

Briefing · February 2023

Factsheet: Energy markets one year after the Ukraine invasion

Key points:

- The EU has already substituted nearly 75% of Russian gas imports
- Gas demand in the EU dropped 10% in the first nine months of 2022, and is set to fall by 43% by 2030 if the EU delivers on its long-term climate pledges
- Significant excess import capacity is being built in the EU – new LNG capacity in development could provide 65% more gas than Russia was supplying in late 2022
- Global gas demand is now forecast to peak before the end of the decade, with 88% of the growth in electricity demand being met by renewables over the next three years compared to just 1% for fossil fuels
- High gas and coal prices accounted for 90% of the increase in electricity costs around the world in 2022, with European governments committing over EUR 750 billion to shield consumers from the immediate impacts of high energy prices
- The EU spent EUR 252 billion on gas imports in the first nine months of 2022, up EUR 186 billion on the same period the previous year, a rise of 286%
- Western energy sanctions are estimated to be costing Russia EUR 280 million per day, with the country's deficit having reached USD 25 billion

“Energy markets and policies have changed as a result of Russia’s invasion of Ukraine, not just for the time being, but for decades to come...

Government responses around the world promise to make this a historic and definitive turning point towards a cleaner, more affordable and more secure energy system.”¹

Fatih Birol, head of the International Energy Agency (IEA)

¹ <https://www.iea.org/reports/world-energy-outlook-2022>

The response to Russia's invasion of Ukraine has accelerated the energy transition

Europe

- On 8 March 2022, the European Commission aimed to reduce Russian gas imports by two thirds by the end of the year.² By November, **the EU had already exceeded this target, having already substituted nearly 75% of Russian gas imports** compared with pre-crisis levels – with the country supplying just 12.9% of the continent's gas (Figure 1, with datasets, in appendix).³
- This reduction was largely achieved using existing gas infrastructure and through dramatically reducing gas demand. **EU gas demand for the first nine months of 2022 was down by more than 10%** compared to the same period in 2021.⁴
- LNG terminals in development in the EU greatly exceed current levels of gas imports from Russia – **new LNG capacity in development could provide 65% more gas than Russia was supplying in late 2022** (Figure 2).⁵
- **EU gas demand is set to fall by 43% by 2030** if the EU delivers on its long-term climate pledges, and at least 19% even if no further policy changes are introduced.⁶
- Despite news coverage of a resurgence of coal, **wind and solar generated a record 22% of EU electricity in 2022, overtaking fossil gas (20%) for the first time** and remaining well ahead of coal (16%). Coal generation fell in all of the four final months of 2022, dropping by 6% compared to the same period in 2021. Fossil fuel generation in Europe could plummet by 20% in 2023, according to analysis by Ember.⁷
- Heat pump deployment in Europe saw a huge increase in 2022, with sales increases of 120% in Poland, 100% in Slovakia and Belgium, and 50% or more in Finland, Czechia and Germany (Figure 3).⁸

Global

- **Gas demand is now forecast to peak by the end of the decade** based on current policies alone (Figure 4). If countries deliver on their long-term climate targets, then gas demand will have dropped by 10%.⁹ For the first time ever, the IEA forecast in 2022 that current government policies would lead to a peak or plateau in global demand for fossil fuels.¹⁰
- **Global carbon emissions are now set to peak by 2025**, with China's carbon emissions likely to peak in 2022, according to analysts at Rystad Energy.¹¹

² https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

³ <https://www.consilium.europa.eu/en/infographics/eu-gas-supply> -  EU gas imports.xlsx


⁴ https://energy.ec.europa.eu/data-and-analysis/market-analysis_en:  EU gas demand and costs.xlsx

⁵ Zero Carbon Analytics analysis. Gas import volumes from <https://www.bruegel.org/dataset/european-natural-gas-imports>; share from Russia from

<https://www.consilium.europa.eu/en/infographics/eu-gas-supply>; LNG capacity under development from <https://www.eia.gov/todayinenergy/detail.php?id=54780> – calculations in  EU gas imports.xlsx

⁶ <https://www.iea.org/reports/world-energy-outlook-2022>

⁷ <https://ember-climate.org/insights/research/european-electricity-review-2023/>

⁸ <https://portpc.pl/port-pc-2022-rok-pomp-ciepła-w-polsce/> -  Heat pump sales.xlsx

