

PULSO AMBIENTAL

POLITICAL AND DEBATE MAGAZINE

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Methane Everywhere, All at Once

You can't see it, but it's there—in the air, in oil wells, dumps, and fields.
Colorless, odorless, and shapeless, it pollutes, makes people sick, and speeds up climate change.
What's the deal with methane in Argentina?

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Image credit: Maria Marta Di Paola.

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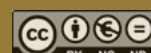
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EDITORIAL FARN

The Invisible Enemy

Methane is invisible to the naked eye. It is colorless, odorless, and shapeless. But it's there. Everywhere. It seeps from oil wells, gas pipelines, farms, and open-air dumps. It builds up in the atmosphere unnoticed, degrading air quality, causing respiratory diseases, and accelerating climate change.

Before we can talk about how we are doing in terms of mitigating the effects of methane, we need to know where it's coming from. To bring emissions down, we have to raise awareness about its impact on the climate, the environment, health, and human rights. Methane is **80 times more harmful than carbon dioxide for 20 years after it is released** and has an atmospheric lifespan of about 12 years. It is both the second most dangerous greenhouse gas and a short-lived climate pollutant—which means that cutting it can have an almost immediate effect on air quality.

Methane can come from natural or anthropogenic sources. Globally, most human-related methane emissions come from agriculture and forestry, the energy sector, and waste. **In Argentina, more than 60% of anthropogenic methane emissions come from agriculture,** around 29% from the energy sector—mainly due to leaks during oil and gas production and transport—and the remaining emissions (around 7%) from poor waste management and the more than **5,000 open-air landfills** scattered across the country.

Technology alone will not solve the methane problem. Cutting methane also requires political will. Detecting and fixing leaks, capturing emissions, and investing in composting are valid and feasible measures, but they are not enough. We need an urgent paradigm shift in our current production model, reducing production and consumption, moving away from fossil fuels, and supporting family farming.

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Technology alone will not solve the methane problem. Cutting methane also requires political will.

When it comes to international frameworks designed to mitigate methane emissions, Argentina joined the Global Methane Pledge at COP26, undertaking to achieve a 30% reduction by 2030. Yet, so far, there are no sector-specific targets, no systematic monitoring, and no dedicated national regulation to make that commitment a reality. Instead, the extractive model continues to deepen. **The rise in methane emissions in the Vaca Muerta oil and gas fields documented by Earthworks,** a US-based environ-

mental NGO, unveils the silent effects of methane in fracking regions. At the same time, the push to allow more floating liquefied natural gas (FLNG) vessels in San Antonio Este, a town in Río Negro, Patagonia, within the San Matías Gulf, underscores Argentina's expansion of its fossil gas export infrastructure—disregarding **the environmental, social, and climatic costs of doubling down on fossil fuels**.

The health effects of methane are silent but devastating. **This gas is responsible for over 50% of ground-level ozone in our atmosphere**, which in turn leads to one million premature deaths worldwide each year. Exposure to this atmospheric pollutant puts people at serious risk of respiratory diseases, worsening bronchitis and emphysema, triggering asthma, and causing permanent lung tissue damage—sometimes with fatal consequences.

Now, more than ever, reducing methane emissions must be framed as both a climate imperative and a human rights issue. It is no coincidence that **the Inter-American Commission on Human Rights recently convened a hearing** to stress this connection, further strengthening the **Inter-American Court of Human Rights' latest Advisory Opinion on the climate emergency and human rights**.

In this critical context, we must act on the invisible. Shine a light on the problem. Demand concrete, targeted policies. Speak about methane. Make it a priority. Cutting methane emissions is the fastest way to slow climate change—because what goes unseen still sickens, displaces, destroys, and kills.

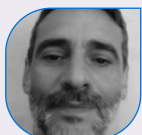
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We need an urgent paradigm shift in our current production model, reducing production and consumption, moving away from fossil fuels, and supporting family farming.

In this issue of *Pulso Ambiental*, we explore how methane is everywhere—in the atmosphere, in oil wells, in landfills, and in peatlands that have survived for thousands of years and are now threatened by global warming. But we also focus on the networks connecting organizations and communities, the bodies that resist, the voices that speak out, and the struggles for a different future. A future where what is essential is no longer invisible, becoming instead part of an urgent, collective agenda that places the environment, the climate, human rights, and public health at the center.

**Damián Verzeñassi**

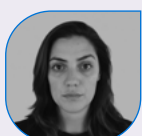
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Much More than Just Gas

Methane, a powerful greenhouse gas, is also responsible for harming people's health and damaging the land. Its release is linked to extractivist human activities such as fracking, which also involves heightening health vulnerability. Considering it an isolated chemical agent does not allow us to understand the complex processes that shape health and disease in contexts of energy extractivism.

Methane is a greenhouse gas with a global warming potential 80 times greater than that of carbon dioxide over a 20-year period.

Its release into the environment is strongly associated with extractivist practices with great social and environmental impact such as fracking, which also uses a wide range of chemical substances (benzene, toluene, heavy metals, and crystalline silica, among others) and generates multiple exposure pathways.

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Methane is not just a gas, but a material expression of a development model that causes unequally-distributed environmental and health damage.

Non-conventional extraction of fossil fuels has expanded globally as a response to the energy demand caused by our consumption habits, and the conventional oil crisis. Argentina, with the oil field Vaca Muerta, is an emblematic and clear example of this expansion.

These practices pose not only environmental risks—such as air, water, and soil pollution, in addition to induced seismicity—, but also introduce new forms of health vulnerability in communities already affected by social and territorial inequalities.

In this context, treating methane as an isolated chemical agent does not allow us to understand the complex processes that shape health and disease in contexts of energy extractivism. Adopting a perspective of social determination of health is essential: methane is not just a gas, but a material expression of a development model that causes unequally-distributed environmental and health damage.

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There is scientific evidence that shows the relationship between exposure to methane or ground-level ozone and chronic conditions, including respiratory, cardiovascular, dermatological, reproductive, and neurological diseases, as well as cancer.

Structural Consequences

The harm to health associated with methane is not an inevitable “accident”, but a structural consequence of a development model that prioritizes profit over socio-environmental sustainability.

Literature reviews show how exposure to different types of substances resulting from unconventional hydrocarbon extraction is linked to harm in humans, manifesting in a wide and non-specific range of signs and symptoms. As a result, there are insufficient records that show cause-and-effect links to support health impact analyses after exposure to emissions of gases such as methane or ground-level ozone.

Methane is normally considered a low-toxicity pollutant, which makes it difficult to understand its true harmful potential. In addition, it is also a precursor of ground-level ozone. There is scientific evidence that shows the relationship between exposure to methane or ground-level ozone and chronic conditions, including respiratory, cardiovascular, dermatological, reproductive, and neurological diseases, as well as cancer.

It is therefore evident that methane should be analyzed not only as a greenhouse gas or precursor of ground-level ozone, but as a symptom of an extractivist energy model that threatens the health and lives of the land and the communities who inhabit it.

**Rodolfo Javier Iturraspe**

A hydrologist and tenured professor at the National University of Tierra del Fuego, he represents Argentina on the Working Group on Snow and Ice of UNESCO's Intergovernmental Hydrological Program for Latin America and the Caribbean (IHP-LAC), and served as a member of the Scientific and Technical Review Panel of the Ramsar Convention from 2023 to 2025.

Methane in Peatlands

Often undervalued wetlands, peatlands contribute to climate regulation, accumulating 12,000 years of organic material. Paradoxically, they also emit methane, a potent greenhouse gas. However, the overall balance shows they help mitigate global warming.



