Phasing out fossil gas power stations in Europe by 2030

Presenting a list of 142 gas-fired power stations in the EU and the UK that should be closed or not commissioned within the next 10 years.

AirClim

Air Pollution & Climate Secretariat

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Fossil gas has to be phased out if Europe is to comply with the Paris agreement. A phaseout strategy must include both heating, industry and power. This is clearly possible, though the fossil gas lobby is strong and resourceful.

Coal use peaked globally 2013 and in Europe 1985. Oil peaked 2005 in the EU and may have peaked globally in 2018. Global gas use, on the other hand, has grown relentlessly at least through 2019, globally, and has remained roughly flat in Europe over the last 20 years.

In 2019 the EU-28 used 16.9 EJ of natural gas[1], which resulted in direct emissions of some 950 million tonnes of CO_2, or about 28 percent of CO_2 emissions. Natural gas use leads to emission of other greenhouse gases. Upstream, methane and CO_2 are emitted. Combustion of gas emits N_2O from denitrification and/or NOx and ammonia, some of which later turns up as N_2O. More CO_2 emissions result from energy use for compressors in gas pipelines and for liquefication to LNG and propulsion of LNG ships.

Europe cannot get anywhere near its climate targets without a strong reduction of natural gas use.

The crucial thing is not which year net zero is achieved, but to minimise the emissions until then. Gas in Europe emits at least a billion ton CO_2-eq/year, of which some 20-25 per cent is power, so left alone till 2050 that would be 30 billion tonnes, which can not be shoehorned into any kind of compliance with Paris goals.

CCS no option

Continued gas use with carbon capture and storage is not an option. There is not one gas power plant or gas heat plant with CCS on any relevant scale anywhere in the world. There is a reason for this. It costs too much to capture, transport and store a ton of CO_2 from gas power, far above any conceivable price in the ETS.

Fossil gas has often been marketed as a bridge to sustainable gas, i.e. hydrogen and biogas. It is technically possible to blend some hydrogen and/or biogas into fossil gas, but a full conversion of fossil gas grids to green gas is at best an elusive goal. The quantity of the sustainable biomass resource is hotly contested, and however much it is, it is not clear that fossil gas substitution is the best use of it.

The biggest use of gas is for heating of buildings, both domestic and others. Heating gas can be replaced by better insulation, including better windows, by better ventilation and by electric heat pumps. Natural gas heating could also be substituted with hydrogen gas, from green electricity; this is however opposed by many NGOs as it will to take long time and serve as a pretext for continued use of fossil gas.

The technologies for heat pumps and improved insulation are well known. It is possible to install large numbers of heat pumps, and also to improve the isolation of large numbers of houses. But it is not that easy to fine-tune the instruments, so serious installers, manufacturers and consultants are attracted, roll-out accelerates in a controlled manner, and so quality problems and cost escalation are avoided. Even with the best of policies, a large reduction will not happen fast.

Gas power easier to turn off

Gas power, on the other hand, can be turned off immediately.

The main alternatives are wind power, on and off shore, photovoltaics, more efficient use of electricity, and to some extent (in Southern Europe) solar thermal power .

A line of defence for gas power is this, from Eurogas:

"The need for flexible power generation will increase to cover production gaps being caused by growing intermittent renewable electricity generation and variable demand patterns."[1]

Gas power is one way to balance intermittent power, but there are several others:

But there are several other methods to deal with the increasing solar and wind shares of electricity.

