



METHANE
GUIDING
PRINCIPLES

Methane Guiding Principles Signatory Reporting

Repsol

January 15th 2021



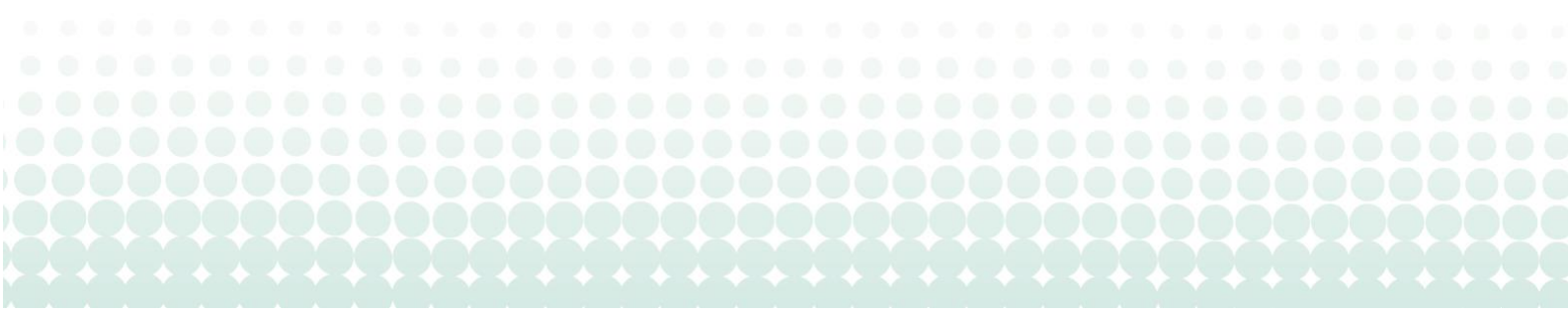
COMPANY: **Enágas**

DATE: **January 15th 2021**

YEAR OF JOINING METHANE GUIDING PRINCIPLES: **2017**

SENIOR REPRESENTATIVE: **Fernando Ruiz Fernandez , Sustainability Director**

https://www.repsol.com/imagenes/global/en/integrated-management-report-2020_tcm14-209132.pdf



Principle One: Continually reduce methane emissions

2020 completed activity	2021 intended activity
<p>Repsol is committed to methane emissions reductions, and has implemented different reduction opportunities in the last years.</p> <p>Fugitive emissions (defined as the unintentional release of methane due to leaks in flanges, valves, or other equipment because of operational wear and tear) can be an important source of emission without good monitoring.</p> <p>LDAR techniques allow the early detection and repair of leaks. We are increasing the frequency of these LDAR campaigns in our oil and gas production facilities, with the aim to perform them annually at least, including the quantification of methane. During 2020 we continued to expand the LDAR campaigns in our operated assets, and execute similar in non operated assets where possible. These campaigns help us reduce our fugitives emissions and increase the accuracy of our methane inventory thanks to quantification.</p> <p>With methane emissions reduction core to these programmes, Repsol has successfully piloted new-generation membranes in one of its offshore assets in South East Asia. Due to high carbon dioxide content in the gas produced from the reservoir, several membrane separation trains are required to purify the natural gas to meet quality specifications. By upgrading the membranes, Repsol was able to increase the membrane system selectivity, while also increasing the methane recovery rate. A membrane skids replacement schedule was established as a multiyear plan.</p> <p>The company tested emerging technologies in our operated assets during 2020. One of the pilots was performed with FLIR, testing a new technology that offers a software package on a tablet that can be tethered to the GF320 camera and quantify methane leak rates. Another pilot was performed with the company Seekops, testing drone technology to detect and quantify methane emissions (a top down measurement approach) in an onshore facility.</p> <p>Repsol is being active in testing emerging near zero emission technologies that have the potential to replace instrument gas. These technologies include small-scale remote power generation that allows the replacement of pneumatics devices with electrical pumps and controllers. These technologies are based on hybrid systems that combine solar photovoltaic panels and fuel cells that charge batteries that are used to provide electricity to the well equipment. Opportunities have being detected and are being studied to minimize gas vented from well casings? and compressor seals, by using small-scale power generation such as microturbines.</p>	<p>For 2021 Repsol will continue our LDAR campaigns with the intention to increase our methane measurement approach, combining the current technologies with the implementation of new ones and continue our multi-year plan on membrane improvements and other reduction actions.</p>

