BEYOND FOSSIL FUELS

MORE GAS ON BORROWED TIME:
WHERE EUROPE'S CLIMATE PLEDGES AND GAS POWER PLANS COLLIDE

ACKNOWLEDGEMENTS

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ABOUT

Beyond Fossil Fuels is a collective civil society campaign committed to ensuring all of Europe's electricity is generated from fossil-free, renewable energy by 2035. It expands and builds upon the Europe Beyond Coal campaign, and its goal of a coal-free Europe in power and heat by 2030 at the latest.

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KEY FINDINGS

Fossil gas generated 24% of Europe's electricity (17% within the EU) in 2023, with only a few countries—Bosnia and Herzegovina, Montenegro, Luxembourg, Kosovo, and Cyprus—without gas power plants. While fossil gas use for electricity generation is nearly universal, certain countries—particularly the UK, Germany, and Italy—are deeply reliant on it. These same nations have also committed to decarbonising their power sectors by 2035, raising pressing questions: with substantial new gas power plant construction in the pipeline, to what extent is Europe at risk of gas plant overbuild? And, crucially, how do these countries plan to meet their climate targets when doing so will require concrete plans to phase-out not only existing gas plants but also the many new ones they continue to plan?

Italy, Germany and the United Kingdom have the biggest installed and planned gas capacities in Europe (in total 152 GW), and generate the most power from gas (adding up to 294 TWh) in Europe[1].

- There are plans in these three countries to add 40.5 GW of gas plant capacity which, if built, would represent an increase of 36% compared to their current installed capacity.
- The governments from all three countries have made commitments to decarbonise their power sectors by 2035, with the new UK government leading the way with the most ambition by having committed to a 2030 timeline. However, they do not yet have concrete plans nor policies in place to reduce and eliminate the burning of fossil gas from power, so that these plans to build new gas capacity severely undermine the credibility of their ambition to decarbonise their power sector. The UK is most advanced in working out a plan, now that its National Energy System Operator (Neso) has put forward findings that confirm that such a goal of clean power by 2030 is credible without increasing the size of the country's fossil gas fleet.
- Rather than advancing the construction of many new gas plants, these countries should build upon their ambitious renewables targets for 2030, and establish a clear plan to end the use of fossil gas as a core component of their power sector transition plans.
- Governments should prioritise redirecting subsidies, such as capacity remuneration payments, away from gas and towards grids, storage and other forms of clean flexibility to facilitate a timely gas exit.

Bulgaria, Romania and Poland are among the very few remaining EU countries without a plan to phase-out coal before 2030, as they move ahead with plans to build new gas plants.

- There are plans in these three countries to replace a large amount of coal capacity with fossil gas. Currently, gas plays a minimal role in the power sector of Bulgaria and Poland, and just a slightly larger part in Romania (15% of generation in 2023). Collectively, these three countries intend to more than double their installed gas capacity, from 10 to 24 GW, doubling down on their dependence on fossil fuels, raising doubts about their ability to meet their climate targets.
- Although these countries have seen positive recent trends in solar and wind, these advances have not compensated for many years of slow renewables deployment. There is a pressing need for ambitious government plans and better designed policies that enable citizen prosumers, businesses and investors to unlock the countries' full renewables potential and build the needed grid and storage infrastructure.
- To effectively transition away from coal-fired power generation, these countries need to adopt a twofold strategy: develop a clear plan to exit coal, and ensure that this transition eliminates dependence on fossil fuels. This is best achieved by investing the substantial amount of money currently earmarked for gas into renewables, grids and storage, allowing them to leapfrog adding substantially more gas capacity.

EUROPEAN CONTEXT

GAS POWER PLANTS ARE PART OF THE POWER SYSTEMS OF 26 OF THE 27 EU MEMBER STATES

Gas power plants are part of the power systems of 26 of the 27 EU member states, three of the six Western Balkans countries, as well as the United Kingdom, Türkiye, Norway, Moldova, Ukraine and Switzerland. The only European countries which do not have any gas power plants, either operational or mothballed, are Bosnia and Herzegovina, Montenegro, Luxembourg, Kosovo and Cyprus. Overall, the 2023 fossil gas fleet of 247.5 GW (249.5 GW today) accounted for 17% of electricity that was generated in the EU in 2023 and nearly 24% across the continent of Europe. However, several countries depend far more heavily on gas for power, such as Italy and the UK, and many are planning to expand their gas power capacity.

Europe's continued reliance on fossil gas—not only for power, but also heating and industry—comes at a staggering cost. Extracting, transporting and burning this fuel not only contributes to climate change, but also the destruction of ecosystems and disastrous extreme weather events each year. The way the fossil-fuel based power system currently operates—who profits and who pays from producing and selling power—also drives energy poverty, and increases the vulnerability of businesses and households to price volatility due to Europe's heavy dependence on gas imports.

Despite these warnings, many countries in Europe intend to increase the amount of fossil gas capacity in their electricity sector without concrete plans for how to stop burning fossil gas and replace it with a renewables-based system. In total European countries are building or planning to build 80.1 GW of new fossil gas-fired power generating capacity across 233 new units. This approach risks locking them into a high-carbon power system. These new projects divert vital investment away from efficient and renewable energy solutions such as wind, solar, short- and long-term storage, and grids. The lack of a clear timeline for managing the exit from gas in power creates uncertainty for operators of fossil infrastructure, who need to plan the decommissioning of their highly polluting infrastructure, for project developers, who need to understand the role that new generation capacity will play, and for the public, who remain legitimately concerned about whether their governments are doing enough to avert climate catastrophe.

In this briefing, we analyse the current role and future plans of fossil gas in the power sectors of six European countries: Italy, Germany, the United Kingdom, Bulgaria, Romania and Poland. Our findings underscore the urgent need for national leaders to swiftly prioritise the phase-out of fossil gas and transition to a renewables-based system that can displace coal and gas while meeting the growing power demand of an increasingly electrified economy. They should start by halting the building of many new gas projects and redirect investments towards clean and sustainable alternatives so that we democratise our energy supplies and address the biggest threat of our age: the climate emergency.

However, despite commitments from several countries to remove fossil fuels from their power sector by 2035, concrete actions are missing: almost all of Europe's gas power plants lack closure plans and almost all European countries are planning to build new gas plants.

THE BIG THREE GAS COUNTRIES

ITALY / GERMANY / UK

AS G7 MEMBERS, GERMANY, ITALY AND THE UK HAVE COMMITTED TO DECARBONISING THEIR POWER SECTOR BY 2035.[2]

This ambition is in line with the International Energy Agency's Net Zero Emissions pathway, which identifies wealthy economies as needing to decarbonise their power sector by 2035 to contribute to a Paris-aligned global Net Zero Emissions transition. In addition to this G7 commitment, Germany has endorsed a joint commitment with six other countries[3] all members of the Pentalateral Forum to decarbonise their power sector by 2035. After the previous UK government committed to decarbonise its power sector by 2035 in 2021, the new cabinet now aims to bring that down to 2030.

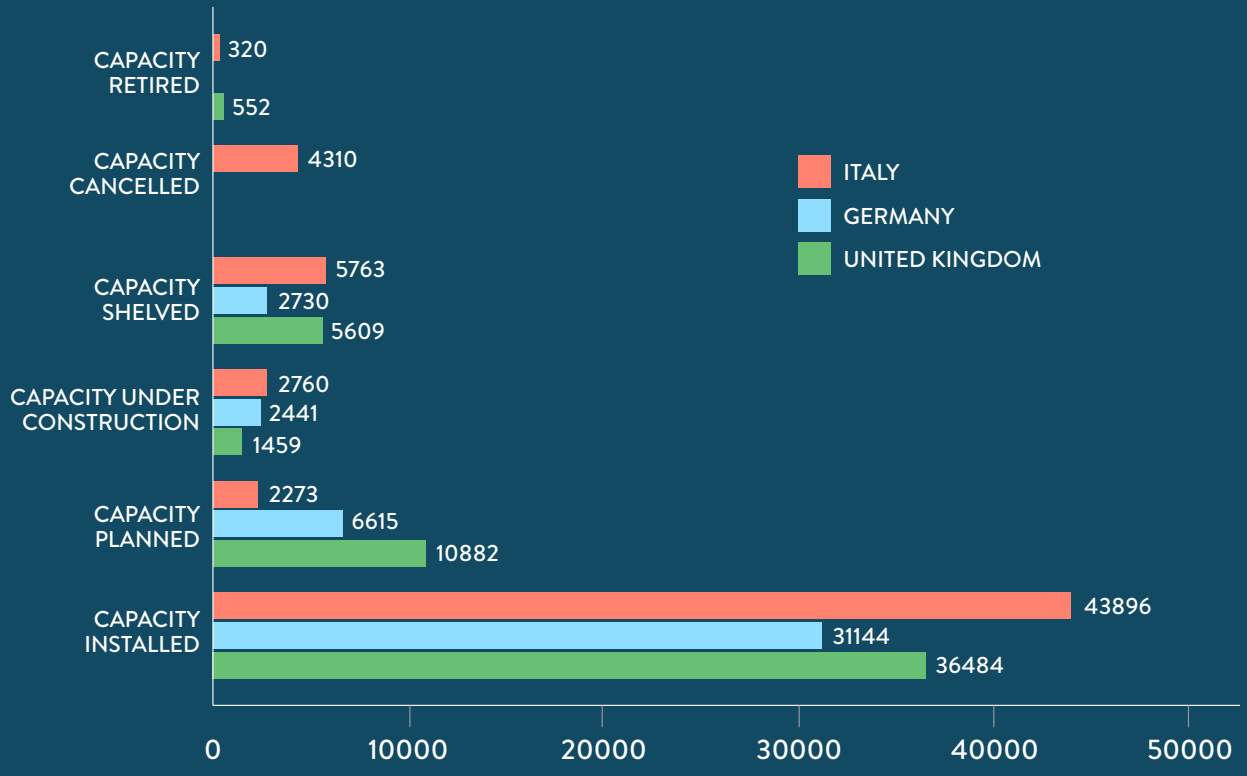
The three countries are however dependent on fossil gas to generate their electricity. With 931 gas power units, they represent approximately 45% (111.5 GW) of Europe's[4] gas power generation capacity.

What is more, the three countries plan to add 40.5 GW (97 units) which, if built, would represent a 36% increase to their current gas fleet.

These plans to build new gas capacity severely undermine the credibility of their ambition to decarbonise their power sector. Instead of pushing through the building of many new gas plants, they should build upon their ambitious renewables targets for 2030 to establish a clear plan to end the use of fossil gas as central to their power sector transition plans.

This is especially important given their strong influence on Europe and the global energy transition—hence the need for them to lead by example.