1. Demand response. Some electricity users can shift their use a few hours, which reduces the need for peak capacity. Most heating and cooling can wait an hour or longer. Houses can be heated or cooled in anticipation of a peak. Demand response can also save money by avoiding or postponing investment in grid or power plant capacity. It can increase quality of AC as for frequency and better sinus shape. And it can avoid or mitigate black-outs.
2. Batteries, including those in battery cars and plug-in hybrids, can supply growing capacity for hours. The main function of batteries is to improve power quality in distribution grids; to keep the voltage and current as close as possible to a sinus wave shape, frequency at exactly 50 hertz etc. But once they are there, they can shift some of the load. Much same as 1).
3. Existing hydropower (including pumped hydro) can be used better to accommodate short term variations.
4. Hydrogen electrolysis powered by"surplus electricity" (low price) can stabilize the grid, and electricity prices, when wind and solar is plentiful, and be turned off when there is high demand and low wind/solar. Some of the hydrogen can substitute for electricity at times, especially for heat, so as to mitigate electricity demand peaks. A district heating system can switch between electric heating and hydrogen heating.
   Hydrogen can be stored in great quantity and over months, and can be used for industry, heating and transport. It can even be used for power, though at a substantial energy penalty.
5. Concentrated (thermal) solar power can store the heat in molten salt, so the plant can deliver power for several hours. The technology exists if needed in though it is often not competitive with photovoltaics. There are CSP plants, in operation or under construction, in Spain, Morocco, Dubai, the United States and elsewhere.
6. Electricity trade with other countries can flatten the curve of mismatch between production and demand. Denmark has the highest share of wind power in the world, and this is made possible by export of electricity during high winds and import during low winds.

1 https://eurogas.org/website/wp-content/uploads/2020/11/Eurogas-position-2030-Climate-Targets-Plan.pdf

7. Solar, wind and hydro balance each other to some extent. It is intuitive that rain, wind and sunny weather do not coincide, and it can clearly be seen from the German power system that solar and wind vary less together than solar or wind by itself[2].
8. As it blows more in winter than in summer, and demand is higher in winter in Europe, some of the variation does not need balancing.
9. As demand is higher in daytime than night-time, solar is roughly correlated with demand. A tendency towards a summer demand peak during heat waves is roughly synchronized with solar output.
10. Biopower can be operated with some load following, as is the case in Denmark.
11. Bio-heating can be operated as backup for electric heating in district heating or in industry.
12. If there is need and economics for other storage technologies, e g compressed air storage, many of them are well researched since the 1970's.
13. With decreasing nuclear power (for example in Germany, Sweden and Belgium), more flexibility is left for wind and solar
14. Wind and PV have can supply some flexibility on their own, by control strategy and smart hardware called "synthetic inertia" as an analogue to real inertia in heavy turbo-generators in conventional power stations, meaning that output varies less than the wind or insolation. Wind and PV can also be throttled in a situation where supply exceeds demand. In some situations it may make sense to operate at less than full power so there is room for a power increase when needed.

It will take a bit of ingenuity and focus to balance supply with demand in a power system with increasing shares of wind and PV, but lots of people are working on it all over the world.

Methods such as those above, and more, are an increasingly likely alternative to gas power.

Security issues for gas

Just a few years ago gas was seen as the only alternative to coal and nuclear in many countries. But in 2019 solar and wind produced more TWhs than coal in EU-28. The 2018 reform of the CO_2 trading system is hitting both coal and gas, as gas is an expensive fuel.

The EU imports most of its gas. There is a security of supply issue, as the many of the gas exporters are either unstable, undemocratic or both. Obviously Russia and some of its allies are a problem. It is a matter of opinion how the United States under the Donald Trump presidency should be classified in that respect. Oil and gas have played a major part in US foreign policy and wars for at least 80 years and led to support for extremely undemocratic political forces, such as Saudi Arabia and Usama Bin Ladin (in Afghanistan).

2 See https://energy-charts.info/charts/energy/chart.htm?l=en&c=DE&source=all&interval=week

Even European dependence on Norway can be problematic. Norway wants to keep producing oil and gas, and some of the revenues are used for soft power to advance all kinds of not-here, not-now kinds of climate policy, such as CCS and and creative accounting such as"climate compensation". Norway trusts such methods enough so as to open new oil and gas fields, and still claim to be a climate leader[3].

Wind, solar and efficiency do not face such security dilemmas.