Peatland with lakes in the Carbajal valley,
Tierra del Fuego, Argentina. Source: Rodolfo Iturraspe.

Peatlands are the most efficient land ecosystems regarding their function as carbon sinks and reservoirs. In Patagonia, specifically Tierra del Fuego, they are the result of the accumulation of organic matter over more than 10,000 years, and their depth sometimes surpasses 10 meters. Their origin is associated with the retreat of glaciers after the last glaciation, which is to say, under environmental conditions that cannot be replicated today.

The continuous production of biomass through photosynthesis and its incomplete breakdown result in a constant accumulation of organic matter in the form of peat. This accumulation takes place *in situ* because new plants grow on top of the matter of the older ones. Peatlands are also wetlands that contribute to the hydrological regulation of river basins. They have high landscape value and host a very exclusive biodiversity because they are composed of plants and microorganisms that can survive only in this type of ecosystem, since they are adapted to the acidic, waterlogged and oxygen-poor environment typical of peatlands, inhospitable to most species.

Peats' permanent water saturation and low permeability generate a confined and anoxic environment that prevents decomposing aerobic bacteria from thriving. This is how plant tissue is preserved to the point that it is possible to easily identify the precursor species that lived millennia ago by sampling the peatland's base level.

“

Peat extraction—a primary activity with no added value—leaves great environmental liabilities behind: the destruction of ecosystems, high carbon dioxide emissions, and the loss of peatland benefits.

The Other Side of the Coin: Methane Emissions from Peatlands

In the anoxic and carbon-rich environment of peatlands, methane is produced in stages. First, the fermentation of organic matter produces fatty acids and carbon dioxide. Then, other organisms turn the fatty acids into carbon dioxide and hydrogen and, finally, methanogenic bacteria synthesize methane. The process is more active in the upper peat levels, where the gas is retained until it finds a way out to the surface. The ascent can be in the shape of bubbles, as can be seen in shallow lakes. Another possibility is diffusion through the upper layers, where methane is oxidized by methanotrophic aerobic bacteria and only a small part reaches the atmosphere. Some plants transport methane—they are scarce in peatlands dominated by moss, but they are an effective option in degraded peatlands that have been colonized by bushes.

Since natural peatlands emit more methane than those that have been drained and the current concentration of this gas in the atmosphere is 2.7 times that of the preindustrial era, it is worth asking: are natural peatlands the cause of the global increase of methane concentration? Definitely not.

According to the Intergovernmental Panel on Climate Change (IPCC), this gas remains in the atmosphere for 12 years, so current methane levels are the result of relatively recent emissions. Since the preindustrial era, the extent of undisturbed peatlands has decreased—and so have their methane emissions. The great increase of methane emissions is caused by human activities such as fossil fuel exploitation, rice fields, urban waste generation, and livestock farming.

When methane emissions and carbon dioxide captured by peatlands are weighed together, the balance favors global warming mitigation.

In terms of carbon, carbon dioxide fixation in natural peatlands is higher than methane emissions. Nevertheless, methane's global warming potential is higher than that of carbon dioxide. This balance favors, on a world level, a reduction of the greenhouse effect. Additionally, the captured carbon can be retained in peatlands for millennia.

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When methane emissions and carbon dioxide captured by peatlands are weighed together, the balance favors global warming mitigation.

The Destruction of Peatlands Worsens the Climate Crisis

The disruptions in peatlands generate a quick release of the retained methane and their drainage allows oxygen to enter. Disruptions also generate high carbon dioxide emissions, and the proliferation of other species that open up ways for methane to be released from deeper levels. The first intervention is usually opening drainage points to lower water saturation levels, whether for peat extraction, agriculture, livestock farming, forestry, infrastructure development, urbanization, among others.

In Tierra del Fuego, where 90% of Argentina's peatlands can be found, peat extraction is the main destructive activity. The peat is sent to the central region of the country in order to produce substrate used to germinate plants on an industrial scale: tobacco, flowers, vegetables. In other countries, it is used to produce briquettes for fuel.

Peat extraction is a primary activity with no added value that leaves notable environmental liabilities behind: the destruction of ecosystems, a depressing impact on the landscape, high carbon dioxide emissions, and the loss of other benefits brought by peatlands. Local hydrological restoration trials have been carried out to enable long-term recovery—a process that requires investment, specialized expertise, and does not guarantee results. Furthermore, recent studies indicate that rehydrated peatlands produce high methane emissions.

All in all, everything indicates that preserving peatlands in their natural state is undoubtedly the most intelligent alternative when it comes to this type of wetland in the context of the perspective of fighting for climate change mitigation.

**María Marta Di Paola**

A member of the Argentine Association of Environmental Lawyers and the Action Collective for Ecosocial Justice and an Assistant Professor at the School of Agriculture, University of Buenos Aires (UBA), she has over 15 years of experience in energy transition, climate finance and environmental policy, working with Argentine and international NGOs.

Greenhouse Gas from Cattle Farming

Methane is the second most important greenhouse gas and its warming potential is 25 times greater than carbon dioxide's. In Argentina, it represents 32% of emissions, mostly associated with cattle farming. When it comes to reducing emissions, it is key to implement policies that recognize its importance to face the climate crisis and protect health and ecosystems.

After carbon dioxide, methane is the second most abundant greenhouse gas in the atmosphere. According to the [Intergovernmental Panel on Climate Change \(IPCC\)](#), even though it stays less time in the atmosphere, between 9 and 12 years compared to carbon dioxide's hundreds, its warming potential is 25 times higher in a 100-year period.

On a global scale, most anthropogenic methane comes from the exploitation, transportation, distribution, and consumption of fossil fuels, as well as coal mining, agricultural and livestock activities, and waste management.

In the agriculture and livestock sector, livestock farming plays a major role in global GHG emissions, accounting for **14.5%** of them. Two thirds of these emissions come from ruminant animals such as cattle and sheep, due to enteric fermentation.

This is a natural process that occurs in the rumen—the first chamber of a ruminant's stomach—where bacteria and microorganisms break down complex carbohydrates, including cellulose. The process produces volatile fatty acids that the animal uses as energy and releases methane as a byproduct, mostly through **belching**. The amount of methane emitted varies depending on the volume and quality of feed, the animal's size and growth, its productivity level, and environmental conditions. It is estimated that **between 2 and 12%** of the energy ingested is lost through enteric fermentation.