Overview of gas power plant capacity in the United Kingdom, Italy and Germany



Source: Beyond Fossil Fuels gas power plant database, October 2024.
"Installed" includes capacity that is operating or mothballed.
"Planned" includes capacity that is announced and in pre-construction.

ITALY

45.1% **5.3%**
Gas and coal in power generation in 2023
(% of total generation)

43.9
Installed capacity of gas power plants (GW)

24.6%
Planned gas power plant capacity as % of current installed capacity[5]

Top 3 utilities operating gas power plants

(share of current national gas fleet)

1. Enel — 17.4% (7.4GW)
2. EDF — 15.3% (6.5GW)
3. A2A — 13% (5.5GW)

KEY TAKEWAYS

Italy has committed to decarbonise its power sector by 2035, yet its plans to extend its reliance on fossil gas are taking the country in the wrong direction. Currently, 45% of its power generation comes from fossil gas, making Italy's power sector the third most gas-dependent in Europe. The country also plans to build new gas pipelines and Liquefied Natural Gas (LNG) terminals while planning to expand its gas plant fleet by nearly 25%.

45%
of Italy's power generation comes from fossil gas

The country's heavily funded capacity mechanism system acts as a lifeline for gas power plants and their owners. In 2024, 80% of A2A's fossil gas plants and 43% of EPH's were subsidised in this way. Funding that is currently channelled to gas plants via the capacity mechanism needs diverting towards clean sources of energy flexibility – including the newly established Electricity Storage Capacity Procurement Mechanism ("Macse"), as well as to support renewables and grid build-out.

While Italy's ambitious target of 63% renewable energy in the power sector by 2030—outlined in its National Energy and Climate Plan (NECP)—is a positive development, Italy must now ensure that its power system is designed to integrate renewable energy by establishing: policies and financing to secure timely deployment of storage, grids and renewables sources as well as a concrete pathway to stop using fossil gas in the power sector in order to meet its commitment of decarbonising electricity generation by 2035.

63%
Italy's target of renewable energy in the power sector by 2030

ITALY HAS THE LARGEST EXISTING GAS POWER PLANT FLEET IN EUROPE

POWER SECTOR TRENDS

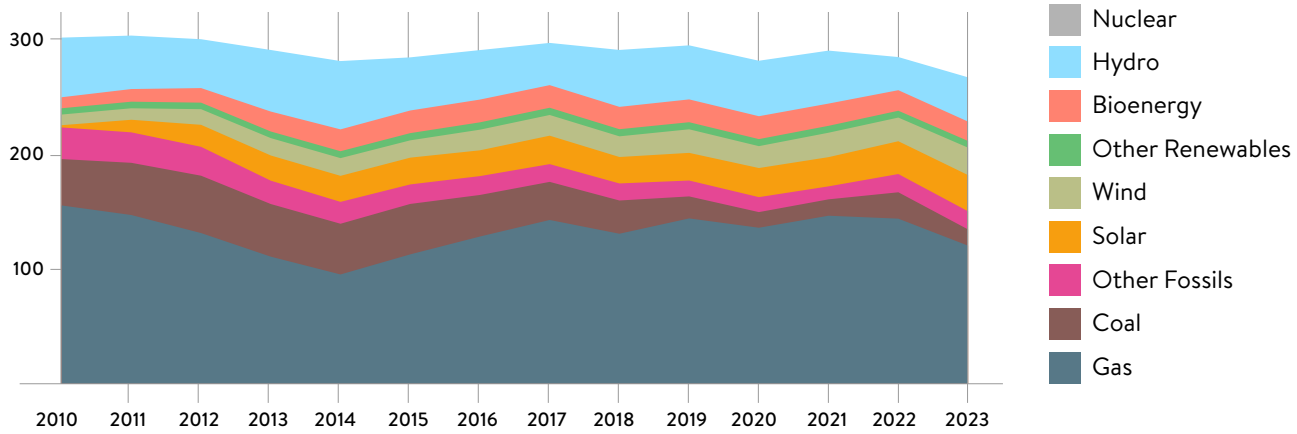
Italy has the largest existing gas power plant fleet in Europe (43.9 GW), as well as the third biggest proposed new gas plant capacity—totalling 10.8 GW of new gas plant developments. In 2023, gas accounted for approximately 45% Italy's total power generation, making it the third most gas-dependent in Europe after Ireland and Malta.

The country has well-established infrastructure for gas transport and storage, and plays a central role as an exporter to other European countries. However, a 2024 study by Ecco indicates that Italy could meet its energy security requirements—aligned with its climate goals, including its G7 commitment to decarbonise its power sector by 2035 and the EU's Fit for 55 plan—without any new gas infrastructure.[6]

Despite this, the country still plans a massive buildout of gas pipelines and some new gas plants, all without a strategy to stop burning fossil gas for electricity generation by 2035.[7]

While the growth of its solar photovoltaic (PV) sector has been very slow over the past decade, Italy remained the second-largest producer of solar energy in Europe until 2021, when it was overtaken by Spain. In 2023, Italy added the most solar capacity it had done in over a decade (4.9 GW)[8], but this still amounted to significantly less than Germany and Spain. Italy continues to burn some coal to generate power, but plans to phase this out in 2028. Overall, Italy plans to triple its installed wind and solar capacity, adding a total of nearly 70 GW, between 2022 and 2030.

Power generation in Italy per source, TWh



GAS PROJECTS

Much of Italy's proposed new gas capacity is tied to the country's capacity market, as well as the expansion of gas pipelines and an increase in LNG imports. The country's capacity mechanism was initially designed to ensure energy security.[9] However, it's had the effect of reinforcing Italy's reliance on fossil gas to generate electricity—providing significant subsidies to utilities like A2A, EPH, and Enel. In 2024, around 80% of A2A's fossil plants and 43% of EPH's were subsidised, continuing a multi-year trend.

Although framed as a transitional tool, the capacity market has encouraged new gas plant projects and extended the lifespan of existing ones. 35 GW of existing plants benefited from capacity payments in 2023, out of a total installed thermal capacity of 63.2 GW, and a total generation capacity of 130.1 GW.[10]

However, the results of the 2025 capacity market auction, published in July this year, showed a shift, with minimal new gas capacity awarded and only around 100 MW of gas repowering receiving payments. While this is a positive sign, Italy's lack of a clear gas phase-out date and historical reliance on auction subsidies make it essential to monitor future developments closely.

In Northern Sardinia, EPH has proposed replacing the highly polluting Fiumesanto coal plant with a gas facility. Sardinia does not have any meaningful gas supply, and EPH is banking on new gas infrastructure, which is being promoted by Snam, Italy's main gas transport and distribution operator, to make the project viable. The replacement project has not been awarded capacity market support, and its Environmental Impact Assessment (EIA) is still under review.

The A2A Monfalcone coal-to-gas replacement project has been awarded capacity market payments since 2022, but the project's implementation only began in mid-2024. The project's design is based on the assumption that to be EU Taxonomy compliant, it will run 100% on green hydrogen from 2035 onwards.[11] However, there is no indication of where the green hydrogen will be sourced from. The new Strategic Plan, published in March 2024, envisages the installation of a CO2 capture plant by 2035, despite carbon capture and storage (CCS) still being an unproven technology.[12]

ClientEarth and WWF Italy have initiated legal action against the proposed gas power station intended to replace the soon-to-be-closed Enel Federico II coal plant, located south of Brindisi in the Apulia region. They argue that the Italian government wrongfully approved the environmental permit for this project, citing reports that show the new gas capacity is unnecessary for Italy's energy needs and the project is harmful to the environment, public health, and Italy's decarbonisation goals.

Enel, the project's owner, had pledged to exit fossil fuel-fired generation by 2040 in favour of renewables, making the gas conversion redundant. However, Enel has not withdrawn the project, publicly stating to its shareholders that the replacement project is only feasible if capacity payments are awarded, and is therefore contesting the NGOs in court. The Brindisi case highlights the government's failure to prioritise clean and just energy alternatives and prevent further dependence on gas. So far, the project has not received any capacity payments.

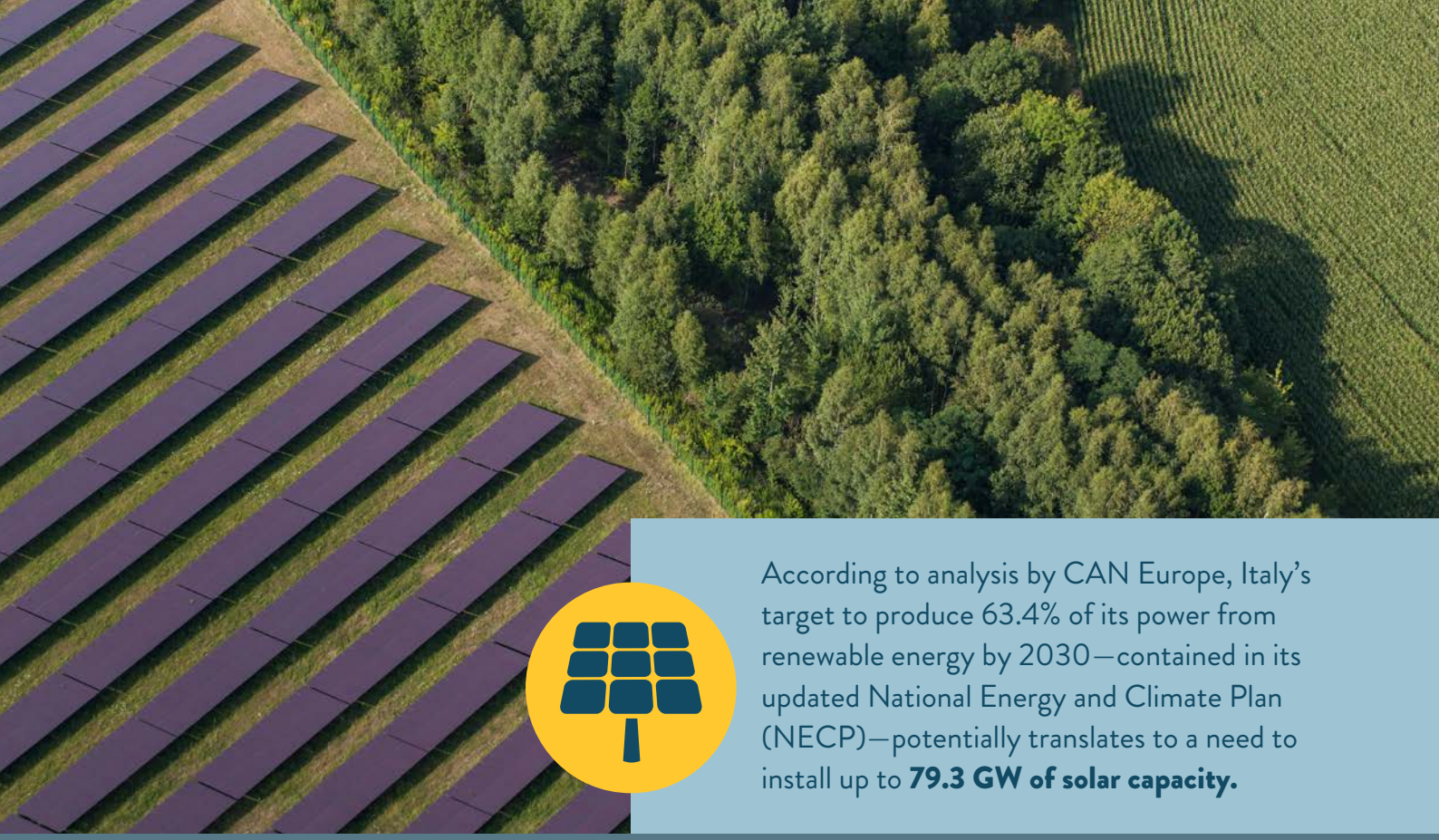
Snam, 30% owned by the Italian government, plays a pivotal role in Italy's infrastructure, managing an extensive network of approximately 38,000 KM of pipelines both domestically and internationally. The company plans to invest heavily in new gas and LNG infrastructure through 2027, with €10.3 billion allocated for these projects, including pipelines, storage facilities, and regasification terminals.

