



METHANE
GUIDING
PRINCIPLES

Methane Guiding Principles Signatory Reporting

PAO NOVATEK

July 19th 2021





COMPANY: **PAO NOVATEK**

DATE: **July 19th 2021**

YEAR OF JOINING METHANE GUIDING PRINCIPLES: **2020**

SENIOR REPRESENTATIVE: **Mark Gyetvay, Deputy Chairman of the Management Board**



Principle One:
Continually reduce methane emissions

2020 completed activity	2021 intended activity
<p>Russian environmental standards consider methane as a pollutant, and methane emissions must be accounted for and compensated by environmental payments (in 2020, the pay rate is USD 1.6 for 1 ton of CH₄), and in the case of exceeding the established limits the emissions must be compensated by fines (hundredfold increase). In addition, methane is the main component of NOVATEK’s commercial products, and its loss contradicts the Company’s commercial interests.</p> <p>Lean Production Program. In 2020, we implemented a project for sustainable use of produced water at our East-Tarkosalinskoye field. Previously, reservoir water, which is produced along with hydrocarbons, was sprayed in horizontal flares to evaporate at a high temperature, causing emissions. The new technical solutions reinject produced water into wells to maintain reservoir pressure to avoid produced water flaring as well as avoid pollutant emissions including methane emissions.</p> <p>In 2020, NOVATEK joined the Methane Guiding Principles (MGP) Initiative to implement new methods and practices to further determine, prevent and reduce methane emissions based on MGP Best Practice Guidance.</p>	<p>Our 2021 environmental improvement plan to reduce methane emissions will be achieved in several directions:</p> <ul style="list-style-type: none"> - Waste heat exchangers are used at gas compressor units and power plants for heat generation to replace boiler fuel gas. Fuel gas savings through such replacement with secondary energy resources also has a secondary benefit on emissions reduction. - Using solutions to reinject produced water into wells instead of flaring using horizontal flare units. - Reduction of emissions in the process of well testing (gas and gas condensate wells).



What are your organisation's total methane emissions?

2020 completed activity	2021 intended activity
<p>2020 emissions data will be presented in 2021.</p> <p>NOVATEK's methane emissions reporting scope covers production, processing and LNG production facilities of the Company's subsidiaries and joint ventures. Methane emissions are calculated based on the Company's share in hydrocarbons production.</p> <p>The following core assets are included in methane emissions scope:</p> <ul style="list-style-type: none"> OOO NOVATEK-Yurkharovneftegas 100% OOO NOVATEK-Tarkosaleneftegas 100% AO Arcticgas 50% ZAO Nortgas 50% OOO Yargeo 100% OAO Yamal LNG 59.97% ZAO Terneftegas 51% AO NOVATEK-Pur 100% OOO Arctic LNG 2 60% OOO NOVATEK-Purovsky plant 100% OOO NOVATEK-Ust-Luga 100% OOO Cryogas-Vysotsk 51% OOO NOVATEK-Chelyabinsk 100% OOO NOVATEK-Transervice 100% OOO NOVATEK-Energo 100% OOO Sabetta International Airport 59.97% <p>NOVATEK's subsidiaries and joint ventures use over 20 methods to calculate methane emissions to estimate methane emissions as a separate compound. The methods are adapted to specific types of activity or equipment, responsible for hydrocarbons emissions. In particular, feed and fuel gas composition, gas consumption and equipment operating time, the conditions for the emissions discharge to the atmosphere (temperature, pressure, flow rate, presence of related substances) are taken into account.</p>	<p>In 2021, methane emissions are expected at 8.4 thousand tons due to expected production growth.</p> <p>NOVATEK's methane emissions reporting scope covers production facilities, hydrocarbon processing facilities, and LNG production facilities for Company's subsidiaries and joint ventures. Methane emissions are calculated based on the Company's share in hydrocarbon production. The growth is expected at OOO NOVATEK-Chelyabinsk 100%, OOO Arctic LNG 2 60%, OOO Obskiy LNG 100%.</p>