Methane and Livestock Farming in Argentina

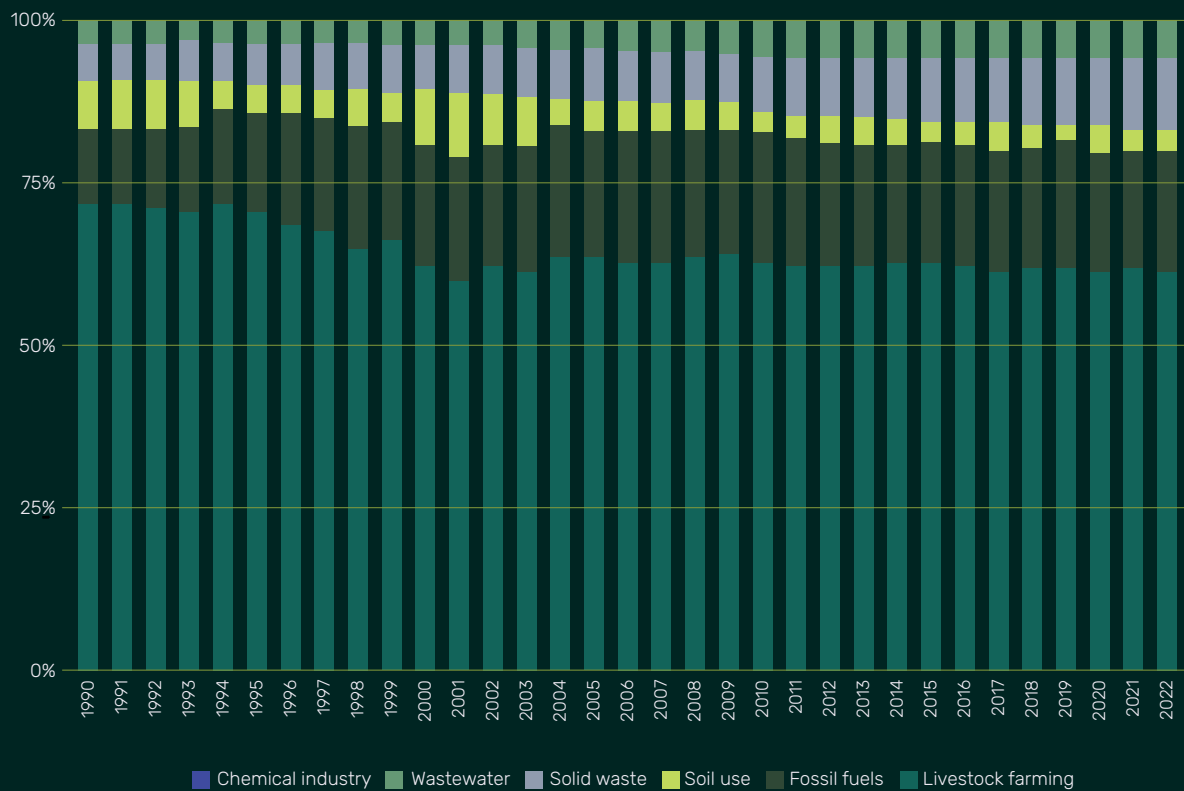
In Argentina, methane represents 32% of the total GHG emissions, while carbon dioxide accounts for 60%, according to the last **National Inventory of Greenhouse Gases** (2022). Historically, livestock farming has been the main source of methane emissions in the country: in 1990 it accounted for 71% of the total, while by 2022 its share had decreased to 60%. Methane emissions from livestock farming fell by 6% between 1990 and 2022, along with those from land use. At the same time, there were increases recorded in sectors such as fossil fuels (91%) and waste (116%).

GHG emissions from livestock farming depend directly on fodder availability and the size of the livestock herd, both of which are influenced by **climate variability**.

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In a period of 100 years, the warming potential of methane is 25 times higher than that of carbon dioxide.

Evolution of Methane Emissions per Sector in Argentina (1990-2022, % of the Total Amount)



Source: Created by the author using data from the **Undersecretariat of Environment** (2022).

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Between 2 and 12% of the energy ingested by ruminant animals is lost through enteric fermentation, which releases methane.

Estimations

In its Second Nationally Determined Contribution (NDC), Argentina estimated an increase of livestock farming emissions by 2030, associated with a growth in **beef production**.

The **Secretariat of Agriculture, Livestock Farming and Fishing** is in charge of designing policies to reduce the intensity of emissions, that is to say, to reduce the amount of methane emitted per production unit. Some of the strategies include:

- Genetic enhancement of herds;
- Supplementation and feed enhancement to increase digestibility; and
- Pasture and fodder management to improve productive efficiency.

The National Institute for Agricultural Technology (INTA) also plays a key role in generating knowledge and developing practices that contribute to lower-emission livestock farming. However, this takes place amid profound changes within the institute due to budget cuts, loss of autonomy, staff reductions, and the discontinuation of programs.

“

A third of Argentina's greenhouse gas emissions is associated with methane.

What is Next, What is Next

In a context marked by the dismantling of research policies and climate change denial, there is concern about the trajectory of methane emissions in general and, in particular, those generated by livestock farming.

Argentina faces multiple challenges in mitigating methane emissions from this sector, all the more so because it plays a highly significant role in the economy. The widespread and varied nature of production systems, as well as the limited assessments and monitoring, require comprehensive policies and strategies aligned with the country's international climate commitments.

**Jonatan Castillo**

A nation-wide leader of the Argentine Federation of Cardboard Pickers, Cart Collectors and Recyclers (FACCyR), he presides over the *Mundo Reciclado Ltda* cooperative.

**Santiago Sorroche**

A holder of a Bachelor's and a PhD in Anthropology, he is an Assistant Researcher at CONICET and professor at the School of Philosophy and Language, University of Buenos Aires (FFyL-UBA) and at the School of Humanities, National University of Mar del Plata (FH-UNMdP).

A Way of Reducing Methane: Recognizing the Work of Cardboard Pickers

Urban waste is one of the main causes of methane emissions worldwide. Although various measures have been implemented to reduce waste in cities, the most tangible action in Argentina is carried out by cardboard collectors' cooperatives. Despite their positive social and environmental impact, they face challenges to survive over time.

According to the UN Environment Programme (UNEP), on a global scale, **12% of methane emissions come from municipal solid waste**. At the same time, poor waste management increases emissions. Considering the large number of open-air dumps in the country—around 5,000—, **Argentina is among the nations with the highest methane emissions from this source**.

Despite this pressing situation, an activity that has sought to reduce uncontrolled waste disposal in our country for more than 20 years—and that has had significant impact—remains unrecognized and, in many cases, even persecuted and stigmatized: the daily work of cardboard collectors.

This study was conceived in the context of the multiple crises that have affected Argentina and has changed alongside the growth of the industry that is constantly fed with raw materials recovered daily from waste. At the same time, organized work, mostly through cooperatives, has not only improved the living conditions of those who do this for a living, but has also increased recovery rates and, as a result, reduced the amount of waste sent to dumps or, in the best-case scenario, to landfills. In fact, in places where there is government support, there are records of a great reduction in the amounts of waste sent to final disposal.

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Organized work through recycling cooperatives increases the levels of waste recovery and, as a consequence, reduces the waste sent to dumps or, in the best-case scenario, to landfills.

The Contributions of Cooperatives

Urban waste collection and recovery generate positive impacts on the environment and the life of those behind this activity. But its value is far from being recognized and today faces persecution and the dismantling of differentiated collection programs run by cardboard collectors, despite regulatory changes implemented since the 2001 economic crisis. For instance, the *Argentina Recicla* (“Argentina Recycles”) program’s budget has been unused since 2024.

In some cases, such as the cooperative *Mundo Reciclado* in Avellaneda in the Province of Buenos Aires, it has been possible to achieve a qualitative leap not only in the recovery, classification, and conditioning of waste, but also in industrialization processes. An example of this qualitative leap is the treatment of plastics, which, due to their production process, require more accessible machinery to be recycled. At the same time, besides the economic improvements, many cooperatives set up soup kitchens for their workers and childcare centers for their children, promote access to social security and work toward reducing working hours.

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The efforts to reduce waste that would lower methane emissions have been defunded both directly and indirectly.



Source: Julia Gerlo.

