

# THE PRICE OF GAS

*THE HIDDEN COSTS OF EUROPEAN  
BANKS' SUPPORT FOR GAS POWER  
EXPANSION*

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# EXECUTIVE SUMMARY

**The social harms caused by fossil gas are considerable and now well-documented.** It is a major contributor to climate change,<sup>1</sup> has serious negative impacts on public health, and threatens energy access for the most vulnerable due to its price volatility. Yet, gas continues to expand in power systems worldwide, often being portrayed as a “transition fuel” despite its severe limitations in supporting a renewables-based energy system.<sup>2</sup>

**Rather than addressing these challenges, European banks have so far decided to overlook them.** Between 2021 and 2024, they increased their annual support to gas power expansion by 6% globally, providing a total of US\$41.9 billion to companies currently developing more than 320 new gas plants. This financing is highly concentrated: 63% comes from seven French and UK banks – BNP Paribas, Crédit Agricole, Groupe BPCE, Société Générale, Barclays, HSBC, and Standard Chartered.

**The continued expansion of gas power comes at the expense of human health,** energy costs, and climate. Burning gas emits toxic air pollutants linked to severe diseases (including cancers and respiratory illnesses) and premature deaths. In 2019, gas power generation in the EU27 and UK caused up to 2,864 premature deaths.

**Gas power also exposes economies to severe price volatility.** Recent crises have shown how quickly gas prices can spike: UK gas prices increased by around 400% year-on-year in September

2021, while the Russian invasion of Ukraine drove a peak increase of +532% in August 2022 compared to January 2021. Such volatility directly translates into higher electricity prices, contributing to affordability crises and macroeconomic instability. The more recent 2026 conflicts in the Middle East have further reinforced this instability.

Additionally, new gas plants lock in long-term greenhouse gas (GHG) emissions due to their operational lifetimes of at least 25 years, undermining global decarbonization. This is particularly critical in OECD and European countries – which account for 78% of bank financing – where power systems are expected to reach carbon neutrality by 2035, compared to 2045 globally.<sup>3</sup> Strikingly, 48% of financing for gas power expansion goes to countries with net-zero commitments by 2050 or earlier, including several countries with 2035 electricity decarbonization targets, such as France, the UK, and Italy.

In conclusion, **the development of new gas plants directly undermines public health, energy access, and energy security, and is not compatible with climate objectives.** While banks should align with decarbonization trajectories, the immediate priority must be to end all financial support to companies responsible for gas power expansion to protect people’s health, ensure fair and affordable energy access, and to mitigate climate change and its catastrophic consequences.



## ENERGY TRANSITION

Generally, “energy transition” refers to a progressive shift from the existing (fossil-based) energy system to a new system, but its scope is often unclear and subjective. **In the context of this report, the “energy transition” refers to a radical transformation of the energy system — and energy supply in particular — where sustainable power rapidly replaces fossil fuels** (and is not only added to them), in a timeline compatible with a net-zero trajectory by mid-century.

## GAS POWER EXPANSION

This report focuses on **the expansion of gas-fired power generation (gas power) capacities, which refers to the development of new gas-fired power plants (gas plants)**, i.e. projects that are proposed, under construction, and in commissioning. This includes coal-to-gas conversions.

## NET-ZERO TRAJECTORY

Among existing scenarios, the Net Zero Emissions by 2050 Scenario (NZE) from the International Energy Agency (IEA) is the most referenced and is based on the emergence of a “clean energy supply” system that incorporates mostly clean power.<sup>4</sup> Even if exceeding the 1.5°C target is now inevitable, we still need to pursue all efforts to limit the increase of global temperature and return global average temperatures to below 1.5°C by the end of the century. The latest update of the NZE reflects this challenge and so remains a relevant compass.

The NZE trajectory relies on several intermediate milestones. In particular, reaching a carbon neutral energy supply system by 2045 globally, with electricity output from unabated fossil fuels virtually disappearing by 2050, as plants are run less, retired, or — to a much lower extent — retrofitted with carbon capture, utilization, and storage (CCUS). “Advanced economies” (essentially constituted of OECD and continental European countries) take the lead, with their energy supply systems reaching carbon neutrality by 2035. China should follow by 2040, and the rest of the world by 2045.

## MONETIZATION

Monetizing health impacts aims to express morbidity and mortality effects in monetary terms and compare them with mitigation costs. It is often the last step in health impact assessments (HIAs). Two important concepts for monetization are the Value of a Statistical Life (VSL) and the Value of a Life Year (VOLY), which reflect the willingness of individuals to pay for reductions in mortality risk rather than the value of a life per se. However, the calculation of these metrics depends on the methodology used<sup>5</sup> and raises ethical questions.<sup>6</sup> **All in all, monetization yields figures that must be approached with the utmost caution.** Though it can give orders of magnitude — often low estimates that can be compared to mitigation costs and provide a useful indication in macro estimates — **monetization should by no means be taken as a precise assessment of the cost of health impacts.**

# DEFINITIONS





For several years now, energy security and access to affordable energy have been central to public debate – both internationally and at the national level. Geopolitical tensions, such as the current 2026 conflicts in the Middle East, intensify competition between states and put fossil fuels at the center of the balance of power. Their increased use as geopolitical weapons generates soaring energy prices and rising energy poverty. In this context, gas is paradoxically often portrayed as the solution: a reliable source of power, a safeguard for households and industries, and a necessary complement to renewable energy.

However, these claims remain largely unsubstantiated and are increasingly at odds with lessons from recent energy and geopolitical crises, in addition to contradicting scientific evidence highlighting the urgent need to phase out fossil fuels. According to the IEA's Net Zero Emissions by 2050 Scenario (NZE), the power sector must be fully decarbonized by 2035 in OECD and European countries, and by 2045 globally.<sup>7</sup> The continued expansion of gas power infrastructure – long-lived assets designed to operate for decades – directly conflicts with these timelines.

This raises a fundamental question: **how do banks position themselves regarding the continued expansion of gas power and its consequences, not only for climate targets, but for public health and household access to affordable energy?**

Banks play a decisive role in translating the narrative of gas as a transition fuel into reality. Their financing is critical to the development of new gas-fired power plants (gas plants) and – by endorsing gas as a solution to energy insecurity and affordability challenges – they effectively lock in a fossil-based power system for decades to come, contrary to the trajectory towards sustainable societies.

In short, banks can enable or prevent the development of new gas plants and their impacts. And, given the climate commitments of European banks and their regular emphasis on protecting consumers and strengthening European competitiveness and sovereignty, one could assume they have begun to shift financing away from gas power. But the evidence of this remains limited.

Despite the centrality of these issues, the role of gas in the power sector – and the role of banks in sustaining its expansion – remains under-scrutinized. This report seeks to fill that gap. It sheds light on the European banks most exposed to gas power expansion and on the implications of their continued support. It explores not only the climate impacts of gas power, with respect to sector decarbonization objectives, but also its social impacts, especially on public health and electricity prices.