Evironmental cost of gas

There is also an environment cost for imported gas.

There are methane emissions from wellhead and old distribution grids. Methane is a much stronger greenhouse gas than CO2. Methane is 30 times stronger in the standard 100-year perspective, which is how greehouse gas emissions are accounted for. In a 20 year perspective, methane is 86 times stronger than CO_2, and though it may be a bad idea to up-end the whole accounting system, the 20-year perspective is also relevant, because the time we have to stop and reverse climate change is 20 rather than 100 years.

The lifecycle emissions also include energy losses such as from the liquefication of gas to -169 degrees and keeping it cold in the ship for LNG, or energy for keeping the gas pressure along a long pipeline.

A report for the US gives lifecycle greenhouse gas emissions from a power plant operating in Rotterdam on US, Algerian and Russian natural gas as 606-629 g/kWh in the 100 year perspective and 754-787 g/kWh in the 20 year perspective[4].

This may be an underestimate. Recent satellite monitoring have demonstrated methane leaks much higher than previously known[5], and both in Russia and the US fracking.

Gas importing nations are also economically vulnerable. The infrastructure, pipelines and LNG harbours, power stations and some other end-uses are very expensive and long term, so it is difficult to kick the habit.

Economic cost of gas

Imports with LNG ships is never cheap, and import through pipelines also comes at a price. This price is not just economic. There is also the ever present issue of security of supply with dependence on Russia and the Middle East. That is why the Nord Stream 2 and Turkstream pipelines are so controversial, and subject to US sanctions. The other side of the coin is that the US has its own (fracking) gas to sell and its own influence to peddle.

Cutting the use of gas can be either by using power stations fewer hours per year or by scrapping them. In the real world, instruments and market conditions that aim to cut the gas use will also kill a number of plants once and for good.

A natural gas power plant makes money in the short term -- hours -- if the price of electricity is higher than the cost for gas plus the carbon cost. In the longer term -- years -- sales of electricity has to pay for operation and maintenance too.

3 https://www.energylivenews.com/2020/02/07/norway-boosts-its-climate-target-to-reduce-emissions/

4 https://www.energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf p9

5 https://www.reuters.com/article/us-climatechange-methane-satellites-insi-idUSKBN23W3K4

Someone investing in a new gas plant must also expect electricity sales to cover capital costs.

Electricity prices are, on average, falling because of increases of wind and solar. Such renewables are profitable to run even if the price is close to zero, and in some cases even if the price is negative. Gas prices are hard to predict, but they can't go very low for a long time, because the producers and transporters have to cover their costs. Also, other customers, such as China and Japan may drive up prices.

Carbon price has gone up dramatically, and will have to keep going up with the EU climate targets in mind.

Under present, or likely future, market conditions -- low electricity price, high gas price, high carbon price -- gas power will lose out against renewables. Even if gas prices will not be high, they will be highly volatile, which makes gas power a risky business.

Many gas power stations will be operated fewer hours per year, and emit less CO_2.

Some gas power stations will be decommissioned.

The worst gas power plants - where to find them

Gas power plants are different both in design and how they are operated. Other things equal, older plants with lower efficiency emit more CO_2. Plants that have been converted from coal or oil power are less efficient and emit more CO_2 per kWh of electricity. Power-only plants emit more than combined-heat-and-power.

The biggest difference, though, is how much they are operated. A "base-load" plant that is used all the time, 8760 hours per year, at full capacity, emits 100 times as much as a "peaker" plant that is only used on average 87 hours per year. Most gas power plants cannot easily be put in either category. They operate opportunistically depending on gas price, electricity price and carbon price, so the emissions can differ considerably from year to year.

This makes it difficult to say which plants are the worst from a climate perspective. CO_2 data can, with a lot of work and a bit of luck, be found for any one plant one year. But the figures vary and do not tell much how much it is supposed to emit in the coming years.

This calls for a two-thronged approach.