A central focus is the expansion of Italy's LNG capacity to meet 40% of the country's gas consumption by 2026.[13] The plan for the gasification of Sardinia includes installing two floating storage and regasification units (FSRUs) and a regasification plant in Oristano. One of the two FSRUs should supply gas to the new plant, to be built in Fiumesanto, Northern Sardinia.

Furthermore, an FSRU project is being built in Ravenna, in the Upper Adriatic Sea, while the lifespan of the Piombino FSRU could be extended to 2048. Plans to move it to Savona/Vado Ligure have raised further environmental and safety concerns.

The Italian government is also promoting two onshore LNG plants—the first ever in Italy—in Porto Empedocle, Sicily (Enel), and Gioia Tauro (Iren) on the mainland. The two projects have been declared of strategic importance for Italy. However, as yet, project sponsors have not confirmed their intention to move ahead.

In 2024, around **80%** of **A2A**'s fossil plants and **43%** of **EPH**'s were subsidised



According to analysis by CAN Europe, Italy's target to produce 63.4% of its power from renewable energy by 2030—contained in its updated National Energy and Climate Plan (NECP)—potentially translates to a need to install up to **79.3 GW of solar capacity.**

WAY AHEAD

According to analysis by CAN Europe, Italy's target to produce 63.4% of its power from renewable energy by 2030—contained in its updated NECP—potentially translates to a need to install up to 79.3 GW of solar capacity.[14]

However, an exit strategy from gas, still defined as a "transition fuel" within Italy's NECP, is missing, and the document lacks a vision for the country's energy transition and economic transformation. It also fails to identify *"domestic plans, policies and actions for transitioning away from fossil fuels"*, as agreed at the G7 Climate Ministerial in April 2024. According to the NECPs estimates, Italy will miss its emission reduction targets by about 100 MtCO2eq cumulatively between 2021-2030, which, based on recent CO2 price projections, equates to about €15 billion over the period.[15]

The ambition on renewables is also not backed by a coherent policy framework. This leads to risks of uncompetitive electricity prices for the manufacturing sector and the wider economy. Electrification is not identified as a lever for decarbonisation, and the regulatory framework remains inconsistent, treating less efficient solutions as equivalent to those that align with Italy's climate targets.

At the same time, the Italian government opened the door to reintroducing nuclear power, despite any subsequent nuclear generation planned from 2035 onward, primarily with Small Modular Reactors (SMRs)—0.4 GW planned for 2035 and 2 GW in 2040. However, Italy's NECP indicates that it can decarbonise its economy without nuclear energy, with nuclear power not making significant contributions until 2045 (3.5 GW) or 2050 (8 GW), according to the roadmap.

Instead, Italy should set targets that are consistent with the decarbonisation of its electricity system by 2035, as per its G7 commitment, which can only be delivered successfully by replacing gas (and coal) with renewables, and relevant levels of investments in non-fossil flexibility, such as grids, storage and demand side management. By introducing a system to track the implementation of its NECP, the Italian government can ensure grids, clean flexibility options and demand response measures are implemented at the required speed and scale. This mechanism should also provide for corrective actions to revise policies, such as interventions on market rules and renewable pricing criteria.

Concerning the capacity market, any support for new gas-fired power plants should be excluded from future auctions and a target of reduction of support for existing gas plants should be introduced year by year in line with the 2035 phase-out objective.

No new gas plant or coal-to-gas replacements should be authorised, nor costly CCS projects associated with power plants. Funding that is currently channelled to gas plants via the capacity mechanism needs diverting towards clean sources of energy flexibility – including the newly established Electricity Storage Capacity Procurement Mechanism ("Macse"), as well as to support renewables and grid build-out.

It is also important to establish better transparency requirements for the development of transmission and distribution networks to ensure consistency with the overall goal of decarbonisation, energy security and economic sustainability.

The government and local administrations must tackle the lack of serious planning for the renewable energy sector, particularly the absence of citizen and community involvement in decision-making processes, including impact assessments, and the pressing need for realistic analysis of the energy needs of different territories.

Italy should also set an explicit electrification target, encompassing the civil, transport and industrial sectors, clearly directing policies and resources towards the electrification of consumption in a coherent strategy that increases energy efficiency.

In particular, the Italian government should address the regulatory barrier related to the imbalance of fiscal and parafiscal charges between electricity and gas tariffs. Reforming the tariff structure so that it is consistent with Italy's decarbonisation pathway and allows for the integration of renewable energy systems is also critical.

FUNDING THAT IS CURRENTLY CHANNELLED TO GAS PLANTS VIA THE CAPACITY MECHANISM NEEDS DIVERTING TOWARDS CLEAN SOURCES OF ENERGY FLEXIBILITY

GERMANY

15.4% **26.7%**
Gas and coal in power generation in 2023
(% of total generation)

31.1
Installed capacity of gas power plants (GW)

37.8%
Planned gas power plant capacity as % of current installed capacity

Top 3 utilities operating gas power plants
(share of current national gas fleet)

1. RWE — 15.1% (4.6GW)
2. Uniper — 11.1% (3.4GW)
3. Statkraft — 8.2% (2.5GW)

KEY TAKEWAYS

Germany has committed to decarbonise its power sector by 2035 and a 80% renewable electricity target for 2030, yet it also plans to extend its reliance on fossil gas, which is taking the country in the wrong direction. With nearly 15% of its electricity currently coming from gas and nearly 27% coming from coal, there are plans to build additional LNG terminals and 9.3 GW of gas plant units, with an additional 2.4 GW of new gas units already under construction. If built, these power units would increase Germany's installed gas capacity by 38%.

15%
of Germany's electricity comes from gas and nearly

27%
comes from coal

Through the Power Plant Security Law the German government intends to provide billions for the construction of new gas units, putting in provisions that they will eventually be converted to using hydrogen— whose availability in time and at scale is highly questionable. Germany is at risk of overinvesting in gas plants, and underinvesting in the creation of an intelligent, flexible and diversified electricity sector that would facilitate a timely coal and gas exit.

While Germany continues to deploy large amounts of renewable capacities each year (with nearly 18 GW of wind and solar added in 2023), wind build out is still off track and there are systemic barriers for renewables that must still be addressed: limited grid access, a lack of short and long duration energy storage, and inadequate demand side flexibility. The power sector must be set on a path to become fossil gas free, as a number of critical policies that will shape the German power sector for years to come are up for review or need to be finalised.

18GW
of wind and solar added in 2023

POWER SECTOR TRENDS

Germany's power sector and its industry are already, by a wide margin, the two largest CO2 emitters in Europe.[16] This is primarily due to Germany's coal power plants, which together have the highest emissions in Europe (168 Mt in 2021) of any national coal fleet, far ahead of Poland's, which produces more than 60% of its power from coal. Although accelerating the country's coal phase-out to 2030 was part of the 2021 government coalition agreement[17], this has not been achieved, and according to current plans, the country will close its last coal power plant in 2038.

Germany pioneered the build-out of renewable energy. It was one of the first countries to introduce subsidies for carbon-free energy: its landmark Renewable Energy Sources Act (EEG), enacted in 2000, provides a feed-in tariff system that incentivised the adoption of solar, wind, and biomass energy by guaranteeing fixed payments for producers.

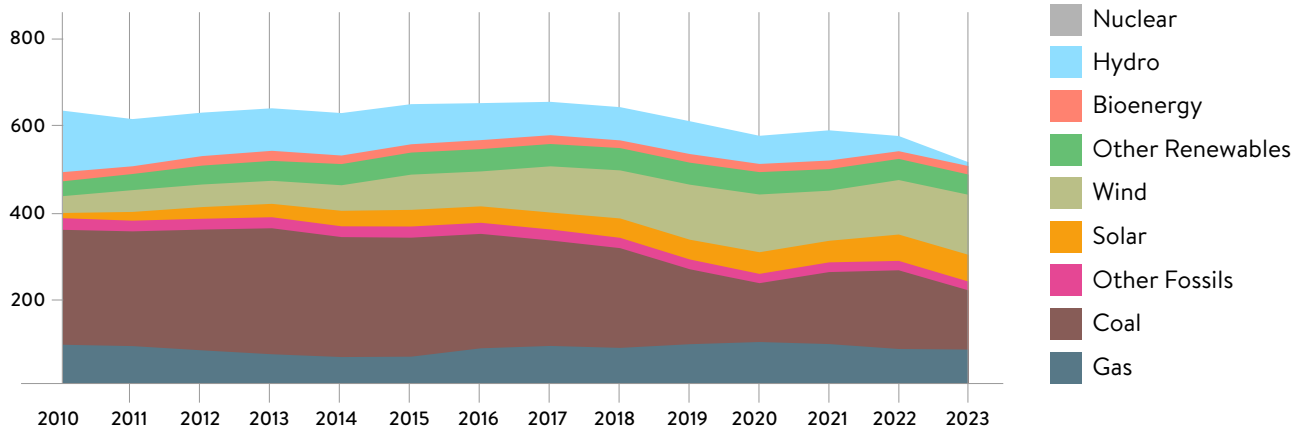
The German government has adopted a 80% renewables target for power by 2030[18] and renewables are now playing a dominant role in its power mix. However, the continued, rapid increase in renewable energy capacity - more than 18 GW of wind and solar have been added to the German grid in 2023 - has led to new challenges which have yet to be adequately addressed by German decision makers. Currently, systemic barriers such as limited grid access, a lack of short and long duration energy storage, and inadequate demand side flexibility hinder the renewables integration to the grid.

