CLEAN AIR TASK FORCE

CARBON LIMITS

Methane Abatement in Argentina's Oil and Gas Sector

This fact sheet presents findings for Argentina from a broader study assessing the costs and financial implications of methane abatement measures across nine countries in Africa and Latin America. The study aims to support regulators in designing appropriate incentives and policies to guide and prioritize the deployment of abatement technologies.

Estimates of abatement potential and mitigation costs are developed at the country level, accounting for real-world constraints including existing policy frameworks, ease of deployment, and prevailing industry practices. Four key abatement measures were analyzed: leak detection and repair (LDAR) programs, installation of vapor recovery units (VRU) for storage tanks, replacement of natural gas-driven pneumatic equipment with electric or air-driven alternatives, and improved flaring practices. Additional technologies, operational practices, and regulatory approaches can further drive methane reductions but are beyond the scope of this study. The full report, published in June 2026, is available via the QR code.

SCAN TO READ FULL REPORT

Key figures

Estimated annual emissions[1]

1,363 kt methane

(40.6 Mt CO_2e)

Emissions analyzed[2]

708 kt methane

(52% of estimated emissions)

Technical abatement possible from analyzed technologies

32%

of estimated emissions

Low-cost abatement potential from analyzed technologies[3]

30%

of estimated emissions

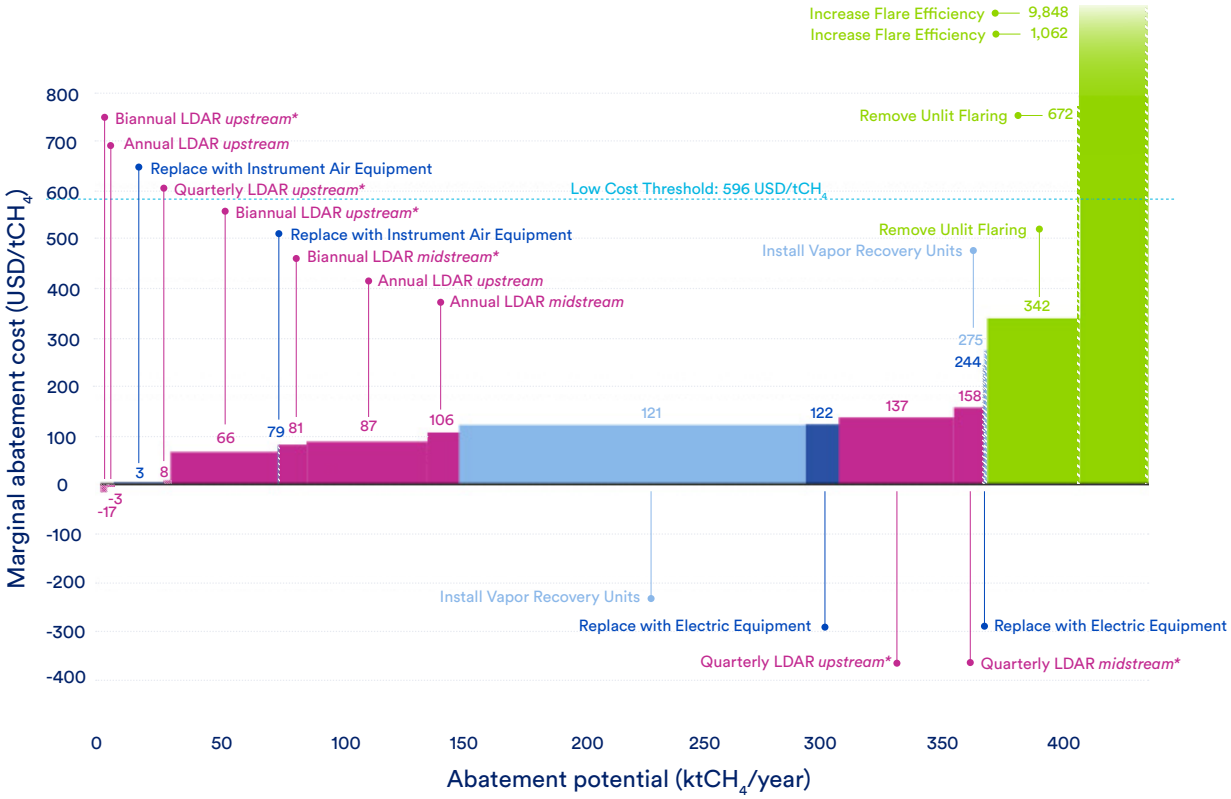
Current policies and practices

Argentina's natural gas system is key to the national energy economy, supplying around half of primary energy demand and more than 50% of electricity generation[4]. Argentina's growth prospects depend on scaling up gas production and infrastructure to enhance energy security and exports, with the Vaca Muerta shale, one of the world's largest unconventional resources, expected to drive significant output growth. The system relies on an **extensive transmission network** that has historically faced some capacity constraints, combined with limited underground gas storage and strong seasonal demand variability. Recent pipeline expansions have improved gas transport capacity, but operational challenges remain.