# 01

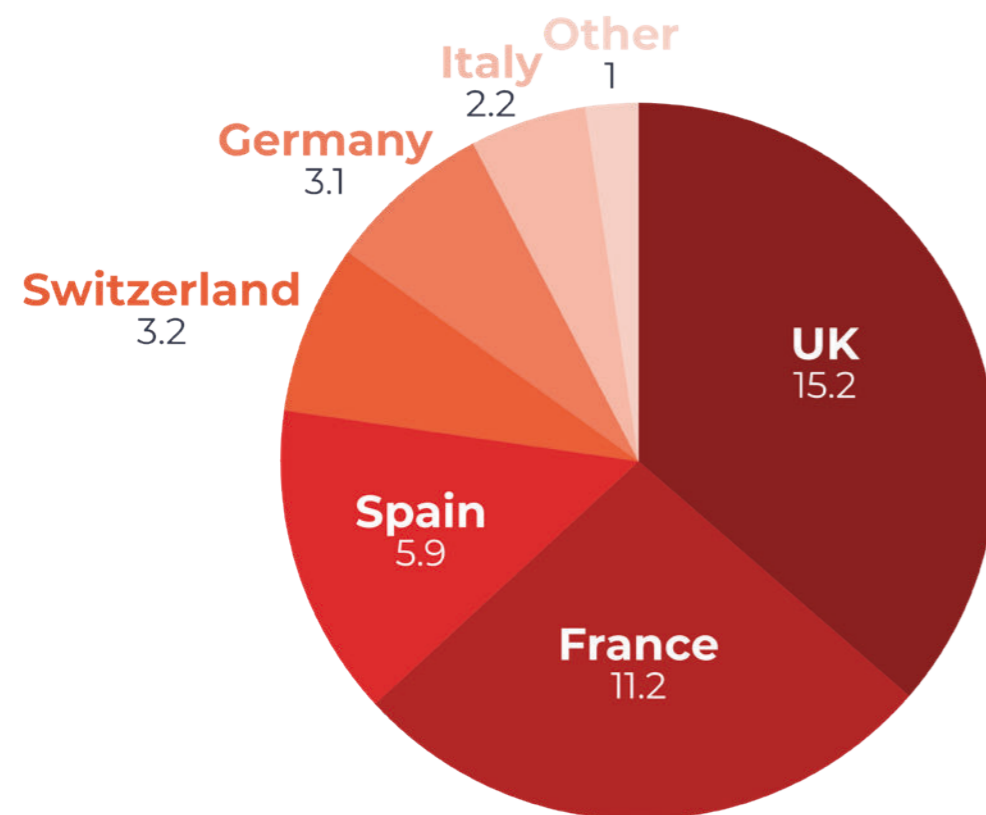
***EUROPEAN BANKS ARE  
FUELING GAS POWER  
EXPANSION***

## A. EUROPEAN BANKS HAVE INCREASED FINANCING FOR GAS POWER DEVELOPERS GLOBALLY

Between 2021 and 2024, Europe's 24 biggest banks allocated US\$41.9 billion to companies that develop new gas plants around the world.

UK banks and French banks are the main financiers, accounting for 36% (US\$15.2 billion) and 27% (US\$11.2 billion) of total financing, respectively. Almost all this support comes from seven banks: BNP Paribas, Crédit Agricole, Groupe BPCE, Société Générale, Barclays, HSBC, and Standard Chartered.

Figure 1: Financing of banks for gas power expansion by HQ country (in billion US\$)



***Table 1: Ranking of European banks by financing allocated to gas power developers, and the most financed companies (up to three) among the 20 most financed companies overall***

	Bank	Main clients among the 20 most financed developers	Total financing 2021-2024 (mln US\$)
1	 Barclays	ArcLight Capital Partners LLC, Duke Energy Corporation, Southern Company	10,308
2	 BNP Paribas	Entergy Corporation, Duke Energy Corporation, Dominion Energy Inc	4,957
3	 Santander	Duke Energy Corporation, Comisión Federal de Electricidad EPE (CFE), Southern Company	3,385
4	 UBS	Duke Energy Corporation, Dominion Energy Inc, Vistra Corp	3,250
5	 HSBC	Saudi Electricity Company (Saudi Energy), Comisión Federal de Electricidad EPE (CFE), Saudi Arabian Oil Company (Saudi Aramco)	2,603
6	 Crédit Agricole	NRG Energy Inc, Vistra Corp, American Electric Power Company Inc (AEP)	2,382
7	 Deutsche Bank	NRG Energy Inc, Dominion Energy Inc, JERA Co Inc	2,169
8	 Standard Chartered	Saudi Electricity Company (Saudi Energy), JERA Co Inc, Saudi Arabian Oil Company (Saudi Aramco)	2,034
9	 Groupe BPCE	Saudi Electricity Company (Saudi Energy), Vistra Corp, NRG Energy Inc	2,019
10	 Société Générale	Saudi Electricity Company (Saudi Energy), Vistra Corp, ENGIE SA	1,745
11	 Banco Bilbao Vizcaya Argentaria (BBVA)	Comisión Federal de Electricidad EPE (CFE), Southern Company, Enel SpA	1,727
12	 Intesa Sanpaolo	Saudi Electricity Company (Saudi Energy), Southern Company, Enel SpA	1,403
13	 ING Group	Venture Global Inc, JERA Co Inc, NRG Energy Inc	923
14	 UniCredit	Enel SpA, EP Investment Sarl, Siemens Energy AG	841
15	 Commerzbank	EP Investment Sarl, NRG Energy Inc, Siemens Energy AG	794
16	 La Caixa Group	Enel SpA, Venture Global Inc, ENGIE SA	792
17	 NatWest	BP plc, Enel SpA, ENGIE SA	183
18	 DZ Bank	Venture Global Inc , JERA Co Inc, Siemens Energy AG	137
19	 Lloyds Banking Group	Siemens Energy AG, BP plc, Electricité de France SA (EDF Group)	91
20	 Crédit Mutuel	ENGIE SA, Electricité de France SA (EDF Group)	60
21	 La Banque Postale	ENGIE SA, Electricité de France SA (EDF Group)	45
22	 Danske Bank	Siemens Energy AG	37
23	 Rabobank	Electricité de France SA (EDF Group)	22
24	 Nordea	/	20

Between 2021 and 2024, **European banks increased their support for gas power expansion by 6% each year on average.** Over the same period, their financing for sustainable power grew by 5%.<sup>8</sup> This means **European banks are supporting new renewables capacity and new gas plants in parallel.** But the decarbonization of the energy system requires renewables to replace gas plants, not simply add to them. This trend is highly problematic, as it delays energy system transformation and locks economies into fossil fuel dependence.

The reach of this financing trend is global. **European banks are financing the expansion of gas power in at least 38 countries across all continents.** Of these countries, 31 have announced legally binding net-zero pledges, with 23 targeting carbon neutrality by 2050 or earlier,<sup>9</sup> which implies the energy supply sector must be decarbonized before that.

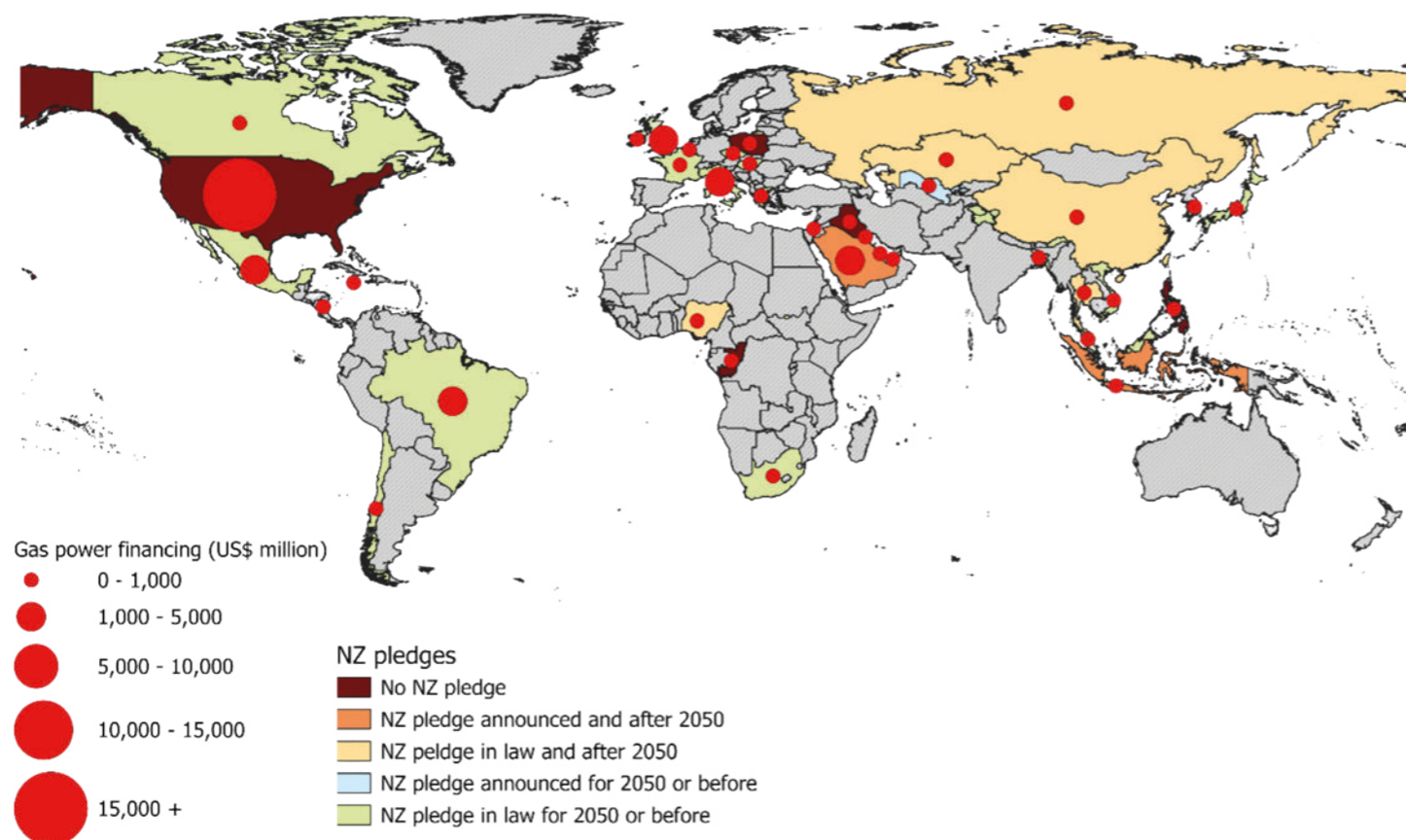
For instance, in the IEA's NZE, reaching net zero globally by 2050 requires the full decarbonization of the energy supply

sector by 2035 in "advanced economies" (OECD and European countries) — where 78% of bank financing is directed — and by 2045 in the rest of the world. Several EU countries, such as France, the UK, and Italy, have additional commitments to fully decarbonize electricity by 2035.