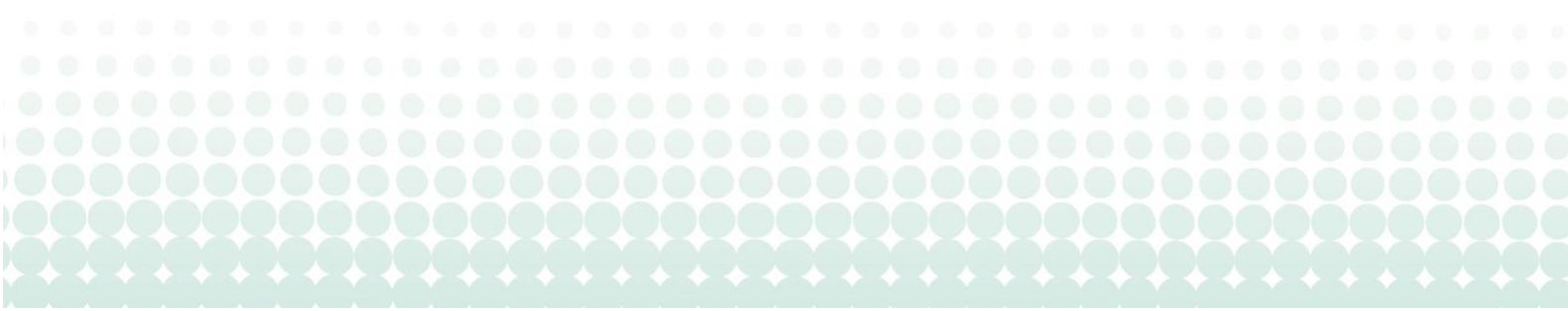


In addition, Repsol is convinced that the integrated management of the operations is critical to achieve improvements. With the aim of reducing emissions, maintenance is being optimized. As an example, the company is reducing venting from compressor blowdowns, while increasing availability of these equipment.

Overall, the total estimated amount of consolidated reductions for 2020 is 9 ktCH₄.

What are your organisation's total methane emissions?

2020 completed activity	2021 intended activity
<p>Methane emissions are reflected in Repsol's publicly available Integrated Management Report: https://www.repsol.com/imagenes/global/en/integrated-management-report-2020_tcm14-209132.pdf</p> <p>The reporting year is 2020 and the boundaries are operated assets, 100% basis. In this figure, methane emissions from Exploration & Production (E&P) and from Refining and Chemicals businesses are included, but the majority of them comes from E&P.</p> <p>To see the breakdown of methane emissions, please consult Repsol's CDP report, with detailed information of sources and businesses (note that downstream operations are referred to as Refining and Chemical business): https://www.repsol.com/imagenes/global/en/repsol-climate-change-2020_tcm14-205864.pdf</p> <p>The final result is based on application of a combination of different methodologies, from direct measurement, engineering calculations and emission factors. All these methodologies are adequately applied in the different type of assets.</p> <p>The verification of these data is performed annually by a certified third party under ISO 14064-1 Through the verification process it is confirmed that all the calculations, measurement and estimations are robust, and provided confidence in the final data. During 2020, 98% of our GHG inventory was verified, and as every year, we verify CH₄ emissions separately.</p>	<p>The plan for 2021 is continue reporting detailed methane emission information and to start reporting under OGMP 2.0, with more detailed information on sources and methodologies.</p>



Does your organisation report methane intensity?
If so, please specify the intensity.

2020 completed activity	2021 intended activity
<p>Repsol reports and follows a methane intensity figure as its performance most important metric. It is reported annually in our Integrated Management Report: https://www.repsol.com/imagenes/global/en/integrated-management-report-2020_tcm14-209132.pdf</p> <p>As Repsol only operates the Upstream segment of the gas value chain, it is this segment that is included in the methane intensity figure. Regarding the methodology, the OGCI methane intensity metric is followed, and it is referred to the volume of methane that gets lost in the atmosphere when producing oil and gas, as a percentage of the gas sold. This figure takes into account all operated assets on 100% basis.</p>	

Do you have a methane emission target?