Argentina's legal and regulatory framework for addressing methane emissions in the oil and gas sector is still **nascent and fragmented.** At the federal level, methane-specific regulations are currently limited to venting and flaring restrictions[5] and provisions addressing evaporative losses for storage tanks.[6] A National Program for the Measurement and Reduction of Fugitive Emissions from hydrocarbon exploration and production activities[7] was established in 2023, but implementing regulations are still pending. In 2024, a comprehensive draft federal law[8] was proposed to establish minimum standards for methane emission measurement, reporting, and reduction across the value chain, but it has not yet been approved. In parallel, **oil- and gas-producing provinces** of Chubut, Neuquen, and Mendoza **have started implementing their own regulatory frameworks**[9,10,11,12], including requirements for emissions management plans and LDAR programs.

Methane mitigation deployment is constrained by the high costs for advanced technologies, a limited pool of local service providers, and economic instability, which has limited the entry and expansion of foreign technology and service providers despite a recent easing of rules around equipment imports and providing new tax incentives for the oil and gas industry. The absence of a carbon price and limited targeted incentives further complicate project economics, despite growing operator engagement and increasing deployment of mitigation measures.

Argentina Marginal Abatement Cost Curve for Selected Mitigation Options



Abatement technologies

Leak detection and repair (LDAR) | Replace natural gas driven equipment | Offshore

Improve flaring practices | Install vapor recovery units (VRU) for storage tanks

**Biannual costs reflect costs of increasing from annual to biannual. Quarterly costs reflect costs of increasing from biannual to quarterly*
Based on emissions data from International Energy Agency (2025) Methane Tracker Database - IEA; as modified by Carbon Limits/CATF

Analysis

Mitigation economics largely depends on whether recovered methane can be monetized: when gas can be sold, marginal abatement costs fall; when it is flared or reinjected, costs rise. This dynamic explains why some measures, such as the implementation of LDAR programs in the offshore upstream segment, show negative abatement costs, as recovered gas generates net savings. These savings rely on assumptions regarding gas marketability and prices. In this analysis, 100% of recovered gas midstream and 85% of recovered gas upstream is assumed to be currently brought to market at a price of approximately 3 USD/MMBtu. Under these assumptions, most mitigation measures assessed fall well below the low-cost threshold of 596 USD/t CH_4 (20 USD/tCO_2e).

Within this marginal abatement cost curve (MACC), the installation of VRUs on storage tanks in the onshore upstream segment delivers the largest single abatement potential, with approximately 144 kt of methane emissions reductions per year at a marginal abatement cost of around 121 USD/t CH_4. LDAR programs and the replacement of natural gas-driven pneumatic equipment also remain low- to moderate-cost range. Higher marginal costs are associated with the elimination of unlit flaring and the implementation of improved flaring systems, as flaring is distributed across a lot of sites, which increases costs of abatement as it requires individual investments for each flare. As a result, the emissions reductions achieved associated to improving flaring practices are limited compared with the level of capital investment required to implement these measures.

Overall, deploying the full portfolio of considered abatement measures could result in 436 kt of methane emissions reductions per year at a net cost of around USD 82 million/year. *If all recovered upstream gas were assumed to be saleable at 3 USD/MMBtu, net abatement costs could decline to around USD 79 million/year.*

Summary of analyzed mitigation technologies in Argentina

For further details, please refer to the mitigation technology fact sheets for each abatement technology.