But gas plants can operate for at least 25 years and can last even longer with maintenance and component replacement,<sup>10</sup> leading to GHG emissions lock-in incompatible with decarbonization objectives. **By supporting the development of new gas plants, banks are undermining the climate pledges of countries worldwide as well as the key milestones for decarbonization of the global power sector.**

The risks of gas power expansion go beyond climate; it directly affects relations between countries. From Russia's invasion of Ukraine to the US-Israel attacks on Iran, gas has become a geopolitical weapon. Conflicts around the world disrupt the fossil gas supply chain, increasing price volatility and triggering energy insecurity. Meanwhile, US President Donald Trump is actively leveraging gas as a tool of coercion, pressuring countries — including in the EU<sup>12</sup> — to depend on US gas supply. **By financing the worldwide development of new gas plants, banks are not only fueling climate change but also reinforcing this coercion effect and amplifying global political instability.**

**Figure 2: Breakdown of corporate financing from European banks by expansion country for the gas power developers analyzed and countries' net-zero pledges.<sup>11</sup>**





## B. GAS POWER REMAINS A BLIND SPOT IN BANK POLICIES






The reality is stark: **not only are banks increasing their support for gas power expansion instead of stopping it, they are also failing to adopt measures to meet their climate commitments or to demonstrate how they intend to curb their financing of gas power.**

Every major European bank has set a decarbonization target for the power sector by 2030. These targets at least signal a recognition of the need to cut emissions from power generation. But recognition is not enough. Most of these targets suffer from significant methodological flaws,<sup>13</sup> which places serious doubt on their capacity to drive power sector decarbonization – as already underlined by the actual financial support to gas power expansion.

To effectively cut GHG emissions from the power system, banks should adopt robust sectoral policies that explicitly restrict financing for gas power expansion and ensure a progressive phaseout of their exposure to gas power.

Yet, among the 24 European banks, only one (La Banque Postale) has published a sectoral policy<sup>14</sup> with credible restrictions on gas power expansion. Four others mention gas power,<sup>15</sup> but the criteria are either limited to specific geographic aspects (Santander, Société Générale), very vague (Rabobank), or so weak (HSBC) that they do little to ensure a real reduction in the bank's support for gas power expansion. **Without robust policies to restrict financing for gas power, the climate commitments of banks remain empty promises that do nothing to change their business-as-usual.**

**Table 2: Analysis of existing policies on gas power**

Bank	Policy analysis
 <p><b>Robust policy</b></p>	<p>La Banque Postale is committed to completely phasing out oil and gas over the entire value chain by 2030. Its policy excludes project financing at asset level for new gas plants and general-purpose financing for companies that develop new gas plants. Exceptions remain possible <i>“for clients that have adopted a credible public strategy to exit the oil and gas sectors by 2040 in line with scientific recommendations and provided that [...] they no longer develop new assets in the oil and gas sectors that could continue beyond 2030”</i>.</p> <p>While the inclusion of a few exceptions is regrettable, they remain limited in scope. This policy is the most advanced example of excluding gas power expansion – it cuts support for the new developments and reduces the bank’s exposure to gas. Other banks should follow its lead.</p>
 <p><b>Very weak policy</b></p>	<p>HSBC excludes <i>“new finance or new advisory services for the specific purposes of [...] projects in environmentally and socially critical areas”</i>, but does not define such areas, thus making it impossible to assess the impact of this criterion.</p> <p>By not defining what constitutes such critical areas, HSBC chooses to hide behind a blurry criterion and to leave itself with significant discretion. In the end, it seems that this criterion does not prevent financing for new gas plants or the companies that develop them. Besides, this is a clear backtrack from its previous policy, where the restriction criteria for new gas plants were more precise, although still very weak.<sup>16</sup></p>
 <p><b>Very weak policy</b></p>	<p>Rabobank excludes direct financing of gas plants unless it is <i>“clearly and verifiably compatible with the energy system of the future [...] or identified as required for energy security and affordability in Europe”</i>.</p> <p>Even if Rabobank provides more detail on both criteria, it is clear this policy still leaves the door open to nearly any gas plant. For example, one of the multiple reasons that can justify the bank’s support is a commitment to equip a gas plant with carbon capture and storage (CCS) or to use it for renewable hydrogen production. Yet, an upfront commitment to CCS can be claimed very easily but does not guarantee actual implementation later. The same applies to renewable hydrogen, which is an unlikely addition in reality given extremely low current volumes and the very high costs associated with production.</p>
 <p><b>Very weak policy</b></p>	<p>Santander excludes gas plants <i>“which put areas classified as Ramsar Sites, World Heritage Sites or by the International Union for Conservation of Nature (IUCN) as categories I, II, III or IV at risk.”</i></p> <p>This geographical criterion is extremely limited and is very unlikely to prevent financing to new gas plants or the companies that develop them.</p>
 <p><b>Very weak policy</b></p>	<p>Société Générale excludes gas plants <i>“under development, construction or expansion within a UNESCO World Heritage Site, a Ramsar site, a nationally protected area (IUCN categories I-IV) or a site of the Alliance for Zero Extinction.”</i></p> <p>This geographical criterion is extremely limited and is very unlikely to prevent financing to new gas plants or the companies that develop them.</p>

## C. THE UTILITIES AND MAJORS BEHIND GLOBAL GAS POWER EXPANSION

**The use of gas for electricity generation continues to expand worldwide, with its proponents presenting it as a necessary fuel in the energy transition and an inevitable bridge between coal decline and renewable take-up.** As a result of this narrative and expansion, the share of gas in the global electricity mix has remained steady since 2010 – around 22% – despite the ramping up of sustainable energies, mainly solar and wind, which together increased from 1.8% to 15% of the global electricity mix between 2010 and 2024.<sup>17</sup> **In 2025, between 1,000 and 1,200 new gas plants were planned or under development.<sup>18</sup> This could represent more than 1,000 GW of extra capacity worldwide, adding to the 2,000 GW already in operation.<sup>19</sup>**

Over the analyzed period 2021-2024, the 20 gas power developers most financed by European banks received more than US\$33.4 billion, accounting for 80% of total financing. At the end of 2025, they were responsible for 101 new gas plant projects. Half of these 20 companies are among the 50 biggest gas developers worldwide.

The most heavily backed gas power developers have significant development plans: Duke Energy Corporation, Saudi Electric Company (Saudi Energy), and NRG Energy Inc – the three most financed companies – plan to add 7 GW, 8.6 GW, and 3.9 GW of new capacity, respectively, with a total of 17 new gas plants. Meanwhile, the Mexican Federal Electricity Commission (Comisión Federal de Electricidad, CFE) and French power utility Electricité de France (EDF) – also in the top 20 most financed companies – are developing 9 GW and 5.5 GW of capacity, respectively, with 23 new gas plants.<sup>20</sup>

Among the 20 most financed gas developers, 15 are power utilities. The transition plans of 12 of

these utility companies were recently assessed, notably by the investor-led initiative Climate Action 100+.<sup>21</sup> The results show that none has a robust and credible transition plan or is aligned with NZE decarbonization targets. Some of the utilities, such as Enel or ENGIE, have strong renewable energy development plans, but these plans must be accompanied by a high-priority gas phase-out. However, no announcement of a gas exit plan has been made by any of these companies.<sup>22</sup>

Two of the 20 most financed companies are oil and gas majors – Saudi Energy and BP – and therefore involved in the entire gas value chain from extraction to final use. As such, by financing gas power, European banks are also supporting companies with no intention of transitioning away from fossil fuels. In 2023, oil and gas majors accounted for only 1% of global investment in “clean energy”<sup>23</sup> and had negligible weight in the transition toward a sustainable energy system. In 2025, the world’s largest oil and gas companies reduced their investment in the energy transition for the first time since 2017 – from an already low 10% to 6.5% of their annual capital expenditure (capex).<sup>24</sup>

**This seriously questions the policies and selection criteria of the main European banks when it comes to making financing decisions. They must establish clear and strong guidance to avoid supporting oil and gas majors or utilities that lack robust transition plans.**

The most financed companies are based in OECD countries (the US, Europe, Mexico, Japan) and Saudi Arabia, indicating that **European banks focus on geographic areas where gas power already has significant capacity, if not overcapacity.**<sup>25</sup> US-based companies mainly develop new projects in the US, with a thriving local market, while other companies develop new gas plants globally.