Higher CO_2 prices, which we have already seen, will have many beneficial effects. The least efficient plants will be hardest hit, and coal and lignite will be hit still harder. As more coal power is killed, gas power will be in the front line. If high CO_2 prices are sustained and increased that will, in theory, do the prioritizing.

But it would be dangerous to rely only on the emission trading system to deliver the necessary cuts. We must not forget that the ETS was next to useless 2005-2017, and that the EU institutions do not exercise hands-on control over the price, nor that they watered down the 2030 emissions target from -65 to less than -55 per cent. The EU has also a large number of other legislation that sometimes reinforces, sometimes contradicts climate targets.

On top of that, member states have a lot of influence over the fate of the individual power plant, which can be used to enhance or weaken EU climate policy.

The one thing we know for sure is that when a power station is decommissioned and torch-cut into pieces, it will not emit any more CO_2. As long as it is still operative, even if is not much used, or even moth-balled, there is always a risk that market conditions or policy will revive it to full force.

An illustrative example of the problem: The 4*900 MW Montalto di Castro power station taken together would be the biggest gas power plant in Europe, at 3600 MW. (The database sees it as four separate units.) But in later years it has been used infrequently and only for short periods, so CO_2 emissions have not been very high. So far, so well. But is it conceivable that a future Italian government would decide to run it at full capacity?

Economics, i.e. the carbon price, the gas price, and the price of electricity is not everything.

The fossil industry often uses its lobbying power to warp the market. Sometimes this is downright illegal, but more often not. Gerhard Schröder furthered gas when he was prime minister of Germany and has since held well-paid positions for NordStream and Rosneft and other fossil industry, which is apparently not illegal.

Dirty fuels continues to deliver dirty politics. In February 2021 the German NGO Deutsche Umwelthilfe revealed that Foreign Minister Olaf Scholz some months earlier had offered the Trump administration a fossil gas deal: if the US would waive their sanctions against Nordstream 2, the German government would build two LNG harbours for import of US fracking gas.[6] The idea thus was: more fossil gas from the West in exchange for more fossil gas from Russia. Whether this is legal and/or politically acceptable remains to see.

Gas consumption in Europe has not increased over the last 10-15 year.

Apart from bent politics, sheer stupidity plays an important role in energy investment decisions. There is no law against bad or stupid investments and other business decisions. There is massive evidence for that in Europe over the last 15 years. All energy majors have went for coal and nuclear. They now have hundreds of billions in stranded assets, and have seen a precipitious drop of compnay value. They reckoned that the EU was not serious about climate change, and that they could disregard the German and Belgian decisions to phase out nuclear.

Detailed analysis up to national NGOs

A good detailed analysis of which plants to shutter first should also consider the short term consequences for each plant in each Member State. It is for example not a good idea to shutter a gas power plant in order to save lignite power plants, as happens right now in Germany. It is unpractical to ask for closure of a plant that is essential for grid stability, or to re-ignite debate about nuclear power in countries that have decided to shut down some or all reactors.

Grid stability issues are complex, but they cannot legitimize gas power plants to run until 2050; they should be solved within 2-3 years. Phaseout of coal has largely already happened in the UK and France, Portugal and Spain, so it is no longer a pretext for keeping gas.

6 https://www.duh.de/projekte/geheimdeal-gegen-das-klima/

Nuclear is gone in Germany by end-2022 and then it is off the table. Phasing in new wind and solar does not take decades, rather 2-3 years, and it is already happening. New power lines have long leads, but a lot of construction is already going on. Some demand side management and energy efficiency can be fast and cheap, but is often held back by legal and other barriers.

So while there is no one way to tell which plants to phase out first, a simple proxy is capacity. That is also where we have data[7]. The first priority is to stop planning for new gas power plants, and stop building them. Then, other things equal, shut the biggest ones first, as they either are the biggest emitters or have the potential to be so.

