

2024



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# POLICY BRIEFING

## — Methane leak detection in Spain and importing countries

The leaks monitored in the report are satellite-based and include records from 2022 to March 2024.

\*Emission equivalencies were calculated using the U.S. Environmental Protection Agency (EPA) equivalency calculator.



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# Why is it essential to stop **ANTHROPOGENIC METHANE LEAKAGE?**

Methane (CH<sub>4</sub>) is responsible for 30% of the increase in global average temperature. This gas has a warming potential up to 82 times greater than CO<sub>2</sub>. Its permanence in the atmosphere is lower, so reducing these emissions has a greater short-term impact on the fight against climate change.



The methane emissions detected are 30% of natural origin (most are released from wetlands) and 60% are of anthropogenic origin, i.e., derived from human activity. Most are derived from the exploration, extraction, processing and burning of fossil fuels.



# What are the motivations and **THE MAIN RESULTS?**

[1]

The research report compiles public information on methane detections by different satellites in the oil, gas, coal and waste sectors. The total methane emissions accounted for last year in the fossil fuel sector, according to the International Energy Agency, were 120 million tons), but it also monitors via satellite the uncontrolled or one-off leaks that are recorded on the planet. In general, leaks usually range from one ton of methane per hour to ten or twenty tons per hour.

Thus, according to data from the International Methane Emissions Observatory (IMEO) from 2022 to the first half of 2024, globally 3,697 leaks were monitored, releasing an estimated 74,623 tons of methane into the atmosphere. This is equivalent to driving 464,965 gasoline cars during one year or to what 5.3 gas-fired power plants emit during one year. It should be noted that the detections of leaks are punctual and cannot be considered to still exist today, in addition to the margin of error of remote sensing which is usually 30-40%.

[1] The leaks monitored in the report have been made by satellite and collect records from 2022 to March 2024. The detected leaks have been punctual samplings that cannot be extrapolated to the continuity in the time elapsed since their detection until now.

Leakage from oil and gas exploration or production processes was approximately 40,000 metric tons of methane. This is equivalent to the CO<sub>2</sub> that would be emitted from the consumption of 2.8 million barrels of crude oil.

The waste sector is also guilty of methane leakage, and in fact has increased the most in recent years. So much so that the leaks detected emitted approximately 27,000 tons of methane. This is equivalent to what 172,046 gasoline-powered vehicles emit during an entire year to the energy it would take to charge 94 billion smartphones.