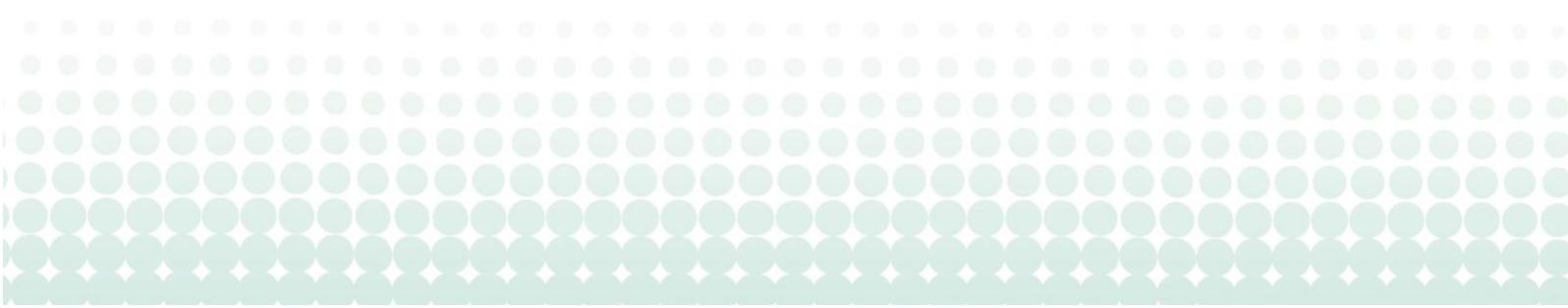
Does your organisation report methane intensity?
If so, please specify the intensity.

2020 completed activity	2021 intended activity
<p>To calculate methane emissions intensity, gross methane emissions (from production, hydrocarbon processing and LNG production) in the numerator are divided by hydrocarbon production (gas, gas condensate, oil) in mln boe in the denominator.</p> <p>The numerator data is received directly from the operational sites based on instrument measurements and certified equipment methodologies that take into account the composition and volume of fuel consumed and transported feedstock.</p> <p>The denominator data is derived from well measuring gauges, and the data is converted to boe in accordance with the hydrocarbon mix composition at each field.</p> <p>In 2020, methane emissions per unit of production for production, processing and LNG facilities stood at 14.44 tons per mboe.</p>	<p>To calculate methane emissions intensity, gross methane emissions (from production, hydrocarbon processing and LNG production) in the numerator are divided by hydrocarbon production (gas, gas condensate, oil) in mln boe in the denominator. In 2021, the estimated methane intensity is 14.5 tons per mboe.</p>



Do you have a methane emission target?

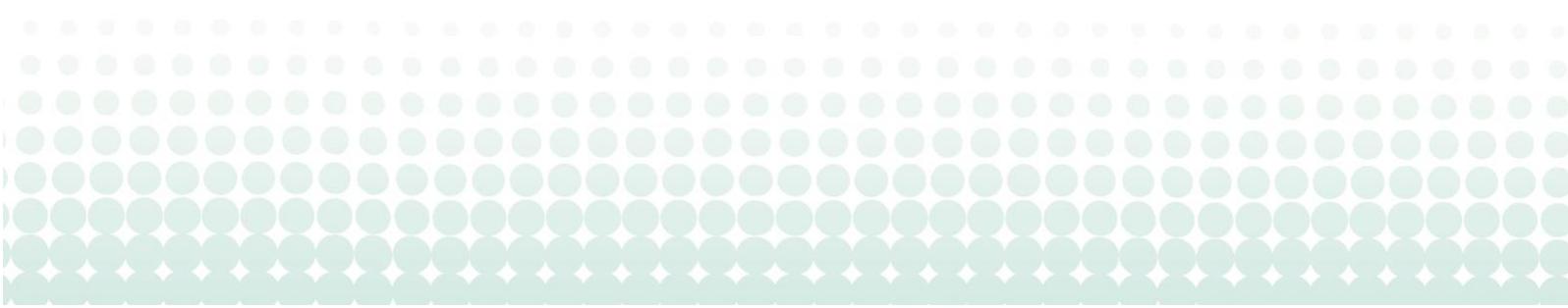
2020 completed activity	2021 intended activity
<p>NOVATEK's targets include production, hydrocarbon processing and LNG production. Targets represent methane emissions intensity (CH₄ emissions in tons per annum per unit of production) compared with the base year intensity (2019).</p> <p>In 2020, NOVATEK approved the target to reduce methane emissions per unit of production in the production, processing and LNG segments by 4% compared to the 2019 level for the period up to 2030.</p> <p>The Company's estimate for 2020 was 13.78 tons per mmboe, the 2020 actual level (14.44 tons per mmboe) exceeded the estimate by 5% due to increased methane emissions as a result of production capacity growth. The North-Russkoye and East-Tazovskoye fields came onstream in 2020 as additional sources of emissions.</p> <p>The overall emissions are a function of production volumes, new operational sites commissioning, implementation of innovative emissions reduction technologies, continuity of operations, and other factors.</p>	<p>NOVATEK's environmental strategy plan extends up to 2030. The Company approved a target to reduce methane emissions per unit of production in the production, processing and LNG segments by 4% compared to 2019 level.</p>