***Table 3: The 20 gas power developers most financed by European banks***

Ranking	Company	Country of Headquarters	Expansion Countries	Total Financial support 2021-2024 (mln US\$)	Gas Power Capacity Expansion (MW)
1	Duke Energy	USA	USA	4 548	7 049
2	Saudi Electricity Company	Saudi Arabia	Saudi Arabia	3 531	8 596
3	NRG Energy	USA	USA	3 355	3 903
4	Dominion Energy	USA	USA	2 588	2 128
5	Enel	Italy	Italy	2 398	870
6	CFE	Mexico	Mexico	2 161	9 020
7	Southern Company	USA	USA	1 978	1 326
8	Vistra Corp	USA	USA	1 971	1 460
9	ArcLight	USA	USA	1 798	1 100
10	Entergy	USA	USA	1 731	6 959
11	Engie	France	Chile	911	226
12	EP Investment	Luxembourg	Czech Republic, France, Germany, Italy, United Kingdom	909	4 244
13	JERA	Japan	Bangladesh, Japan, Philippines, Saudi Arabia	851	3 243
14	AEP	USA	USA	770	1 503
15	Siemens Energy	Germany	Brazil, USA, Uzbekistan	743	1 786
16	Saudi Aramco	Saudi Arabia	China, Saudi Arabia, South Korea, USA	644	1 731
17	EDF	France	Belgium, Brazil, Italy, Saudi Arabia, Uzbekistan, Vietnam	642	5 487
18	AES Corporation	USA	USA, Vietnam	636	3 590
19	BP	United Kingdom	Brazil, United Kingdom	636	1 696
20	Venture Global	USA	USA	629	4 120

## ***Nijmegen gas plant, Netherlands – Against common sense and local opinion***

- Location: Nijmegen, Gelderland, Netherlands
- Type of technology: Combined cycle gas turbine (CCGT)
- Owner: ENGIE SA [100%]
- Owner main funders: **Crédit Agricole, Santander, Société Générale, Groupe BPCE**
- Status: Proposed
- Capacity: 500 MW<sup>26</sup>
- Starting date: Unknown

In Nijmegen (Netherlands), ENGIE plans to build a new 500 MW gas plant on the former site of an ENGIE-owned coal plant that closed down in 2015. The plant's operational lifespan means it would continue producing electricity until 2045, which would breach the Dutch government's commitment to decarbonize its power sector by 2035,<sup>27</sup> in line with the IEA's NZE trajectory. It also questions the credibility of the company's decarbonization plan, which seeks to keep global temperature rise "well below 2°C" instead of implementing a pathway aiming at limiting global warming to as close to 1.5°C as possible.<sup>28</sup>

The Netherlands has the second-highest installed gas capacity per capita in the EU, with 43 operational gas plants already, accounting for a total 15.3 GW of installed capacity (including 1 GW that is mothballed). In parallel, between 2021 and 2024, gas demand in the EU has fallen by 19%,<sup>29</sup> and by 23% in the Netherlands.<sup>30</sup> Over the same period, electricity generation from gas in the country has declined by 22%.<sup>31</sup> A new gas plant will therefore increase the country's overcapacity in gas power.

The project is facing strong local opposition and has faced numerous protests from civil society, pointing out its CO<sub>2</sub> emissions, nitrogen emissions, health impacts, and a lack of transparent information from ENGIE and the municipality in the decision-making process.<sup>32,33</sup>



## ***Son My II gas plant, Vietnam – Fueling a national gas strategy despite the threat of financial and delay issues***

- Location: Hàm Tân, Bình Thuận, Vietnam
- Type of technology: Combined cycle gas turbine (CCGT)
- Owner: AES Corporation [100%]
- Owner main funders: **Santander, Crédit Agricole, Barclays, BNP Paribas**
- Status: Pre-construction
- Capacity: 2,250 MW
- Starting date: 2028 (planned)

The Son My II gas plant is a 2,250 MW project planned in Bình Thuận, Vietnam. The overall project cost is estimated to be US\$1.8 billion.<sup>34</sup> The gas plant is linked to the development of the Son My LNG Terminal, which is set to fuel the gas plant<sup>35</sup> and start operations in 2026, representing an investment of about US\$1.4 billion.<sup>36,37</sup> The Son My II gas plant is thus directly contributing to the current LNG surge,<sup>38</sup> with significant impacts on health, energy access, climate, and environment.<sup>39</sup>

Vietnam, where government is severely cracking down on environmental groups,<sup>40</sup> is a significant hub for gas power development. It has 45 GW of gas power capacity in development, all in the proposed and pre-construction stages – this makes it the second biggest gas developer in Asia after China, and places it well ahead of Saudi Arabia, with 24 GW under development.<sup>41</sup> Moving away from coal, Vietnam's strategy banks on a strong shift to gas for power generation. But this strategy compromises the chance of reaching its net-zero target by 2050 and instead locks the country into high-emitting assets.

Vietnam's gas projects are facing strong financial uncertainty, marked by a lack of investors and construction delays. harsh crackdown on environmental groups. The first LNG-to-power plants in Vietnam, Nhon Trach 3 and 4, are expected to record a combined loss of about VND1 trillion (US\$38 million) in 2026, while more than half of the country's 21 LNG-to-power plants currently planned are facing construction delays.<sup>42</sup>

# 02

## ***THE HARMFUL IMPACTS OF GAS POWER***

## A. GAS POWER SEVERELY IMPACTS HUMAN HEALTH

Like all fossil fuel-based activities, **gas power is a significant source of air pollution<sup>43</sup> and a major public health concern** in many countries. Gas plants emit pollutants such as nitrogen oxides (NO<sub>x</sub>), fine particulate matter (PM<sub>2.5</sub>), and volatile organic compounds (VOCs), contributing to degraded air quality. These pollutants are associated with a wide range of health impacts, including **respiratory and cardiovascular diseases, cancers, adverse birth outcomes, and premature deaths**. Studies focusing specifically on gas plants show increased hospitalizations, exacerbation of respiratory diseases such as asthma, and higher mortality rates among surrounding populations.

**Air pollution from gas plants operates at multiple scales.** Primary emissions affect populations living near plants — typically within a few kilometers, and up to 50 kilometers for larger facilities — while secondary pollutants, particularly PM<sub>2.5</sub>, can travel hundreds of kilometers and affect regional air quality. The dispersion of these pollutants depends on plant characteristics (technology, emission rates, stack design) and weather conditions. PM<sub>2.5</sub> is particularly harmful, as it penetrates deep into the

lungs and bloodstream, causing both respiratory and cardiovascular effects.

Although direct health impacts at the plant level remain relatively understudied, **existing evidence shows clear associations between gas plant operations and deteriorating health outcomes.** Studies have documented local increases in PM and nitrogen dioxide (NO<sub>2</sub>) emissions following the construction of gas plants, alongside rises in hospital admissions and emergency visits, particularly among older populations.<sup>44</sup> Proximity to gas plants is also associated with higher rates of respiratory diseases such as asthma, acute respiratory infections (ARI), and chronic obstructive pulmonary disease (COPD),<sup>45</sup> as well as increased mortality and adverse birth outcomes.<sup>46</sup> These impacts are more severe in densely populated areas and where multiple plants are clustered. Occupational exposure to gas plants is also linked to elevated cardiovascular risks.<sup>47</sup>

On a broader scale, **air pollution from gas power contributes significantly to premature deaths.** In 2019, emissions from **gas power were responsible for up to 2,864 premature deaths** across the EU27 and UK.<sup>49</sup> A study on South Korea by Solutions for



Our Climate (SFOC)<sup>49</sup> shows that an accelerated phaseout of gas power by 2035 would significantly reduce health impacts compared to current policies, with up to 27,000 premature deaths avoided in the highest estimate. The study identifies NO<sub>2</sub> as a major driver of these impacts, particularly in densely populated regions such as Gyeonggi-do and Seoul.

