as onshore, offshore, conventional, and unconventional production to understand the performance of various site level methane emission quantification technologies. Various satellite monitoring services were evaluated at different Shell assets in an initial pilot phase of one year.

Example: Shell joined the Net Zero Technology Centre (NZTC, formerly known as OGTC) led project that matured Beyond-Visual-Line-of-Sight (BVLOS) drone-based methane emission quantification technology and this was piloted at an off-shore asset in the North Sea.

Example: In the United States, Shell deployed quarterly line-of-sight drone-mounted optical gas imaging-based methane emission detection on its

Shell will continue implementation of programs to increase data accuracy, with OGMP2.0 conformance playing a central role in them. Shell will continue to work within the OGMP on the development of technical guidance and with joint venture partners encouraging improved methane reporting and reductions.

Through its membership of Oil and Gas Climate Initiative, Shell will continue to participate to the Climate and Clean Air Coalition (CCAC) global Methane Science studies where CCAC, Environmental Defense Fund, OGCI and European Commission are working together on a series of peer-reviewed scientific studies to measure methane emissions in the oil and gas sector.

Through its membership of Oil and Gas Climate Initiative, Shell will continue to participate to the following methane emission data accuracy improvement activities: the calibration of the VIIRS satellite for global flaring data monitoring and the development of the IOGP/IPIECA/OGCI methane emissions detection and quantification technologies recommended practices (This activity was kicked off in 2020).



Upstream shales assets and tested the quantification accuracy of this technology. Shell tested other drone-based quantification solutions in Shell Upstream facilities.

Example: A trial of a 24/7 methane detection technology based on continuous point sensors was commenced on one United States facility as part of the joint-industry [Project Falcon](#).

Example: Shell is member of CAMS (Collaboratory to Advance Methane Science), a research collaboration on methane science, aiming to improve understanding of methane emissions along the value chain. In May 2021, Queen Mary University London, with support from CAMS, conducted a first of its kind study to directly measure methane emissions of an operating LNG vessel.

Example: Through its membership of OGCI, Shell has been participating to the CCAC global Methane Science studies where CCAC, Environmental Defense Fund, OGCI and European Commission are working together on a series of peer-reviewed scientific studies to measure methane emissions in the oil and gas sector.

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Principle Four:
Advocate sound
policy and
regulations on
methane emissions

Example: Shell, along with EDF, continued to lead the EU methane policy working group, which focused on developing policy recommendations covering the full scope of EU legislative activity as outlined in the EU methane strategy. In September 2021, the policy recommendations, supported by a subset of the MGP signatories and supporting organisations, were published on the MGP website. Advocacy around them took place in the lead to the EU methane legislation publication in December 2021.

Example: In June 2021, Shell welcomed the restoration of US federal direct regulation of methane. In April 2021, the president of Shell Oil Company, Gretchen Watkins wrote to the US Senate Committee on Environment and Public Works and the House Committee on Energy and Commerce, sharing Shell's support for the passage of a joint resolution under the Congressional Review Act (CRA) to reverse the previous administration's methane policy rule and restore federal regulation of methane that began in 2016. In 2020, Shell advocated with the federal government, Congress and industry peers to maintain both direct regulation of methane and frequent leak detection and repair.

Example: Shell, along with IEA, EDF and other MGP signatories and supporting organisations, will participate to the "Oil & Gas sector toolkit for the Global Methane Pledge" working group. this MGP 2022 activity aims to support the operationalisation of the (GMP) through the development of a toolkit comprising MGP deliverables such as the Methane Emissions Reduction Best practices and the 2019 methane Policy Framework, and the dissemination of the toolkit through outreach to interested government that have signed up to the Pledge.





Principle Five:
Increase
transparency

Example: Shell has been working with the OGMP Reporting Taskforce to develop clear, concise and transparent reporting data templates and guidance, as well as on setting best practice requirements for methane source measurement.

Example: In support of methane reporting under OGMP 2.0, Shell has been advancing data sharing agreements with its NOJV partners.

Example: Under the International Group of Liquefied Natural Gas Importers (GIIGNL), Shell contributed to the development of a comprehensive framework for a consistent industry approach to declaring greenhouse gas neutral LNG cargoes. [The Monitoring, Reporting, and Verification \(MRV\) and GHG \(Greenhouse Gas\) Neutral Framework](#) promotes verified and consistent quantification of GHG emissions (including methane emissions) across the entire value chain, from extraction of natural gas, liquefaction, shipping, regasification to final consumption. This was in collaboration with MGP signatories Total Energies, Eni, Enagas, Gazprom and Novatek and other companies along the value chain.

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