An Uncertain Future

Despite these achievements, the current situation is upsetting. The only efforts toward reducing waste that would lower methane emissions have been defunded both directly and indirectly. In the first sense, national policies aimed at cooperatives—such as the *Argentina Recicla* program—or at eradicating open-air dumps—such as the GRSU plan—have been dismantled. In the second sense, we found that the indiscriminate opening of imports has led to a systematic and constant reduction in the price of materials, which, combined with a lack of government support, is making the work of cooperatives unsustainable.

This is why one of the most effective measures to boost waste reduction ever developed in our country is now in crisis. This lack of recognition and support from the government is jeopardizing not only the reduction of methane emissions, but also the work of thousands of people.

**Luciana Antolini**

A holder of a Bachelor's Degree in Environmental Sciences and a founding and board member of the Latin American Society for Environmental Health (SIBSA), she has been involved in environmental health, sustainability, and toxicology projects in Argentina for the past 15 years.

The Environmental Health Approach in Dock Sud

This approach emphasizes the role of government institutions in continuously monitoring air quality and the health of communities exposed to higher risks, such as in Dock Sud, Buenos Aires. It also highlights the importance of inspecting industrial and productive facilities.

Environmental health is a transdisciplinary field that examines both the generation and presence of social and environmental threats and vulnerabilities that put the health of current and future populations at risk, as well as the diseases associated with them. Fostering intersectoral collaboration and community engagement, it proposes, implements, and evaluates programs and policies aimed at promoting healthy micro, meso, and macro environments, along with their continuous monitoring. This field studies how various environmental factors, together with the behaviors linked to them (the environmental determinants of health), affect people's well-being. Properly addressing these factors leads not only to direct improvements in collective health but also to a more efficient use of resources.

In many neighborhoods across the Buenos Aires metropolitan area, unplanned urban growth has brought housing and industry into close proximity, increasing people's exposure to emissions from factories, transportation, and the burning or decomposition of waste. These emissions have direct consequences for both air quality and public health.

In this context, methane (CH₄), while not directly toxic, degrades air quality by promoting the formation of ground-level ozone (O₃)—a respiratory irritant that is produced when it reacts with nitrogen oxides (NOx) from vehicle and industrial emissions. In 2018, methane accounted for 22.6% of national emissions, with 8.2% coming from the energy sector, mainly due to fugitive emissions during fuel extraction, transport, and use. In Dock Sud, the petrochemical and port hub of Avellaneda in the Province of Buenos Aires, these activities are concentrated near low-income neighborhoods.

Air Quality, Climate Change and Environmental Health

The World Health Organization (WHO) identifies air pollution as one of the leading threats to human health, causing **6.7 million premature deaths in 2019**—over 380,000 of them in the Americas. In Argentina, the connection between health and environmental policy is reflected in the **National Strategy for Health and Climate Change**.

Indoor and outdoor environments are affected by different sources, with indoor air having the greatest impact on health. While outdoor pollution mainly comes from transportation, industry, and energy production, it is indoor air that poses the most serious health risks. Criteria air pollutants—particulate matter 2.5 (PM 2.5), carbon monoxide, ground-level ozone, nitrogen dioxide, and sulfur dioxide—require continuous monitoring, as their health impacts are comparable to those of smoking. Ground-level ozone **worsens asthma and chronic obstructive pulmonary disease (COPD), and is also linked to neurological and metabolic effects**. Methane, particularly from the energy sector, **contributes to ground-level ozone formation**, reinforcing the link between **air quality, climate change, and environmental health**.

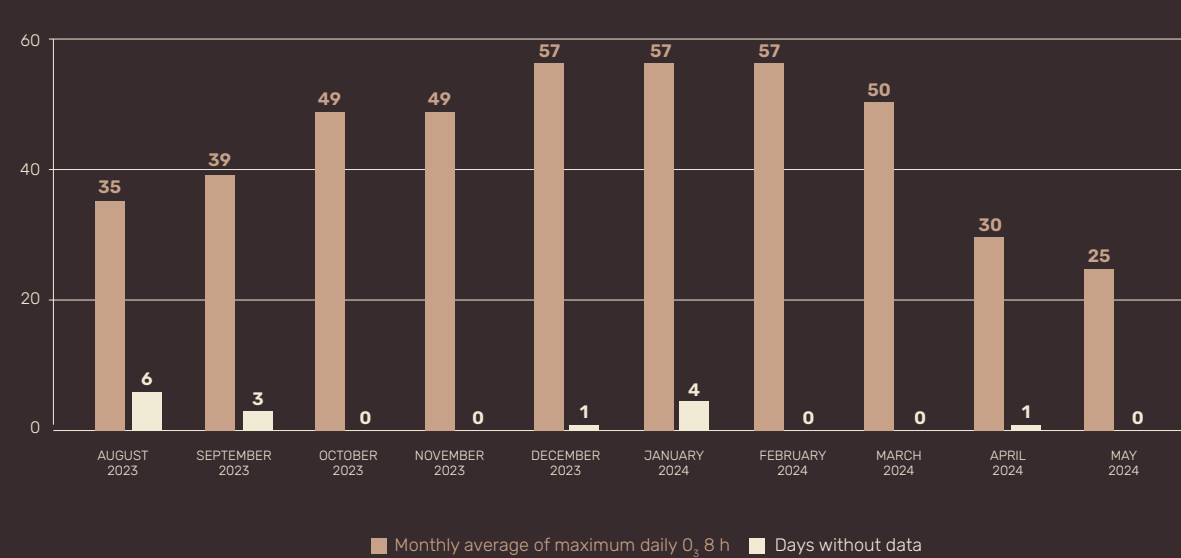
Under the Global Methane Pledge, Argentina has committed to reducing its methane emissions by 30% by 2030 compared to 2020 levels. It is estimated that every million tons of methane reduced would prevent more than **1,400 premature deaths from respiratory and cardiovascular diseases**, reduce hospitalizations for asthma, and prevent losses of basic food supplies. **Cutting methane also lowers exposure to other associated pollutants**, including nitrogen oxides, PM 2.5, hydrogen sulfide, and benzene, toluene, ethylbenzene, and xylenes (BTEX), which contribute to respiratory and cardiovascular diseases, cancer, and other health impacts.

Air Quality Monitoring in Dock Sud

In Dock Sud, **the Matanza Riachuelo Basin Authority (ACUMAR) monitors criteria air pollutants**. Until 2024, this was done through the EMC I station; today, five new stations have been set up, located based on residents' complaints about odors and respiratory problems. One station is already operational in the area, and its data is currently being validated for public release.

The Air Quality Index (AQI), developed by the US Environmental Protection Agency in 2018, estimates the short-term health effects of air pollution. According to data from **December 2023 through May 2024**, air quality in Dock Sud was mostly labeled as **"good" or "moderate."** However, on three days—December 23, 2023; January 9, 2024; and December 24, 2023—ground-level ozone levels exceeded the WHO's recommended limit of 100 µg/m³ for an 8-hour period. More than half of the days recorded a moderate AQI, mainly due to elevated PM 2.5 levels, and three days were categorized as "unhealthy for sensitive groups" under calm wind conditions. The highest average monthly maximum values occurred between October and March.

Figure 1. Monthly average of daily 8-hour maximum moving averages for O₃, August 2023–May 2024



Source: ACUMAR.

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The World Health Organization (WHO) identifies air pollution as one of the leading threats to human health, causing 6.7 million premature deaths in 2019—over 380,000 of them in the Americas.

Table 1 shows a comparative analysis of maximum values set by the Province of Buenos Aires, the City of Buenos Aires, and the WHO. According to both WHO guidelines and current regulations, pollutant concentrations may exceed the recommended limits between one and four times per year, depending on the pollutant and the period. An AQI classified as “good” corresponds to the ideal conditions defined by the WHO for ground-level ozone (8-hour averages) and other criteria air pollutants.