Finally, **gas power contributes to climate change, with its impacts on human health<sup>50</sup> — including heat and water stress, more frequent and intense natural disasters, the spread of infectious diseases, and food insecurity — which are expected to intensify.**

By contrast, **renewable energy sources do not emit air pollutants during operation**, as they do not involve on-site combustion. Their deployment in place of gas power can yield significant health benefits.<sup>51</sup> For instance, in ASEAN power systems,<sup>52</sup> a scenario with high renewable energy integration leads to the greatest reduction in air pollution and mortality, with more than 16,000 premature deaths avoided annually by 2040 and improved air quality for 99.3% of the population.

## B. GAS POWER NEGATIVELY IMPACTS ENERGY ACCESSIBILITY AND AFFORDABILITY

Gas prices have exhibited high market volatility in recent decades,<sup>53</sup> amplified by globalization and inter-linkage of gas markets with LNG, the development of gas use in residential energy and power generation, as well as by supply shocks and geopolitical tensions. Recent crises illustrate this dynamic, be it the 2021 UK gas price surge amid post-Covid recovery,<sup>54</sup> the general price hike in Europe following the invasion of Ukraine in February 2022, or the recent spike in gas prices following the US-Israel attack on Iran in February–March 2026.<sup>55</sup>

In many electricity markets based on marginal pricing (where prices are set by the most expensive generator needed to satisfy demand), **gas plants tend to determine wholesale electricity prices.** In Europe,<sup>57</sup> gas plants set wholesale prices 39% of the time between 2015 and 2021 (and up to 80% in 2021 for the UK, Italy, and the Netherlands), despite generating only about 18% of energy — underscoring their outsized role in price-setting. This means that **fluctuations in gas prices are transmitted directly into electricity prices, leading to broader inflation effects.**<sup>58</sup>

**These shocks have direct consequences for households and public**

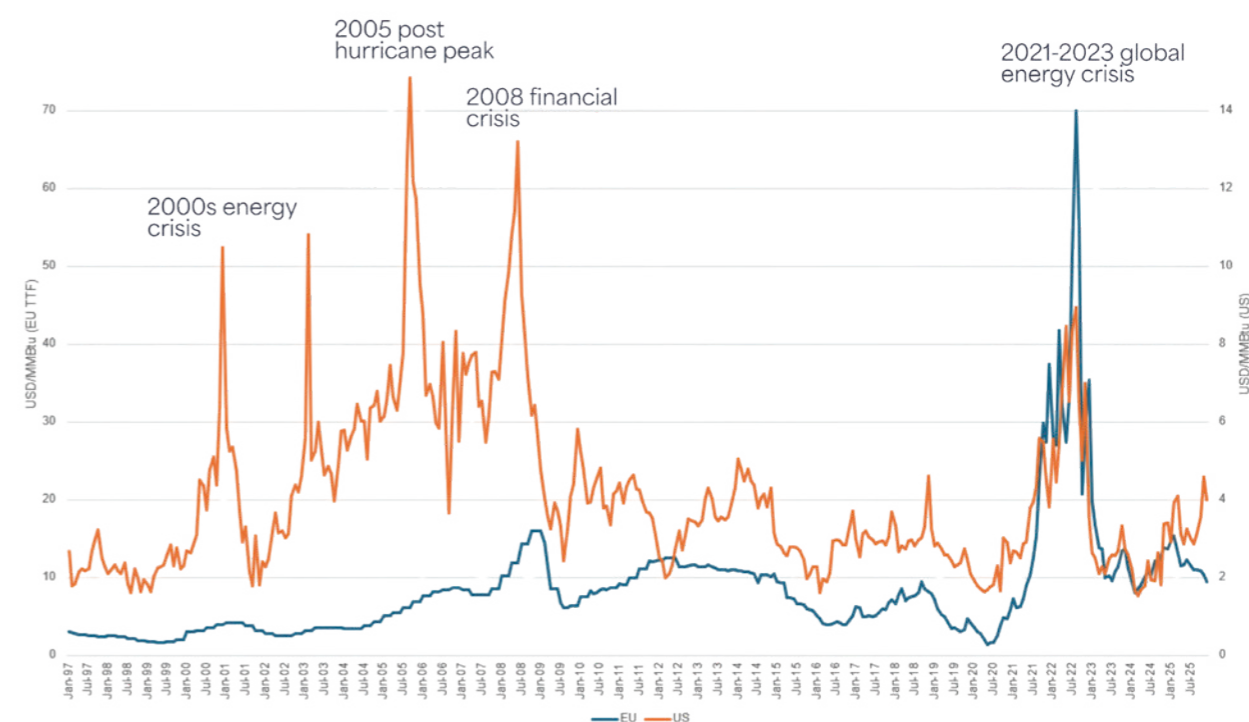
finances.<sup>59,60</sup> To protect consumers from soaring electricity bills, EU member states deployed nearly €800 billion in subsidies and emergency support, often dwarfing earlier fiscal responses such as the EU's COVID-19 recovery fund.

Similar dynamics are observed in other market-based systems, such as parts of the US, where gas plants influence electricity prices through market-clearing price mechanisms but, amid the growing integration of renewables, are sometimes operated at a loss — costs that consumers ultimately bear.<sup>61</sup>

Outside of the OECD, reliance on gas can create additional affordability risks. Many countries turn to gas as a “bridging” fuel to expand electricity access and phase out coal, often through poorly negotiated power purchase agreements (PPAs) that fail to hedge fuel price volatility. This exposes both governments and consumers to rising costs.

In Southeast Asia, for instance, fuel price increases have translated into higher public spending and electricity tariffs, while limiting the ability of renewables to reduce costs.<sup>62</sup> The IEA clearly points out that “the global energy crisis exposed significant vulnerabilities in the security and affordability of Southeast Asia’s fossil fuel-dominated energy supply”.<sup>63</sup> During the 2021–2023 energy crisis, rising gas prices amid a com-

**Figure 3: Gas prices (spot)<sup>56</sup> in the EU and the US (USD/MMBtu)**



Source: MacroTrends LLC

petition for LNG supplies contributed to power shortages, tariff increases, and significant economic disruptions. In some countries, households spent up to one-third of their income on energy, with poorer communities disproportionately affected and cash-strained governments struggling to protect consumers from price hikes.<sup>64</sup>

**By contrast, renewable energy offers a pathway to more stable and affordable electricity systems, as low operating costs reduce ex-**

**posure to fuel price volatility and can lower wholesale electricity prices.**<sup>65</sup> The IEA finds that clean energy technologies are increasingly the most cost-effective option over their lifetimes,<sup>66</sup> and that systems with higher shares of renewables lead to lower household energy spending.<sup>67</sup> In Spain,<sup>68</sup> the expansion of wind and solar has significantly reduced the number of hours during which gas plants set electricity prices, contributing to wholesale prices well below the European average.



### **C. GAS POWER CRITICALLY DELAYS THE DECARBONIZATION OF THE POWER SECTOR**

Gas proponents often portray gas as indispensable for moving from coal to renewables and for supporting the variability of solar and wind when sunlight intensity and wind are low. However, gas plants have clear limitations in providing grid flexibility.<sup>69</sup> Most gas plants developed today — combined cycle gas turbines (CCGTs) — are not designed for peak operations, as this reduces their durability and profitability. By contrast, more sustainable and cost-effective solutions — such as storage systems, demand-side management, improved interconnections, and grid-enhancing technologies — have already proven their ability to provide flexibility and should be prioritized. Moreover, using gas plants for peaking increases both their emission intensity and air pollutant emissions.<sup>70</sup>

Beyond these operational constraints, gas remains a major source of greenhouse gas emissions. Like coal, burning gas for power generation releases significant amounts of CO<sub>2</sub>. Emissions from gas plants range from 350–700 gCO<sub>2</sub>e/kWh, depending on the technology used (CCGT or OCGT)<sup>71</sup> and their mode of operation (base-load or peakload).<sup>72</sup> In comparison,

solar and wind power emit between 7 and 83 gCO<sub>2</sub>e/kWh<sup>73</sup> — around 40 to 100 times less. Globally, gas power accounted for 28% of the power sector's CO<sub>2</sub> emissions in 2024.<sup>74</sup> The idea that gas power is a viable alternative to coal is unfounded and highly debatable.<sup>75</sup> Studies have shown that the lifecycle carbon footprint of liquefied natural gas (LNG) or some unconventional gases can be as high, or even higher, as that of coal.<sup>76</sup>

These figures make clear that financing the expansion of gas power hinders — rather than supports — the decarbonization of electricity systems, which must be achieved by 2035 in OECD and European countries and by 2045 globally.<sup>77</sup> As many of the countries where new gas capacity is being developed have already committed to net-zero emissions by 2050 or earlier, continued support for gas expansion risks undermining the targets.<sup>78</sup> It also slows the decarbonization of other sectors, such as transport and industry, which depend on clean electrification.

