

# Fossil fuel prices and inflation in Germany



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The analysis presented in this report was conducted in September 2022 with the most recent data available at that time, and the report considers policy announcements until end of September 2022.

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## Key findings

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- **Fossil fuels, including natural gas, are responsible for a large share of consumer price inflation in Germany** in the past 12 months, contributing around a third to the annual inflation rate, which currently stands at 8.5%. Electricity prices are also rising fast, but have contributed less to the inflation rate than household fossil fuels (electricity price change contributed around 7% to overall inflation).
- **We estimate that the increase in energy prices currently make an average household €735 worse off in 2022 compared to 2020, mostly due to higher gas prices.** New electricity contracts in August 2022 for an average household in Germany are likely to be roughly €600 more expensive a year than in 2021.
- **We estimate that the lowest income households now spend around 50% more on electricity and gas than in 2020.** We estimate that the share of energy costs in total household expenditure has risen to 9.1% in 2022 for the lowest income households, from 6.0% in 2020.
- **In response to rising energy prices, the German government has intervened heavily in retail markets to support consumers,** by cutting taxes and providing subsidies as well as direct cash transfers. These interventions have not yet fully come through in the analysed data and will mitigate the impact of price increases on households to some extent, but are forecast to cost the government the equivalent of nearly 5% of GDP.
- **Renewables are now much cheaper than fossil fuel-based electricity production, and the cost of renewables is forecast to fall further,** whilst the cost of fossil fuels is likely to remain volatile and dependent on global market prices. Recent IRENA figures show that, in Germany, the lifetime cost per MWh of onshore wind and solar PV is now 81% and 77% lower than the cost of natural gas-based electricity.
- **A further expansion of renewables therefore appears the right policy choice to increase energy independence, reduce the exposure of domestic consumers to global fossil fuel prices, and bring down electricity prices in the long run.** Renewables are also important given that Germany needs to replace the reduction in supply from the imminent closure of the last remaining nuclear power plants. Increasing the electrification of transport, industry and heating, coupled with an expansion of renewables, can further reduce household and business consumers' exposure to volatile fossil fuel prices, and limit the need for government intervention during times of high fossil fuel prices. Scenarios for the future energy system also envisage the current gas-fired peak load capacity to be replaced by battery storage, green hydrogen and pumped hydro. This would uncouple wholesale electricity markets from global fossil fuel prices.

# Energy prices and inflation in Germany

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**This report explores the role of energy prices in recent inflation**

**The world is experiencing a surge in cost of living and corresponding inflation levels, which can be mostly attributed to supply-side factors.**

Soaring prices of fossil fuel-based energy preceded and accompanied this return to inflation in countries across the EU. Many renewable energy sources are now cheaper than fossil fuels in electricity generation, especially for newly built capacity (IRENA, 2022). However, many of these advantages are new and not fully understood across policy and investment landscapes.

The perception of the EU's Climate Law, which sets a target to cut emissions by at least 55% from 1990 levels by 2030, is that it is environmentally motivated. However, the policies supporting this target may also have significant effects on both the level and the volatility of cost of living pressures that arise from the fossil fuel energy complex.

This paper sets out to explore the role of energy prices in inflation in Germany, with a view to understanding the potential for faster energy transition measures to ease inflationary pressures and risks.

**Germany is a net energy importer, and Germany's dependence on imports has increased over time**

**Germany is a net energy importer with very little domestic oil and gas production, and historically a high dependence on gas imports from Russia.**

Considering all energy sources and consumption (including electricity), Germany is a net energy importer, and Germany's dependence on energy imports has increased over time - net imports accounted for 64% of gross available energy in 2020 (an increase since 2000, when net imports stood at 59% of gross available energy).<sup>1</sup> Germany has very little domestic production of oil and natural gas (OECD 2020). Oil imports account for over 95% of Germany's crude oil use, and over 90% of Germany's natural gas supply is imported. Prior to Russia's invasion of Ukraine, the majority of Germany's gas imports was from Russia (55%), with the remainder supplied primarily by Norway (30%) and the Netherlands (13%) (BMWK, 2022a).

Key domestic energy sources are renewables and lignite (brown coal), as well as small-scale domestic natural gas production (around 5% of annual gas consumption) (Bundesumweltamt, 2022). As a result of Germany's reliance on energy imports, domestic energy prices are highly dependent on global market prices for oil and gas.

