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Energy price inflation – this time is different

Eric Heymann
Senior Economist
+49-69-910-31730

Sebastian Becker
Senior Economist
+49-69-910-21548

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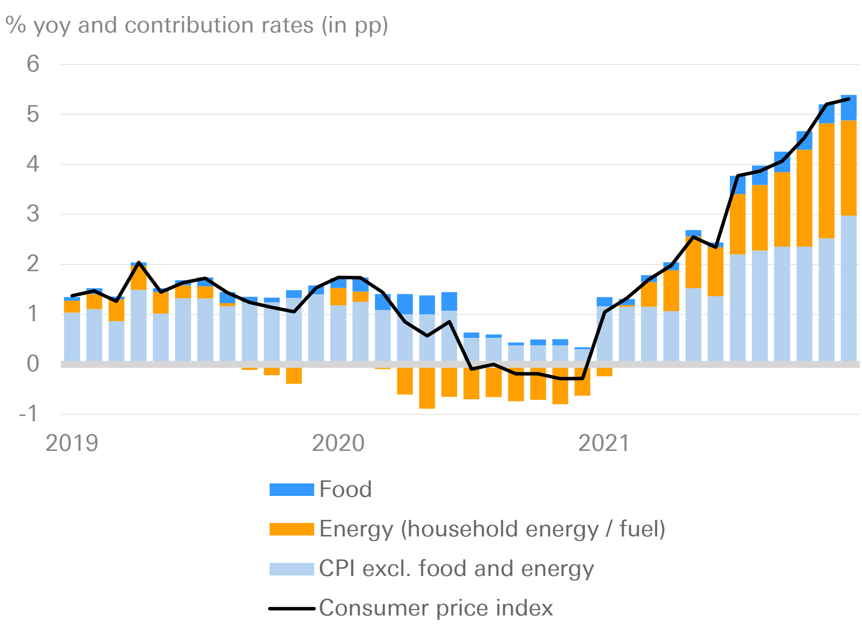
Energy prices were the main driver of consumer price inflation (CPI) in Germany in 2021. The energy price component in German CPI – comprising household energy (electricity, gas, heating oil) as well as petrol and diesel – rose by 10.4% on average last year, contributing more than one percentage point to the annual inflation rate (2020: -0.5 pp). The reasons for the sharp increase in energy prices are manifold: On the one hand, global energy demand has increased drastically due to the synchronised world economic recovery and higher mobility after the first corona lockdowns in early 2020 and winter 2020/21. On the other hand, the global energy supply has been severely disturbed by several external shocks and market imbalances such as extreme weather events in the US in early 2021, technical problems at gas fields and pipelines in Europe, low filling levels for gas storage capacity in Germany, interruptions in the global logistics sector or trade issues between China and Australia.

Figure 1: Monthly consumer price developments



Source : Federal Statistical Office, Deutsche Bank Research

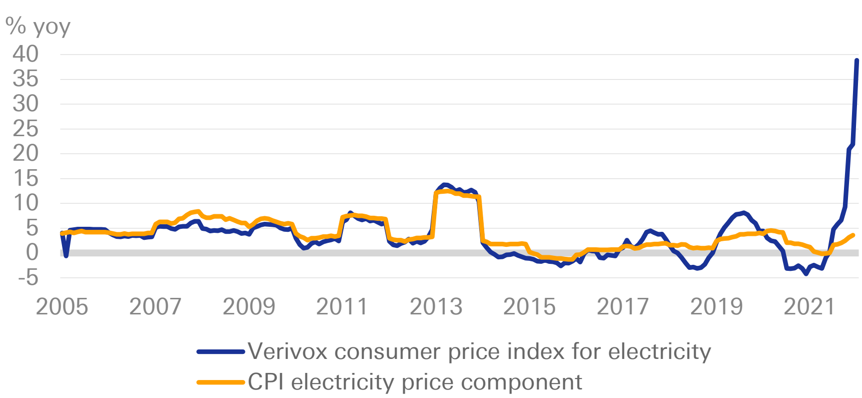
What is more, climate policy measures contributed to the general price increase for energy. In 2021, Germany introduced a new carbon levy (basically a tax) of EUR 25 per tonne of CO_2 that affects heating oil, natural gas and liquid fuels. This measure alone caused, for example, a price increase by 7.1 cent per litre of petrol and 8.0 cent per litre diesel and heating oil, respectively, and added 0.46 cents per kWh to the price of natural gas – a major source for heating in Germany.[1]

The overall CO_2 price effect from the country's climate package on Germany's 2021 inflation rate (both direct and indirect price raising effects net of any electricity price dampening effects from the decrease in the EEG levy) were estimated to amount to around 0.3 percentage points, according to Deutsche Bundesbank (see pages 30-34 in the monthly report for December 2019 as well as footnote 13 on page 27 in the monthly report for June 2020). In 2022, the implemented increase in the carbon levy from EUR 25 to EUR 30 per tonne of CO_2 could add another 0.2 percentage points, according to the Bundesbank. A temporary factor that has further pushed up Germany's inflation rate in 2021 – and hence also Germany's CPI energy price component – was the reintroduction of the increase in the value added tax (VAT).[2] The VAT effect contributed approximately more than a full percentage point to the December 2021 inflation rate of 5.3%.