While it is essential to properly plan the gas phaseout — by anticipating the closure of existing assets<sup>79</sup> and supporting workers through the transition — the long lifespan of gas plants (25–40 years) makes an immediate halt to new gas developments the top priority.<sup>80</sup>

# THE IMPACTS OF GAS ALONG ITS WHOLE VALUE CHAIN

Gas plants are the last link of a gas value chain that has severe impacts on human health and human rights.

## 1. IMPACTS ON HUMAN HEALTH

Fossil fuel impacts on human health are far from limited to combustion-related air pollution. Fossil fuel-based activities emit a variety of other pollutants throughout their value chains (from extraction to end-use), with diverse forms of exposure (e.g. direct/contact, water-borne, air-borne) contributing to acute, chronic, and often bioaccumulative effects on human beings (across all stages of life and affecting most systems of the human body) and, more generally, on the environment.<sup>81</sup>

The impact of gas extraction and production on human health is well-documented, particularly concerning unconventional/shale gas<sup>82</sup> in North America. Studies detail health impacts of air,<sup>83</sup> water,<sup>84</sup> or noise<sup>85</sup> pollution, ranging from increased all-cause mortality,<sup>86</sup> mortality and morbidity related to respiratory<sup>87</sup> illnesses and cardiovascular<sup>88</sup> diseases, adverse birth outcomes,<sup>89</sup> increased incidence of cancers,<sup>90</sup> as well as mental and neurological diseases.<sup>91</sup>

Evidence also shows the impact of midstream infrastructure (especially in North America). Compressor stations and related pipelines can emit various pollutants (e.g. VOCs<sup>92</sup>) and are linked to increased morbidity and mortality risks for surrounding communities.<sup>93</sup> Additionally, LNG terminals (liquefaction and regasification) — a key outlet for unconventional North American gas — are associated with significant local health impacts, also due primarily to their contribution to air pollution and the release of other hazardous products.<sup>94</sup>

The health impacts along the gas value chain are described in Annex 2.

## 2. IMPACTS ON HUMAN RIGHTS

Gas plants rely on upstream and midstream gas infrastructure projects (exploration, drilling, pipeline construction, processing facilities) that can generate a wide range of human rights impacts.<sup>95</sup>

- **Land, property, and resource rights:** Well or pipeline projects require large land areas and have been linked to forced displacement and resettlement of local populations, often without any appropriate compensation. These practices flout international human rights law, including the rights to property and an adequate standard of living, stripping local communities of their homes and farmlands/grazing lands.
- **Cultural rights and self-determination:** Projects can alter access to resources and landscapes which are essential (or even sacred) to the identities of local (especially Indigenous) communities as well as to their cultural and spiritual practices, which is against the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and International Labour Organization (ILO) Convention 169. International standards require that Indigenous Peoples are consulted, informed, and voluntarily agree (i.e. able to give free, prior and informed consent (FPIC)) before projects affect their lands and livelihoods, but this principle is often not respected.<sup>96</sup>
- **Economic and social rights:** Projects that dispossess local communities of their lands and/or cause environmental degradation can erode the economic foundations of communities, cause loss of livelihood (which often depends on the integrity of the natural environment), and can generate serious social upheaval (linked to displacement) and health impacts (e.g. pollution, lack of basic sanitation, food insecurity) within affected communities.
- **Civil and political rights:** Projects are often developed in countries where there is suppression of dissent, meaning any civil society opposition to the design or process of gas development can be severely undermined. Additionally, projects are often found to be very opaque in their processes and fail to properly involve local affected communities in decision-making or project governance.

**TotalEnergies's projects in East Africa (Tilenga, Kingfisher, and EACOP in Uganda/Tanzania, and Mozambique LNG in the province of Cabo Delgado) are a blatant illustration of these impacts.**

In Uganda, Human Rights Watch<sup>97,98</sup> and Global Witness<sup>99</sup> documented the land and livelihood losses caused by EACOP and Tilenga. The projects displaced tens of thousands of households who lost their land. The compensation process was delayed, inadequate, and poorly communicated, forcing some families into debt and food insecurity. Local communities felt pressure and intimidation to sign compensation agreements in English, a language many of them cannot read, and to accept cash settlements instead of the option of replacement land in line with international standards, such as the International Finance Corporation Performance Standard 5 (IFC PS5)<sup>100</sup> and the Equator Principles (EPs), to which TotalEnergies repeatedly stated its commitment. The compensation received was far below the cost of purchasing replacement lands, leading affected families who signed the agreement to buy smaller parcels at distant locations with poorer soil quality. Avocats Sans Frontières (ASF)<sup>101</sup> reported a continuation of impacts on communities' land rights, but also labor rights violations, environmental degradation, and extortion with gender-based violence around the Kingfisher project, with women facing economic exclusion and vulnerability to sexual exploitation.

In Mozambique, where TotalEnergies is developing a gas extraction project in the civil war-plagued Cabo Delgado province, Mozambican security forces — some on contract or in coordination with project authorities — are alleged to have been involved in arbitrary arrest, torture, killings, and enforced disappearances of civilians, raising accusations of complicity in war crimes against TotalEnergies.<sup>102,103</sup> The project had also previously resettled hundreds of households, including fisher communities that lost access to resources critical to their livelihoods.

### **3. IMPACTS ON CLIMATE CHANGE THROUGH METHANE LEAKS**

Beyond CO<sub>2</sub> emissions, gas power releases methane throughout its supply chain. Methane is a greenhouse gas 86 times more damaging than CO<sub>2</sub> over a 20-year period. Its concentration in the atmosphere continues to rise, and is now over 2.5 times above pre-industrial levels.<sup>104</sup> Unlike CO<sub>2</sub>, which remains in the atmosphere for centuries, methane decomposes within a decade. Reducing methane emissions is therefore one of the most effective ways to curb global warming: methane levels could drop quickly and would disappear from the atmosphere within a few decades. Accordingly, the IEA's NZE trajectory projects an 80% reduction in methane emissions from fossil fuel operations between 2024 and 2035.<sup>105</sup>

Although methane is responsible for 30% of the rise in global temperatures since the Industrial Revolution, its impact on global warming has been less documented than that of CO<sub>2</sub>, and methane leaks from the gas supply chain are largely underreported and underestimated.<sup>106</sup> This discrepancy helps explain why gas has long been misleadingly promoted as a "transition" or "bridge" fuel — a narrative still widely pushed by the gas industry.

When the entire gas supply chain is considered, including methane leaks, the GHG emissions from gas power and coal power are much more similar. Assuming more than 4% of gas (methane) leaks, its use for electricity generation becomes more harmful to the climate than coal over 20 years.<sup>107</sup> Depending on the source of the gas burned, the comparison can be even less favorable to gas. In Europe, gas sources — particularly with the growing imports of liquefied natural gas (LNG), largely from US shale gas — are especially damaging to the climate.



# 03

## ***CONCLUSION AND RECOMMENDATIONS FOR BANKS***

**Gas power is not a bridge fuel or a solution for the energy transition; quite the opposite.** The scientific and technical literature is clear on its impacts:

- **Gas power has severe social consequences for human health and human rights.** Air pollution from gas power already causes thousands of premature deaths. It exacerbates social inequalities by disproportionately affecting vulnerable populations. Gas power is also the last link in a value chain that, from extraction to production, leads to recurring human rights violations.
- **Gas power generates volatility and price spikes in energy markets** that can plunge households into energy precarity or poverty. Its increasing use as a geopolitical weapon will only exacerbate its propensity to destabilize the global economy. In contrast, renewables are not dependent on fuel price volatility and contribute to electricity wholesale price reductions.
- **Gas power deviates from the goal of limiting global warming to as close to 1.5°C as possible.** There is now less than 20 years to reach carbon neutrality in the power supply system. Given the long useful life and associated GHG emissions of gas plants, any new development is incompatible with this climate objective.

In this context, **ending the expansion of gas power and organizing a rapid phaseout must be an absolute priority.** However, European banks

are failing to adopt robust sectoral policies that exclude financing for new gas plants and the companies that develop them.

The few existing gas-related criteria adopted by banks are often vague or very limited and do not reflect a genuine desire to translate climate commitments into concrete changes in financing activities. Promises of decarbonization will remain empty promises as long as banks continue to finance gas power expansion – locking in more climate chaos, social threats, and economic instability.