The government has made adjustments to regulations to remove barriers to wind deployment because wind build-out is off track, especially in southern Germany. Southern Germany's insufficient wind power capacity and electricity transmission infrastructure connecting it to the north is why now "two thirds of the new [gas] plants should be built in the south to lower redispatch costs and ensure grid stability."[20]

The German industry's reliance on gas gained international attention following Russia's full-scale invasion of Ukraine and the subsequent closure of the Nord Stream 2 pipeline. In response, the German Government announced plans to construct 11 new LNG import terminals along its coasts. This move has been criticised for creating overcapacity and locking the country into continued fossil fuel use.[21]

In Germany, one-fifth of gas-fired power plants, totalling 5.7 GW of capacity, operate on industrial sites, directly delivering electricity exclusively or primarily to factories (some also deliver heat). District heating systems are also popular, with gas the most commonly used fuel, accounting for over 40%[22] of total demand. Germany's operational combined heat and power (CHP) plants have a total capacity of 19.3 GW, largely due to the CHP Act (Kraft-Wärme-Kopplungsgesetz), which subsidised the installations with billions of euros.[23] In 2024, the government was planning a phase-out of fossil heating combined with substantial subsidies for heat pumps. However, opposition parties and tabloid newspapers have waged a successful campaign against the proposed law and fueled fears concerning government oversight. The law that was ultimately passed is a watered down version of its original ambitions, further entrenching the role of fossil gas in heating for the near future.

Power generation in Germany per source, TWh



GAS PROJECTS

Nine gas units are currently under construction in Germany, totalling 2.4 GW of capacity. A further 15 units totalling 9.3 GW are at various stages of development. If built, these units would increase Germany's installed gas capacity by 38%.

Under the Power Plant Security Law, 12.5 GW of capacity would be tendered in two rounds, starting with 7 GW of new "hydrogen-ready" gas power plants, which are expected to switch to hydrogen eight years after their commissioning date. A further 5 GW of new gas plants will be tendered later.[24] This may lead to more gas power plant projects being announced, in order to participate in the tender.

The Power Plant Security Law would create long-term contracts with gas plants that would otherwise be economically unviable, under the proviso that these must be converted to run on green or blue hydrogen in the future. Since hydrogen-to-power is yet untested at scale, there is a risk that plants which are intended to be retrofitted to run on green hydrogen in the future are never converted, should the technology, needed supply and supply infrastructure not be established in time. Since hydrogen power plants would be expensive to operate, there is a risk that they would be able to demand a high price in order to make their operations economic, pushing up electricity prices.

The German government also proposed the creation of a capacity market to be operational as of 2028, a critical mechanism to get right so it does not create further incentives that slow down the phase out of gas.[25]

The expansion of gas-fired power generation and the absence of a concrete and comprehensive plan for how to stop burning fossil gas for power and heating stands in contradiction to the government's December 2023 commitment to decarbonise its electricity system by 2035.[26] Furthermore, only one (Braunschweig Mitte) of the 648 operational or planned gas units in Germany has a concrete plan to shut down.

WAY AHEAD

Federal elections are looming in Germany. Strong momentum has been building in recent years around more conservative and also far-right Parties, leading to uncertainties about Germany's future climate and energy ambitions as some of them are openly pro fossil gas.

In the meantime, several pivotal energy policies are pending, including the finalisation of the Power Plant Security Law in 2024, and the possible extension of CHP subsidies. Renewable subsidy schemes, merchant market penetration, grid expansion, flexibility schemes, and the potential split of power market zones are all also on the table.

With these policies still to be discussed in an unpredictable political environment, there is a high risk that Germany will be locked into continued fossil gas dependency. With a political reshuffle underway, the understanding of "security of supply" must not be limited to fossil fuels and hydrogen, but focus instead on investing in the clean technologies that can help provide flexibility in a clean power system. These include long-duration energy storage, promoting demand flexibility across homes and businesses, domestic and industrial energy efficiency, as well as the continued build out of renewables and grid infrastructure.

THE UNITED KINGDOM

34.2% **1.2%**
Gas and coal in power generation in 2023
(% of total generation)

36.5
Installed capacity of gas power plants (GW)

49.2%
Planned gas power plant capacity as % of current installed capacity[5]

Top 3 utilities operating gas power plants

(share of current national gas fleet)

1	RWE	19.9% (7.3GW)
2	SSE	17.1% (6.3GW)
3	Uniper	11.4% (4.2GW)

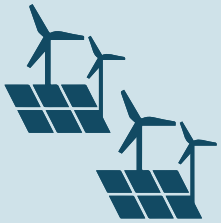
KEY TAKEWAYS

The UK, the world's sixth-largest economy, successfully phased-out coal from its power sector in 2024. The new UK government has accelerated the UK's commitment to decarbonise its power sector by five years, from 2035 to 2030. The National Energy System Operator (NESO)[27] confirmed that such a goal was credible without increasing the size of the country's fossil gas fleet. This is an opportunity for the new UK government to reconsider the plans that it inherited from the former conservative government to build 18 GW of new gas capacity.

UK power sector decarbonisation target brought forward by **5 years**

The UK can be a world leader on clean flexible energy solutions to replace gas power as the main way of balancing the power system, having more than doubled its wind and solar capacity in a decade that enabled the coal phase out. This requires accelerating plans to kick-start long-duration energy storage; enabling demand side response; better energy cooperation with Europe and the build out of interconnectors, as well as the rapid roll-out of energy efficiency measures and batteries.

Certain reforms underway risk continuing support for gas plants: proposals to revise the Capacity Market could allow gas plants to continue to receive subsidies, with the proviso that they can be converted to run with CCUS or hydrogen in the future – despite doubts regarding the availability and cost effectiveness of these technologies.



The UK more than doubled its wind and solar capacity in a decade

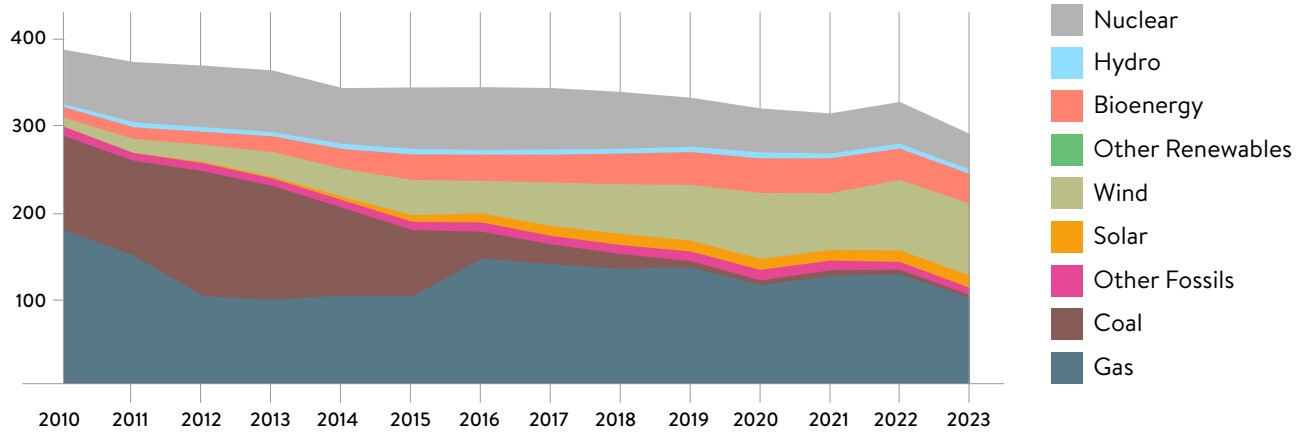
SINCE 2012, WIND AND SOLAR POWER GENERATION HAS QUADRUPLED IN THE UK.

POWER SECTOR TRENDS

The United Kingdom made history on 30 September 2024 when it completed its coal phase-out with the closure of its Ratcliffe-on-Soar coal power plant. As recently as 2012, the UK—the world's sixth-largest economy—burned coal to generate 40% of its electricity. Since then, wind and solar power generation has quadrupled, while gas power generation has remained relatively stable over the past decade, dipping below 2012 levels in 2023.

Through a series of policies that ensured a steady annual increase in capacity, the UK became Europe's second-largest producer of wind power. With several wind parks already online, the country's first contracts for difference auction was organised in 2014, providing secure long-term contracts for developers. Over time, special emphasis was increasingly placed on offshore wind, through the Offshore Wind Sector Deal and the British Energy Security Strategy, both launched in 2019, with the latter aiming for 50 GW of offshore wind in 2030.[28] As a result of these ambitious renewable policies, the UK more than doubled its wind and solar capacity in a decade to cover 30% of its domestic electricity production.

Power generation in the United Kingdom per source, TWh



GAS PROJECTS

The UK also has one of the largest gas plant fleets in Europe, with 36.5 GW generating a third of the country's electricity in 2023. Despite the many climate commitments and ambitious policies to decarbonise the UK power grid, 41 gas units are currently in different stages of development in the UK, totalling a capacity of 18 GW. Nine units are already in construction, including two 350 MW units at the Kilroot power station, where coal operations ended in late 2023. If all units were built, the UK gas fleet could grow by 49%.

In November 2024, the National Energy System Operator (NESO) confirmed[29] that the UK's ambition to build a *Clean Power* system by 2030, where the majority of electricity would be coming from wind and solar and less than 5% from fossil gas, is not only credible, but also does not require an increase in the size of the country's gas fleet beyond 2023 levels. This gives the new UK government an opportunity and a duty to reconsider plans for new gas plant projects that it inherited from the former government.

SSE plc and Norwegian oil and gas company Equinor plan to build a new 900 MW gas burning power station with CCS on the site of the existing 1180 MW Peterhead power station—Scotland's single biggest polluter for each of the past five years.[30] If approved, the power station would operate into the early 2050s. SSE is claiming it will capture 90% to 95% of the carbon emitted from the new plant, despite no power plant project in the world successfully and consistently capturing 90% of carbon emissions.

Research shows that transportation and storage infrastructure for carbon capture, as well as other related projects, would likely be developed following the establishment of this new power station.[31] Many of these projects would be located in established oil and gas exploration regions, such as the North Sea.[32] The Scottish Government estimates that up to 46 gigatonnes[33] of captured carbon could be transported from around Europe and stored in the North Sea. This is over 1000 times Scotland's domestic climate pollution, effectively transforming it into Europe's carbon dumping ground and extending the lifeline of European gas projects.