Time lag between commodity and producer prices and consumer prices

Consumer pockets are affected by higher world market prices for crude oil quite directly at the pump. Service station operators can pass through these price increases almost at an hourly basis. Diesel and petrol prices are currently roughly 20-25% higher than in early 2021. Moreover, the considerable increase in Brent crude oil prices to more than USD 85 per barrel (a seven-year high) speaks against a fast and marked slowdown in double-digit fuel price inflation.

Figure 2: Electricity prices for households



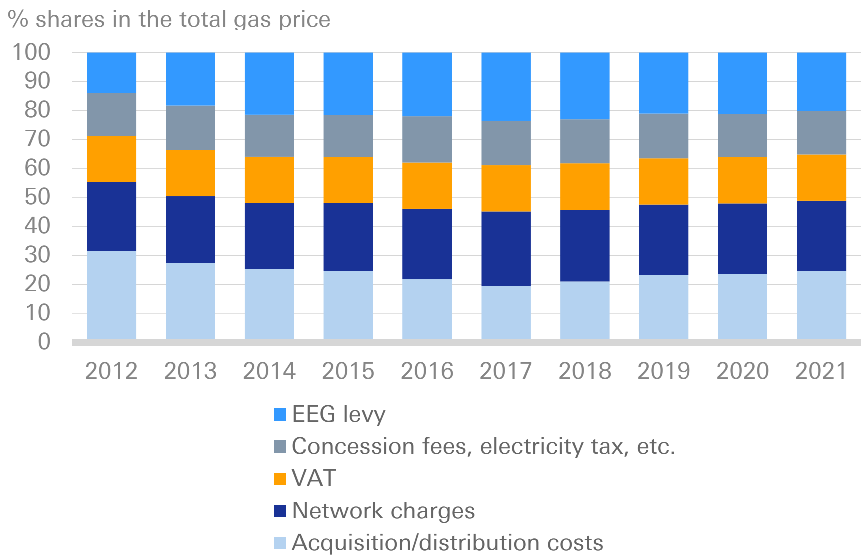
Verivox consumer price index for electricity: Based on annual consumption of 4,000 kWh.
Source: Verivox (www.verivox.de/strom/verbraucherpreisindex/), Federal Statistical Office, Deutsche Bank Research

1 See also en2x (Wirtschaftsverband Fuels und Energie e.V.) as well as BDEW (Bundesverband der Energie- und Wasserwirtschaft). The new carbon levy increased prices for petrol, diesel, heating oil and natural gas by around 5.5%, 7.1%, 16% and 7.7%, respectively (compared the annual average prices for the year 2020), according to our calculations.

2 The VAT rate was temporarily reduced by 3 percentage points in H2 2020 as part of the coronavirus aid packages.

Regarding prices for electricity and natural gas, most private households have not yet been fully affected by higher energy commodity prices. The reason is that private households and utility companies usually have an annual contract that includes a fixed working price for electricity or gas. Moreover, many energy providers tend to smooth household energy prices by spreading the purchases of the projected electricity/gas supply needs over time and mainly in the futures market. Therefore, sharp swings in market prices usually do not immediately affect household prices 1:1. However, energy suppliers have to satisfy additional energy demand via spot market purchases, where prices have risen sharply.

Figure 3: Electricity prices for private households (consumption of 3,500 kilowatt hours)

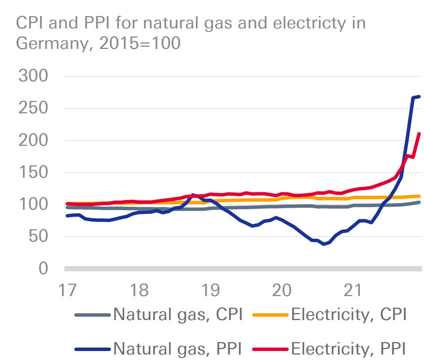


Source : BEDW (Bundesverband der Energie- und Wasserwirtschaft), Deutsche Bank Research

Given these sharp and stubborn price pressures, utilities have started to increase their working prices for new contracts or have announced that the current price conditions for existing contracts cannot be sustained any longer. Official statistics show the discrepancy between consumer prices for natural gas and electricity and the price at upstream stages of the value chain. That said, producer prices for electricity were up 74% yoy in December 2021. However, consumer prices for electricity were up by 3.6% "only". The price difference is even bigger for natural gas: Producers prices (gas production) were 353% higher in December compared to the pre-year level. At the same time, consumer prices increased "just" by 7.5% in the same month.