2020 completed activity	2021 intended activity
<p>Repsol is committed to reduce methane emission, for that reason in 2018 an intensity-based reduction target was established. The objective is to reduce 25% of methane intensity in 2025 considering 2017 as a baseline and to reach 0.2% methane intensity in 2030. The achievement of this objective is mainly based on three action lines:</p> <ul style="list-style-type: none"> • Implementation of more accurate emission detection and quantification technologies. • Identification and use of technologies for the reduction of emissions. • Transition to a lower emissions portfolio. <p>To see the progress of Repsol's methane intensity target, please consult the website: https://www.repsol.com/en/sustainability/reports-kpis-and-partnerships/sustainability-kpis/climate-change/index.cshtml</p> <p>To achieve consolidated reduction actions several initiatives are being performed, focused on implementing LDAR campaigns in all operated assets, increasing the frequency of these campaigns to better monitor fugitive emissions, and other reduction actions.</p> <p>As an example of reduction actions, in some of the assets, a substantial source of venting is associated with pneumatic devices running on instrument gas. As part of a multi year effort, hundreds of high bleed pneumatic devices were systematically replaced with low bleed ones. From 2017 through 2019 over 2000 devices were converted. The result of converting the high bleed devices to low bleed ones was a reduction of more than 3.000 tonnes of methane.</p> <p>Key benefits of these conversions are:</p> <ul style="list-style-type: none"> - Substantial reduction in GHG emissions including methane - Improvement of our inventory of pneumatic devices - Improved site safety for workers and contractors - Cost recovery through the generation of emission offset credits and a very favourable payback period of less than 12 months in some cases <p>Another example of reduction is the improvement of membranes separation as explained above.</p>	<p>For 2021, Repsol plans to continue working in the reduction plan, implementing every year new reduction actions and implementing new technologies improving the monitoring of methane emissions.</p>



Principle Two:

Advance strong performance across the gas supply chain

2020 completed activity	2021 intended activity
<p>Since 2016 Repsol has joined several global initiatives: OGCI, OGMP and MGP. Repsol had been reporting methane emissions externally and taking action on methane reductions for many years. However, the endorsement to these partnerships has been considered a good opportunity for increasing focus, sharing knowledge on methodologies and technologies and improving scientific and technical understanding of methane emissions in our industry and expanding outreach in order to engage the full value chain in these good practices.</p> <p>Our ambition is to proactively engage with other players in the value chain, including joint venture partners in the gas production and transportation sector, to encourage them to commit to comparable efforts.</p> <p>In 2020 Repsol reconfirmed its endorsement to OGMP in its new version OGMP 2.0. Thanks to this commitment, we start engaging our partners in our non operated assets, and implemented some actions internally in order to try to eliminate barriers in future agreements. Through the Methane Guiding Principles (MGP) Repsol actively participated in an NOJV initiative, sharing knowledge and best practice amongst the companies involved and proposing new actions for 2021.</p>	<p>The plan for 2021 is to engage partners to improve methane reporting and perform a plan to achieve the OGMP Gold Standard for all non operated assets by 2025.</p> <p>Through MGP Repsol plans to perform an Outreach Programme in Spain and another one in Malaysia together with other MGP operators and to continue participation in the NOJV working group, sponsoring one activity stream and participating in other activities led by other companies.</p>