Table 1. Comparative table of air quality concentrations, regulations of Buenos Aires, City of Buenos Aires, and WHO guidelines

Pollutant	Average time	Unit	WHO, Guidelines 2021	PBA, Res. 1074/2018	CABA, Law 1356/2004
PM_{2.5}	Annual	µg/m ³	5	12	15
	24 h	µg/m ³	15 ^a	35	65
PM₁₀	Annual	µg/m ³	15	50	50
	24 h	µg/m ³	45 ^a	150	150
O₃	High season	µg/m ³	60	-	-
	8 h	µg/m ³	100 ^a	100	157
NO₂	Annual	µg/m ³	10	100	100
	24 h	µg/m ³	25 ^a	-	-
	1 h	µg/m ³	200	188	-
SO₂	24 h	µg/m ³	40 ^a	125	365
	1 h	µg/m ³	-	196	-
CO	24 h	mg/m ³	4	-	-
	8 hs	mg/m ³	10	10	10
	1 h	mg/m ³	35	40	40

Source: ACUMAR.

A. 99th percentile (allows for 3–4 exceedances per year).

B. Average of daily maximum O₃ concentrations (8-hour) over the six consecutive months with the highest O₃ levels moving average.

The Comprehensive Environmental Health Assessments in Risk Areas (EISAAR) are tools designed to characterize and address environmental health problems by identifying threats and vulnerabilities. They were conducted in prioritized neighborhoods based on the Environmental Health Risk Map of the Matanza Riachuelo Basin (MARSA), following the implementation of ACUMAR's Environmental Health Strategy in 2018. The Health and Environmental Education Office, together with various scientific societies, reviewed and adapted the list of environmentally linked diseases prepared by the WHO to the local context of the basin. Ground-level ozone is associated with both acute (high and low intensity) and chronic respiratory diseases, including COPD and asthma.

Table 2 shows the results of the EISAAR conducted in Villa Inflamable, Villa Tranquila, and the French and Autopista neighborhoods near Dock Sud, where individual and community cases were identified and addressed as part of the environmental health strategy. Respiratory problems were the most commonly reported health issues among surveyed residents, but further research is required to establish a link to local air pollution.

Table 2. Summary of EISAAR 2017-2023 results in the Dock Sud area

Neighborhood	Population surveyed	Main signs and symptoms reported
Villa Inflamable (2017)	1,932 people (out of an estimated population of 3,652)	<ul style="list-style-type: none">• Cough or breathing difficulties: 19.4%• Skin problems: 9.8%• Diarrhea: 8.4%• Association between lack of bathing facilities and diarrhea/parasites (≥3 episodes/year).• Association between lack of mains water and diarrhea/skin problems.• 31 people (27 children and 4 adults) with blood lead levels above the reference level (out of 269 tested).
Villa Tranquila (2017-2018)	2,646 people (out of an estimated population of 8,047)	<ul style="list-style-type: none">• Hypertension: 17.3%• Cough or breathing difficulties: 15.84%• Diarrhea: 9.83%• Skin problems: 9.45%• Significant association between ≥3 episodes of coughing/breathing difficulties and substandard housing (tin, wood, or waste materials) and exposure to tobacco smoke.
French y Autopista (2023)	198 people	<ul style="list-style-type: none">• Hypertension: 11.76%• Cough or breathing difficulties: 17.17%• Diarrhea: 10.61%• Skin problems: 4.55%• Cough/breathing difficulties and diarrhea above the average for the Basin (2017-2020); skin problems below average.

Source: ACUMAR.

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The most vulnerable communities—those with higher exposure and fewer protective resources—cannot access diagnosis, prevention, or adequate care on their own without a clear environmental health strategy.

Coordinated Action

The Dock Sud case illustrates that environmental health requires a comprehensive approach and an active role of the State. The most vulnerable communities—those with higher exposure levels and fewer protective resources—cannot access diagnosis, prevention, or adequate care on their own without a clear environmental health strategy. Collecting data and coordinating with the health system and other government actors are essential to make risks visible, measure impacts, propose effective solutions, and transform realities. Reducing air pollutant levels to align with WHO guidelines is crucial to safeguarding public health.

Guaranteeing clean air and healthy environments is essential for sustaining health and environmental policies that integrate continuous air quality monitoring, effective oversight, coordination across government sectors, and the commitment of private actors. Only through coordinated action can we collectively build livable, breathable communities where environmental health is a tangible, everyday right.

**Patricia Rodríguez**

A PhD in Comparative Politics and a thermographer, she coordinates the International Optical Gas Imaging (OGI) project at Earthworks, a US-based environmental organization that collaborates with organizations and communities in Latin America to raise awareness of air pollution caused by the oil and gas industry.

Vaca Muerta: Methane Extraction Gone Wild

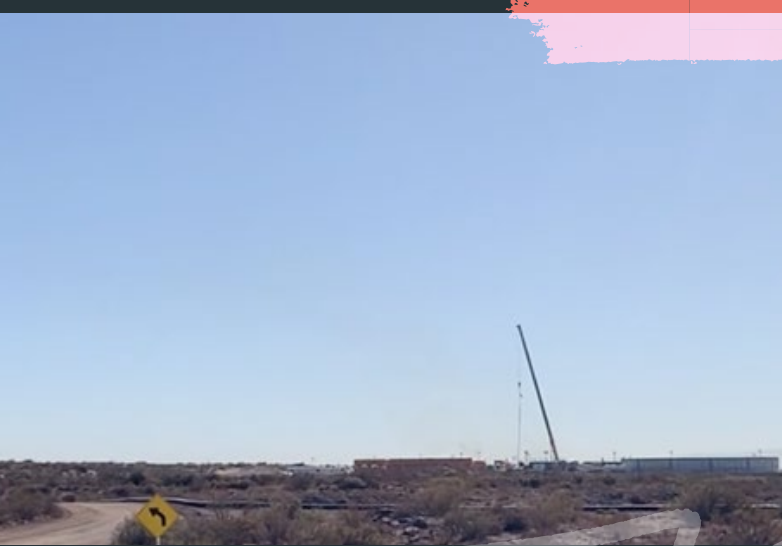
Under the deregulatory policies of the Javier Milei administration, operations in the Vaca Muerta oil and gas fields are intensifying. This surge is driving up methane and other pollutant emissions that affect the global climate and the health of local communities.

The latest developments in Argentina's Vaca Muerta oil and gas operations are deeply concerning. Recently, President Javier Milei advanced a series of deregulatory measures, including the Large Investments Incentive Regime (RIGI), which have drastically lowered production costs and fueled **a sharp increase in gas production and expansion of pipeline infrastructure**. Argentine oil, gas, and liquefied natural gas are exported to Italy, the European and Asian markets, Uruguay, and Brazil, among others. These policies should raise alarm, especially at a time when clean energy is being emphasized—at least in speeches and selective actions—around the world.

What is particularly alarming about this situation is the massive scale of extraction these operations will imply, and the resulting air pollution.

Evidence already points to widespread contamination: at the national level, the energy sector accounts for **50% of greenhouse gas (GHG) emissions**. During a May 2023 optical gas imaging (OGI) survey in Vaca Muerta, **Earthworks documented methane emissions** from extraction, processing, and distribution activities, along with oil spills and other environmental hazards. For years, Earthworks' certified thermographers have used infrared cameras capable of detecting fugitive, venting, or incomplete combustion methane emissions, as well as other volatile organic compounds (VOCs) released by the oil and gas industry.