**Germany's electricity production consists of a broad mix of sources**

**The share of coal in Germany's electricity mix has recently increased again.**

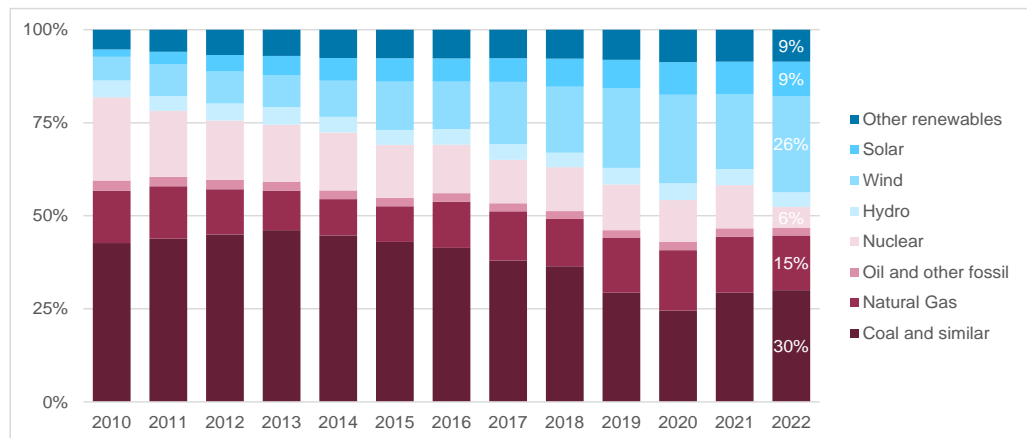
In the five years to 2020, the share of gas, oil and coal fell from around 55% to 44%, driven primarily by a significant reduction in coal-based electricity production. However, electricity production from gas-fired plants has increased significantly, from a 10% share in overall electricity production to 17% in 2020, and substituted around one third of the reduction in coal-based energy supply. But given the phase-out of nuclear energy at the end of 2022, which Germany decided in 2011, and the disruptions to gas supply since Russia's invasion of Ukraine, Germany has increased its use of coal-fired power plants. In fact, in the first half of 2022, coal-based electricity generation in Germany was up 17% from the previous year (coal's share in total electricity generation

<sup>1</sup> See Eurostat dataset NRG\_IND\_ID, or: <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>

increased from 27.1% to 34.1%), while gas-based electricity generation dropped by to an 11.7% share in total electricity generation (Destatis, 2022).

**Germany has successfully deployed renewables in its electricity system over the past two decades.** Since the early 2000s, the share of renewable energy source (RES) in Germany’s electricity generation has increased substantially (see Figure 1). In the five years from 2015 to 2020, the share of renewables rose from 31% to 45%. The share of wind power nearly doubled, to 23% of total electricity generation, and the share of solar PV increased by around 50%, from 6% to 9%. In the first half of 2022, the share of renewable sources in Germany’s electricity generation mix reached 48.5%, up from 31% in 2015.<sup>2</sup>

**Figure 1 Electricity generation mix, Germany 2010 to 2022 (Jan-May)**



Source: IEA (MES\_0522)

**The cornerstone of Germany’s future energy system is the Renewable Energy Sources Act**

**Germany is aiming for 80% renewables in its electricity mix by 2030, which would require an accelerated deployment.** The cornerstone of Germany’s energy policy is the Renewable Energy Sources Act (EEG in German), which was originally introduced in 2000 (IEA 2020). The EEG has been revised significantly in 2022, including an ambitious target to reach net zero by 2045 and for renewables to cover 80% of Germany’s electricity consumption by 2030, almost doubling from today’s 45%, and increasing to 100% by 2035. This implies a much more rapid expansion of renewables than the one we have seen in the past decade.

**Germany’s plans foresee massive increases in installed wind and solar PV capacities over the coming years.** The revised plans foresee a doubling in onshore wind electricity generation capacity from currently around 56 GW to 115 GW in 2030 (BWE, 2022; BMWK, 2022b). This requires an increase in newly installed generation capacity from 3 GW in 2022 to 10 GW a year by 2025. Under the plan, annual newly installed solar photovoltaic capacity will be raised to 22 GW by 2026, to reach an overall installed capacity of 215 GW by 2030. The plan also involves a significant expansion of offshore wind power to 30 GW installed capacity by 2030, and to build highly flexible biomass and biomethane plants to meet demand peaks.

<sup>2</sup> CE analysis of IEA dataset IEA\_MES\_0522

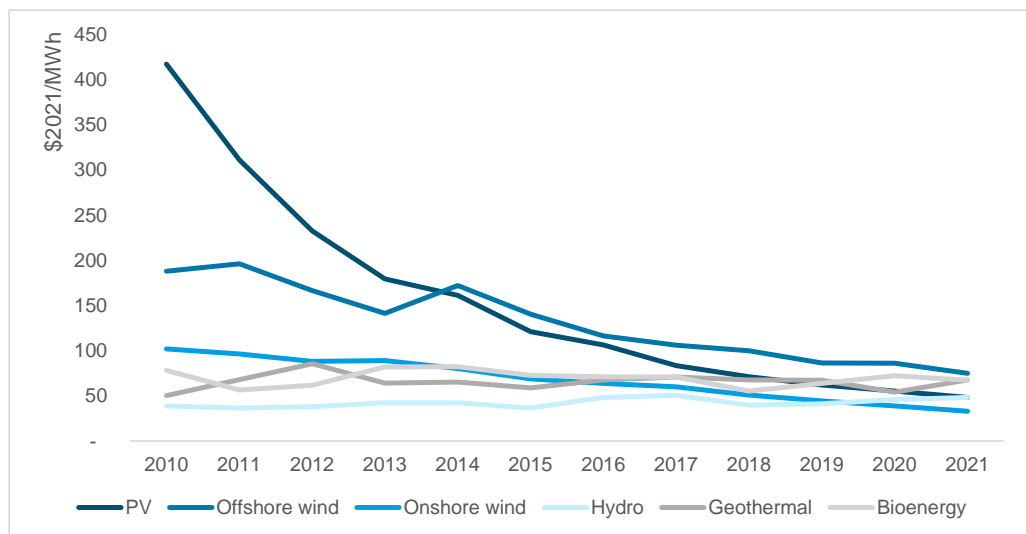
In 2021, the German government also launched an ‘Immediate Climate Action Programme’ which features investment in energy efficiency, research and renewables (Bundesregierung, 2022b).