The worst is probably still to come for private households in terms of price increases for natural gas and electricity. In 2022 as a whole, prices might increase by more than 20% for gas on average and by more than 15% for electricity. In that case, higher gas and electricity prices would substantially boost Germany's inflation rate in 2022. Given their shares in the overall CPI basket (of 2.6% for electricity and 2.5% for natural gas), such price hikes could on their own raise the headline rate by up to 1 pp (2021: 0.1 pp).

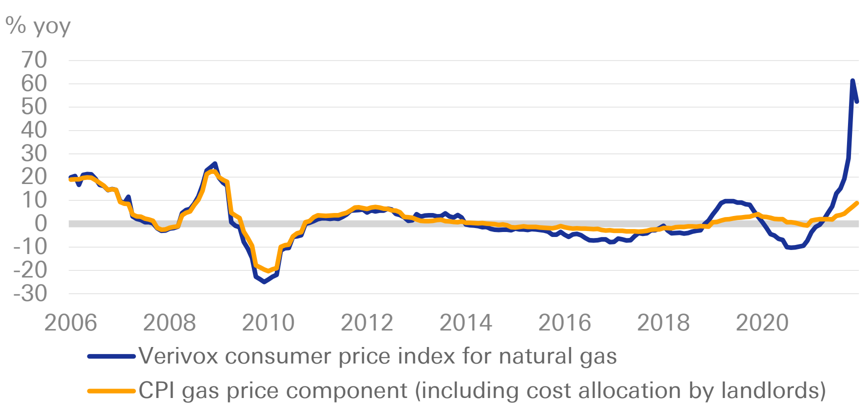
Figure 4: Energy prices: More to come for private households



Source : Federal Statistical Office

Politics have already provided or signalled some relief to electricity and natural gas consumers by further reducing the EEG levy – a mark-up on the electricity price to finance the expansion of renewable energies – or raising winter fuel payments (subsidies) to private households struggling to pay higher gas bills. However, the considerable reduction in the EEG levy in 2022 (by around 2.8 cent per kWh or around 8½% of total electricity price) will be more than offset by higher electricity purchase prices as well as rising network charges that a part of the electricity bill. Based on current prices, the planned full abolishment of the EEG levy could ease price pressures in 2023 by almost 10% (everything else being equal). However, whether the planned abolishment of the EEG level does indeed reduce the overall electricity price remains uncertain given persistent price pressure at market price components and network charges.

Figure 5: Natural gas prices for private households



Verivox consumer price index for natural gas: Annual consumption of 20,000 kWh.
Source: Verivox (www.verivox.de/gas/verbraucherpreisindex/), Federal Statistical Office, Deutsche Bank Research

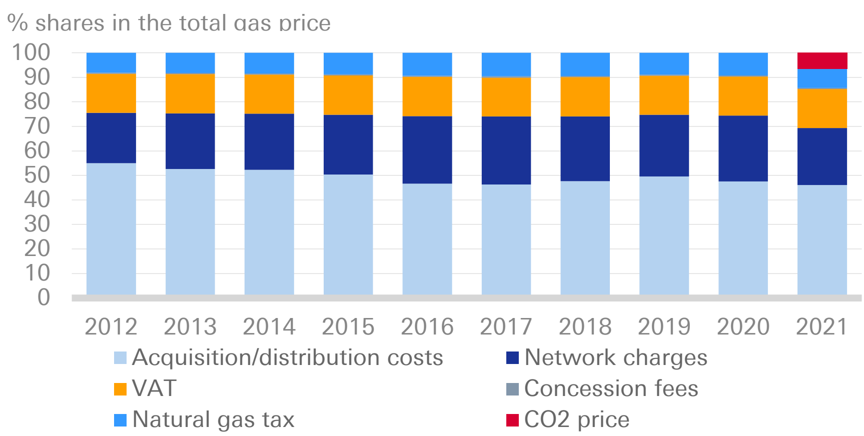
"Greenflation": Structural factors are likely to keep energy price inflation high

A more ambitious climate and energy policy will very likely continue to raise consumer price inflation over the medium term. Rising CO_2 prices (via the national carbon levy or the EU wide emissions trading system) will lead to a permanently higher price trend for fossil fuels (oil/gas heating, fuels). Moreover, it will affect costs for electricity generation given that 43% of Germany's total electricity generation is based on coal and natural gas (data as of 2021). The share of fossil fuels in electricity generation could even increase in 2022 since three nuclear power plants went off the grid in late 2021. Overall, this weakens the widespread argument of viewing energy price increases as temporary.