In its 2023 studies in Argentina, Earthworks captured two particularly alarming images of emissions in Neuquén, a province in the Argentine Patagonia: one at **Total Energies'** Aguada Pichana Este plant, a hydraulic fracturing site, and another at **Tecpetrol's** central processing facility in Fortín de Piedra.



Total Energies well. The black-and-white image, taken on May 14, 2023, shows emissions captured by Earthworks' survey.
 Credit: Earthworks.

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Methane remains in the atmosphere for about 20 years, trapping at least 80 times more heat than carbon dioxide.

Total Energies (Austral) owns shale gas assets in the Vaca Muerta region. Its hydraulic fracturing operations involve creating fractures in shale rock by injecting chemicals, proppants, sand, and water at high pressure both vertically and horizontally, often extending thousands of meters from the wellhead. In August 2025, Total Austral sold its stake in two production blocks (La Escalonada and Rincón de la Ceniza) to state-owned YPF, but continues to operate in **other sites**, including Aguada Pichana Este. The environmental impacts are wide-scale, with visible plumes—stacks of gases released into the atmosphere—dispersing methane during the fracturing process.

Tecpetrol has a strong presence in Vaca Muerta. The Techint Group company is building **the pipeline** that will transport oil to the new port under construction in the San Matías Gulf, and has built the **Perito Moreno gas pipeline**, which reaches Buenos Aires, in addition to other large-scale mining projects.



Tecpetrol's central processing plant in Fortín de Piedra. The black-and-white image shows emissions captured by Earthworks' survey. Credit: Earthworks.

Broad and Varied Effects

Methane, which is responsible for one-third of global warming since the start of industrialization is, along with other gases released into the atmosphere, likely to be a major contributor to **climate pollution in the region**. Methane remains in the atmosphere for about 20 years, trapping at least 80 times more heat than carbon dioxide. Alongside nitrogen oxides, it is also an important precursor to ground-level ozone, a short-lived pollutant that tends to concentrate near emission sources, affecting crops, ecosystems, and human respiratory health.

The plumes captured by OGI cameras also contain other VOCs, including benzene—a proven carcinogen—as well as toluene, xylene, and others. The health impacts of these gases are **broad and varied**, disproportionately affecting Indigenous and low-income communities.

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Emissions detected at the Total Energies and Tecpetrol plants also contain other VOCs, including benzene—a proven carcinogen—as well as toluene and xylene, disproportionately affecting Indigenous and low-income communities.

Given the power of the industry and the governments that support it, one of the most important actions is to ensure that public policy—whether strengthening air quality and methane regulations, or accelerating the phase-out of fossil fuel production—responds to the environmental, health, and cultural concerns of the communities bearing the brunt of the impact.



Lefxaru Nawel at the presentation of the FARN 2025 Environmental Report. Credit: Melina Bronca.

Interview with Lefxaru Nawel

Spokesperson and member of the Mapuche Confederation of Neuquén.

A Toxic Cloud Looms Over the Sky of Neuquén¹

For Lefxaru Nawel, spokesperson and member of the Mapuche Confederation of Neuquén, the air breathed by the Indigenous communities surrounding the Vaca Muerta oil and gas fields is becoming increasingly toxic. In this interview, he calls out the emission of gases such as methane and highlights the respiratory and health problems faced by communities, exacerbated by lack of access to basic services and the environmental damage caused by an industry that grows as fast as it drills.

1. This article is a summary especially prepared for *Pulso Ambiental* No. 25. The full interview is available on www.farn.org.ar/en.

Methane is a highly polluting gas that rarely gets any attention. From your perspective within the community, how does this issue affect daily life, and what concerns does methane from oil activities raise for you?

Mapuche communities living in the Vaca Muerta area have been suffering the consequences of contamination since the first wells were drilled around the 60s. But since the 90s, with the expansion of conventional oil operations, air pollution has become more visible both from the gases released and the dust stirred up by the growing number of wells and pits on our lands. This pollution affects the health of people, plants, and animals alike. Additional problems come from oil dumps and venting. (Editor's note: venting is the controlled or accidental release of gas such as methane to the atmosphere, occurring during extraction, processing, or maintenance activities in the oil and gas industry.) These practices are widespread in the region and are often uncontrolled. Nearby sand treatment plants, some located close to communities, also fail to meet environmental regulations. The area is very windy, with gusts reaching up to 100 kilometers per hour, which spreads sand and further pollutes the air. Much of this pollution is invisible, but it can be sensed by its smell.

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In areas near oil pollution, the local population suffers more severe health impacts. Today, almost every child here experiences bronchospasms, even in my community.

In Argentina, there is very little monitoring of air quality or its potential impact on health. Have you been able to access any pollution records to understand the scope of the problem?

Both the government of Neuquén, which is supposed to oversee environmental control, and the Judiciary lack the technology needed to monitor air quality, especially when it comes to methane and other gases. When the Earthworks team came to do their field-work, we were able to access these types of cameras with technology that allow for more precise monitoring. One of the clearest signs of pollution is the high rate of respiratory diseases in the area. Venting and burning of waste in oil dumps often happens at night to prevent the community from seeing it, but we can feel its effects every day. At dawn, a toxic cloud blankets the area. It is the product of late-night venting. On the horizon, you can see smoke lingering since the early morning. It is a paradoxical situation: enormous quantities of gas and oil are extracted here—especially gas—but the local population lacks access to gas or electricity. Venting is carried out to decompress pipelines and prevent explosions, meaning that while we do not have gas in our homes, they are just releasing it into the air. Air quality in Neuquén is a serious problem. You can see that in my community's school. Absenteeism spikes in winter when the cold comes, as children suffer from respiratory issues—some mild, others severe, such as chronic obstructive pulmonary disease (COPD) and pneumonia. Air pollution worsens in winter because people burn firewood or whatever they can get their hands on to stay warm. Combined with the pollution that is already there, industrial emissions, oil dumps, and household waste, the air becomes unbreathable.



"When people fall ill, medical diagnoses do not say that their condition is linked to living in an oil-producing area and breathing polluted air," says Lefxaru.
Credit: La Garganta Poderosa.

As a *werken* (Editor's note: spokesperson, leader) of the Mapuche Confederation of Neuquén, you are closely connected to the realities of various communities. Do you feel that health statistics on respiratory problems are transparent? Is there any official information available? Do the authorities listen to the community?

In areas near oil pollution, the local population suffers more severe health impacts. Today, almost every child here experiences bronchospasms, even in my community. The government neglects this issue, and health centers operate under extremely precarious conditions. On several occasions, we have tried to access information and epidemiological data from the hospitals and health centers that serve us, but this information has been withheld. Health authorities—not so much the frontline workers, but the government officials and the hierarchy within the health system—often claim patient privacy as a reason for keeping this data from us. We do not need names; we simply want to know what illnesses affect people in our communities. The cumulative impact of air pollution is undeniable. It's documented. One of the few times the

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Any plan to mitigate the impacts of climate change must prioritize the people that live in and from the land.