**The cost of renewables has consistently gone down**

**The cost of renewable electricity technologies has fallen dramatically.**

The levelized cost of electricity (LCOE), i.e. the lifetime cost per MWh, of renewable energy technologies has been falling, as shown in Figure 2. The largest drop has been observed in the lifetime cost of solar photovoltaic electricity generation, which has fallen 88%, from \$417 to \$48 per MWh (2021 prices). Similarly, offshore and onshore wind project costs have decreased by 60% and 68%, respectively. The electricity generation mix has been changing accordingly.

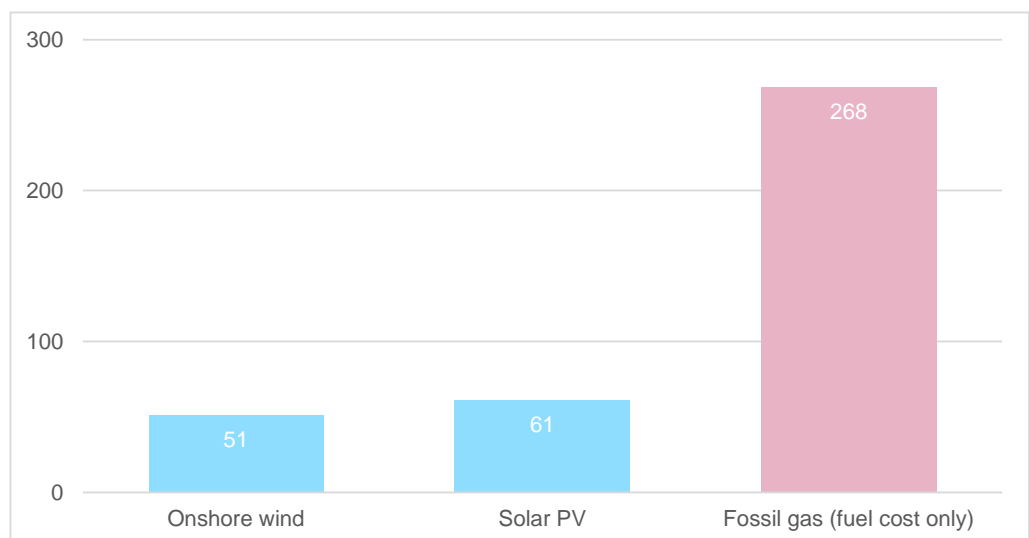
**Figure 2 LCOE of renewable energy sources, 2010-2021 (in constant 2021 USD/MWh)**



Source: IRENA 2022a

Note: Global weighted average of commissioned projects

**Figure 3 Lifetime cost (LCOE) per MWh of new onshore wind and solar PV projects in commissioned in Germany in 2021; fuel-only cost of gas-fired power plants in Germany in 2022; all in 2021 USD**



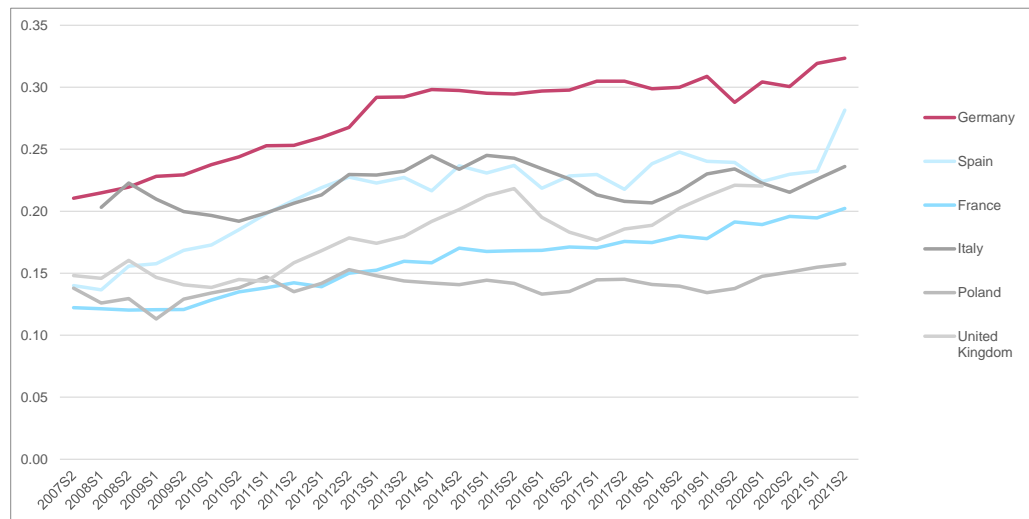
Source: IRENA 2022

**The cost of fossil-fuel based electricity generation has risen sharply in the first half of 2022.** While renewables have become ever cheaper, rising fossil fuel prices mean the LCOE of fossil-fuel based electricity generation has not fallen. In fact, generation costs of gas-fired plants rose sharply in 2022 due to the current hike in natural gas prices, with fuel-only costs estimated at \$268 per MWh in 2021 prices (IRENA 2022a). The cost of gas per MWh is currently more than five times higher than the estimated lifetime cost per MWh (LCOE) of new onshore wind projects (\$51 per MWh), and more than four times higher than costs per MWh of new solar PV projects commissioned in Germany in 2021 (\$61 per MWh) (ibid.).

