

Methane and GHG Emissions Management Issues in LNG

- Policy, markets, and companies - December 2025

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Introduction

The report outlines global advancements in methane management and greenhouse gas reduction strategies within the energy sector, notably in the LNG industry, as of late 2025. There has been the increasing use of satellite and aerial monitoring technologies to detect emissions. Regulatory landscapes are shifting, featuring new Canadian emission rules, legal challenges to American policy shifts, and evolving European compliance frameworks for gas importers. Announcements were made on international partnerships involving Japanese firms to develop e-methane and biomethane projects in North America. Progress in Japan was showcased through the initiation of carbon capture and storage exploratory drilling.

[Global Developments]

GHGSat meets OGMP 2.0 *Level 5* requirements using aircraft-based technology:

GHGSat Inc. announced in mid-November that an evaluation by the Methane Emissions Technology Evaluation Center (METEC) had confirmed that GHGSat's aircraft-based technology, *DATA.AIR*, demonstrates high methane performance and is capable of meeting the measurement requirements for OGMP 2.0 *Level 5* certification. *DATA.AIR* can detect methane emissions of less than 5 kg per hour with a 90% probability of detection.

Woodside takes to the skies to detect and measure: Australia's Woodside announced in late November that it had introduced a helicopter equipped with *Gas Mapping LiDAR* (light detection and ranging) technology to detect and measure methane emissions at the company's Western Australian onshore assets. In October the Heliwest-operated helicopter, fitted with Bridger Photonics' *LiDAR* sensor, scanned the facilities.

MOU reached on fossil fuel resource development in Alberta: Canada and Alberta in late November signed an agreement that encourages the construction of a new oil pipeline to the West Coast and eases certain climate regulations to promote investment. The federal government will not implement an emissions cap on the oil and gas sector and will withdraw emissions-reduction programs under the Clean Electricity Regulations. Alberta will strengthen its carbon pricing framework and commit to supporting CCS projects.

GHGSat launches two new satellites: GHGSat Inc. announced in late November the successful launch of Teodor (C-14) and Laila (C-15) aboard SpaceX's *Transporter-15* mission. GHGSat has launched a total of 16 satellites - 15 dedicated to methane monitoring and one to CO₂ monitoring.

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Thirteen groups file lawsuit over EPA's shift of methane regulations: EDF (Environmental Defense Fund) announced in early December that 13 public health, environmental, and community groups had filed a lawsuit in a U.S. federal appeals court challenging the EPA's final rule that shifts methane emission regulations for the oil and gas industry. The final rule postpones the implementation of the 2024 EPA methane standards.

EUTF discusses implementation of methane regulations: Energy Union Task Force (EUTF) held discussions in early December focused on the implementation of the EU Methane Regulation and energy prices. It was confirmed that two approaches are effective for demonstrating compliance with import requirements, and there was consensus on the importance of a penalty framework that does not undermine security of supply.

GHGSat's methane emissions estimates based on facility-level satellite observations: Researchers from GHGSat, the Netherlands Institute for Space Research (SRON), and Carbon Mapper published in mid-December in the academic journal *Science* the world's first methane emissions estimates based on facility-level satellite observations.

MiQ welcomes EC proposal on certification scheme for EU Methane Regulation: MiQ in mid-December welcomed EC's proposal to recognise robust certification schemes as practical implementation of the EU methane regulation.

EC welcomes EU Council support for the practical implementation of methane regulations: EU energy ministers endorsed in mid-December EC's proposed approach to the practical implementation of importer requirements, while also approving the compliance solutions identified by the Network of Competent Authorities.

Canadian government announces regulations to reduce methane emissions: The Canadian government announced in mid-December final regulations aimed at reducing methane emissions from major sources, including the oil and gas sector. The rules apply to onshore oil and gas production, gas processing, LNG, and transportation facilities, introducing enhanced **LDAR** (leak detection and repair) requirements and stricter controls on venting.

EDF supports EC roadmap for implementation of the EU Methane Regulation: EDF Europe issued in mid-December the statement "The Council is clearly focused on delivery, backing a harmonized approach outlined in the Commission's new roadmap that provides a path forward for national authorities. . . Concerns over energy security are increasingly out of step with market reality. . . Implementing the Methane Regulation now is a low-risk, high-reward step that secures both our energy independence and climate goals."

[Developments in Japan]

An e-methane project in the United States: Osaka Gas, Toho Gas, and Itochu announced in early December a joint development agreement with Tree Energy Solutions

(TES) and TotalEnergies to carry out a FEED (front-end engineering and design) study for an e-methane production project in Nebraska, United States (the *Live Oak* Project). The partners aim to reach an FID (final investment decision) within the fiscal year 2027 (the year ending in March 2028), begin e-methane production in the fiscal year 2030.

An e-methane project in Canada: Tokyo Gas announced in early December an MoU (memorandum of understanding) with Teralta Hydrogen Solutions, regarding an e-methane development project in Manitoba, Canada. The project plans to utilize by-product green hydrogen derived from hydropower-based electricity. An FID (final investment decision) is targeted between the fiscal 2026 year and the first half of the fiscal year 2027 (from April 2026 to September 2027), while commercial operation (COD) is expected within the fiscal year 2030.

Osaka Gas signs an offtake agreement for biomethane in the United States: Osaka Gas USA signed in late November an offtake agreement for biomethane produced in the United States by Archaea Energy, a member of the bp Group. Osaka Gas plans to purchase around 20 tonnes of biomethane from landfill gas-derived biomethane production facilities owned by Archaea. After being liquefied at the Freeport LNG terminal, the biomethane will be shipped to Japan.

JAPEX holds spudding ceremony for CCS exploratory well in Tomakomai: JAPEX held in mid-December a spudding ceremony for the first exploratory well in the Tomakomai area as part of a CCS project. The project envisions JAPEX injecting and storing CO₂ underground after it is separated and captured from exhaust gases at refineries and power plants. An FID (final investment decision) is targeted within fiscal year 2026, with the goal of starting CO₂ storage in fiscal year 2030.

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