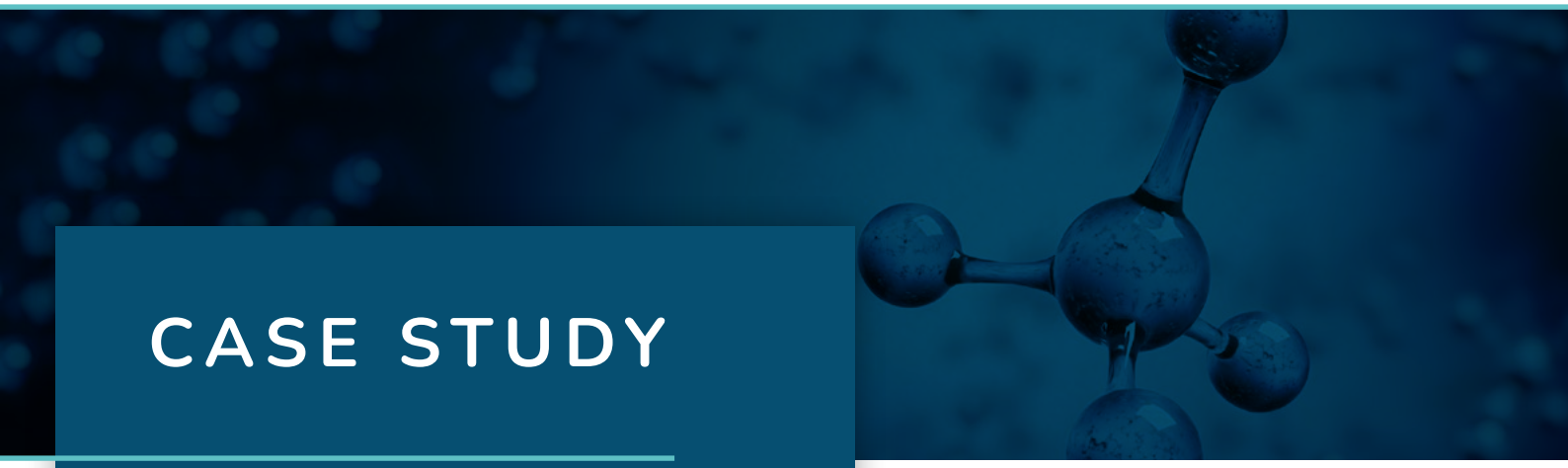
METHANE GUIDING PRINCIPLES

enagas



CASE STUDY

Enagás: Tackling methane emissions in the midstream segment

This case study shows how Enagás reduced methane emissions from its operations in the midstream segment. It presents a number of mitigation measures the company has implemented in this sense, including: annual Leak Detection And Repair (LDAR) campaigns at all its facilities; use of boil-off gas (BOG) compressors in LNG regasification plants; use of air-operated or electric valves in regasification plants and underground storages; replacement of pneumatic actuators with electric ones; and recovery of vents at the transmission grid.

Context

Enagás is the main gas infrastructure operator in Spain and the Technical Manager of the Gas System. It has 11,000 km of gas pipelines, 19 compressor stations, 3 underground storage facilities and 4 LNG regasification terminals. The company is also the main shareholder of two other LNG terminals in Spain. Enagás has also stakes in assets located in Mexico, Peru, the US, Chile, Greece, Albania and Italy.

Since 2013, Enagás has voluntarily calculated and verified its annual carbon footprint, including methane emissions, which constitutes the base for its emission reduction strategy. Enagás is committed to achieving carbon neutrality by 2040 and has defined emission reduction targets aligned with a 1.5ºC scenario.

Enagás has set ambitious methane reduction targets for 2025 and 2030 (45% by 2025 and 60% by 2030 from 2015 levels) in line with the Global Methane Alliance initiative of the United Nations. Numerous mitigation measures have been implemented in recent years, enabling a 36% methane emissions reduction from 2015 to 2021.