The credibility of the climate strategies of banks now depends on their ability to abandon gas power expansion and resolutely engage in its progressive phaseout. Banks must adopt robust policies<sup>108</sup> dedicated to gas power, incorporating time-bound restrictions, as follows:

- **Immediately commit to end all financial services to gas power expansion and phase out exposure to gas power** by 2035 in OECD and European countries and by 2045 in the rest of the world.
- **End all financing for new gas projects**, including coal-to-gas conversions, without delay.
- **Condition support to companies that develop new gas plants** to an immediate end of gas power development, a public commitment to phase out gas power by 2035 in OECD countries and by 2045 in the rest of the world, and a short-term detailed timetable for closing existing assets.



In this research, data related to energy and finance were collected.

## ENERGY ANALYSIS

This research concerns companies involved in gas power expansion worldwide, based on the Global Oil & Gas Exit List (GOGEL) developed by urgewald, as of November 2025. This list includes companies responsible for at least 100 MW of gas-fired power capacity under development — proposed, under construction, and in commissioning. We've selected the top companies accounting for 80% of global gas power expansion, totaling 231 parent companies and 322 subsidiaries. Among these companies, the 81 parent companies that received the most financing from European banks during the relevant period were retained for this report (see Financial Analysis section). The development capacities were attributed to parent companies proportionally to their ownership of subsidiaries. As only gas plants were considered for this report, the term "capacity" refers only to power generation capacity (and not storage capacity, for example).

Gas plants are made of one or several units which produce electricity. Units often consist of a boiler and gas or steam turbines, and can be operated separately. Several units may make up one gas plant, also called a power station or power plant. In this report, "gas plant" refers to a group of several units located on the same site. If unit level were considered, the number of plants mentioned would be much higher than that given in the report.

## HEALTH AND SOCIAL IMPACTS ANALYSIS

A literature review was carried out on the health and social impacts of gas plants. A sample of the studies was selected for reference, with priority given to the most recent peer-reviewed studies and reports from reputable sources.

## FINANCIAL ANALYSIS

- **Data source and scope**

The underlying financial dataset for this analysis comes from the 2025 Banking on Climate Chaos report,<sup>109</sup> which documents financing provided by the largest global banks to companies active across

the fossil fuel industry. For this analysis, only transactions linked to the 81 parent companies (and their subsidiaries) within our scope were considered.

The dataset covers transactions between January 1, 2021, and December 31, 2024. The financing instruments considered include lending (corporate loans and revolving credit facilities) and the underwriting of primary and secondary bond and share issuances. Both syndicated and bilateral financing are included. However, as the underlying data providers of the 2025 Banking on Climate Chaos report offer limited insight into bilateral lending, this accounts for a much smaller percentage of the reported financing. Project and corporate finance are also covered. Green-labeled transactions, such as green bonds and green loans, were considered out of scope and therefore excluded.

- **Bank scope and credit allocation**

This analysis focuses on the 24 European banks featured in the 2025 Banking on Climate Chaos report. The credit allocation for each bank's participation in financing is derived from the same report:

- ◇ In cases where the actual bank contribution is known, that value is used.
- ◇ If the percentage of fees earned by a bank is reported, that percentage is applied to represent the percentage of its participation.
- ◇ Otherwise, the value of the deal is divided among all known participants, with a greater total share allocated to the banks in leading roles (bookrunners), using the bookratio methodology — an approach developed by the research consultancy Profundo. This methodology enables all banks that make financial contributions to a deal to be credited, rather than only those in leading roles. Roles that do not involve financial contributions are excluded.

- **Gas power adjusters**

To account for the fact that some companies operate in multiple sectors, adjustment factors (from 0% to 100%) were applied. These adjusters reflect the proportion of each parent company's activities that are attributable to gas power.

Gas power adjusters were developed using segment reporting from annual reports, wherever possible, supplemented by additional information from company publications, websites, and estimates where necessary. The following financial indicators were used in order of priority: capital expenditure (capex), revenue, assets, income, installed power capacity, and power generation capacity. In selected cases where data on a company were not readily available, Fossil Fuel Share of Revenue from urgewald's 2025 GOGEL was used.

- **Geographic adjusters**

Geographic adjustment factors were applied to reflect the countries in which companies are expanding their gas power capacity. These were estimated using the gas power expansion capacity (in MW) of the selected companies broken down by country, based on urgewald's 2025 GOGEL.

- **Limits of the analysis**

This analysis uses a parent-level approach. Financing is assessed for both parent companies and their subsidiaries; however, the gas power adjustment factor is estimated only at the parent company level and then applied uniformly to the parent and all subsidiaries. As a result, financing attributed to individual subsidiaries may be over- or underestimated, depending on whether those subsidiaries receive direct financing from the banks included in the analysis. Despite this limitation, the reported financing figures are considered a reliable estimate of financing at the parent company level.

The estimation of gas power adjusters is limited by the public data that companies make available. Our primary reference is capex, which we consider the most reliable indicator of how companies use bank financing. However, the absence of comprehensive, cross-industry databases on capex makes it challenging to apply this metric consistently and with sufficient granularity. In some cases, alternative metrics such as revenue, assets, income, installed power capacity, and power generation capacity are used to fill the gap. When no company-specific data were available, we relied on proxy indicators — for example, Fossil Fuel Share of Revenue from urgewald's 2025 GOGEL — or, in situations with very limited documentation, we applied a conservative 5% adjuster.

## POLICY ANALYSIS

This report evaluates the gas power policies — where they exist — of the 24 European banks exposed to gas power developers worldwide (capacity >100 MW). The focus of the report is gas power expansion, i.e. how these policies consider gas plant projects and companies involved in gas power expansion. Financing restrictions were considered, while enhanced due diligences were not included (due diligence assessment criteria are usually not public or are too vague). If needed, financial institutions explicitly mentioned in the report have been contacted by Reclaim Finance with questions related to their existing policies.

# GLOSSARY



<b>ACRONYM</b>	<b>MEANING</b>
<b>AAP</b>	ambient air pollution
<b>ALRI</b>	acute lower respiratory infections
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>BP</b>	British Petroleum
<b>CAPEX</b>	capital expenditure
<b>CCGT</b>	combined cycle gas turbine
<b>CFE</b>	Comisión Federal de Electricidad
<b>CO<sub>2</sub>(e)</b>	carbon dioxide (equivalent)
<b>COPD</b>	chronic obstructive pulmonary disease
<b>CRF</b>	concentration-response function
<b>EACOP</b>	East African Crude Oil Pipeline
<b>EDF</b>	Électricité de France
<b>EU</b>	European Union
<b>FPIC</b>	free, prior, and informed consent
<b>GOGEL</b>	Global Oil & Gas Exit List
<b>GW</b>	gigawatt
<b>HIA</b>	health impact assessment
<b>IARC</b>	International Agency for Research on Cancer
<b>IEA</b>	International Energy Agency
<b>IFC PS</b>	International Finance Corporation Performance Standards
<b>IHD</b>	ischemic heart disease
<b>ILO</b>	International Labour Organization
<b>IP</b>	Indigenous Peoples
<b>IUCN</b>	International Union for Conservation of Nature
<b>LC</b>	lung cancer
<b>LNG</b>	liquefied natural gas
<b>MMBtu</b>	million British thermal units
<b>MW</b>	megawatt
<b>NO<sub>2</sub></b>	nitrogen dioxide
<b>NO<sub>x</sub></b>	nitrogen oxide
<b>NZE</b>	Net Zero Emissions by 2050 Scenario
<b>O<sub>3</sub></b>	ozone
<b>OCGT</b>	open-cycle gas turbine
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PM</b>	particulate matter
<b>PPA</b>	power purchase agreement
<b>RES</b>	renewable energy sources
<b>SO<sub>2</sub></b>	sulfur dioxide
<b>UNDRIP</b>	United Nations Declaration on the Rights of Indigenous Peoples
<b>VOC</b>	volatile organic compound
<b>WHO</b>	World Health Organization

## ANNEX 1: ABOUT AMBIANT AIR POLLUTION

**Ambient air pollution (AAP)** refers to the presence of harmful substances in outdoor air at concentrations above natural background levels.

The main air pollutants are particulate matter (PM), nitrogen oxides (NO<sub>x</sub>), and ozone (O<sub>3</sub>) (see the Table below for details on air pollutants and their impacts). These largely **originate from anthropogenic sources** (especially activities involving **incomplete combustion**, such as transportation, electricity generation, industry, residential heating and cooking), as well as from natural sources (such as dust and wildfires).

Although mostly short-lived, atmospheric pollutants have **long ranges** – up to hundreds of kilometers – causing local and far-reaching effects while undergoing gradual physical and chemical transformations. Some are also **persistent in the human body**, with chronic exposure leading to bioaccumulative effects. Human exposure can occur through inhalation, dermal exposure, or ingestion.