Leak detection and repair (LDAR)

Implementation of Leak detection and repair programs at quarterly inspection frequency

Ease of deployment	Current practices	Abatement potential	Marginal abatement cost
Intermediate	Medium adoption	188 kt CH_4 abatable	96 USD/tCH_4

- LDAR programs are not yet mandated nationwide in Argentina. However, the province of Chubut has recently introduced a requirement for operators to submit an annual LDAR plan[13]; however, the inspection frequency remains at the operator's discretion.
- In practice, LDAR deployment is driven mainly by voluntary company commitments. Several international and domestic operators conduct periodic LDAR campaigns using a range of technologies, such as Optical Gas Imaging (OGI) cameras, ultrasonic chambers, and aerial detection tools. However, LDAR coverage and frequency across the sector remains uneven.
- Wider deployment is constrained by a limited pool of specialized local service providers, higher costs due to reliance on imported equipment and expertise, and sometimes complex site access conditions.

Improve flaring practices

Improvement of flaring practices through increased flare efficiency and elimination of unlit flaring

Ease of deployment	Current practices	Abatement potential	Marginal abatement cost
Intermediate	Low adoption	67 kt CH_4 abatable	788 USD/tCH_4

- Argentina does not impose strict performance, monitoring, or repair requirements for flaring systems. Regulation is largely limited to restrictions on venting volumes under petroleum legislation, with any gas authorized for disposal required to be combusted in accordance with appropriate operating procedures[14].
- Operationally, several operators prioritize reducing flare volume rather than optimizing flare performance and have taken steps to eliminate routine flaring. These efforts include investments in gas evacuation infrastructure, zero-routine-flaring facility design, and gas utilization or monetization solutions.

Install vapor recovery units for storage tanks

Installation of vapor recovery units (VRUs) on storage tanks

Ease of deployment	Current practices	Abatement potential	Marginal abatement cost
Intermediate	Medium adoption	145 kt CH_4 abatable	123 USD/tCH_4

- There is currently no national regulation mandating the installation of VRUs in Argentina. As a result, VRU deployment remains operator-driven and uneven. Several international and domestic operators have deployed VRUs across both existing and new facilities. In some cases, performance issues have been reported, but operators are actively working to improve system reliability and equipment uptime.
- Deployment remains sensitive to high installation costs, operational complexity, and uncertain economic returns, as recovered gas must generate sufficient value to ensure a reasonable payback period.

Replace natural gas driven equipment

Replacement of natural gas-driven pumps and controllers with electric or air-driven alternatives

Ease of deployment	Current practices	Abatement potential	Marginal abatement cost
Easy	High adoption	36 kt CH_4 abatable	53 USD/tCH_4

- Argentina does not compel operators to phase out natural gas-driven pneumatic equipment, leaving decisions on the use of pneumatic or zero-emissions pumps and controllers to operators. Although instrument air and electric systems are already commonly adopted across the sector, natural-gas-driven pneumatics remain in use in some operations. However, conversion efforts are ongoing, with some domestic and international operators actively transitioning remaining pneumatic systems to instrument air or electric configurations.

Legend
Ease of deployment: indicator of how easily an abatement measure can be deployed at scale, considering regulatory, logistical, and infrastructure constraints.
Current practices: indicator of the level of existing deployment of an abatement measure in the country.

Policy recommendations

Argentina currently lacks a dedicated federal methane regulatory framework, with current provisions limited to venting, flaring, and evaporative loss controls for storage tanks. A national fugitive emissions program was launched in 2023, but national implementation of LDAR campaign, improving flaring practices, installing VRUs and replacing natural gas-driven equipment is pending, while several provinces have begun introducing their own methane-related requirements. **In the near term, establishing or strengthening basic regulatory requirements** (such as periodic LDAR surveys or restrictions on natural gas-driven pneumatic equipment) could support wider uptake of low-cost mitigation options. Several measures, including LDAR, replacement of natural-gas-driven pneumatic devices, and installation of VRUs, exhibit low or even negative marginal abatement costs, yet adoption has so far been uneven and relied largely on voluntary operator initiatives. **Expanding provincial requirements** would allow regulators to **prioritize measures most relevant to local production characteristics and infrastructure constraints**, while a federal framework could enhance consistency across jurisdictions. In parallel, for provinces that have already started to introduce methane requirements, the key priority can be **effective implementation and enforcement** to translate regulatory provisions into measurable emissions reductions.

In the longer term, Argentina could **focus on implementing higher-cost mitigation options through regulation**, possibly **supported by international climate or carbon financing** where appropriate. While standalone improvements to flaring efficiency are not eligible for carbon finance, projects that reduce flared volumes through gas utilization, may be eligible.