The current suite of policies, including the Capacity Market (CM), currently hedge significant bets on power carbon capture, use and storage (CCUS) and hydrogen-to-power (H2P). Reforms underway to the capacity market will allow gas plants to continue to receive subsidies, with the proviso that they can be converted to run with CCUS or hydrogen in the future. Since hydrogen-to-power and CCUS power are both yet untested at scale, there is a risk that plants are never converted, should the technologies not be established in time, or if there is insufficient supply of green hydrogen available. Over-reliance on these technologies thus poses a risk to the UK's 2030 clean power target. The UK should reassess its capacity market, and ensure sufficient funding is also being provided to support cleaner, "no regrets" forms of energy flexibility – such as long-duration energy storage, demand flexibility, interconnectors, energy efficiency and batteries.

WHILE THE UK IS NOT ON TRACK TO ACHIEVE ITS G7 COMMITMENT, IT HAS THE POTENTIAL TO DO SO THANKS TO BOTH OFFSHORE AND ONSHORE WIND, AS WELL AS SOLAR POWER

WAY AHEAD

The UK committed to decarbonise its power sector by 2035 as part of a 2022 G7 agreement.[34] This commitment was translated into a number of policies under the "Powering up Britain" initiative one year later.[35] The new UK government wants to bring that forward to 2030, establishing a "Mission Control" tasked with "accelerating the transition away from volatile fossil fuel markets to clean, homegrown power".[36]

In an analysis published in May 2024, the think tank E3G found that while the UK is not on track to achieve its G7 commitment, it has the potential to do so thanks to both offshore and onshore wind, as well as solar power. However, planning barriers to the construction of onshore wind effectively ban new turbines. The outlook for utility-scale solar projects appears more promising on paper, with 20.4 GW being planned; yet 95% of these projects have not yet entered the construction phase, raising concerns about delivery.[37]

Similar assessments can be made for offshore wind, which currently has an installed capacity of 14.7 GW, with another 13.3 GW either in construction or committed through secured government support. This falls significantly short of the aforementioned target of 50 GW by 2030. Although the proposed projects would cover the remaining 22 GW needed, their implementation remains uncertain, largely due to declining prices for offshore wind Contracts for Difference, which have dropped to only 37.35 GBP/MWh.[38]

To support the integration of renewables, the UK must also continue to focus on upgrading its grid network, as well as supporting energy storage and demand side flexibility. The new government has already taken welcome steps to speed up and improve the build-out of grids,[39] and can work to ensure that communities that host this infrastructure see benefits, in order to increase public acceptance. Welcome action has also been taken to launch the long-awaited Long-Duration Energy Storage support mechanism, which will boost the country's ability to store energy and balance the energy system.[40] Moving forward, the UK must focus on boosting long and short-duration forms of energy flexibility, such as demand side flexibility and batteries. It can also reduce the impact of "peak demand" via increasing the energy efficiency of its building stock and industrial processes. NESO's 2024 *Clean power 2030* report shows the UK will need to build 3 to 4 times more capacity of these clean flexibility technologies by 2030 compared to current levels.

An analysis published by the think tank Ember in October 2024 indicates that the key to reducing the remaining reliance on fossil fuels is through clean power and electrification. This transition is already underway, with clean electrification through the uptake of technologies such as electric vehicles and heat pumps resulting in a reduction in fossil fuel consumption four times greater than the additional power required.[41] Essentially, the UK must learn from the painful coal mine closures of the 1980s and plan its energy sector transformation, putting just transition at the forefront.

THE COAL-TO-GAS FALLACY

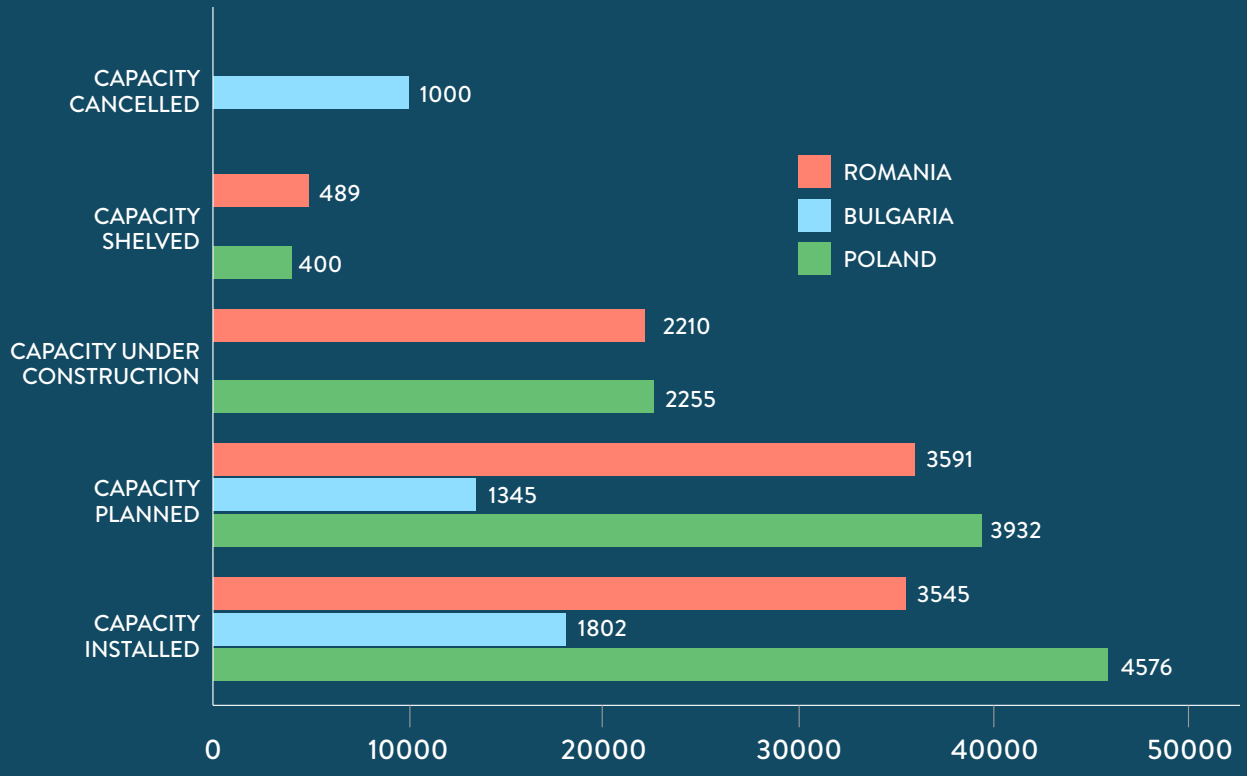
The Polish, Romanian and Bulgarian power sectors are more strongly linked to coal than they are to gas: not only because of their high reliance on the most polluting fossil fuel, but also because they are among the few remaining EU member states which are not yet planning to phase-out coal by 2030.

Despite this lack of sufficiently ambitious plans, coal-fired power generation has significantly decreased across the board. Romania has the most ambitious coal phase-out plan (2032) of the three. It produced more power from wind and solar than from coal in 2023. Similarly, renewables are gradually pushing coal out of the power sectors in Poland and Bulgaria. While their deployment has not been swift enough, recent years have seen a marked acceleration.

However, all three countries plan to replace a large amount of coal capacity with gas. Currently, gas plays a miniscule role in the power sectors of Bulgaria and Poland, and just slightly larger in Romania (15% of generation in 2023), due to its historical gas reserves. The main challenge for these countries to decarbonise their power sectors centres on closing the existing coal units, but instead they appear set to create costly additional challenges for themselves.

If all three countries push ahead with their planned fossil power infrastructure, gas capacity in the region would more than double, from 9 to 24 GW. Instead, these countries should focus on developing a coal exit strategy aligned with a 2030 timeline, and in a way that actually eliminates dependence on fossil fuels, rather than deepening their reliance on carbon-emitting fossil gas.

Overview of gas power plant capacity in Romania, Poland and Bulgaria



Source: Beyond Fossil Fuels gas power plant database, October 2024.
"Installed" includes capacity that is operating or mothballed.
"Planned" includes capacity that is announced and in pre-construction.

ROMANIA

14.8% **14.4%**

Gas and coal in power generation in 2023
(% of total generation)

3.54

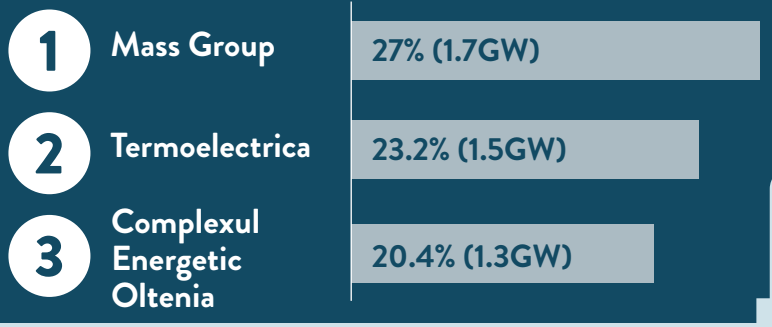
Installed capacity of gas power plants (GW)

177.4%

Planned gas power plant capacity as % of current installed capacity

Top 3 utilities for planned gas power plants

(share of planned national gas fleet)



KEY TAKEWAYS

Romania has one of the most diversified power sectors in the region and should take advantage of its current historically low reliance on fossil fuels (under 30% of its power mix, in part owing to the decline of coal) to spur its energy transition. Instead, its plans for 6 GW of new gas plant projects largely in order to replace coal plants as part of its 2032 coal phase out could lead to almost triple the gas fleet in Romania.

With limited available resources, Romania must reconsider the unprecedented amounts of public money, including from EU funds, that it is spending on new gas power plants and connecting infrastructure for a new offshore gas field.

Romania's incredible potential for solar power has recently been translated into a large number of prosumers, already over 100,000. This growth must be maintained by allowing them to access the grid. The country's similarly favourable conditions for wind power should also be capitalised on.