The human health impacts of ambient air pollution include **all-cause premature mortality**,<sup>110</sup> as well as **increased mortality and morbidity** risks from respiratory diseases, cardiovascular diseases, cancers (especially lung cancer), neurodevelopmental factors, and adverse birth outcomes. **AAP is responsible for several million premature deaths worldwide.** The World Health Organization (WHO) provides an estimation of 4.2 million in 2019,<sup>111</sup> while other assessments give higher values – some more than twice this number.<sup>112</sup> These assessments indicate that the **largest share (>50%) of outdoor air pollution-related premature deaths** is due to **ischemic heart disease (IHD) and stroke**, followed by chronic obstructive pulmonary disease (COPD) and acute lower respiratory infections (ALRI), as well as lung cancer (LC).

The impacts on human health of PM, especially fine particles (PM<sub>2.5</sub>),<sup>113</sup> are increasingly well-documented and recognized as a leading environmental health risk factor globally. In 2019, **PM<sub>2.5</sub> accounted for more than 60% of all air pollution-attributable deaths**, with the total number of related deaths increasing about 23% globally over the past decade.<sup>114</sup> In 2019, 99% of the world's population lived in places where the WHO Air Quality Guidelines (AQG)<sup>115</sup> thresholds for PM<sub>2.5</sub> were exceeded.

Among NO<sub>x</sub>, NO<sub>2</sub> has the greatest impact on human health and is a main precursor of ground-level/tropospheric O<sub>3</sub>, one of the main constituents of smog.

The WHO also reports that **people living in low- and middle-income countries are disproportionately burdened by AAP.**<sup>116</sup>

**Fossil fuels are largely responsible for AAP globally** due to their use in incomplete combustion processes in various sectors (power generation, residential, industry, transport). A growing corpus of studies evaluates the impacts of fossil fuel pollution on AAP, apportioning the share of fossil fuel-related combustion in pollutant emissions, usually focusing on PM<sub>2.5</sub>.

Overall, research<sup>117</sup> indicates that **fossil fuels account for nearly 60% of PM<sub>2.5</sub>- and O<sub>3</sub>-related diseases**, and 80% of the maximum number

of air pollution deaths that could be averted by controlling all anthropogenic emissions of the same pollutants.<sup>118</sup> Fossil fuel-induced pollution-related annual premature death estimates vary, reaching **10 million** in some studies.<sup>119</sup> Research also shows that phasing out fossil fuels can generate 23% higher relative health benefits compared to their share of PM<sub>2.5</sub> reductions.<sup>120</sup>

Even if research methodologies and results vary, **the conclusions of these studies are unequivocal: all converge to affirm that fossil fuels pose a critical public health issue and must be phased out.**

# ANNEXES

Air pollutant	Description	Health impacts
Particulate matter (PM)	PM is a pollutant arising from primary sources or secondary pollution (i.e. derived from the chemistry between primary air pollutants). PM is categorized by size. The major components of PM are sulfates, nitrates, ammonia, sodium chloride, and black carbon.	Although complex (as PM is dynamic and diverse), the impacts on human health of particulate matter (especially fine PM <sub>2.5</sub> , which has an aerodynamic radius of less than 2.5 µm) are increasingly well-documented and recognized as a leading environmental health risk factor globally. <sup>121</sup> PM can penetrate deeply into the lungs and enter the bloodstream, causing cardiovascular (IHD), cerebrovascular (stroke), and respiratory effects.
Nitrogen oxides (NO <sub>x</sub> )	NO <sub>x</sub> are gases produced by the reaction between nitrogen and oxygen during combustion processes. Nitrogen dioxide (NO <sub>2</sub> ) is the form with the greatest impact on human health and is a main ozone precursor.	NO <sub>2</sub> is linked to asthma exacerbation and other ALRIs, as well as all-cause and respiratory (especially COPD-related) mortality. <sup>122</sup>
Volatile organic compounds (VOCs)	VOCs encompass various organic chemical compounds that have a high vapor pressure and can evaporate at room temperature. Some of the most frequently detected VOCs in indoor environments include benzene, toluene, ethylbenzene, xylenes (BTEX), and formaldehyde. They are also a main ozone precursor.	Formaldehyde <sup>123</sup> can cause various irritations as well as increased allergic sensitization and has been associated with nasopharyngeal cancer. <sup>124</sup>  Benzene is considered carcinogenic by the International Agency for Research on Cancer (IARC). <sup>125</sup>
Ozone (O <sub>3</sub> )	Ozone is a secondary pollutant formed through the reaction of primary pollutants (called "ozone precursors") in the presence of sunlight ("photochemical reactions"). Ground-level/tropospheric ozone is one of the main constituents of smog.	Exposure to excessive ozone can cause breathing problems, trigger asthma, reduce lung function, and lead to lung disease. <sup>126</sup>
Polycyclic aromatic hydrocarbons (PAHs)	PAHs are a group of chemicals formed primarily from the incomplete combustion of organic matter and fossil fuels.	PAHs are associated with various adverse health outcomes, including respiratory and cardiovascular diseases, mutagenesis, and carcinogenesis. Benzo[a]pyrene (BaP) is one of the most well-known carcinogenic PAHs, classified as a Group 1 carcinogen by the IARC.
Sulfur dioxide (SO <sub>2</sub> )	SO <sub>2</sub> is a colorless gas produced from the burning of fossil fuels (coal and oil) and the smelting of mineral ores that contain sulfur. Oxidation of sulfur dioxide leads to the formation of sulfurous and sulfuric acids.	SO <sub>2</sub> is linked to asthma-related hospital admissions and emergency room (ER) visits. <sup>127</sup>
Carbon monoxide (CO)	Carbon monoxide is a colorless, odorless, and tasteless toxic gas produced by the incomplete combustion of carbonaceous fuels such as wood, petrol, charcoal, natural gas, and kerosene.	Short-term exposure to carbon monoxide can lead to hospital admissions and mortality from myocardial infarction ("heart attack"). <sup>128</sup>

## ANNEX 2: HEALTH IMPACTS ALONG THE GAS VALUE CHAIN

Segment	Activities	Pollutants	Health impacts	
<b>Upstream</b>	<ul style="list-style-type: none"> <li>• Extraction</li> <li>• Production</li> <li>• Primary processing</li> </ul>	<p>All stages emit mostly airborne pollutants, but can also contaminate soil and water:</p> <ul style="list-style-type: none"> <li>• GHGs (incl. CO<sub>2</sub>, CH<sub>4</sub>)</li> <li>• PM</li> <li>• NO<sub>x</sub></li> <li>• VOCs (e.g. benzene, toluene, formaldehyde)</li> <li>• Other hazardous air pollutants (HAPs)</li> <li>• Chemicals and other hazardous waste (e.g. heavy metals), including wastewater discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Occupational (extraction sites)</li> <li>• Local (extraction sites)</li> <li>• Regional (ambient air pollution)</li> <li>• Global (GHG emissions, climate)</li> </ul>	<ul style="list-style-type: none"> <li>• All-cause mortality</li> <li>• Increase in hospitalizations and ER visits</li> <li>• Increased mortality and morbidity from respiratory (COPD, ALRI) and cardiovascular (IHD, strokes) diseases</li> <li>• Increased incidences of cancer</li> <li>• Adverse birth outcomes</li> <li>• Mental and neurological diseases</li> </ul>
<b>Midstream</b>	<ul style="list-style-type: none"> <li>• Transport (compressors, pipelines)</li> <li>• Refining</li> <li>• Liquefaction and regasification (LNG)</li> </ul>		<ul style="list-style-type: none"> <li>• Occupational (refineries, LNG terminals)</li> <li>• Local (compressors and pipelines, refineries, LNG terminals)</li> <li>• Global (methane leaks, climate)</li> </ul>	
<b>Downstream</b>	<ul style="list-style-type: none"> <li>• Distribution</li> <li>• End-use (gas plants, gas stoves and heaters, etc.)</li> </ul>		<ul style="list-style-type: none"> <li>• Occupational (power plants)</li> <li>• Local (power plants)</li> <li>• Local (household air pollution due to gas appliances)</li> <li>• Regional (ambient air pollution)</li> <li>• Global (GHG emissions, climate)</li> </ul>	

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## CREDITS

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Reclaim Finance is an NGO affiliated with Friends of the Earth France. It was founded in 2020 and is 100% dedicated to issues linking finance with social and climate justice. In the context of the climate emergency and biodiversity losses, one of Reclaim Finance's priorities is to accelerate the decarbonization of financial flows. Reclaim Finance exposes the climate impacts of financial players, denounces the most harmful practices and puts its expertise at the service of public authorities and financial stakeholders who desire to bend existing practices to ecological imperatives.

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