Below are lists of

1. The largest operating gas power plants, ie those of >500 megawatt electric capacity
2. Planned gas power plants
3. Power plants under construction

7 Taken from https://globalenergymonitor.org/tracker/ February 2021

The largest operating gas power plants in Europe, ie those of >500 megawatt electric capacity

		status	country	MW
Peterhead power station 1	SSE plc	operating	United Kingdom	1180
Spalding power station 1	Intergen NV	operating	United Kingdom	950
Carrington power station 1 & 2	Electricity Supply Board (ESB)	operating	United Kingdom	910
Langage power station	EP UK Investments Ltd.	operating	United Kingdom	905
Montalto Di Castro power station 1	Enel	operating	Italy	900
Montalto Di Castro power station 2	Enel	operating	Italy	900
Montalto Di Castro power station 3	Enel	operating	Italy	900
Montalto Di Castro power station 4	Enel	operating	Italy	900
Emsland power station D	RWE Generation SE	operating	Germany	887
Simeri Crichi power station	Edison SpA	operating	Italy	885
Besós 5 power station	Endesa SA	operating	Spain	859
As Pontes power station 5	Endesa SA	operating	Spain	856
Petrom Brazi power station CC	OVM Petrom	operating	Romania	850
Pocerady power station 2	CEZ Group	operating	Czech Republic	847
Irsching power station 5	Uniper Kraftwerke GmbH	operating	Germany	846
Marchwood power station	Marchwood Power	operating	United Kingdom	840
Castellón power station 4	Iberdrola Genera-cion S.A.	operating	Spain	839,35
Seabank power station 1	Seabank Power Limited	operating	United Kingdom	836
Torviscosa power station	Edison SpA	operating	Italy	830
Simmering power station Sim1	Wien Energie	operating	Austria	828
Arcos de la Frontera power station CC-3	Iberdrola Genera-cion S.A.	operating	Spain	823
Algeciras 3 power station	Repsol SA	operating	Spain	821
Sutton Bridge power station	Calon Energy	operating	United Kingdom	819
Escombreras Iberdrola power station 6	Iberdrola SA	operating	Spain	816

		status	country	MW
South Humber Bank power station 1	EP UK Investments Ltd.	operating	United Kingdom	810
Rocksavage power station	Intergen NV	operating	United Kingdom	810
Altomonte power station	Edison SpA	operating	Italy	808
Piacenza power station	A2A SpA	operating	Italy	806
Damhead Creek power station	Drax Power Ltd	operating	United Kingdom	805
Escatrón 3 power station	Repsol SA	operating	Spain	804
Torrevaldaliga Sud power station 5	Tirreno Power SpA	operating	Italy	800
Bertonico - Turano Lodigliano power station	Sorgenia S.p.A.	operating	Italy	800
Modugno power station	Sorgenia S.p.A.	operating	Italy	800
Turbigo power station	Iren Energia SpA	operating	Italy	800
Coryton power station	Intergen NV	operating	United Kingdom	800
Knapsack Gas power station I	Statkraft Markets GmbH	operating	Germany	800
Castelnou power station	Initec Energia SA	operating	Spain	791
Aprilia power station	Sorgenia S.p.A.	operating	Italy	787
Amorebieta power station	BIZKAIA ENERGIA S.L.U.	operating	Spain	786
Bahía de Bizkaia power station	Bahia de Bizkaia Electricidad (BBE)	operating	Spain	785
Castellón power station 3	Iberdrola Generacion S.A.	operating	Spain	782
Didcot B power station 5	RWE Generation UK plc	operating	United Kingdom	780
Termoli power station	Sorgenia S.p.A.	operating	Italy	769
Sermide power station 4	A2A SpA	operating	Italy	766
Marghera Levante power station 3 & 4	Edison SpA	operating	Italy	766
Tavazzano power station 5	E.On	operating	Italy	765
Keadby power station 1	SSE plc	operating	United Kingdom	764
Vado Ligure Power Station	Tirreno Power SpA	operating	Italy	760