**Electricity prices have been relatively stable in the last decade**

**Germany’s retail electricity prices have been high compared to European peers.** Over the past ten years, retail electricity prices after taxes and levies in Germany have been the highest among peer countries such as Italy, Spain, France and the UK, as can be seen in Figure 4. This is due to various taxes and charges, for example Germany’s Renewable Energy Levy (‘EEG Umlage’).

**Figure 4 Household electricity prices including taxes and levies in Germany (purple) and selected EU countries, in € per kWh**



Source: Eurostat, NRG\_PC\_204

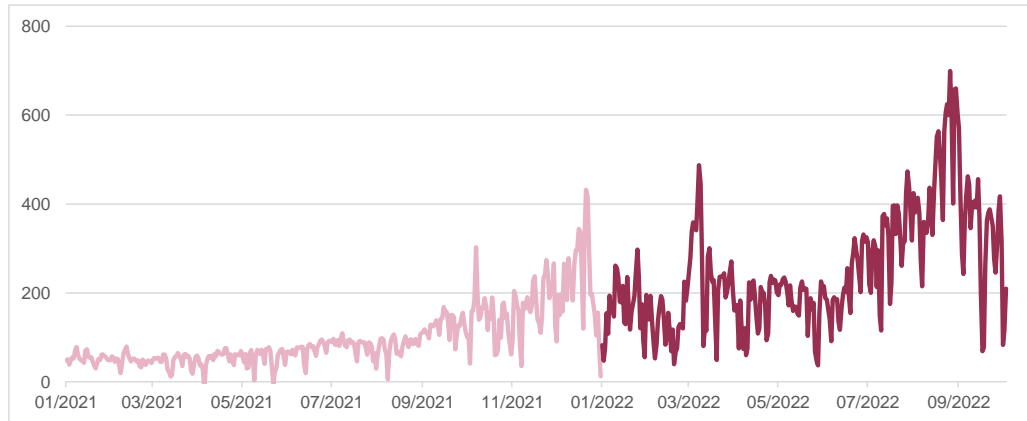
Note: all taxes and levies included; in band DC: consumption is between 2500 and 5000 kWh yearly

**Despite the changes in Germany’s electricity generation mix, retail electricity prices have remained relatively stable.** Retail electricity prices remained in the region of €0.30 per kWh after taxes and charges between 2013 and the second half of 2021. There are various reasons why the increase in installed capacity of renewables, which operate at near-zero marginal costs, has not yet led to a significant decrease in electricity prices in Germany. Key factors are the price formation in European electricity markets (Box 1), but also inefficiencies in the German electricity transmission network, which has at times been unable to efficiently distribute supply from renewable sources, which are predominantly located in the North, to areas with energy-intensive industries in the South (IEA 2020).

**Electricity prices have risen sharply in 2022.** Including taxes, the average retail electricity price was 32.6 cents per kWh in 2021 (BMWK 2021), and according to the IEA (2020), German retail electricity prices were among the highest across IEA member countries as a result of taxes and charges. Wholesale electricity prices started to rise in late 2021 and reached historical

highs in August 2022 (Figure 5). As a result, prices for new retail contracts are currently in the region of 50 cents per kWh.<sup>3</sup>

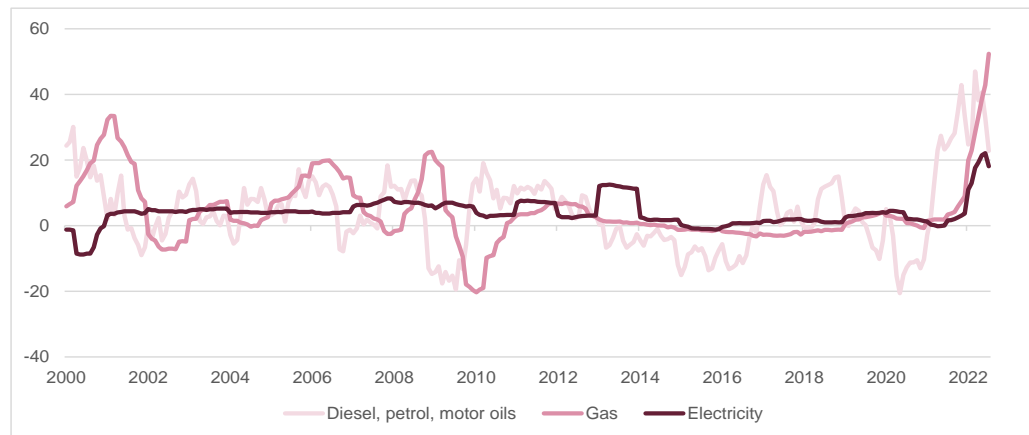
**Figure 5 Wholesale electricity prices in Germany in 2021 and 2022 (average day-ahead prices) (CE analysis of data from Bundesnetzagentur (2022))**