⁹ <https://www.iea.org/reports/world-energy-outlook-2022>

¹⁰ <https://www.iea.org/reports/world-energy-outlook-2022>

¹¹ <https://www.rystadenergy.com/news/fossil-fuel-emissions-to-peak-within-two-years-as-global-decarbonization-picks-up>

- Emerging Asian natural gas demand growth from 2021–2025 is set to be 50% lower compared to the previous year’s forecast, and that sustained high prices “could further derail Emerging Asia’s gas and LNG demand growth prospects, and leave much of the region’s planned new LNG-to-power infrastructure further delayed or even uncompleted,” according to the IEA.¹²
- 88% of the growth in electricity generation up to 2025 will be met by renewables, compared to just 1% for fossil fuels. Global coal and gas generation is expected to remain broadly flat with new capacity in the Middle East and Asia Pacific being offset by reductions in Europe and the Americas.¹³
- **The world is set to add as much renewable power in the next five years as it did in the past 20.**¹⁴

Renewable energy has saved taxpayers and consumers billions

- EU wind and solar generation rose by 13% in the months after Russia’s invasion of Ukraine. **This record increase in renewable generation saved the equivalent of EUR 11 billion worth of imported fossil gas.**¹⁵
- **Solar generation avoided fossil fuel costs of USD 34 billion for the first six months of 2022 alone in seven Asian countries** – China, India, Japan, South Korea, the Philippines and Thailand. This is equal to 9% of these countries’ total fossil fuel costs over the same period.¹⁶
- Worldwide, in regions most affected by the energy crisis, those with higher shares of renewables experienced lower energy prices.¹⁷

Continued use of fossil gas has cost taxpayers and consumers billions

- **High gas and coal prices accounted for 90% of the increase in electricity costs around the world in 2022**, with natural gas alone accounting for more than 50% of the total.¹⁸
- In September 2022, the price of energy in the EU was 41% higher than a year earlier, contributing to 36% of overall inflation in the region (Data for selected European countries in Table 1).¹⁹
- **The EU spent EUR 252 billion on gas imports in the first nine months of 2022, up EUR 186 billion on the same period the previous year**, a rise of 286% (Figure 5).²⁰
- **European governments have so far committed EUR 768 billion to shield consumers from the immediate impacts of high energy prices since September 2021.**²¹

¹² <https://www.iea.org/reports/gas-market-report-q3-2022>

¹³ <https://www.iea.org/reports/electricity-market-report-2023>

¹⁴ <https://www.iea.org/news/renewable-power-s-growth-is-being-turbocharged-as-countries-look-to-strengthen-energy-security>

¹⁵ <https://ember-climate.org/insights/research/eu-wind-and-solar-growth-saves-11-billion/>


¹⁶ <https://ieefa.org/resources/sunny-side-asia>

¹⁷ <https://www.iea.org/reports/world-energy-outlook-2022>

¹⁸ <https://www.iea.org/reports/world-energy-outlook-2022>

¹⁹ <https://www.e3g.org/publications/more-renewables-less-inflation-in-the-eu/>

²⁰ https://energy.ec.europa.eu/data-and-analysis/market-analysis_en -

 EU gas demand and costs.xlsx

²¹ <https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices>

- Average LNG prices in Asia in 2022 were more than double the annual average for 2021. As a result, Asian demand for LNG dropped by 7% in 2022, the first drop in seven years, with China, Pakistan, Bangladesh and India all recording double digit declines in LNG imports (Figure 6).²²
- **Bangladesh has had to buy LNG at prices up to ten times higher than in mid-2020, with government subsidies for LNG imports rising to four times 2018 levels.**^{23,24}
Bangladesh has suffered its worst blackouts in almost a decade, with more than 80% of the population left without power.²⁵
- In addition to high prices, Pakistan has had multiple LNG deliveries cancelled, with 11 LNG cargoes defaulting on their contracts in 18 months from the start of 2021.²⁶ As a result of the crisis, electricity costs have more than doubled and the country has experienced power outages.²⁷

Russia has been hurt financially while European industry has grown

Russia

- Sanctions by the EU and its allies on Russian oil products are estimated to be costing Russia EUR 280 million a day.²⁸
- **Russian tax revenue from oil and gas dropped 46% from January 2022 to January 2023, while government spending increased 59% due to the war in Ukraine, resulting in a public deficit of USD 25 billion in January 2023.**²⁹
- Russia is set to lose out on more than USD 1 trillion in oil and gas export revenues by the end of the decade, according to the IEA's Head of Energy Supply.³⁰