Thus, consumers could be confronted with climate policy-induced higher energy price inflation ("greenflation"). This is because consumers have few alternatives (heating, mobility, etc.) in the short run and therefore must carry rising energy costs. In addition, the path towards a climate-friendly economy requires enormous private and public investments in new infrastructure. These climate-related investment goods compete for already limited production capacities (particularly skilled labour shortages amid rapid population ageing), intensifying price pressures in the capital goods, construction and craft sectors. Already in 2021, construction investment prices increased by more than 8% (as measured by the deflator for construction investment activity in the overall German macro economy).

The intended replacement of traditional CO_2-intensive production processes by more climate-friendly alternatives (e.g. production of steel based on green hydrogen) will lead to higher costs at various inputs into the value chain and ultimately drive consumer goods prices higher. The demand for some raw materials (e.g. copper, rare earths) is predicted to rise by the intended electrification of larger parts of the economy, which will impact the overall price level, too.

Figure 6: Natural gas prices for private households (one-family houses)



Source : BEDW (Bundesverband der Energie- und Wasserwirtschaft), Deutsche Bank Research

On top of such demand and tax effects, other regulatory measures (e.g. bans, limits, quotas) will lead to higher prices on the supply side. For example, energy efficiency requirements for buildings leads to higher costs for homeowners and tenants in the short and medium term, if these requirements can only be met through extensive renovation and refurbishment measures. Furthermore, if certain technologies are banned, alternative technologies are initially probably more expensive (otherwise they would probably have already been used), another leg up for inflation. Even subsidies for climate-friendly technologies have price effects since demand for such technologies usually increases faster than supply. Finally, restrictions on international trade in goods introduced, for example, to protect energy-intensive industries in the EU (Carbon Border Adjustment Mechanism, CBAM) can also have a price-increasing effect on the products concerned because they make trade more expensive. In sum, climate policy affects prices through many direct and indirect channels, so that the fight against climate change is no free lunch.

More diversification of energy supply needed

The long-term hope is that the shift to renewable energies will lead to an abundant and cheap energy supply (thanks to ultimately low marginal costs of renewable energies once they are installed). However, it is unclear if and by when we might reach such a new energy world. For the time being, more diversification in traditional energy supply could help to mitigate imbalances in global energy markets. Currently, Germany imports more than 50% of its natural gas and more than one third of its mineral oil from Russia, making Russia Germany's single most important supplier for energy. The share of Russia in total German gas imports has increased of late, since gas fields in the North Sea are running low. Therefore, Germany is relatively vulnerable to spikes in natural gas prices (e.g. triggered by geopolitics).

Global gas markets are set to become more diversified during the next few years given the rise of LNG infrastructure (Liquified Natural Gas). Global LNG trade has increased during the last few years. For example, US LNG exports were more than 60 times higher in 2020 than they were in 2015 (fracking and new LNG infrastructure). Still, Germany cannot replace Russian gas deliveries by such sources in the short term. The gas pipeline Nord Stream 2, currently part of the political tensions between Russia and the US/EU/NATO, might even increase Germany's dependency on Russia in the next few years. In the medium term, however, more LNG infrastructure provides an alternative for Germany (and the EU as a whole), to bridge the gap until renewables are taking over.

Appendix 1

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Head of APAC Company Research

Jim Reid
Global Head of Thematic Research

Francis Yared
Global Head of Rates Research

George Saravelos
Global Head of FX Research

Peter Hooper
Global Head of Economic Research

International Production Locations

Deutsche Bank AG
Deutsche Bank Place
Level 16
Corner of Hunter & Phillip Streets
Sydney, NSW 2000
Australia
Tel: (61) 2 8258 1234

Deutsche Bank AG
Equity Research
Mainzer Landstrasse 11-17
60329 Frankfurt am Main
Germany
Tel: (49) 69 910 00

Deutsche Bank AG
Filiale Hongkong
International Commerce Centre,
1 Austin Road West,Kowloon,
Hong Kong
Tel: (852) 2203 8888

Deutsche Securities Inc.
2-11-1 Nagatacho
Sanno Park Tower
Chiyoda-ku, Tokyo 100-6171
Japan
Tel: (81) 3 5156 6000

Deutsche Bank AG
1 Great Winchester Street
London EC2N 2EQ
United Kingdom
Tel: (44) 20 7545 8000

Deutsche Bank Securities Inc.
The Deutsche Bank Center
1 Columbus Circle
New York, NY 10019
Tel: (1) 212 250 2500