**Fuel prices have been more volatile than electricity prices**

**Petrol, diesel and natural gas prices have been more volatile than electricity prices in Germany.** Figure 6 shows the annual rate of inflation of retail electricity and fuel prices (petrol and diesel), on a monthly basis, over the last 30 years. This illustrates that fuel and gas prices (pink lines) have historically been more volatile than electricity prices.

**Figure 6 12-months moving average of electricity, gas and fossil fuel retail prices**



Source: Eurostat, PRC\_HICP\_MMOR ;

Note: The spikes in 2013 and 2014 are due to taxation changes

<sup>3</sup> The best available deals for a Berlin postcode on 15 September 2022, according to the German check24.de price comparison website. <https://www.check24.de/strom/strompreise/> - Accessed 15 September 2022.

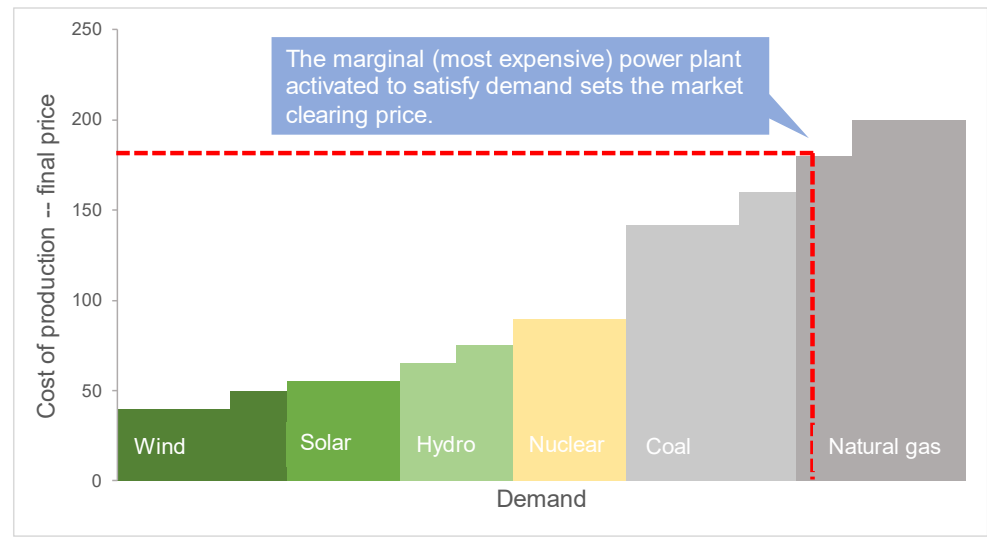


**Box 1: Electricity price setting in the EU Member States**

Key wholesale electricity prices in the EU are based on a marginal price model, set in place by EU legislation. In the electricity market, the electricity sources with the cheapest operating cost are used first, and power plants that are more expensive to operate are added until total electricity demand in the market is satisfied. This is known as merit order. The last, i.e. the marginal, and therefore most expensive plant activated to satisfy demand sets the price for the whole market. This means that the market clearing price is equal to the marginal price of electricity production. As a result, wholesale prices can vary significantly during the day, as demand varies at different times of the day and night.

Renewable and nuclear energy sources are usually the cheapest electricity sources. However, to satisfy demand during peak hours, many countries rely on gas and coal fired plants, which then consequently set the wholesale electricity price. As gas has become more expensive since Russia’s invasion of Ukraine, wholesale electricity prices have also soared.

Marginal price models are preferred for their transparency, efficiency and for the incentives they provide to keep generation costs as low as possible. As can be seen in the illustration below, operators of renewable electricity sources can achieve revenues much higher than their marginal costs, which incentivises investment in renewables (European Commission 2022a).



**Households have been exposed to much greater swings in the price of fossil fuels than electricity.** Even though the average monthly change of electricity, gas and ‘fuels and lubricants for transport’ is almost identical in the period of 1995-2021, the standard deviation (a measure of volatility) of diesel and petrol is more than double that of gas and almost triple that of electricity (see Table 1). This illustrates that consumers are exposed to much larger price swings for transportation fossil fuels, which are driven by global oil prices, than for household energy, the prices of which are determined on domestic markets regulated by the German government and the European Commission.