Europe

- European industry had been widely expected to be hardest hit by high gas prices. Gas demand in European industry fell by an estimated 15% in the first eight months of 2022 compared to the same period in the previous year.³¹
- **Despite this significant drop in gas consumption, EU industrial production rose year-on-year for nine of the eleven months data is available for, averaging a growth rate of over 2% (Figure 7).**³²

²² <https://ieefa.org/resources/asias-lower-lng-demand-2022-highlights-challenges-industry-growth>

²³ <https://ieefa.org/resources/global-lng-outlooks-point-rough-waters-ahead-bangladesh>

²⁴ <https://www.thedailystar.net/opinion/views/news/how-do-lng-subsidies-affect-public-spending-3235341>

²⁵ <https://www.dw.com/en/bangladesh-blackouts-leave-130-million-people-without-power/a-63331378>

²⁶ <https://ieefa.org/articles/pakistans-dependence-imported-lng-exacerbates-energy-insecurity-and-financial-instability>


²⁷ <https://en.dailypakistan.com.pk/30-Jul-2022/electricity-unit-cost-surge-to-an-all-time-high-in-pakistan> & <https://www.bloomberg.com/news/articles/2022-04-18/cash-strapped-pakistan-cuts-power-to-households-on-fuel-shortage#xj4y7vzkg>

²⁸ EUR 160 million from the oil ban and price cap and EUR 120 million from the ban on refined oil imports, the price cap on refined oil and reductions in pipeline oil imports to Poland
<https://energyandcleanair.org/publication/eu-oil-ban-and-price-cap-are-costing-russia-eur160-mn-day-but-further-measures-can-multiply-the-impact/>

²⁹ <https://www.bloomberg.com/news/articles/2023-02-06/russia-racks-up-25-billion-budget-gap-as-energy-income-halves?sref=etBYO4Ua>

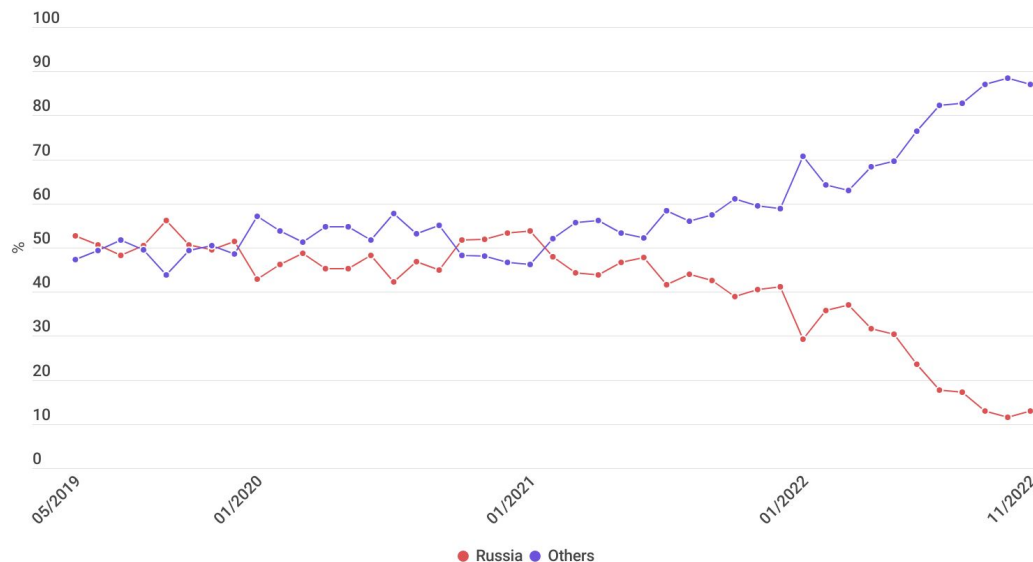
³⁰ <https://twitter.com/TofMcGlade/status/1585591110147137537>

³¹ <https://www.iea.org/reports/gas-market-report-q4-2022>

³² <https://ec.europa.eu/eurostat/web/euro-indicators> -  EU industrial output.xlsx