Principle Two:

Advance strong performance across the gas supply chain

2020 completed activity	2021 intended activity
<p>To assess methane emissions across the value chain, NOVATEK strives to interact with companies in exploration and production, supply, processing and marketing to organize relevant research.</p> <p>NOVATEK suppliers are subject to the requirements of the environmental standards in the regions of operations, principles of responsible natural resources use and environmental protection. In 2020, the Company approved the Supplier Code of Conduct for NOVATEK Group Suppliers. NOVATEK expects that its suppliers should comply with the principles of sustainable development included in the Code (https://www.novatek.ru/en/about/management/).</p> <p>To enhance and improve the Occupational Health and Safety (OHS) management system, a memorandum of cooperation for OHS between PAO NOVATEK and AO Total E&P Russie was signed. The memorandum is aimed at promoting long-term, effective and mutually beneficial cooperation through the exchange of best practices and experience in improving the OHS management system.</p>	<p>As part of the initiatives of industry partnerships, alliances and active work with stakeholders, NOVATEK plans to improve the effective mechanisms of methane emissions management (including the best practices for assessing, detecting and eliminating leaks), as well as effective reporting systems in accordance with MGP principles and best practices.</p> <p>In 2021, NOVATEK plans to expand collaboration across the value chain to discuss the Company's targets to reduce methane emissions. In particular, companies will be encouraged to conduct exploration without natural gas venting to the atmosphere, introduce the practice of Associated Produced Gas (APG) and treated wastewater injection into deep absorbing horizons of geological formations, reclaim disturbed lands with restoration of vegetation cover, and apply other practices and technologies to reduce methane emissions and ensure its long-term fixation in the biomass of ecosystems and geological formations.</p>



Principle Three:
Improve accuracy of methane emissions data

2020 completed activity	2021 intended activity
<p>To reduce the negative impact on the environment, a multi-stage environmental operational control system is in place at the Company’s enterprises. The majority of our large industrial enterprises have a chemical laboratory fully equipped for identification and analysis of the emissions composition including methane. Other enterprises engage specialized organizations, which have the necessary equipment and qualified personnel.</p> <p>Most of the Russian methodologies used for methane emissions calculation do not use generic emissions factors. On the contrary, their core basis is modelling, direct measurement statistics and mass balance approach. The methodologies are elaborated for calculating methane emissions from specific sources such as flare units, gas turbine compressor units, tube furnaces, fugitive sources, etc.</p>	<p>Russian developers are updating the methodologies for methane emissions calculations, and currently this process is also encouraged by the state regulator. In 2019-2020, the Russian Federation Ministry of Natural Resources and Environment started building a special register of methodologies for calculating emissions. The developers need to pass through an approval procedure by the Ministry to be included in the register. During 2021, NOVATEK will monitor the process of updating the methodologies, interact with the developers and the regulatory bodies in order to improve the accuracy of data calculations at NOVATEK Group.</p> <p>In addition, in 2021, we plan to further expand and improve the instrumental, laboratory and methodological base for industrial control of atmospheric emissions of pollutants, including methane.</p>