Methodology

This study estimates methane abatement potential and costs using a bottom-up marginal abatement cost curve (MACC) approach. The analysis covers four emission sources in the oil and gas sector (flaring, fugitive equipment leaks, tanks, and natural gas-driven pneumatic equipment) and evaluates a set of abatement measures for each source.

Abatement potential and costs were refined through fifteen interviews with stakeholders operating in Argentina, including government representatives, oil and gas companies, and technology and service providers. These interviews were complemented by a comprehensive literature review and informed assumptions on technology deployment, applicability, performance, implementation costs, and operational practices, ensuring the analysis reflects local conditions. Where recovered gas can be sold, revenues are deducted using local gas prices where available, or international benchmark prices adjusted to netback values. Country-specific MACCs were then developed using local discount rates to reflect national investment conditions and financial risks.

While this study focuses primarily on abatement costs, methane mitigation is driven by a broader set of benefits, including improved operational safety and asset integrity, enhanced local air quality, immediate climate gains due to methane's high short-term warming potential, reduced social costs of methane emissions, improved operational excellence or international regulatory compliance.

Scan the QR code at the start of this document for a full description of the methodology and key assumptions. Disclaimer: The figures presented in this fact sheet are based on national-level estimated data and analytical assumptions from 2025. Actual emissions, abatement potential, and costs may vary due to data limitations, site specific conditions, operational constraints, and cost structures. This document is intended for informational purposes only and should not be relied upon as the sole basis for investment, operational, or policy decisions. Regulators are invited to reach out to CATF for further discussions on understanding the assumptions underlying the cost curves and for guidance on the adoption and implementation of methane regulation.

1 Based on data from International Energy Agency (2025) *Methane Tracker Database - IEA*; as modified by Carbon Limits and CATF. For further details, please refer to the methodology report.
2 Emissions analyzed refer to the share of total methane emissions impacted by the abatement measures studied.
3 Low cost refers to a cost less than 596 USD/tCH_4 (20 USD/tCO_2e using GWP 100)
4 International Energy Agency (IEA). (2024). *Argentina – Natural gas.* Available at: https://www.iea.org/countries/argentina/natural-gas
5 Ministry of Energy, Argentina. (1998). *Resolution 143/1998 – Modification of Resolution No. 236/96, Approve the Rules and Regulations of Gas Venting*. Available at: https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-143-1998-50476/texto
6 Ministry of Energy, Argentina. (2005). *Energy Resolution 785/2005 - National Program for Control of Losses of Air Tanks for Storage of Hydrocarbons and their Derivatives.* Available at: https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-785-2005-107289
7 Ministry of the Economy, Argentina. (2023). *Resolution 970/2023 – National Program for the Measurement and Reduction of Fugitive Emissions from Hydrocarbon Exploration and Production Activities.* Available at: https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-970-2023-394156/texto
8 National Congress (Argentina). (2024). *Minimum Environmental Protection Standards for the Management of Methane Emissions in the Hydrocarbon Sector*. Available at: https://www4.hcdn.gob.ar/dependencias/dsecretaria/Periodo2024/PDF2024/TP2024/2898-D-2024.pdf
9 Province of Chubut. (2024). *Resolution 58/2024 – Regulation of methane emissions from hydrocarbon activities.* Available: https://boletin.chubut.gov.ar/archivos/boletines/Octubre%203,%202024.pdf
10 Province of Neuquén. (2025). *Resolution 258/2025 – Program for the Monitoring and Mitigation of Greenhouse Gas Emissions in the Hydrocarbon Sector.* Available at: https://ambiente.neuquen.gov.ar/wp-content/uploads/2025/04/resolucion-258-2025-1.pdf
11 Province of Mendoza. (2025). *Decree 758/25 – Comprehensive Provincial Program on Greenhouse Gas Emissions.* Available at: https://boe.mendoza.gov.ar/publico/pdf_pedido/ccd75cbb905f651ff72ec0087dfcb253d291579748
12 Province of Neuquén. (2025). *Official Gazette, Issue No. 4563.* Available at: https://boficial.neuquen.gov.ar/Boletines/boletin_4563.pdf
13 Province of Chubut. (2024). *Resolution 58/2024 – Regulation of methane emissions from hydrocarbon activities*. Available: https://boletin.chubut.gov.ar/archivos/boletines/Octubre%203,%202024.pdf
14 Ministry of Energy, Argentina. (1998). *Resolution 143/1998 – Modification of Resolution No. 236/96, Approve the Rules and Regulations of Gas Venting.* Available at: https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-143-1998-50476/texto