Appendix - Figures

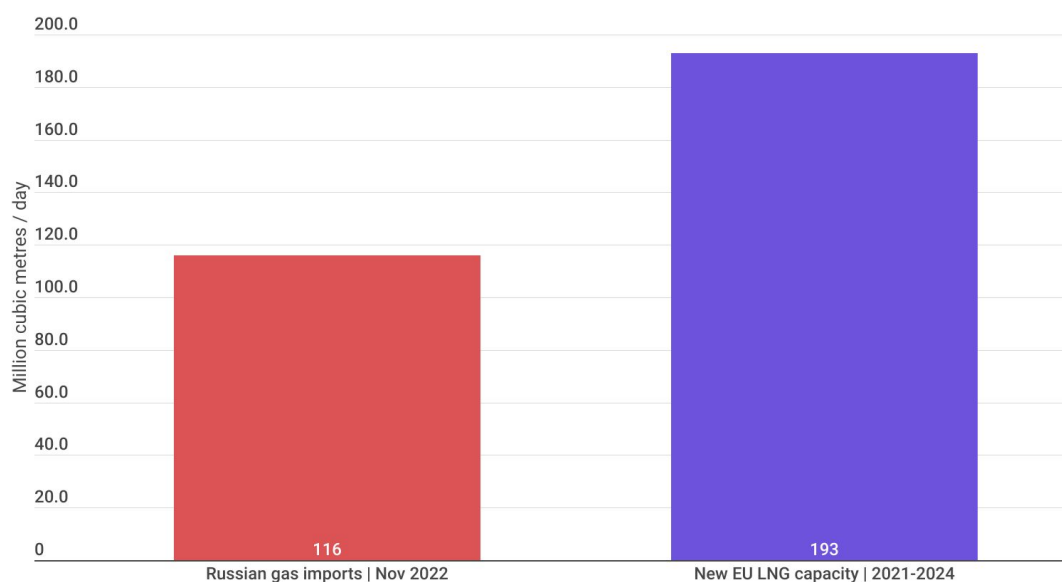
Fig. 1: Share of EU gas supply from Russia 2020-2022



Source: European Council analysis of European Commission data³³

Data: EU gas imports.xlsx

Fig. 2: EU Russian gas imports vs new LNG capacity



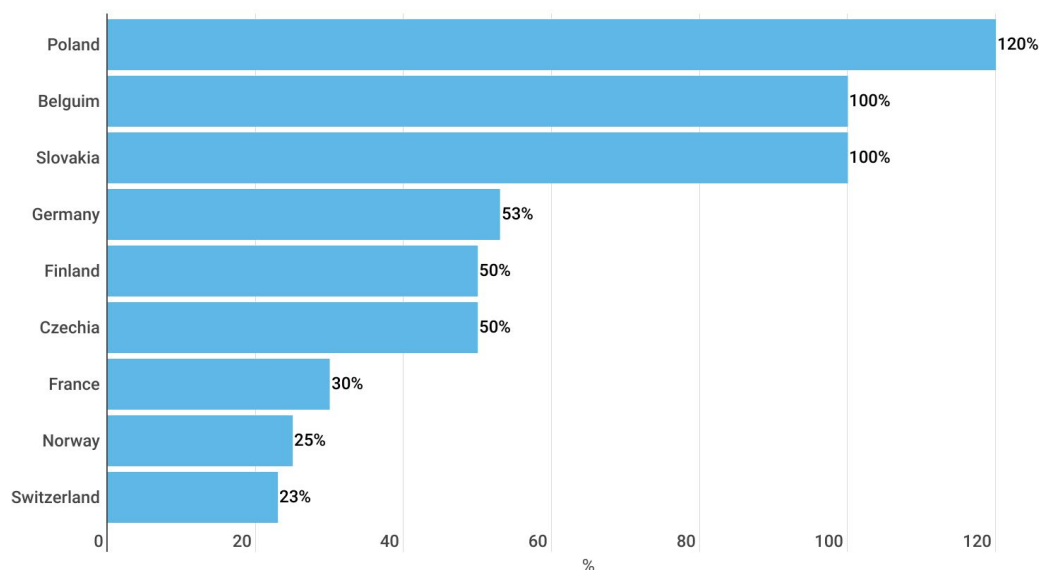
Source: Zero Carbon Analytics analysis. Data drawn from *European Council analysis of European Commission data*, Breugel analysis of ENTSO-G data, US Energy Information Administration³⁴