Principle Four:

Advocate sound policy and regulations on methane emissions



2020 completed activity	2021 intended activity
<p>NOVATEK advocates efficient methane emissions policies and regulations to stimulate early actions, help to improve performance, and to ensure compliance, flexibility and innovation.</p> <p>In 2020, the Russian Gas Society, including NOVATEK as a member, applied to the Russian Federation Government with an initiative to remove methane from the list of pollutants in order to avoid double counting in regulation of CH₄ emissions - as a toxic pollutant and as a greenhouse gas. This initiative is related to the ratification of the Paris Agreement by the Russian Federation in September 2019 that will require Russian oil and gas companies to take additional measures to reduce methane emissions. The Federal Law <i>“On the state regulation of greenhouse gases emissions and absorption”</i> is meant to become the main framework document regulating GHG emissions. This Law’s draft prepared by the Ministry of Economic Development is currently undergoing discussion and approval procedures.</p> <p>In order to create a universal methodology for determining pollutant emissions during APG flaring, a <i>“Methodology for calculating emissions from projected flare unit considering the air feed to the combustion zone”</i> was developed for our subsidiary Yargeo.</p> <p>The methodology implements the methods for quantifying the maximum one-time and gross atmospheric emissions capacity from flare units taking into account the volume of ventilated and injected air feed to the combustion zone during APG flaring.</p> <p>According this methodology, the following pollutants are accounted for at Yargeo: carbon monoxide CO, carbon dioxide CO₂, nitrogen monoxide NO, nitrogen dioxide NO₂, soot (<i>“black carbon”</i> C), benzo[a]pyrene C₂₀H₁₂, sulphur dioxide SO₂, residual methane CH₄ (chemical underburning).</p> <p>In 2020, a project to inject APG into deep absorbing horizons while producing oil from the Yarudeyskoye field helped Yargeo to achieve an APG utilization target (95%), while cutting direct GHG emissions by 1.2 mmt</p>	<p>In 2021, the <i>“Strategy for socio-economic development of the Russian Federation with the low GHG emissions levels until 2050”</i> is expected to be elaborated and approved. The Strategy pays considerable attention to the carbon sink capacity of forests and other ecosystems. NOVATEK plans to participate in the discussion of legislative initiatives and strategic documents related to the regulation of GHG emissions (including methane) and other activities towards the business climate neutrality and regions of its operations considering the absorbing capacity of ecosystems and geological formations.</p> <p>In 2021, NOVATEK awaits the approval of the <i>“Methodology for calculating emissions from projected flare unit considering the air feed to the combustion zone”</i> by the Ministry of Natural Resources and Environment of the Russian Federation to be implemented at Yargeo. From 2021, the determination of the APG flaring at Yargeo will be conducted in accordance with the new methodology.</p>



Principle Five:
Increase transparency

2020 completed activity	2021 intended activity
<p>NOVATEK’s methane emissions disclosure includes:</p> <ul style="list-style-type: none"> - Annual Reports for federal statistical observation according to Rosstat templates. The data goes into the regional and federal reports on environmental protection (in particular, state reports on the environmental protection in Yamal-Nenets Autonomous Region are published on the following website at https://dprea.adm-nao.ru/ekologiya/doklady-o-sostoyanii-okrzhayushej-sredy-v-neneckom-avtonomnom-okruge/, in Leningrad Region, at https://nature.lenobl.ru/ru/deiatelnost/ohrana-i-monitoring-okrzhayushej-sredy/); - NOVATEK’s Sustainability Report (https://www.novatek.ru/en/development/). <p>NOVATEK annually reports on its GHG emissions including methane emissions, and energy efficiency of operations via the global Carbon Disclosure Project (CDP, https://www.cdp.net/en).</p>	<p>The Company will improve its reporting on the results and planned activities for methane emissions control and reduction in NOVATEK’s Sustainability Report 2020 (the Report will be published in July 2021)</p> <p>The Company is planning to support a program to standardize the external methane emissions reporting to simplify the preparation process with possible participation of other organizations.</p>

Commentary:

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