		status	country	MW
Medway power station	SSE plc	operating	United Kingdom	755
Chivasso power station 1	A2A SpA	operating	Italy	753
Ostiglia power station 12	EP Produzione SpA	operating	Italy	751
Cassano D'Adda power station 2	A2A SpA	operating	Italy	748
Termini Imerese power station Ti6	Enel SpA	operating	Italy	735
Little Barford power station 1	RWE Generation UK plc	operating	United Kingdom	735
Rye House power station	Drax Power Ltd	operating	United Kingdom	715
Didcot B power station 6	RWE Generation UK plc	operating	United Kingdom	710
Polkowice Copper Works power station B1	KGHM Polska Miedz	operating	Poland	630
Lausward power station F	Stadtwerke Düsseldorf AG	operating	Germany	595
Dormagen power station	RWE Generation SE	operating	Germany	586
Bouchain power station	EDF	operating	France	585
South Humber Bank power station 2	EP UK Investments Ltd.	operating	United Kingdom	580
Staudinger power station	Uniper Kraftwerke GmbH	operating	Germany	572
Irsching power station 4	Uniper Kraftwerke GmbH	operating	Germany	561
Lavrio power station 4	METKA	operating	Greece	550
VPI Immingham power station 3	VPI Immingham	operating	United Kingdom	530
Baglan Bay power station 1	Calon Energy	operating	United Kingdom	520
Killingholme Power Station B1	Uniper	operating	United Kingdom	500
Killingholme Power Station B2	Uniper	operating	United Kingdom	500

Planned gas power plants in Europe

		status	Country	MW
Torrevaldaliga Nord power station CC	Enel SpA	proposed	Italy	1680
Krefeld-Uerdingen power station CC	Trianel GmbH	proposed	Germany	1200
Ferrybridge power station D CC 1	Scottish And Southern Energy	proposed	United Kingdom	1100
Ferrybridge power station D CC 2	Scottish And Southern Energy	proposed	United Kingdom	1100
Hillhouse Enterprise Zone Power Station CC 1	Wyre Power Ltd	proposed	United Kingdom	900
Presenzano Edison power station	Edison SpA	proposed	Italy	850
King's Lynn-B power station CC 1	EP UK Power Development Limited	proposed	United Kingdom	850
King's Lynn-B power station CC 2	EP UK Power Development Limited	proposed	United Kingdom	850
Tees Combined-Cycle Power Plant CC 1	Sembcorp Utilities UK Ltd	proposed	United Kingdom	850
Tees Combined-Cycle Power Plant CC 2	Sembcorp Utilities UK Ltd	proposed	United Kingdom	850
Andrea Palladio power station CC	Enel SpA	proposed	Italy	840
Brindisi Sud power station CC1	Enel SpA	proposed	Italy	840
Brindisi Sud power station CC2	Enel SpA	proposed	Italy	840
Energiaki Thessaloniki complex power station	Elpedison	proposed	Greece	826
Marghera Levante power station	Edison SpA	proposed	Italy	780
Grudziadz power station CC 1	Energa S.A.	proposed	Poland	750
Eggborough power station CC 1	Eggborough Power Ltd.	proposed	United Kingdom	730
Eggborough power station CC 2	Eggborough Power Ltd.	proposed	United Kingdom	730
Eggborough power station CC 3	Eggborough Power Ltd.	proposed	United Kingdom	730
Dolna Odra power station CC 1	PGE Zespol Elek Dolna Odra S.A.	proposed	Poland	717
Dolna Odra power station CC 2	PGE Zespol Elek Dolna Odra S.A.	proposed	Poland	717
Rybnik power station CC	Pge Energia Ciepla S.A.	proposed	Poland	700
Scholven power station CC	Uniper Kraftwerke GmbH	proposed	Germany	700