**Table 1 Standard deviation and average monthly price change for electricity, gas and fuels.**

	1995-2021:M7		2021:M8-2022:M7	
	Standard deviation	Average monthly price change (%)	Standard deviation	Average monthly price change (%)
Electricity	1.04	0.27	2.91	1.42
Gas	1.36	0.25	3.50	3.61
Fuels and lubricants for transport	2.89	0.27	7.61	1.96
All items	0.43	0.13	0.65	0.67

**Note(s):** Fuels and lubricants for personal transport equipment category is driven by price change of diesel and petrol. This category has been chosen due to its better data availability

**Source(s):** Eurostat. PRC\_HICP\_MMOR

Historically, retail electricity prices have been most stable among key energy prices. There is a multitude of reasons for this, ranging from fixed price contracts that protect households from short term price fluctuations, the use of futures contracts by electricity providers that smooth out retail prices, but also impacts of the German EEG tax designed to support renewables, which tends to fall when wholesale electricity prices rise. This means the need for support for renewables also reduces (Next Kraftwerke 2022, Stiftung Energie und Klimaschutz 2015, EnBW 2022).

**Fuel prices have risen sharply in recent history, driving up electricity prices as well**

**In addition to their greater volatility, fossil fuel prices have also risen faster than electricity prices in Germany in the past twelve months.**

Looking at the most recent 12 months, fossil fuel prices (natural gas in particular) have risen faster than electricity prices, and price volatility has been much higher than the 25-year average (see standard deviation in Table 1).

**Prices for all analysed energy sources have risen exceptionally fast in the past twelve months.** Since January 2020, energy prices have increased more than at any other time in the past 25 years. Fossil fuel prices have risen more sharply than electricity, with petrol prices up 31%, diesel up 49%, and gas up 56%, while electricity prices have risen by just under 20% (see Table 2).

The increase is driven by an uptick in global demand after the end of Covid-related lockdowns and geopolitical uncertainties as a result of Russia's invasion of Ukraine in February 2022, and exacerbated by the recent weakening of the euro against the US dollar (European Commission 2022b; ING 2022). Germany is highly dependent on imports of Russian gas, and therefore particularly affected by uncertainties about future supply. This is also reflected in the retail gas prices observed in Germany.

**Table 2 Recent change in retail electricity, gas, petrol and diesel prices in Germany**

As of July 2022, Change since:	January 2022 (last 6m)	August 2021 (last 12m)	August 2020 (last 24m)	January 2020 (last 30m)
Electricity	6.5%	17.8%	19.9%	<b>19.7%</b>
Gas	28.1%	51.7%	57.4%	<b>55.9%</b>
Diesel	23.0%	40.0%	78.9%	<b>49.2%</b>
Petrol	8.6%	15.1%	45.5%	<b>31.0%</b>
All items (overall inflation)	6.0%	8.4%	12.1%	<b>13.2%</b>

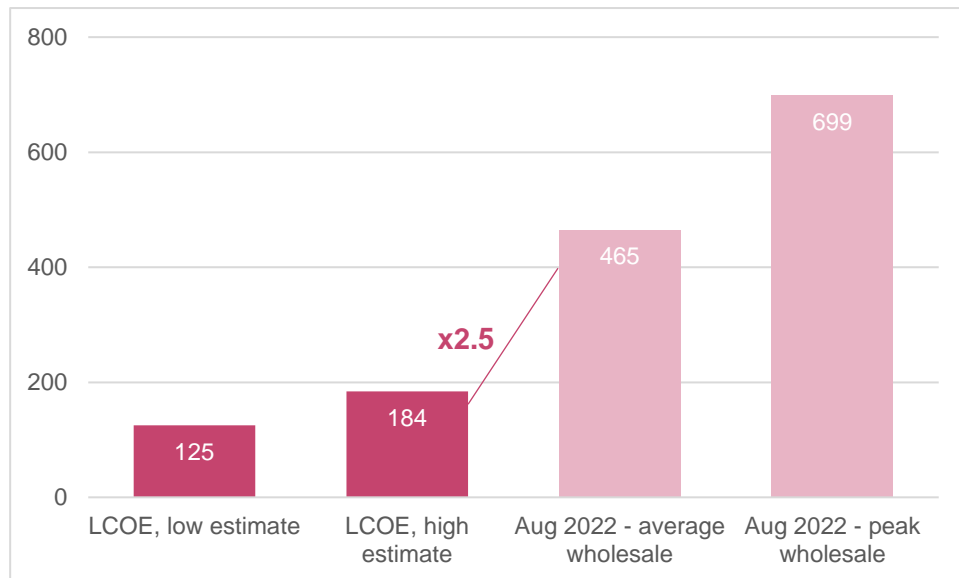
Source: Eurostat, PRC\_HICP\_MIDX

**We estimate that German electricity prices are at least 150% above production costs**

**Indicative estimates suggest that German wholesale electricity prices were far above average electricity generation costs in August 2022.**

Comparing estimates of the weighted average cost of electricity generation in Europe in the first half of 2022 to average wholesale electricity prices in Germany in August 2022 shows a massive price differential, with wholesale prices around two and a half times as high as the high estimate for production costs. Note that these estimates are indicative only - estimates of the LCOE are inherently uncertain as they depend on a range of assumptions such as future carbon and fuel prices, and the weighted average cost of capital of the upfront investment.