# 40.000 TN

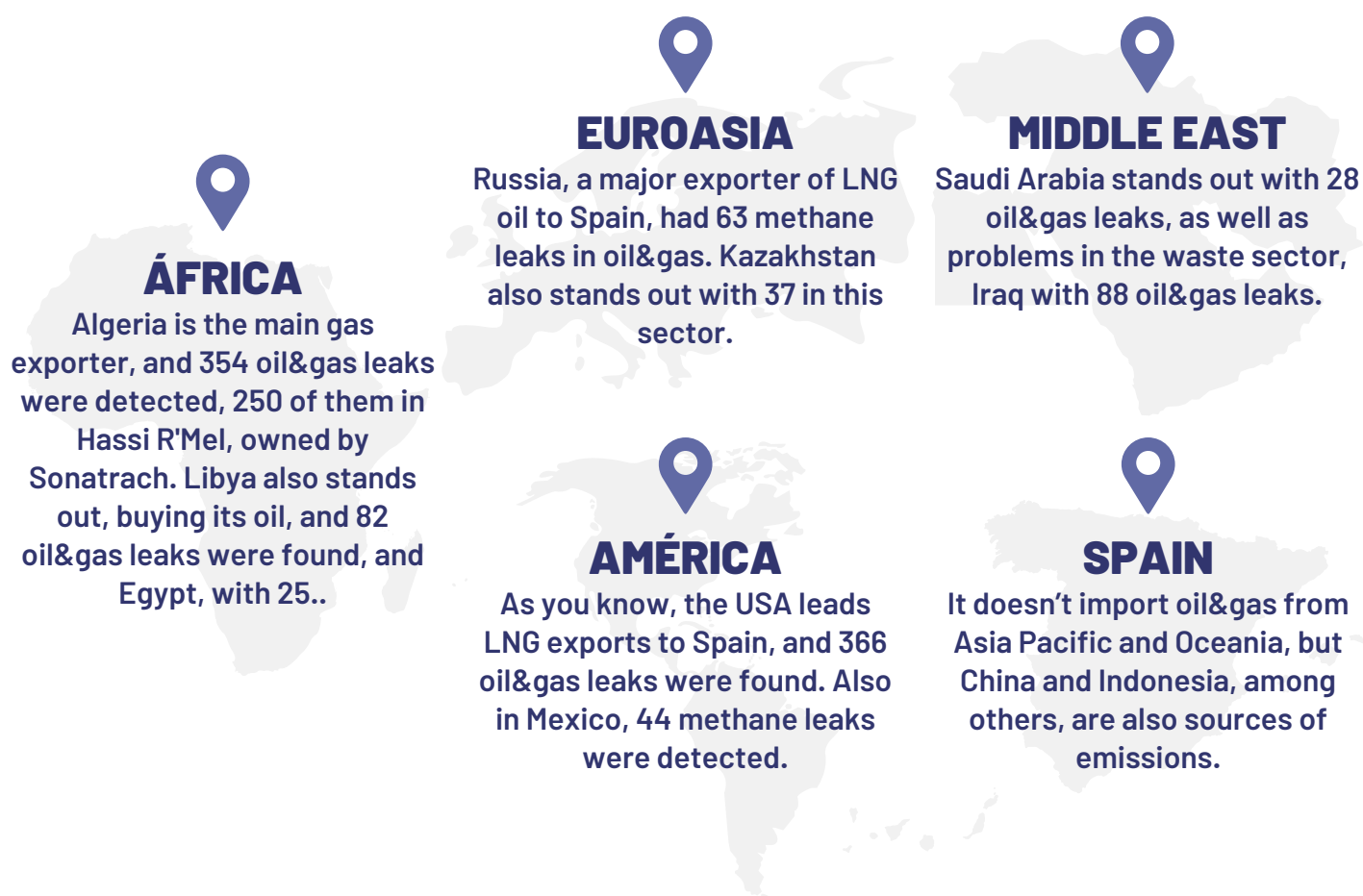
METHANE LEAKS IN OIL AND GAS  
EXPLORATION OR PRODUCTION  
PROCESSES

# 27.000 TN

METHANE LEAKS IN THE WASTE  
SECTOR

# What are the leaks from the countries FROM WHICH SPAIN IMPORTS GAS AND OIL?

The report also collects methane leakage from the energy sector of the main countries that export energy to Spain, having compiled the main importers of gas and oil to Spain during 2023. Thus, the following most outstanding results have been obtained:



# What and where are the methane **LEAKS IN SPAIN?**



In Spain, since it does not have its own fossil sources, i.e. no fossil fuels are explored or produced, satellites are not capable of detecting large methane leaks in energy sector facilities. Most have been recorded in the waste sector. In total: 29 leaks from landfills that emitted 212 tons of methane. This is the equivalent of the CO<sub>2</sub> emitted by the electricity consumption of 1,155 homes for a whole year.

Among the most noteworthy by volume of methane emitted were those detected in the Community of Madrid, specifically at the landfill and biomethanization plant in Pinto and the Las Dehesas de Valdemingómez landfill. In the Community of Valencia, they were detected at the Dos Aguas landfill, and also in the Community of Murcia, at Cañada Hermosa.

**29****LANDFILL LEAKS****212****METHANE TONS****1.155****HOUSES  
EQUIVALENT TO CO<sub>2</sub>  
EMITTED BY  
ELECTRICITY  
CONSUMPTION DURING  
ONE YEAR**

# How to combat methane leaks in **THIRD COUNTRIES AND SPAIN?**

Some of the measures that should be implemented to tackle the problem of methane leakage, due to the early transposition of the tools contemplated in the Methane Regulation, would be included in a **National Methane Reduction Plan**. They would be the following:

-  National methane tax for the energy and waste sectors. To encourage methane reduction in both the energy and waste sectors, Spain should establish a **progressive tax on methane emissions**, which would oblige emitters or importers of methane emissions to pay a tax per ton of methane emitted. This already exists in Norway and the United States.
-  Prohibit contracts to companies with super-emissive leaks. Article 9 of the Climate Change and Energy Transition Law, which prohibits new authorizations for hydrocarbon extraction permits in Spain, **should include a ban on gas import contracts from concessions using fracking and also from those in which methane leaks of more than 10 Tn/h** have been detected until the leak has been repaired.

-  Spain should plan to **take full advantage of the forthcoming EU transparency database**, which will be available from January 2026, to inform future purchasing decisions.
-  Anticipate the deadlines of the EU Methane Regulation obligations. Spain can anticipate the Regulation's deadlines by encouraging importers to comply with MRV obligations in 2026, establishing itself as a pioneer in the implementation of the new EU rules.
-  Establish global and sectoral reduction targets for 2030.
-  Highlight progress to date across the economy and by sector in reducing methane emissions from a 2020 baseline.
-  Identify priority actions to mitigate methane that fit the Member State's emissions profile.
-  Improving food waste prevention. Landfill rehabilitation and landfill design and operation.
-  Separate and treat biodegradable municipal waste and convert it into compost or self-consumption energy for the facilities.
-  Improve wastewater treatment with gas recovery and overflow control.





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