Data: EU gas imports.xlsx

³³ <https://www.consilium.europa.eu/en/infographics/eu-gas-supply/> -

³⁴ Gas import volumes from <https://www.bruegel.org/dataset/european-natural-gas-imports>; share from Russia from <https://www.consilium.europa.eu/en/infographics/eu-gas-supply/>; LNG capacity under development from <https://www.eia.gov/todayinenergy/detail.php?id=54780>

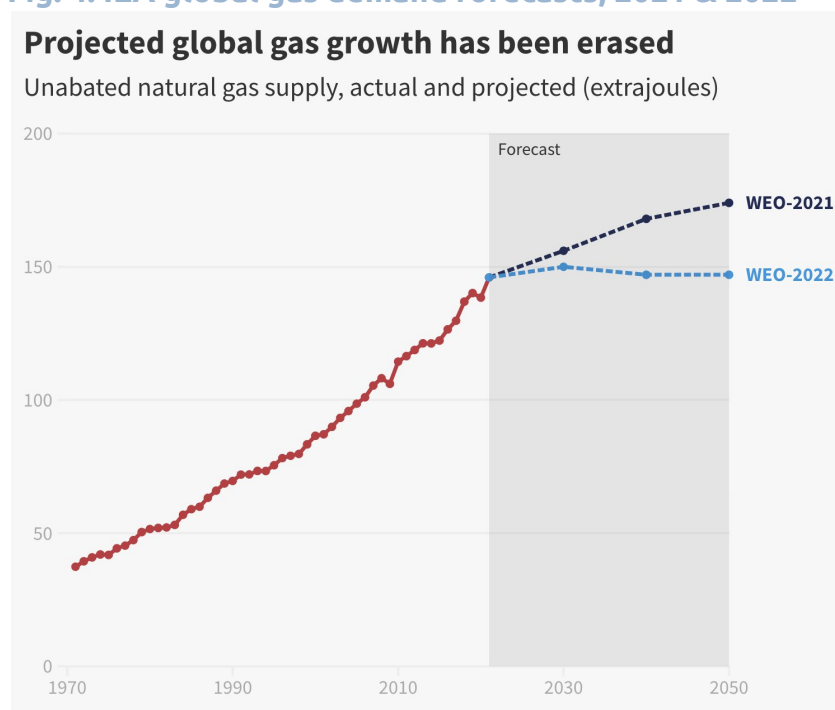
Fig. 3: Heat pump sales growth, selected EU countries 2021-2022



Source: PORT PC - Polish Organization for the Development of Heat Pump Technology³⁵