**Figure 7 Wholesale electricity prices in Germany in August 2022; IRENA and CE estimates of electricity generation costs; in € per MWh**



Sources: LCOE: IRENA/World Bank (low estimate), Cambridge Econometrics E3ME (high estimate); Wholesale electricity prices (day-ahead) in Germany: Bundesnetzagentur (2022)

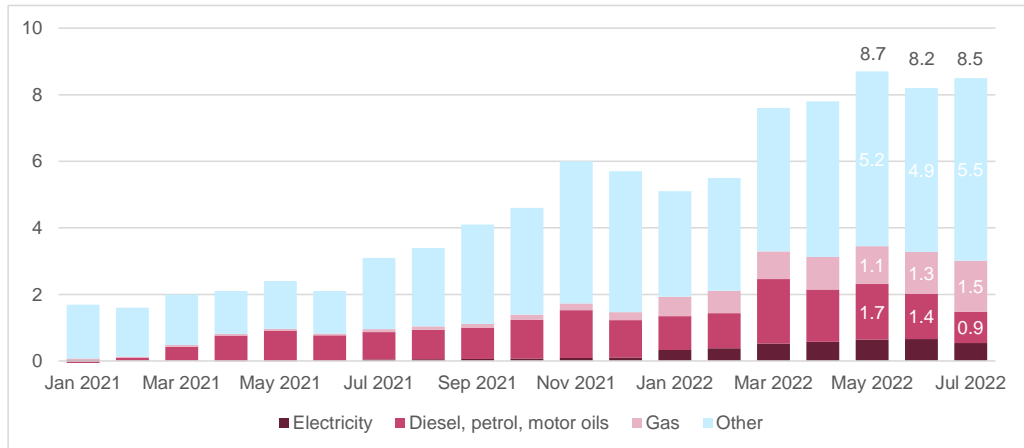
**Energy prices are key drivers of the recent consumer price inflation**

**Fossil fuel prices were a key driver of consumer price inflation over the past year, contributing around a third to the annual inflation rate.**

Household energy is a component of the consumer prices index (CPI), and the weights of fossil fuel and electricity account for around 10% of the overall basket of goods and services included in the CPI (gas and fuels account for around 7% and electricity for around 3%). Recently, however, they have had a much higher contribution to overall inflation (see Figure 8).

Fossil fuel prices alone (transport fuels and gas) accounted for approximately 33% of overall year-on-year inflation in May and June 2022, but this fell to 28% in July 2022 as a result of the German government’s fuel subsidies (€0.35 per litre of diesel and €0.17 per litre of petrol) and a declining oil price. Among key energy sources, electricity prices contributed the least to the overall rate of inflation.

**Figure 8 Contribution of electricity, gas and fuel prices to consumer price inflation in Germany**



Source: CE calculations based Eurostat, PRC\_HICP\_MANR

**Poor households are most affected, because they spend a higher share of their incomes on energy**

**Household spending on energy has risen over time, but temporarily collapsed in 2020 during the pandemic.** While poorer households spend less on energy (and everything else) than richer households, they spend a larger proportion of their incomes on energy bills as can be seen in Figure 9. Household expenditure on energy as a share of total household spending has increased for all income brackets in the period from 1999 to 2015. However, the share of spending on energy fell sharply in 2020, which is likely due to the collapse in demand for transport and historically low price of fossil fuels (particularly oil, but also natural gas) caused by the Covid-related lockdowns.

**Since 2021, energy prices have risen above pre-pandemic levels.** In 2020, the average German household in the bottom 20% of the income distribution spent 6% on household energy, which is predominantly electricity and gas. Since then, Eurostat data shows that retail energy prices increased by 49% from mid-2020 to mid-2022, while the overall price level increased by 12%. According to the German Federal Ministry for Economic Affairs and Climate Action, the average retail electricity price was 32.6 cents per kWh in 2021 (BMWK 2021). Electricity prices for new retail contracts are currently in the region of 50 cents per kWh<sup>4</sup>, which implies that an average-sized household consuming 3,500 kWh a year pays around €600 more for the year compared to 2021 as a result of electricity price increases alone.

**We estimate that low income households now spend around 50% more on energy than in 2020.** For households in the bottom 20% of the income distribution, the share of household energy costs in overall household

<sup>4</sup> The best available deals for a Berlin postcode on 15 September 2022, according to the German check24.de price comparison website. <https://www.check24.de/strom/strompreise/> - Accessed 15 September 2022.

expenditure has increased in all reported years reported, from 1999 (6.5%) to 2015 (8.2%), but decreased to 6.0% in 2020, likely a result of reduced fuel consumption during the Covid-19 pandemic (see Figure 9 **Error! Reference source not found.**, data available in five-year intervals). Based on energy price inflation and wage growth in Germany, we estimate that the share of energy costs in total expenditure has risen to 9.1% in 2022 for the lowest income households, which now spend around 50% more on energy than 2020 and over 40% more than the richest households relative to their overall living cost. We also estimate that an average household is approximately €735 worse off in 2022 compared to 2020 as a result of energy prices alone. This increase is predominantly driven by the gas price, which increased nearly twice as much since mid-2020 than electricity prices.