6GW
of planned new gas projects

100,000+
prosumers currently

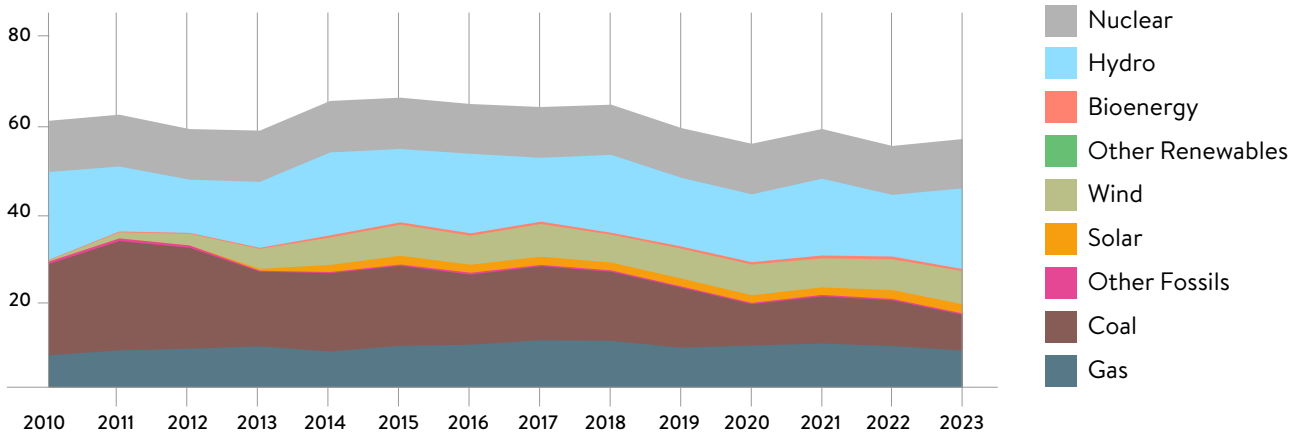
POWER SECTOR TRENDS

Romania has historically had one of the most diversified power sectors in Europe. While coal and hydropower have dominated generation for years, nuclear and fossil gas have also played a role, with 15% and 20% of the power mix respectively. With the exception of the two nuclear reactors, the vast majority of units became operational before 1990.

The decline in coal generation coincided with a boom in the construction of large wind parks in the early 2010s. However, wind power has stagnated for the past years at around a tenth of total power generation.

Romania has also been slow to capitalise on its solar potential. Despite having among the best conditions for solar energy in Europe[42], solar plays a minimal role. However, there are approximately 100,000 prosumers in Romania, and their total installed capacity—overwhelmingly solar—exceeded 1.1 GW at the end of 2023.[43]

Power generation in Romania per source, TWh

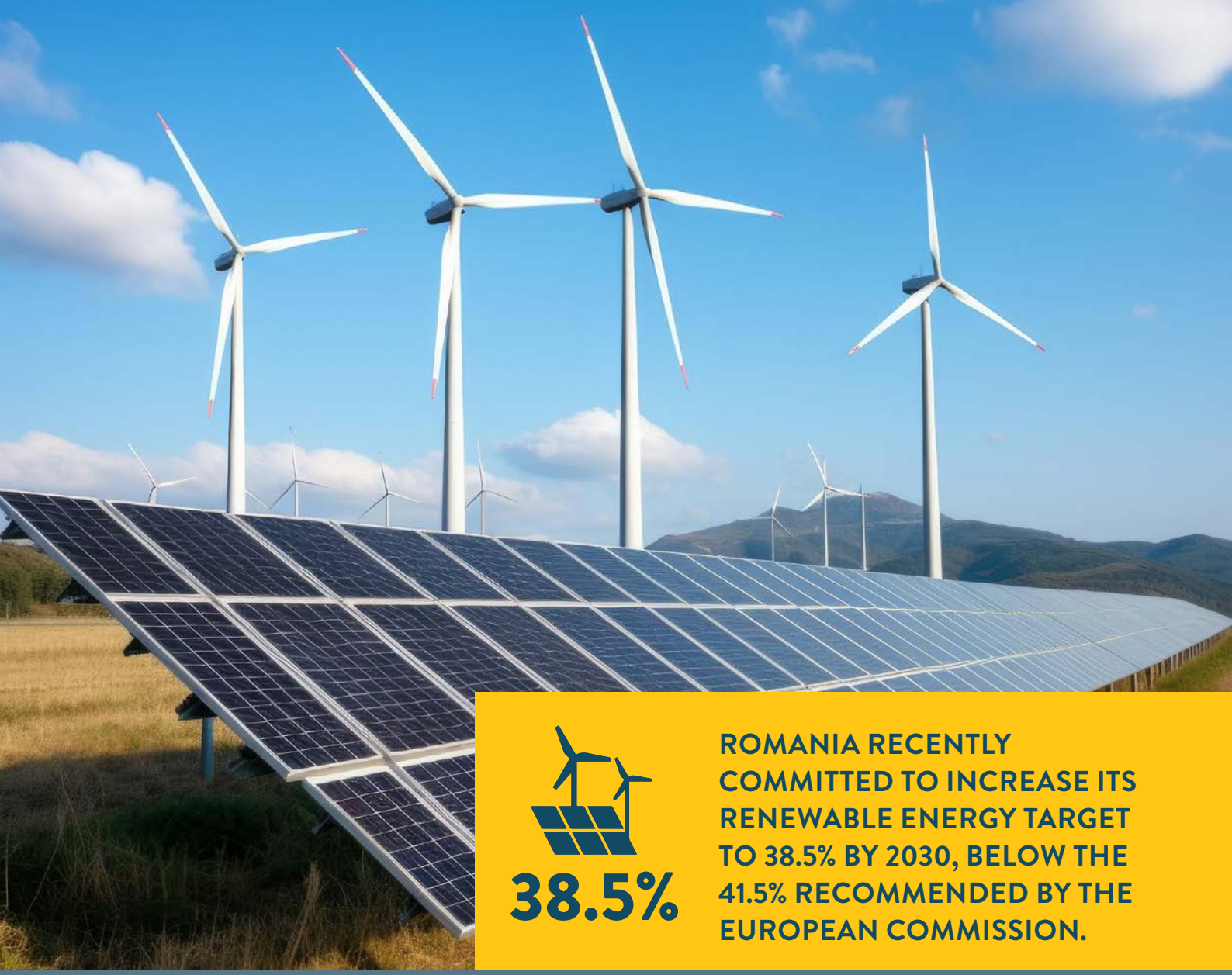


GAS PROJECTS

With a plan to phase-out coal by 2032, Romania foresees a transition to gas rather than to renewables. Most coal units are set to be replaced with combined cycle gas turbines (CCGT), while old gas units are to be upgraded to become fossil gas CHP plants. Although the NECP states that 3.5 GW of new gas capacities are expected by 2030, the total capacity of projects is above 6 GW, including 2.2 GW already in construction. If all projects come to fruition, Romania would almost triple its installed gas capacity.

This development has largely been financed through EU funds or schemes. The country's largest coal operator, Oltenia Energy Complex, is building two 1300 MW gas power plants, financed through the EU's Modernisation Fund, which is financed with revenues from the EU's Emissions Trading System (ETS). The Modernisation Fund is supposed to assist the 13 beneficiary countries to modernise their power sectors, but several member states are using it to deepen their reliance on fossil fuels instead.The pipeline connecting another large gas power station, the new 1.7 GW Mintia unit, was supported from the same fund. Romania is also using the Recovery and Resilience Facility to finance around 500 MW of gas CHPs. Financing has also been expanded through the Modernisation Fund for another 200 MW.

All these new projects will lead to a massive increase in fossil gas consumption. Romania's national Transmission System Operator (TSO) foresees an additional 10 bcm per year required to meet demand as of 2027, which is equivalent to Romania's yearly domestic production of fossil gas in 2023. At the same time, the Romanian government is securing new gas fields. The Neptun Deep offshore gas exploitation project is expected to start in 2027 and produce around 8 bcm per year, while Romania's Energy Strategy also mentions the development of a new onshore field at Caragele, with a total capacity of 30 bcm. An LNG terminal on the Black Sea is also mentioned in the NECP, but the details remain unspecified.



38.5%

ROMANIA RECENTLY COMMITTED TO INCREASE ITS RENEWABLE ENERGY TARGET TO 38.5% BY 2030, BELOW THE 41.5% RECOMMENDED BY THE EUROPEAN COMMISSION.

WAY AHEAD

In a response to a request from the NGO Bankwatch Romania to detail whether it has a strategy to phase-out gas from its power sector, the Romanian government pointed to its NECP, which states it plans to co-burn at least 50% hydrogen or other renewable gases in its fossil gas plants, starting in 2036. Although the government argues in its response that fossil gas will be used as a "transition fuel", it also describes a series of strategies as designed to create an enabling framework for the transition from fossil gas to "zero emission sources".

It remains unclear where that hydrogen will come from, as Romania's draft hydrogen strategy, which should have been approved in 2023, only foresees the use of hydrogen in existing industries and transport in 2030.

Romania recently committed to increase its renewable energy target to 38.5% by 2030, below the 41.5% recommended by the European Commission. Similarly, the revised renewable energy power generation target of 57% falls short of the EU effective target of 67%. In recent years, the government has launched multiple schemes with the aim of supporting the installation of 5.8 GW new renewable energy capacity. More similar schemes are expected in the near future. At the same time, there are over 800 solar projects totalling 46 GW planned in the market, but the majority are confronted with difficulty related to grid access that will need to be resolved swiftly[44], with developers waiting years for connection approval.

More effort is needed to decarbonise the power sector in a sustainable and effective way. Romania has significant potential for renewable energy development, and authorities must evolve from being a bottleneck to being an enabler through grid development and storage installation. Distributed renewables are a way to reduce bottlenecks and support local development, but national legislation is failing to foster energy communities and grid integration solutions. The Romanian government needs to adopt a different energy paradigm—one in which the consumer is an active member of the power sector.

BULGARIA

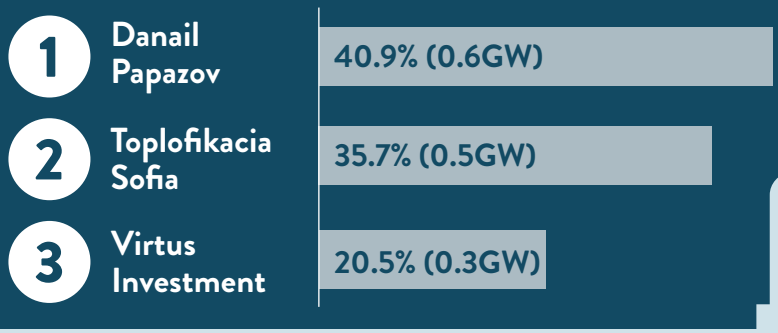
3.9% **28.9%**
Gas and coal in power generation in 2023
(% of total generation)

1.8
Installed capacity of gas power plants (GW)

74.6%
Planned gas power plant capacity as % of current installed capacity

Top 3 utilities for planned gas power plants

(share of planned national gas fleet)



KEY TAKEWAYS

With Bulgaria's NECP anticipating a significant reduction in gas use by 2030, the proposed offshore drilling gas project for that same year should be reevaluated.