		status	Country	MW
Leipheim power station CC	SWU Stadtwerke Ulm	proposed	Germany	680
Karatzis Larissa power station	KEN electricity company	proposed	Greece	665
Gek-Terna Komotini power station	Gek-Terna	proposed	Greece	660
Agios Nikolaos Power Station	Mytilineos Group	proposed	Greece	650
Alexandroupolis Industrial Area power station	Copelouzos group	proposed	Greece	650
Gundelfingen Reserve power station CC	PQ Energy	proposed	Germany	600
Leverkusen Currenta power station CC	Steag GmbH	proposed	Germany	570
Romgaz Mintia power station CC	Romgaz	proposed	Romania	500
Belfast Harbour Estate power station CC	Belfast Power Holdings	proposed	United Kingdom	480
Szeged Energy power station CC 1	Szeged Energia Zrt.	proposed	Hungary	460
Szeged Energy power station CC 2	Szeged Energia Zrt.	proposed	Hungary	460
Landivisiau power station CC	Comp Electrique De Bretagne	proposed	France	446
Lagisza power station 9 CC	Tauron Wytwarzanie S.A.	proposed	Poland	413
EDF Premnitz power station CC	EDF Deutschland GmbH	proposed	Germany	400
Herne-6 power station CC	STEAG GmbH	proposed	Germany	400
Bucharest Progresu power station CC	Electrocentrale Bucureşti SA	proposed	Romania	400
Crodux Slavonski Brod power station Expansion CC	Crodux Energetika d.o.o.	proposed	Croatia	360
Griesheim Reserve power station CC	PQ Energy	proposed	Germany	335
Abergelli power station GT	Abergelli Power Limited (APL)	proposed	United Kingdom	299
Progress Power Station GT	Drax Group plc	proposed	United Kingdom	299
Hirwaun Power Station GT	Hirwaun Power Limited (HPL)	proposed	United Kingdom	299
Millbrook power station GT	Millbrook Power Co Ltd	proposed	United Kingdom	299
West Burton power station C	EDF Energy	proposed	United Kingdom	299

		status	Country	MW
Eggborough power station GT 9	Eggborough Power Ltd.	proposed	United Kingdom	299
Meaford Energy Centre CC	Meaford Energy Ltd	proposed	United Kingdom	299
Wrexham Energy Centre	Wrexham Power Ltd	proposed	United Kingdom	299
VPI Immingham power station B	VPI Immingham	proposed	United Kingdom	299
Vazzio power station	EDF PEI	proposed	France	250
Crodux Slavonski Brod power station Phase 1 CC	Crodux Energetika d.o.o.	proposed	Croatia	240
Wolfsburg West power station CC-1	VW Kraftwerk GmbH	proposed	Germany	144
Wolfsburg West power station CC-2	VW Kraftwerk GmbH	proposed	Germany	144
Wolfsburg West power station 1	VW Kraftwerk GmbH	proposed	Germany	144
Wolfsburg West power station 2	VW Kraftwerk GmbH	proposed	Germany	144
Wolfsburg South power station GuD-Süd	Volkswagen AG	proposed	Germany	133
Scholven power station GT 1	Uniper Kraftwerke GmbH	proposed	Germany	114
Siechnice power station	PGE Polska Grupa Energetyczna S.A.	proposed	Poland	110
Monksland power station GT	Bord Gáis, Mountside Properties	proposed	Ireland	100
Te-Tol power station	Energetika Ljubljana	proposed	Slovenia	100

Power plants under construction in Europe

		Status	Country	MW
Keadby power station 2	SSE plc	construction	United King-dom	840
Zeran power station 13 CC	Pgnig Termika S.A.	construction	Poland	490
Stalowa Wola power station CC	Elektrocie-plownia Stalowa Wola	construction	Poland	450
Iernut power station CC	SNGN Romgaz	construction	Romania	430
Berlin-Mar-zahn power station	Vattenfall Wärme AG	construction	Germany	270
El-To Zagreb power station CC	Hrvatska ele-ktroprivreda (HEP) d.d.	construction	Croatia	150