Enagás joined the Oil and Gas Methane Partnership 2.0 framework in 2020 and obtained its “Gold Standard” in 2021. This recognises the company’s commitment to reducing methane emissions as well as the company’s efforts to improve the reliability of methane data both for operated and non-operated assets.

Enagás efforts to reduce methane emissions

In 2021, methane emissions represented 23.5% of Enagás' carbon footprint (Scopes 1 and 2). About 70% of these emissions come from vents that release methane during operations, maintenance, safety works or from technical devices and pneumatic valves. The remainder of methane emissions come from fugitive sources (unintentional gas leaks in flanges, connectors and other equipment).

Since 2015, Enagás has reduced its methane footprint by 36% thanks to the implementation of several mitigation measures, including the below.

- Annual **Leak Detection and Repair Campaigns** at all its facilities: In 2013, Enagás started to perform annual leak detection and repair campaigns in a representative sample of its assets. In the last years, Enagás made these campaigns a part of its maintenance and environmental protection practices at all its facilities. This avoided the emission of 5,624 tonnes of CO2e in 2021 and reduced fugitive emissions by 11% compared to 2020. Repairs are carried out in parallel to detection when technically possible. Otherwise, they are identified, labelled and repaired as soon as possible. In 2021, 21% were parallel repairs and 79% planned repairs.
- Use of **boil-off gas compressors** in LNG regasification plants.
- Use of **air-operated or electric valves** in regasification plants, underground storage facilities and transport networks.
- Use of **electric pumps** in all operated facilities.
- Implementation of a **vent gas recovery system** at one compression station, which reduces CO2e by almost 3,500 tonnes per year.
- Continued **replacement of pneumatic actuators with electric ones**, which has prevented in 2021 the emission of almost 200 tonnes of CO2e into the atmosphere.
- Partial **recovery of the compressor vents** at the regasification plants, which has prevented in 2021 the emission of approximately 100 tonnes of CO2e.
- Progressive substitution of natural gas driven turbocompressor for **electric compressors**.
- Use of **in-line compressors, portable compressors/portable flares** to avoid vents in special operations.

In addition, the company continues to make progress in reducing the uncertainty of methane emissions data within the framework of the OGMP 2.0. In this sense, Enagás has carried out several actions, including the following:

- Carried out **top-down measurements** based on different technologies to support better inventory data and working on the reconciliation of source-level and site-level approaches. These measurements were made at all regasification plants, one underground storage facility and one compressor station.
- Development of technical instructions to perform LDAR campaigns in a harmonised way, as well as development of IT platform to save data and information related to LDAR campaigns and monitor performance.
- Implementation of a software application for detailed **monitoring of venting** in the transport network. In addition, Enagás developed technical requirements for monitoring of venting in underground storage and regasification facilities.
- Leadership in **research projects** focused on site level technologies and emissions measurement. This included the participation in one of the GERG Methane Quantification Projects.
- In 2021, Enagás took a stake in SATLANTIS, a leading company in the earth observation market for small satellites. Enagás and SATLANTIS began calibration tests of high-precision optics, which will be inserted into a constellation of space **microsatellites**, known by the acronym GEISAT to detect and quantify methane emissions.

The company also collaborates with regulators and key stakeholders to raise awareness and share knowledge on methane abatement, with the following noteworthy actions in 2021:

- Enagás actively participated in the European Commission's various consultations on legislative developments for monitoring, reporting, verification and mitigation of methane emissions (see EU Methane Strategy and proposed regulation). It also participated in events organised by the European Commission, such as a workshop on the detection and remediation of fugitive emissions in the oil & gas sector.
- Leadership in Oil and Gas Methane Partnership 2.0 Mirror Group meetings, co-chairing the reporting TF and support in the elaboration of related technical guidelines.
- Leadership of the group of experts on gas of the United Nations Economic Commission for Europe.
- Participation in a number of European and international initiatives covering methane emissions, such as MARCOGAZ and the European Gas Research Group.

Find out more

- Oil and Gas Methane Partnership 2.0
- GERG quantification Project
- GRTGaz abating vented emissions
- MARCOGaz
- European Gas Research Group

METHANE GUIDING PRINCIPLES