

Enagás' CH4 emissions reporting, mitigation and commitment

Initial condition

Enagás is a midstream company. It is a leading natural gas infrastructure company in Spain and the Technical Manager of the Spanish gas system. The company's activities include the management, operation and maintenance of gas infrastructure. In Spain Enagás has approximately 12,000 km of gas pipelines, 19 compressor stations, 493 regulation and metering stations, and 3 underground storage facilities. It also owns 4 LNG regasification plants, and it is the main shareholder of other two.

Traditionally, Enagás managed methane emissions predominantly from the safety requirements perspective. However, as energy efficiency and GHG emissions reduction have become strategic priorities for the company, emissions of methane, being a potent short-lived climate pollutant, came to the forefront. The most relevant aspects addressed by Enagás in its climate change management model are: public commitment and the setting of targets, emissions reduction and compensation measures, as well as reporting on performance and results, following TCFD¹ recommendations. Since 2013, the company voluntarily started to annually calculate and verify its Carbon Footprint, which constitutes the base for its emission reduction strategy. Quantification of methane emissions is a part of that process, which is subject to an independent third-party verification in accordance with standard ISO 14064.

Process: the role of leaks detection and repair

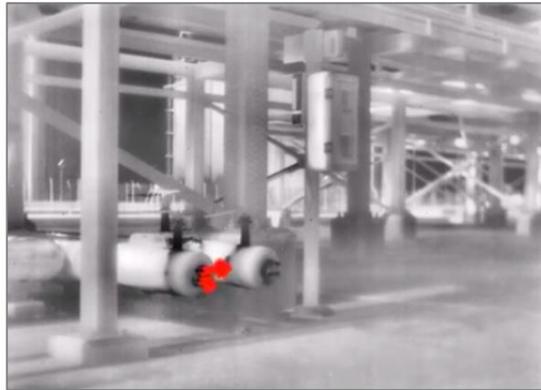
Methane emissions account for approximately 20% of Enagás' greenhouse gas emissions (scope 1 and 2). 70% of these are fugitive methane emissions while the remainder (30%) is primary caused by safety precautions, or by design of equipment (vents). Due to the relatively large share of fugitive emissions, in 2013 Enagás started to carry out leak detection and repair campaigns (LDAR).

Figure 1: Detection and quantification of fugitive emissions with an IR camera and the FID



¹ Task Force on Climate-related Financial Disclosures.

Figure 2: Methane leak detected with an IR camera



LDARs are internalised as a part of maintenance and environmental protection practices at facilities that aim to reduce gas losses. The main lessons learned from the LDAR campaigns include:

- Emissions must be detected and quantified in order to be reduced.
- There is still a great uncertainty associated with quantifying equipment and conversion factors, and there is no standardized methodology of doing so.
- Nevertheless, on-site measurement is currently the most effective and reliable technique for detecting leakage points and quantifying emissions.
- Valves, which are also the most difficult to repair, are the main leaking components in LNG terminals (58% of detected emissions) and underground storages. Connectors are also components that are likely to leak principally in compressor stations (49%), regulation and metering stations, and valve positions.
- The age of the installation is also an influencing variable. In general, there is an upward trend for both emissions and a number of leaks as the age increases.
- The frequency of the campaigns is a determinant factor for reducing fugitive emission, especially in installations where there is a large variation of temperature. The more often measurements and repairs are made, the less fugitive emissions will be released.

In 2019 Enagás updated an internal procedure for planning and frequency of LDAR campaigns in regasification plants, storage facilities, and transmission assets (gas pipeline, regulation and metering stations, sites and compression stations). The goal was to adapt the future campaigns to the specific needs of each particular facility, and to capitalize on the lessons learned from the previous ones. The new procedure includes, among other things, the use of infra-red cameras (for regasification plants and storage facilities) and emission quantifiers as a regular working tools for maintenance.

Additionally, Enagás has develed technical instructions, as well as training sessions on the use of the equipment for leak detection. In order to register and monitor all data obtained in the campaigns, the company has set up an IT platform.

The objective of these actions is to perform from 2020 on, an annual LDAR campaigns in all the company's infrastructures. Achieving that goal will contribute significantly to Enagás' GHG emissions reduction targets.

Results and targets

In addition to LDARs, Enagás has implemented a series of mitigation measures resulting in a 59% drop in methane emissions since 2013. These measures include:

- Optimising compressor stations operations and trying to align them with maintenance works in order to reduce vents;
- Minimise venting through pipelines, by application of such measures as mobile compressors or injection of inert purge gas. When this is not possible, a portable flare gas recovery unit is used;
- Replacing wet seals with dry seals;
- Hot taps for in-service pipeline connections;
- Composite wraps for non-leaking pipeline defects;
- Electric motor starters in compressors;
- Electrical driven chemical plants;
- Replacing pneumatic control valves working with gas with electric, or air devices.

Efforts to address energy efficiency and GHG emission reductions were also bolstered as a part of the corporate culture at all levels of Enagás by setting the specific targets (e.g. average 5% emission reductions from 2018 to 2019-2021) with linkages to variable remuneration of employees. Additionally, the company has defined a Science Based Target (SBT), currently under approval² by the Science Based Target initiative, as a specific methodology for the Oil and Gas sector is under development. Enagás' SBT covers a medium-term target and strives to reach a 25% emissions reduction in 2030 as compared to 2018. A long-term target, having the same reference point, is set to reach a 61% emissions reduction by 2040. Furthermore, the company committed to be carbon neutral by 2050.

Enagás has also joined the Global Methane Alliance (GMA), an initiative set by the United Nations Environment Programme (UNEP) and Climate & Clean Air Coalition (CCAC), and made a commitment that by 2025 it will reduce its methane emission by 45%, as compared to the 2014 figures, and by 60% by 2030.

Enagás' publicly reports its GHG emissions in the company's Annual Report,³ as well as through other initiatives such as e.g. CDP Climate Change.⁴ In addition, Enagás collaborates with the Spanish authorities in order to cover the National Inventory Report.

² Once the O&G Methodology is published, the approval process of Enagás' science-based target will continue and thus the target may be adjusted to the new methodology.

³ Enagás' Annual Report 2018 – Chapter on Climate Change and Energy Efficiency

https://www.enagas.es/WEBCORP-static/InformeAnual2018/sites/default/files/5.7_climate_change_and_energy_efficiency_2018.pdf

⁴ <https://www.cdp.net/en/climate>; Note that Enagás was included in the CDP Climate Change 'A List 2019', which is the the highest rating in the ranking.