Bulgaria barely uses any gas for power production and still produces 29% of its power from coal. Given this, it should establish a clear strategy for its power sector that concretely plans for the replacement of old, uneconomic coal plants with renewable energy, allowing the country to leapfrog gas altogether. Consequently, the 1.3 GW of planned new gas power plant projects - which would almost double existing capacity - should be reconsidered in tandem with planning for the expansion of renewables-based generation.

Bulgaria should implement policies that also enable growth in decentralised wind and solar to be able to tap into its full renewables potential, as most renewable projects have so far primarily focused on utility-scale development. Achieving this requires investments in the necessary infrastructure to support an upgraded grid.

29%
of power produced from coal

1.3GW
of planned new gas projects

POWER SECTOR TRENDS

Prior to the expansion of wind and solar over the past decade, more than 80% of Bulgaria's power was produced by nuclear and coal power plants. With now 10% of the power mix covered by wind and solar together and with output from nuclear, fossil gas, and hydropower having remained steady over time, coal power generation has halved compared to a decade ago due to an ageing fleet, and rising costs for mining and CO2 emission allowances. Despite this, Bulgaria is still lacking a clear coal phase-out strategy. This has left room for speculation on the potential role of gas in the transition beyond coal, and the spectre of further fossil fuel lock-in.

Bulgaria ranks among the EU countries with the lowest fossil gas demand; however, the gas it does consume is almost entirely made up of imports. In 2023, 99.8% of the gas consumed in Bulgaria was of foreign origin.[45] Historically, Russia was the dominant supplier of fossil gas, but this changed when Gazprom unilaterally terminated its delivery contract in 2022 following Russia's full-scale invasion of Ukraine.

The Bulgarian government's strategy in the gas sector has focused on diversifying sources for imports, a goal put into practice over the past two years through contracts for gas pipelines and LNG imports.[46] Bulgaria currently has contracts for importing gas from Azerbaijan via pipeline and the US via Turkish LNG terminals.[47] The state-owned gas operator Bulgargaz also has a 20% share in the Alexandroupolis LNG terminal in Greece.[48] Additionally, Bulgaria is still pursuing an offshore gas exploration project in the Han Asparuh field in the Black sea, despite the lack of a commercial discovery even after multiple extensions of the project.

The energy sector is by far the biggest gas consumer in Bulgaria with a 38% share of total consumption in 2023. The biggest single consumer is the district heating company that serves the capital city, Sofia, which has around 400,000 clients.

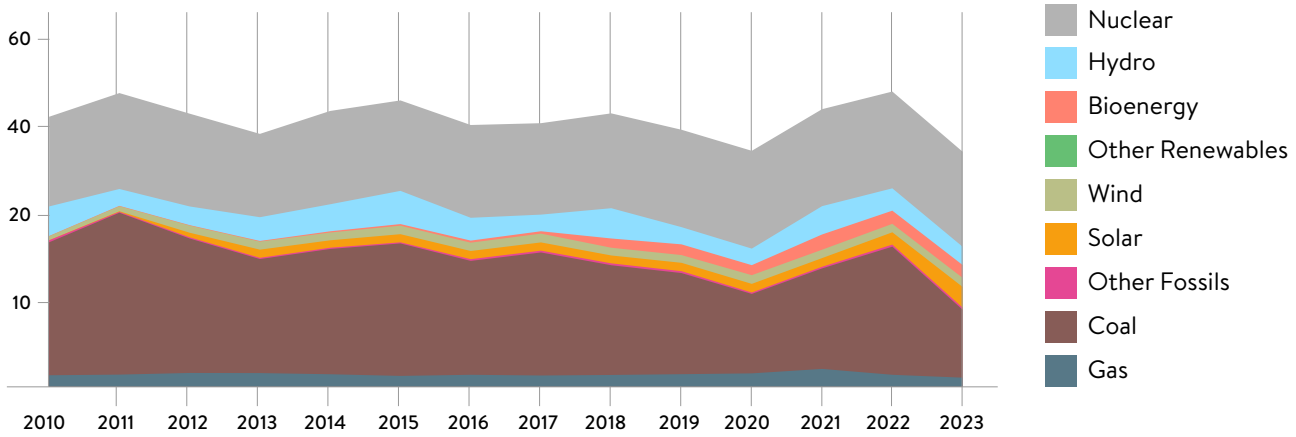
The renewable energy sector has gone through two significant periods of growth. First, in 2011-2013, when Bulgaria quickly reached its 2020 renewable energy target of 16% thanks to the introduction of long-term power purchase agreements for new renewable energy installations which resulted in 600 MW of onshore wind and 1000 MW of solar. That was followed by a decade-long period of stagnation, mainly due to a lack of incentives.

The second rapid expansion came in recent years, with 2 GW of solar connected to the grid since the beginning of 2023.[50] The development of wind energy is stalled due to strong opposition in a highly polarised debate about the technology.

The development of renewable energy has largely been centralised, with eight solar parks of at least 100 MW and three of at least 200 MW.[51] Many large and medium-size businesses have installed their own rooftop solar for their own consumption, but data on this is hard to compile. Situated in South-East Europe, Bulgaria's geographical location and near-Mediterranean climate offer significant potential for decentralised renewable power generation and citizen participation that has yet to be harnessed.

In further positive news, the first Bulgarian energy community was formed in 2024 in Gabrovo[52], initiated by the Gabrovo municipality and has 73 active members. A second energy community is already underway in the city of Burgas[53], highlighting a growing interest among municipalities which are recognising the benefits of energy communities.

Power generation in Bulgaria per source, TWh



GAS PROJECTS

One of Bulgaria's most concerning projects is the Han Asparuh 1-21 offshore drilling initiative, located in Bulgarian waters of the Black Sea. According to a presentation given to the Energy Parliamentary Committee by Total in July 2023[54], drilling could start in 2030 with roughly 13 bcm/year produced between 2030 and 2040[55]. In 2023, the Energy Parliamentary Committee tasked then Energy Minister Rumen Radev with exploring how the Bulgarian Energy Holding (Bulgaria's state-owned energy holding company) could be involved in the project.[56]

The conversion or replacement of coal-fired power plants with 1.3 GW of new gas capacity is frequently discussed in Bulgaria. There are indications that public funding, rather than private investment, would be pursued should the projects proceed. One such example is the now abandoned proposal to construct 1500 MW of combined cycle gas power capacity in the Maritsa basin. According to a report by NGOs Za Zemiata and CEE Bankwatch, the project would have required an estimated €1.3bn ($1.42bn) in financial support until 2040. Without a support scheme, it would have generated a loss with every hour of production.[57]

THE CONVERSION OR REPLACEMENT OF COAL-FIRED POWER PLANTS WITH 1.3 GW OF NEW GAS CAPACITY IS FREQUENTLY DISCUSSED IN BULGARIA.

WAY AHEAD

It is clear from the NECP modelling that a decline in fossil gas use is anticipated—between one quarter and a third—by 2030. But the plan does not specify how this decline will be achieved. Despite this decline and gas being described as a "transitional" fuel in the lastest draft NECP, an overreliance on gas is still planned. A concerning example of this is the plan to predominantly achieve Bulgaria's interconnectivity and energy security objectives through long-term fossil gas contracts and fossil gas infrastructure.

The focus in Bulgaria should switch from proposing additional gas interconnectors and expanding fossil-fired generation capacity to developing solutions such as electricity grid cross-border interconnections. Plans should also be made for 4th generation district heating solutions built around renewable sources, low-temperature heating, multiple energy sources, waste heat recovery, and seasonal storage.

More flexibility measures also need to be introduced on a larger scale in strategic planning documents (e.g. the NECP)— in particular, emphasising demand-side flexibility and storage capacity, in line with forecasts that show that flexibility requirements will double in the EU by 2030.

As the current system favours large-scale renewables deployment, a strong regulatory framework is required in order to also bring renewable energy to individual users and to focus investments on issues such as grid connectivity and flexibility. There is also huge potential for renewable energy deployment on contaminated land[58], however this is not being promoted.

POLAND

8.74% **61%**

Gas and coal in power generation in 2023 (% of total generation)

4.64

Installed capacity of gas power plants (GW)

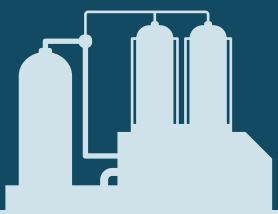
143.9%

Planned gas power plant capacity as % of current installed capacity

Top 3 utilities for planned gas power plants

(share of planned national gas fleet)

1. Orlen Group — 35.5% (2.3GW)
2. ENEA Wytwarzanie — 22.8% (1.5GW)
3. PGE — 17.7% (1.2GW)



KEY TAKEWAYS

With 6.6 GW planned, if built, Polish gas capacity would almost double compared to its currently installed gas power capacity. The majority of these new projects are proposed on the site of existing coal power operations. In order to avoid further entrenching Poland in fossil fuels, the Polish government needs to establish a date for the phase-out of coal from the power sector, which should serve as the foundation for a just transition to renewable-based power generation that doesn't rely on fossil gas.

Capacity mechanisms are disproportionately supporting the development of new gas infrastructure, and they should be redirected towards renewables and clean flexibility options such as grids, storage, and demand side management.

Poland's water resources are lower than those of many European countries, and at least five planned gas investments are located in areas with water shortages. The Polish government should evaluate the cumulative impact on water supplies which would result from approving several new gas projects at the same time.

6.6GW
of planned new gas projects

Water resources are lower than those of many European countries

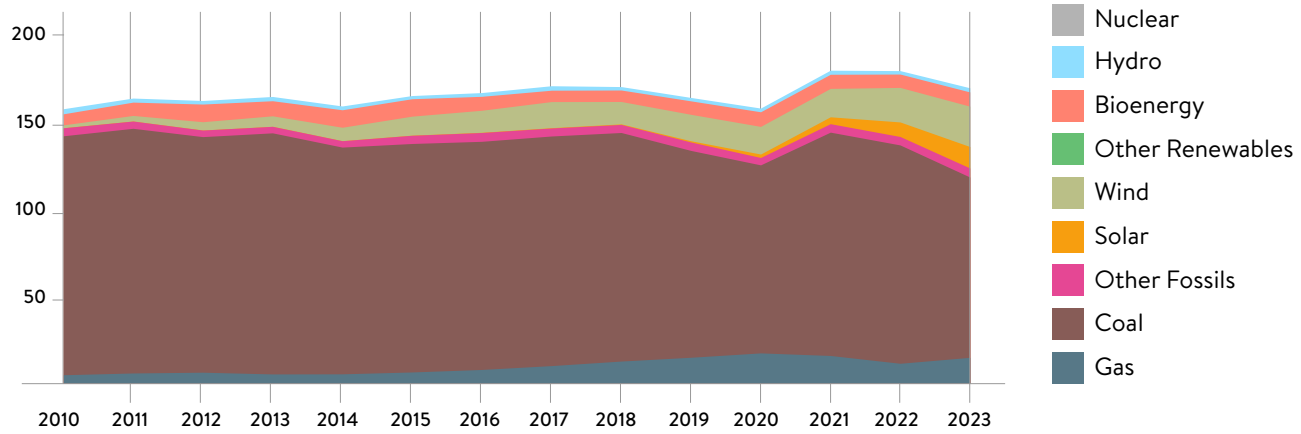
POWER SECTOR TRENDS

Poland's power sector has long been synonymous with coal, but even this last EU stronghold for the dirtiest of all fossil fuel is changing. In 2010, 87% of power was generated from coal, but that number fell to 61% in 2023, even as gas prices remained stubbornly high and fossil gas power generation also remained below 2019 levels.