Data: [X](#) Heat pump sales.xlsx

Fig. 4: IEA global gas demand forecasts, 2021 & 2022

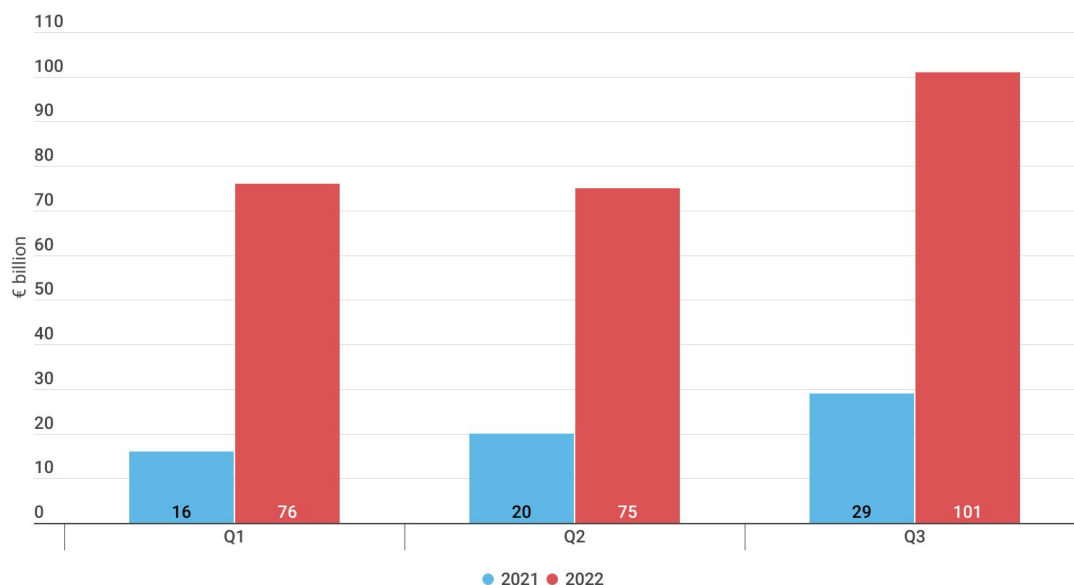


Source: EMBER, IEA³⁶

³⁵ <https://portpc.pl/port-pc-2022-rok-pomp-ciepla-w-polsce/>

³⁶ <https://twitter.com/EmberClimate/status/1596994829443297280>

Fig. 5: EU gas import costs 2021-2022

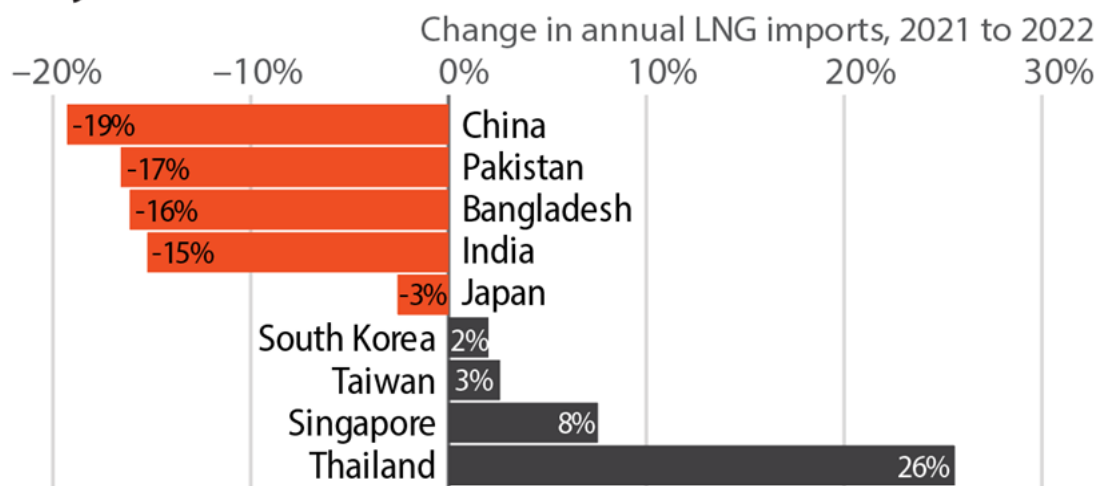


Source: European Commission³⁷

Data: EU gas demand and costs.xlsx

Fig. 6: Asian LNG Imports 2022

High LNG Prices in 2022 Caused Imports to Fall in Key Asian Markets



Source: IHS Markit

IEEFA

Source: IEEFA, IHS Markit³⁸

Table 1: Fossil fuel inflation costs, selected EU countries

³⁷ https://energy.ec.europa.eu/data-and-analysis/market-analysis_en

³⁸ <https://ieefa.org/resources/asias-lower-lng-demand-2022-highlights-challenges-industry-growth>

	Fossil fuels contribution to inflation (approximate)	Cost to average household of rising energy prices	Government energy price support cost (% of GDP)
France ³⁹	40%	€410	2.9%
Germany ⁴⁰	33%	€735	5%
Italy ⁴¹	30%	€1400	3%
Poland ⁴²	40%	€914	1.5%
Spain ⁴³	25%	€550	3%

Source: Cambridge Economics

Fig. 7: EU industrial production 2022 - monthly year on year change



Source: Eurostat⁴⁴

Data: ☒ EU industrial output.xlsx

³⁹ <https://www.camecon.com/what/our-work/new-findings-reveal-fossil-fuels-are-key-drivers-of-recent-inflation-in-france/>

⁴⁰ <https://www.camecon.com/what/our-work/new-findings-on-fossil-fuels-and-recent-inflation-in-germany/>

⁴¹ <https://www.camecon.com/what/our-work/new-findings-on-fossil-fuels-and-inflation-in-italy/>

⁴² <https://www.camecon.com/what/our-work/new-findings-on-fossil-fuels-and-inflation-in-poland/>

⁴³ <https://www.camecon.com/what/our-work/new-findings-on-fossil-fuels-and-recent-inflation-in-spain/>

⁴⁴ <https://ec.europa.eu/eurostat/web/euro-indicators>