**Figure 9 Household incomes by quintile and household expenditure on energy as a share of total household expenditure**



Sources: Eurostat datasets: HBS\_STR\_T223, ILC\_DI01, PRC\_HICP\_MIDX, PRC\_HICP\_INW, LC\_LCI\_R2\_A

Note: Income in the fifth quintile (Q5) is not publicly available; 2022: CE's own estimate, based on energy price inflation and wage growth

## Germany is taking measures to address the energy price increases in 2022

**The German government is taking action to mitigate the impact of high energy prices on households.** In response to the recent increases in fossil fuel prices, the German government has heavily intervened and introduced a number of measures to tackle the rising cost of energy for households and businesses. This includes:

- Abolition of the 'Renewable Energy Levy', effective from 1 July 2022, which stood at €0.068 per kWh in 2020 and €0.037 in the first half of 2022. It is expected that the average household will save around €200 a year as a result (CEW, 2022).
- One-off heating cost payments in March 2022, with amounts dependent on the number of people in a household (€490 for a four-person household)
- One-off energy payments announced in May 2022 for all income tax payers (€300 per taxpayer) and €100 for each child, to be paid in September.
- A reduction of VAT on household gas bills from 19% to 7% from 1 October (Bundesregierung, 2022a), and additional 'price brake' on gas and electricity bills up to a certain level of consumption (Bundesregierung 2022d).
- Temporary fuel and public transport subsidies, lasting from June to August - subsidies of €0.35 per litre of petrol and €0.17 per litre of diesel, and a €9 monthly ticket giving access to all local and regional public transport.

The Government has issued a third relief package that includes an additional €65 billion in spending, including (Bundesregierung 2022c):

- An inflation compensation bonus of up to €3000 for employees
- Further one-off payments for various household types and vulnerable groups
- An improved income tax deduction on time spent in home office
- A scheme to remove tax and bureaucratic hurdles for the installation and operation of photovoltaic systems.

On 29 September 2022, the German government announced price caps on gas and electricity, as well as measures to support businesses struggling with high energy prices, which are estimated to cost taxpayers €200bn – nearly 5% of Germany's GDP (WiWo, 2022).

## Discussions about EU-wide actions and the future energy system are ongoing

**The European Commission and other EU countries are also developing measures to address high energy prices.** Other EU countries have made similar interventions, and there is a debate in Europe about how the link between electricity and gas prices can be weakened in European electricity markets, where peak load capacity is typically gas-based (Zakeri et al. 2022; Ember Climate 2021). In fact, Zakeri et al. (2022) find that between 2015 and 2019, fossil fuel prices have determined European wholesale prices 66% of the time. As a result of the gas price shooting up, electricity prices have also risen sharply in the past 12 months, despite the increasing share of renewables in the generation mix (Ember Climate 2021). In the long term, to reduce electricity prices sustainably, gas-fired peak load capacity could be replaced by stored excess electricity from renewables using battery storage, green hydrogen and pumped hydro (see, for example, World Economic Forum (2022)).

**In the EU, member states have agreed to a series of short-term EU-wide emergency measures to reduce consumer bills.** On 14 September 2022 the European Commission proposed a reduction in electricity consumption, a tax on energy providers' excess profits, as well as a 'revenue cap' on producers of non-marginal electricity (renewables, nuclear, lignite). Revenues from the cap and the tax would be used to reduce consumer bills. The measures were agreed on 30 September and include a revenue per MWh capped at €180 per MWh for producers with low operating costs, a solidarity levy for the fossil fuel sector, and binding targets to reduce peak-time energy demand by 5% (European Council, 2022).

**Considering the historical volatility of global fossil fuel prices and their impact on economies when their prices are high, an accelerated expansion of renewables appears to be the right policy choice.** Boosting the share of renewables increases energy independence, reduces the exposure of domestic consumers to global market prices, and has the potential bring down electricity prices in the long run (IRENA 2022). Renewables will also play an important role in Germany to counterbalance the capacity loss from the imminent closure of Germany's last nuclear power plants. Increasing the electrification of transport, industry and heating, coupled with an expansion of renewables, can further reduce household and business consumers' exposure to volatile fossil fuel prices, and limit the need for government intervention during times of high energy prices.

## Conclusions

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**Fossil fuels are clearly linked to the current cost of living pressures in Germany** and are making an outsized contribution to recent spikes in inflation. These pressures are present across Europe, where the vast majority of fossil fuels is imported and prices are dependent on global markets.

**The potential of renewable energy to alleviate cost pressures through lower consumer prices in transport, heating, and electricity can be hard to identify due to market structures and policy provisions.** For example, the electricity market design based on marginal pricing means natural gas or coal prices often affect wholesale electricity prices. This means that rising fossil fuel prices also push up electricity prices, especially during demand peaks. Energy cost subsidies to households and businesses are also prevalent in EU countries' responses to the crisis and intermediate price signals to householders, businesses and investors.

**Despite these confounding factors, there are clear signs that decarbonising energy systems could moderate the contribution of energy prices to consumer price inflation and volatility** in the long run. Ramping up the share of renewables in electricity production should eventually affect wholesale prices, if total electricity demand can more often be satisfied with renewables sources alone. Likewise, expanding the use of renewables in household heating and transport reduces consumer exposure to fossil fuel price volatility in global markets.



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