Renewable energy is finally making gains in Poland: 2023 was the fifth consecutive record-breaking year for both wind and solar power production. The former now accounts for 13.7% of power generation, despite legislation which severely limits the installation of wind turbines (onshore wind development has effectively been severely hindered since 2016). The growth of solar energy generation is equally impressive, from under 1 TWh in 2019 to over 12 TWh just four years later, covering more than 7% of the Polish mix in 2023.

Currently, the energy sector is the third-largest consumer of fossil gas in Poland behind households and industry (33% in 2022, but 49.4% if industrial heat and electricity are included).

Power generation in Poland per source, TWh



GAS PROJECTS

Poland plans to almost double its gas power plant fleet in the near future to supply power or combined heat and power from 6.6 GW of new capacity[59]. The majority of these new projects are proposed on the site of existing coal power operations. For local communities, this means an indefinite prolongation of the problems caused by decades of fossil fuel exploitation. The Adamów gas power plant project (600 MW) is a case in point. Water shortages are commonplace, and instead of accepting responsibility for being the source of the problem and addressing it, the developer proposes pumping water from a lake 30 KM away.[60]

The negative impact of gas power plants on water resources is significant. Poland has approximately 4-5 times lower water resources per capita than the European average[61], and at least five planned gas investments are located in areas with water shortages.[62]

The Polish capacity market[63] is a key instrument supporting gas-fired power plants. Three units under construction have received 17-year power market contracts: Grudziądz (560 MW), Ostrołęka C (745 MW)[64], and Rybnik (882 MW).[65] In August 2024, one of the two units of the Dolna Odra (1400 MW) gas-fired power plant project was commissioned, guaranteeing its financing from the capacity market. Furthermore, the two 1500 MW gas units which form the Kozienice project are likely to be put up for auction on the capacity market in December 2024 or 2025.[66]

The Gdansk Floating Storage Regasification Unit (FSRU) terminal is to be put into operation in 2028, adding 6 bcm of regasification capacity to the existing, recently expanded Świnoujście LNG Terminal (with a regasification capacity of 8 bcm).

Poland's new NECP[67] does not reevaluate the country's plans for the development of gas transmission and import infrastructure, despite the fact that the current investment strategy for 2024-2033—prepared by the national Gas TSO—is based on the outdated, significantly higher gas demand projections of the gas industry, increasing the risk of stranded assets.

MOST OF POLAND'S COAL-FIRED POWER PLANTS ARE LIKELY TO BE SHUT DOWN IN THE NEXT FIVE YEARS FOR TECHNICAL AND ECONOMIC REASONS

WAY AHEAD

In spite of updating its NECP, Poland remains one of the few countries without a phase-out date for coal in the power sector, nor does it have one for gas. Most of Poland's coal-fired power plants are likely to be shut down in the next five years for technical and economic reasons. Once contracts from the power market expire—which for most coal-fired power plants will happen in 2028 or earlier—it will likely be uneconomic to operate these plants. Only five coal-fired units have such contracts until 2035. Renewable energy must be deployed to bridge the gap this will create, not fossil gas.

According to the NECP scenario, overall gas consumption will peak in 2030 at 23 bcm (compared to 17 bcm in 2023). Gas demand is expected to fall to 13 bcm in 2040. Meanwhile, total gas capacity in CCGT power plants is to increase from 4 GW in 2023 to 6 GW in 2030 and 6.7 GW in 2040, with an additional 5.1 GW and 4.8 GW respectively in CHPs. Electricity generation from gaseous fuels would be 31 TWh in 2030 and then drop to 10 TWh in 2040. However, in the NECP scenario any decrease is conditioned on introducing nuclear units, first planned to go online in 2035 with a target of 6.2 GW and energy production of 58 TWh in 2040—a plan that is already fraught with financial risks and delays.

The NECP also states that the use of CCS in new fossil gas power plants is anticipated if it is "financially justified and needed to provide stability of the energy system". All new gas units are considered hydrogen-ready.

In September 2024, the government presented a draft amendment to a law that has severely hindered onshore wind development since 2016. The continued growth of renewables is further made uncertain, due to an unfavourable framework for prosumers. The Transmission System Operators (TSOs) and the Distribution System Operators (DSOs) are also habitually refusing to connect new renewable projects to the power grid, with 51 GW of renewables capacity refused connection in 2022 alone.

The Polish government should focus on developing a vision for its energy system centred around renewable energy, and use this to serve as the basis for its updated 2040 Energy strategy and NECP. This should include setting a realistic date to move away from coal (aligned with the evolution of power market contracts), with coal production reduced to a minimum by 2030.

The country also needs a strategy to reduce gas demand across all sectors of the economy, not just the power sector. With Poland's electricity system already functioning well with high shares of renewable energy, plans for new large-scale gas units should be reevaluated and focus switched to clean flexibility and storage instead. More broadly speaking, the rationale of Poland's planned investments in gas imports and transmission infrastructure should also be reevaluated in the context of European trends of gas demand reduction and greenhouse gas emission reduction targets.

Poland's plans for hydrogen are unrealistic as they do not take into account the the technical and financial challenges of blending gas with hydrogen, including the context of energy intensity, greenhouse gas emission reduction, and the existing hydrogen supply gap to meet the 2030 targets in the EU's Renewable Energy Directive (RED III).

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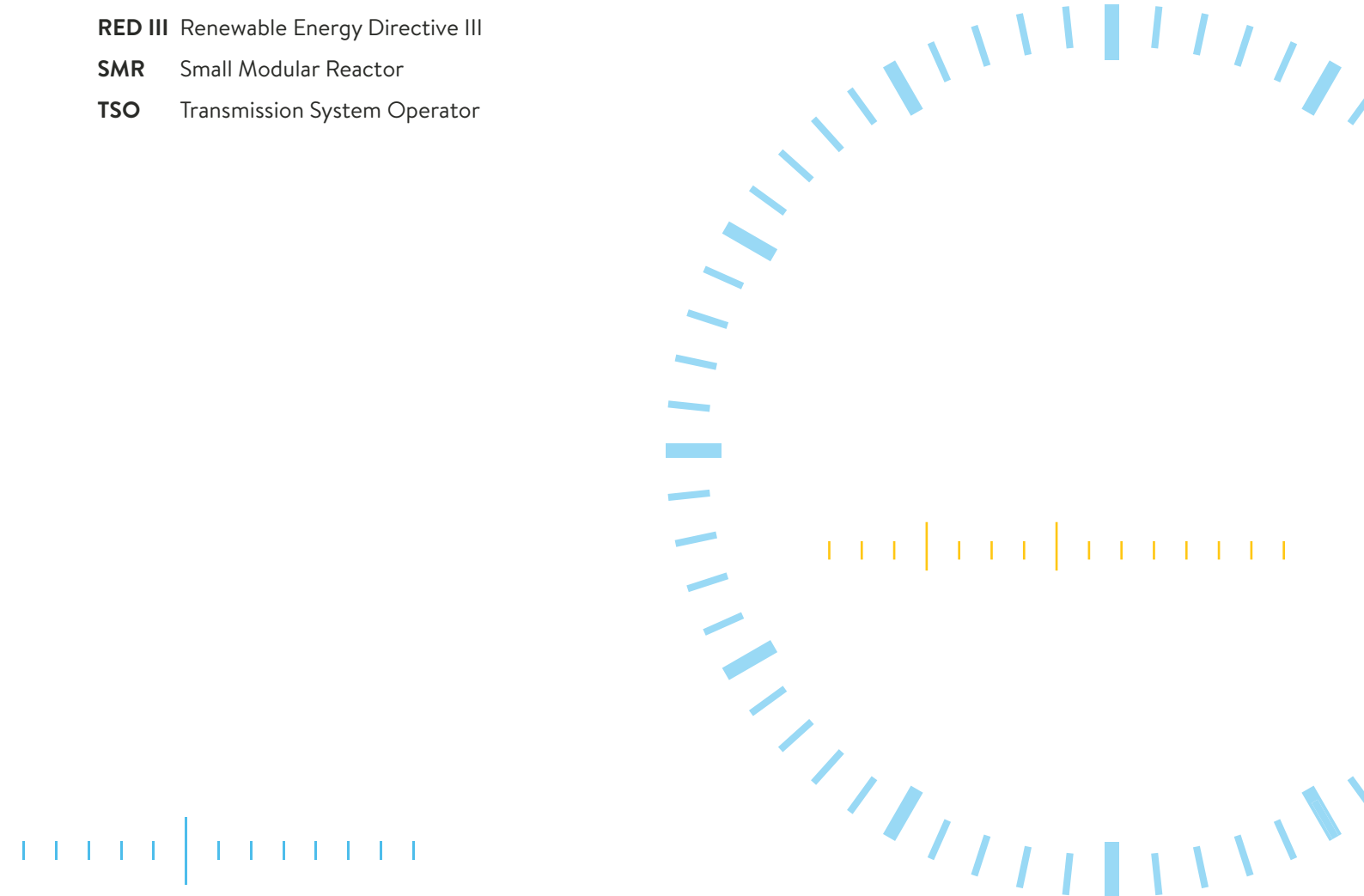
GLOSSARY

CCGT Combined Cycle Gas Turbine
CCS Carbon Capture and Storage
CCUS Carbon Capture, Use and Storage
CHP Combined Heat and Power Plant
CM Capacity Market
DSO Distribution System Operator
ETS Emissions Trading System
FSRU Floating Storage Regasification Unit
H2P Hydrogen to Power
LNG Liquefied Natural Gas
NECP National Energy and Climate Plan
RED III Renewable Energy Directive III
SMR Small Modular Reactor
TSO Transmission System Operator



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