Judiciary was brave enough to intervene was through the federal courts, specifically the Body of Experts of the Supreme Court. Their investigation revealed oil contamination across urban, peri-urban, and rural areas in the Añelo department, including contamination of Lakes Los Barreales and Mari Menuco. Their study highlights the cumulative effects of pollution and clearly concludes that breathing polluted air is worse than ingesting contaminated food or water, as it has a greater impact on the population. The cumulative effect damages vital systems: the nervous, respiratory, endocrine, and immune systems, as well as the lungs and kidneys. When people fall ill, medical diagnoses do not say that their condition is linked to living in an oil-producing area and breathing polluted air. They say they have a respiratory or kidney failure, or cancer.

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The local population should be directly involved in addressing methane and other greenhouse gases, with community air monitoring systems that are publicly accessible.

Today, you are facing the consequences of this kind of activity—the lack of response, and even criminalization when you speak out or protest. What do you envision for the future of your community, the valley, and the Province of Neuquén?

All these plans to spread death across our lands are being actively resisted by the local population and by people who are waking up to the reality that this so-called source of prosperity does not bring well-being—it brings pollution, impoverishment, and debt. Today, Neuquén has the highest per capita debt of any province in Argentina. This is not only the result of government mismanagement, but also of corporate schemes designed to maximize profits at the expense of people's rights. The life plans of each community are our primary form of resistance and projection for the future. But we know that in a polluted territory, with contaminated water and air, it's impossible to imagine a healthy and fulfilling life. The local population should be directly involved in addressing methane and other greenhouse gases, with community air monitoring systems that are publicly accessible. Any plan to mitigate the impacts of climate change must prioritize the people that live in these lands. Their viewpoints must be taken into account. They need to be duly consulted, and they need to be able to envision life beyond hydrocarbons. People must defend water and land, not merely from a preservationist or conservationist standpoint, but because it is the only way to secure a viable future in this place. We live in a vast valley between the Neuquén, Limay, and Negro rivers. This is a land of great prosperity, not only in oil or economic terms, but in terms of well-being. That must also be protected.

**Fernando Cabrera Christiansen**

A researcher of the Observatorio Petrolero Sur (OPSur) and a coordinator of the Socio-Environmental and Energy Justice Alliance (EJES), he holds a Bachelor's in Communication Sciences and a Master's in Social Sciences.

LNG: the Uncertainty Behind the Expectations

In recent years, this enigmatic acronym has gained a prominent place on the country's economy and energy agenda. Headlines pile up. Projects are announced, reformulated, and halted. For those who are not following the issue, there is a vague sense that a liquefied natural gas port is being developed in the South. In this context, we aim to gather some key data and explain why this proposal is not the solution the country needs.

Liquefied natural gas or LNG is methane that has been cooled to its condensation point (-161°C) to convert it into a liquid state. In this form, it occupies 1/600 of its original volume, allowing it to be transported by ship.

The commercialization of gas through this technology has grown significantly in recent years, particularly after the sanctions imposed on Russia, one of Europe's main natural gas suppliers. This technology also aligns with the misleading idea that, while being a fossil fuel, natural gas is less harmful to the climate and thus serves as a "bridge" between current energy sources and those with a lower environmental impact.

At the national level, these technological, geopolitical, and climatic factors converge with a government policy of promoting fossil fuel exports. Therefore, LNG emerges as one of the main alternatives to address one of the biggest economic problems: the shortage of US dollars.

In December 2024, a public hearing was held to discuss the environmental impact study of the first FLNG vessel. Therefore, during Javier Milei's administration, the installation of a new LNG export platform that will benefit from the Large Investments Incentive Regime (RIGI), created by the framework law known as Ley Bases passed in June of this year, began to take shape.

In addition, the current management of state-owned YPF identified this type of export as one of the four pillars of its corporate policy. To that end, after canceling the project to build an onshore terminal, the company joined the Southern Energy SA initiative—a consortium of firms led by Pan American Energy—, which already operates within the RIGI.

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Through the *Argentina LNG* project, the volume of gas exported would exceed that currently extracted from Vaca Muerta.

This project is the first of three stages of YPF's Argentina LNG project. The initial stage involves installing two FLNG vessels in the San Matías Gulf, near the beach resort Las Grutas in the Province of Río Negro, which will have a total capacity of 6 million tons per annum (MTPA). The first vessel is expected to arrive in the country by the end of 2027.



The two floating liquefied natural gas (FLNG) vessels to be launched in the first stage of the Argentina LNG project will be located near the beach resort Las Grutas, in the San Matías Gulf in the Province of Río Negro.

The other two stages are in earlier phases. So far, there is an agreement with the British company Shell to export an additional 6 MTPA and another one with the Italian company ENI for 12 MTPA, which are expected to become operational by 2030. The quantities are enormous; if the three stages are completed, the combined total volume of gas exported would exceed the amount currently extracted from Vaca Muerta.

The Río Negro coast is 450 kilometers away from Vaca Muerta, the main extraction center, located in the Province of Neuquén. To transport gas to the coast, it is necessary to build a gas pipeline. In the meantime, the first vessel will draw natural gas from the coastal General San Martín Gas Pipeline that comes from Tierra del Fuego.

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It is anticipated that there will be a global “oversupply” of LNG by 2026 due to the launch of new plants in the United States and declining Chinese demand, so a project that will only become a reality in two or three years does not have the market secured.

Beyond Promises

The international market is currently experiencing extreme uncertainty. Bloomberg, for instance, has been anticipating a global “oversupply” of LNG by 2026, due to the launch of new plants in the United States and declining Chinese demand. For this reason, a project that will only become a reality in two or three years does not have the market secured.

Moreover, LNG is not a climate-friendly fossil fuel. After analyzing the entire LNG cycle, Robert Howarth, a biogeochemist at Cornell University and one of the world’s leading specialists, concluded that, in a 20-year scenario, its emissions are 33% higher than those from coal.

At the same time, it is false that fossil fuel exports will solve the country’s macroeconomic problems. The dollars earned from exports outflow through other financial “windows”, as economist Marco Kofman of the **Socio-Environmental and Energy Justice Alliance** explains.

Lastly, exports increase the intensity of fracking at Vaca Muerta, polluting millions and millions of liters of water per well, just one of the direct effects of this activity. Simultaneously, the launching of these FLNG vessels, which involves constant traffic of other vessels that transport LNG in a region of great biodiversity that has taken decades to establish itself as a tourism destination, does not seem to be the right initiative.

**Damián Profeta**

A journalist specializing in environment and climate change, he is co-director of [Claves21.com.ar](https://claves21.com.ar). He was also part of the research team behind *Gaslighting: Disinformation on Energy Transition in Latin America and the Caribbean* (Climate Tracker Latin America).

Natural Gas: Energy Bridge or Dead End?

Touted as a temporary solution, natural gas masks serious risks. Leaks occur throughout the production chain, and the methane it contains is a super-pollutant—trapping 80 times more heat than carbon dioxide. Narratives promoting it as a transition fuel only delay the key actions needed to face the climate crisis.

In the Argentine energy debate, one idea is repeated like a mantra: natural gas is a “transition fuel,” an orderly bridge to a renewable future. This narrative, reinforced in the media and politics, overlooks a crucial fact: natural gas is mostly methane, a greenhouse gas (GHG) far more potent than carbon dioxide.

Framed as a “lower carbon intensity” alternative to other fossil fuels, the true climate cost of natural gas is often obscured. The methane it contains is a super-pollutant, with a warming potential 80 times greater than carbon dioxide over 20 years.

Methane leaks occur throughout the entire production chain—extraction, transportation, storage, and distribution. Numerous studies warn that these emissions are likely **underestimated in official inventories**, meaning the real impact of natural gas is greater than acknowledged.

