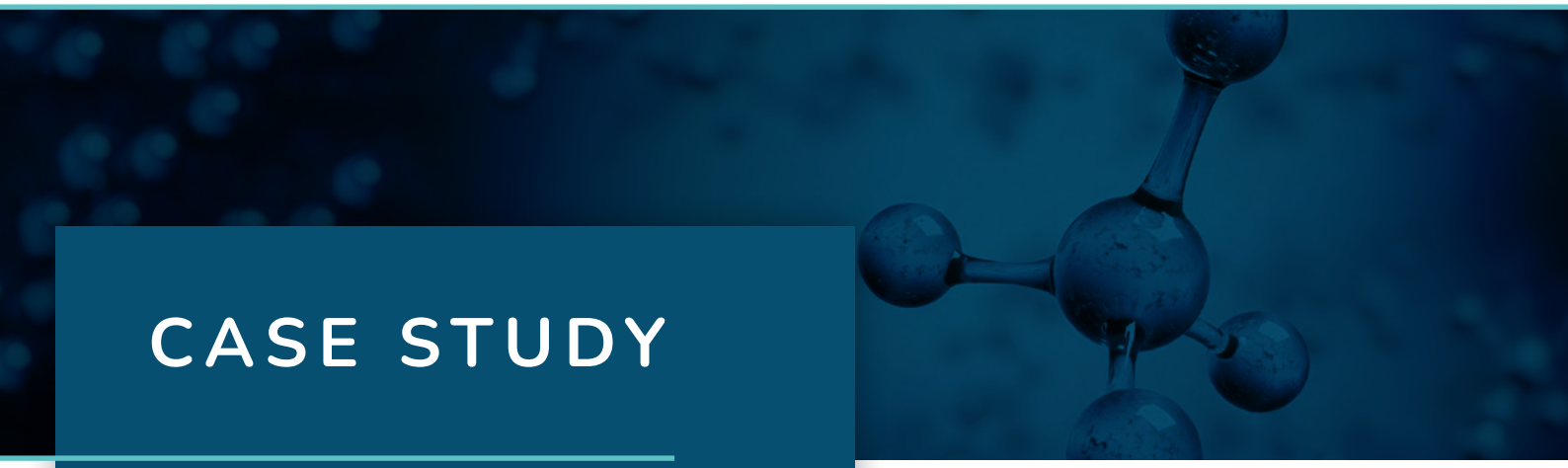
METHANE GUIDING PRINCIPLES

GRTgaz



CASE STUDY

Abating vented emissions in transmission networks

This case study describes different solutions deployed by GRTgaz to reduce venting on its transmission network, to recover or reduce pipeline maintenance vents, compressors vents and even smaller vents on delivery stations. During maintenance works on transmission pipelines, a mix of solutions enabled GRTgaz to save more than 90% of the gas that would otherwise have been vented since 2018. On compression stations, a specifically-designed mobile recompression technology addresses intermediate-sized volumes. In addition, when recovery is not yet possible, a mobile blue flare stack is used to address vents. GRTgaz also implemented a specific multi-year investment plan to eliminate vent leaks and use gas resulting from depressurizations.

Context: GRTgaz is committed to reduce methane emissions

GRTgaz is the main gas transmission system operator in France with more than 32,000 km of pipelines to transport gas from suppliers to consumers connected to its network. GRTgaz has 2 subsidiaries: Elengy, a leader in LNG terminal services in Europe, and GRTgaz Deutschland, a German transport network operator.

In 2016, GRTgaz set an ambitious strategic objective of reducing two-thirds of its methane emissions by 2020. GRTgaz successfully achieved this target through leak detection and repairs programs, extensive quantification campaigns carried out by certified third parties, mobile gas recovery recompression solutions and R&D programs led by the GRTgaz research centre. In 2020, GRTgaz raised this target to a 80% reduction of its methane emissions by 2025 (from the 2016 baseline), representing a decrease of 16.2 kt CH4 from 2016 to 2025.

GRTgaz obtained the Oil and Gas Methane Partnership 2.0 “Gold Standard” in 2021, highlighting the results achieved over the past years, including the improvements in data reliability, and acknowledging the commitment to further reduce methane emissions.

Measures deployed by GRTgaz to reduce vented emissions

In 2021, vented emissions represented approximatively 40% of total gas emissions from GRTgaz operations'. This case study describes different solutions to reduce venting on transmission networks, including measures to recover or reduce pipeline maintenance vents, compressors vents and smaller vents on valve stations.

The combination of measures to prevent vents before maintenance works on transmission pipelines enabled GRTgaz to save more than 90% of the gas that would otherwise have been vented since 2018. This result came from a mix of technological solutions, some of which are mobile and others installed on-site:

- Lowering of pipe section pressure through gas consumption;
- Pump, recompress and reinject gas from a pipe section that will be repaired or maintained, using large recompression mobile units;
- Where recovery is not possible, flaring of the gas through high efficiency systems.

In addition, GRTgaz developed a mobile gas booster technology, the "Quick Booster Access", to address volumes between 5,000 and 20,000 Nm3. This device enables gas pressure reduction by up to 0.5 Bar/hour, and reinjection into the gas system. GRTgaz is currently studying a similar device for volumes between 20,000 and 200,000 Nm3.

Quick Booster Access

Source: GRTgaz

When recovery is unfeasible, methane venting is avoided using mobile flares or thermal oxidizers, which limit noise and radiation impacts (this is key when intervening in urban areas). GRTgaz also developed a flaring system that is handy, ergonomic, silent and fast to deploy. This innovation has a high combustion efficiency, resulting in limited radiation and minimal methane slip.

In 2020, GRTgaz started a multi-year investment plan to reduce venting emissions from compressor stations. The program was budgeted at 60 million euros and aimed to reduce at least 70% of methane emissions related to vents by 2030. The plan is being strengthened and covers the following actions:

- Elimination of vent leaks (isolation valves);
- Recompression or use of compressor depressurization gas;
- Mitigate leaks from the compressor seals (nitrogen sealing or recovery);
- Limit automatic depressurization of compressor units related to emergency shutdowns.

The program involves technical studies, feasibility assessments, implementation projects and research & development to deploy solutions such as recovery compressors, mobile compressors, nitrogen injection technologies or “zero emissions stations”.

The deployment strategy is based on three pillars. First, feedback from experimental projects carried out between 2018 and 2022; second, the asset management vision for the coming years; and third, preparatory studies to develop the most cost-effective solutions and prioritised sites. This strategy starts from a global vision, which is translated into a technical and financial trajectory.

A catalogue of solutions was developed based on the first pilot projects, including a solution for low-pressure gas, and one for slow depressurization. These solutions embody the “zero emissions station” concept currently deployed by GRTgaz in its compressor station. Also, GRTgaz developed a solution (called DTR) that allows the recovery of the gas that would have been otherwise vented during maintenance activities on valve stations. This technique is applied for volumes from 1 to 5 Nm3.

To learn more about efforts to reduce emissions in the downstream segment, see the case study Enagás: Tackling methane emissions in the downstream segment or some of the regional industry initiatives, such as MARCOGAZ or Eurogas.

Find out more

- Oil and Gas Methane Partnership 2.0
- Enagas tackling emissions in the downstream segment
- MARCOGaz
- European Gas Research Group
- MGP best practice guides

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