Principle Three:
Improve accuracy of methane emissions data

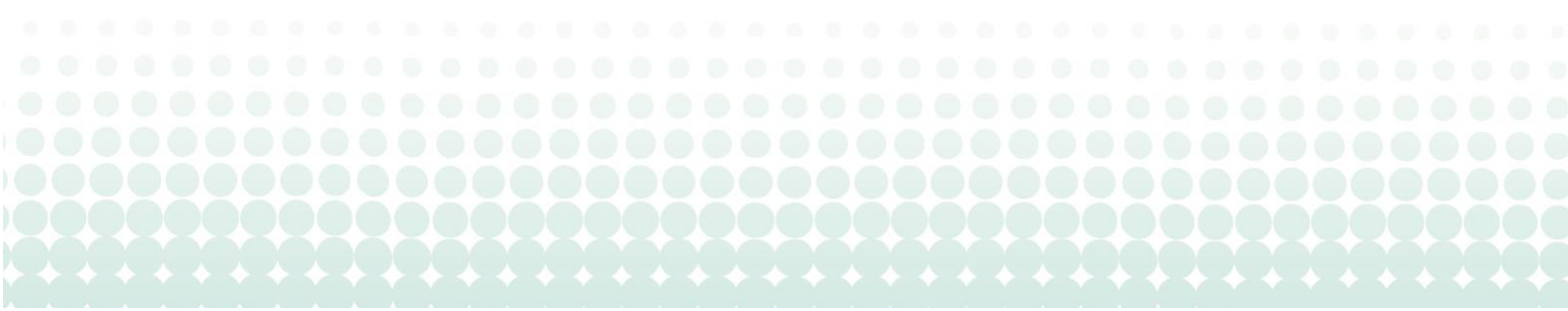
2020 completed activity	2021 intended activity
<p>Repsol acknowledges the difficulty of reporting with accuracy and the challenge of continuous monitoring.</p> <p>Investments in technological innovation, through our Corporate Venturing Fund and OGCI-CI (Oil & Gas Climate Initiative – Climate Investments), will help improve capability to reduce emissions over time and improve the accuracy of monitoring.</p> <p>Besides that, Repsol is supporting the development of technologies for remote sensing (drones, aircrafts, satellites, etc.) through the OGCI-CI.</p> <p>Repsol believes that the reconciliation top-down and bottom-up data is the way to move forward in CH₄ emissions quantification, which helps us to improve our performance and transparency. Testing new and emerging technologies such as drones, aircrafts and satellites will help us to deliver real reductions.</p> <p>During 2020 a pilot in an onshore E&P facility was launched with Seekops, who offer a combined solution of drones and analytics. The results were not used in our methane reporting, but the idea is to consolidate this kind of technology in order to use it to improve the accuracy of future reporting.</p>	<p>In 2021 and the following years an internal plan for technology deployment to improve current reporting and monitoring will be executed.</p>



Principle Four:

Advocate sound policy and regulations on methane emissions

2020 completed activity	2021 intended activity
<p>2020 has been a key year for methane regulation with the publication of the EU Methane Strategy and the official launch of OGMP 2.0.</p> <p>Governments have a pivotal role in developing and implementing policy and regulation that achieve ambitious methane emission reduction outcomes. For that reason, Repsol, together with bp, the Environmental Defense Fund (EDF), Eni, Equinor, the Florence School of Regulation, the Rocky Mountain Institute, Shell, Total, and Wintershall Dea, proposed a number of policy recommendations to the European Commission in May 2020 aimed at driving the reduction of methane emissions within the framework of Europe's Green Deal.</p> <p>In October 2020 the European Commission launched the EU Methane Strategy to reduce methane emissions. In our continuous pursuit of transparency, we strongly support the Commission's proposal on monitoring, reporting, and verification (MRV) processes for energy-related methane emissions, building on the methodology established by the Oil & Gas Methane Partnership (OGMP). The establishment of an independent international methane emissions observatory is key for transparency and will enable industry to unify criteria and methodologies.</p> <p>In November 2020 the official launch of OGMP 2.0 took place and Repsol and more than other 60 companies from the O&G sector confirmed its commitment to achieve the Gold Standard reporting.</p>	<p>Repsol's plan for 2021 includes to continue support the EU in the coming legislation and continue the advocacy of recommendations submitted to the EC.</p>



Principle Five:
Increase transparency

2020 completed activity	2021 intended activity
<p>In 2020, Repsol has included more detailed information in the website and in the Integrated Management Report, compared to 2019. The CDP response provide detailed data with breakdown by source.</p> <p>In October 2020 Repsol’s endorsement to the new version of OGMP was reconfirmed, which is an important step forward to show commitment to improve reporting and deliver real reductions.</p> <p>The OGMP is a Climate and Clean Air Coalition initiative led by the UN Environment Programme, in partnership with the European Commission, the UK Government, the Environmental Defense Fund, and leading oil and gas companies. Already 62 companies with assets on five continents representing 30 percent of the world’s oil and gas production have joined the partnership.</p> <p>The OGMP 2.0 is the new gold standard reporting framework that will improve the reporting accuracy and transparency of anthropogenic methane emissions in the oil and gas sector.</p>	<p>For the coming years, participation in OGMP 2.0 will bring more accurate and comparable data, and will allow the company to increase transparency, which is a top priority for Repsol.</p>

Commentary:

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