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Framed as a “lower carbon intensity” alternative to other fossil fuels, the true climate cost of natural gas is often obscured.

This masking of true costs is no accident; it is aligned with narratives that understate the urgency of the climate emergency.

Retardant Narratives

Portraying gas as a “transition fuel” plays into a form of disinformation that experts call “retardant narratives.” These narratives do not deny the climate crisis, but they downplay it or make it seem less urgent with seemingly reasonable arguments—such as labeling gas as a “cleaner” option—ultimately justifying the continued use of fossil fuels. It is a more sophisticated discourse than outright denial, but its effect is the same: preserving the status quo.

A [recent investigation by Climate Tracker](#) analyzed 1,487 articles published across 32 media outlets in eight Latin American countries, including Argentina, and found that one in five articles contained disinformation, most commonly in the form of retardant narratives.

In Argentina, the most frequent types of disinformation include:

- **Gas as a “transition” fuel.** Gas is portrayed as a “cleaner” option or a bridge to renewable energy, justifying new investments in fossil infrastructure.
- **The Vaca Muerta oil and gas fields = national development.** The narrative that oil and gas are essential for economic growth, or even to finance the energy transition, distracts from real transformations and perpetuates an uncertain future.
- **False solutions.** Technologies or market mechanisms, such as carbon credits or carbon capture, are promoted despite their limited effectiveness, serving as excuses to maintain dependence on fossil fuels.
- **Casting doubt on renewables.** The costs or intermittency of clean energy are exaggerated to sow mistrust and delay adoption.

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Presenting Vaca Muerta as a driver of national development diverts attention from real transformations, using the promise of funding the energy transition to justify continued fossil fuel dependence.

This type of disinformation shifts the debate toward a vague future, exaggerates short-term benefits, and trivializes risks. Most worryingly, it is not confined to social media—it has permeated professional news outlets, cloaked in journalistic legitimacy.

Amid the climate crisis, promoting gas with the promise that “it is only temporary” is a form of disinformation. Acknowledging the scale of methane emissions and their contribution to global warming is not an environmentalist whim—it is essential for having an honest discussion about the energy transition Argentina truly needs.

**Franco Albarracín**

A lawyer specializing in climate change and human rights working at the Center for Justice and International Law (CEJIL), he has more than a decade of experience in strategic litigation and environmental justice. He has a Master's in International Human Rights and Humanitarian Law (American University Washington College of Law).

Boosting Climate Justice through Transparency and the Right to Health

Protecting substantive rights such as the right to health, which tends to be underestimated in relation to its connection with methane emissions, and guaranteeing procedural rights such as the right to access information, are two of the main current challenges for real climate action.

These past two years showed an intensification of the climate emergency in the region. In this context, it is essential to take urgent and strategic action, prioritizing the reduction of short-lived climate pollutants (SLCPs) such as methane, which affects people's health and wellbeing. Methane is a greenhouse gas with a dual impact on both public health and the climate crisis. It acts as a precursor of **ground-level ozone**, an atmospheric pollutant that degrades air quality and, as a consequence, worsens **lung, heart, and brain** diseases.

Scientific evidence is quite clear about the direct impacts of methane emissions and their associated pollutants on **human health**, which disproportionately affect vulnerable groups. This exposure occurs in residential settings through the combustion of **natural gas** (mostly methane) in household appliances, and **industrially** through the inefficient burning and venting of natural gas (gas flares). These activities represent serious violations of the right to health and to a healthy environment, in particular for certain communities, as has been documented in the **Amazon**.

Methane's Dual Impact on Public Health

The worrying effect of methane in global warming also triggers indirect impacts on health, a connection that the Inter-American Court of Human Rights has documented in its [Advisory Opinion OC-32/25](#). First, rising extreme temperatures multiply the spread of different diseases. In addition, in psychological terms, the effects are alarming because the data shows a rise in [depression and anxiety](#) or “[eco-anxiety](#)” due to the post-traumatic stress caused by events such as [droughts or floods](#). This situation also affects [indigenous communities](#), whose physical, spiritual and cultural connection to land is fractured by the disruption of the ecosystem, affecting their collective identity and people's emotional balance.

This spectrum of environmental and climate damage translates, in legal terms, into human rights violations—of the rights to life, personal integrity, health, and a healthy environment—, recognized by international instruments and standards. The Inter-American Court of Human Rights affirms this in its Advisory Opinion OC-23/17 (recognizing the right to a healthy environment and detailing the obligations of States) and in Advisory Opinion OC-32/25 (calling on States to act with enhanced due diligence in cases of climate emergency). It is also affirmed in the Advisory Opinion of the International Court of Justice dated July 23, 2025, on the obligations of States concerning climate change and the resolutions about the universal human rights protection system, which recognize the right to a clean, healthy, and sustainable environment.

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Methane works as a precursor of ground-level ozone, an atmospheric pollutant that degrades air quality and worsens lung, heart, and brain diseases.

Under its contentious jurisdiction, the Inter-American Court of Human Rights has upheld these standards in cases [Lhaka Honhat v. Argentina](#) (on the autonomous right to a clean environment, water, food, and cultural identity) and [La Oroya Population v. Peru](#) (on State's responsibility for toxic pollution and structural requirements). In this context, the Court found States had the obligation to provide enhanced due diligence prevention, access to information, participation and non-discrimination.

Information as a Tool for Climate Justice

In order for the different affected groups to defend their right to health and demand comprehensive reparations, it is fundamental that they know the direct and indirect, collective and individual effects, so that they understand the risks to which they are exposed. It is exactly at this point that active transparency becomes an essential tool for achieving **climate justice**. The Escazú Agreement strengthens this approach by recognizing the rights of access (to information, participation, and justice) and the protection of defenders in contexts of environmental risk.

In its recent **OC-32/25 advisory opinion**, the Inter-American Court of Human Rights reaffirms the obligation of States to produce, gather, systematize, analyze, and disseminate information on the impacts of climate change on health. This requirement is vital for disadvantaged communities such as those living near poorly managed landfills or dumps, where the lack of data on methane emissions hides preventable risks of **accidents, explosions, or diseases**. At the same time, the Escazú Agreement demands maximum dissemination, timely deadlines, and accessible and culturally-adequate formats, as well as effective channels for public participation in decisions affecting these communities.

Beyond the general availability of data, **the Court** makes it clear that States have to produce and disseminate information that explicitly includes, as a minimum, SLCPs such as methane. This obligation, which stems from the principle of **active transparency** and is linked to the principle of prevention and precaution, entails the duty to communicate such information in an appropriate, timely, and culturally relevant manner to the communities involved.

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The Inter-American Court of Human Rights validates the use of satellite technical data to overcome information asymmetries and ensure access to climate justice, recognizing the difficulty of proving connections between emissions and damage to health.

This way, in these cases, access to information activates the principle of precaution and becomes a condition for protecting life, health and the environment. Therefore, the Court, in a sensible manner and recognizing the difficulty in proving these connections, validates the use of technical evidence—including **satellite data**—to overcome information asymmetries and to ensure access to climate justice.

Even though science confirms the serious impact of methane on health, and that international law is working toward its protection, this progress remains insufficient on its own. Climate justice cannot be ensured if the information on emissions and risks is not produced or remains inaccessible. Consequently, the rigorous implementation of active transparency—pursuant to Advisory Opinion OC-32/25, the Escazú Agreement, and United Nations standards—, in particular regarding access to information, public participation, access to environmental justice, and the protection of defenders, is an essential condition for affected communities to exercise their rights and demand accountability.



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