

## **How are rising energy prices affecting the UK economy?**

**Higher costs of electricity, gas and petrol not only hurt households directly, but also indirectly as these fuels are key inputs in the production of almost all goods and services. In addition to pushing up inflation, the big rise in energy prices will reduce real GDP, real wages and productivity.**

The UK's current cost of living crisis has been mostly driven by the big increase in energy prices. Rising food costs have also had a major impact, as inflation reaches levels not seen in 40 years.

Energy prices feed into the consumer price index (CPI) measure of inflation through two kinds of expenditure: domestic energy consumption – electricity, gas, liquid fuel oil and solid fuel such as coal or wood; and fuels used for cars – petrol, diesel and oil.

The expenditure share of the average household for the two kinds together is 6.7%, made up of 3.6% for household energy, and 3.1% for vehicle fuels and lubricants. These proportions are based on 2021 expenditures and are likely to increase substantially in 2022.

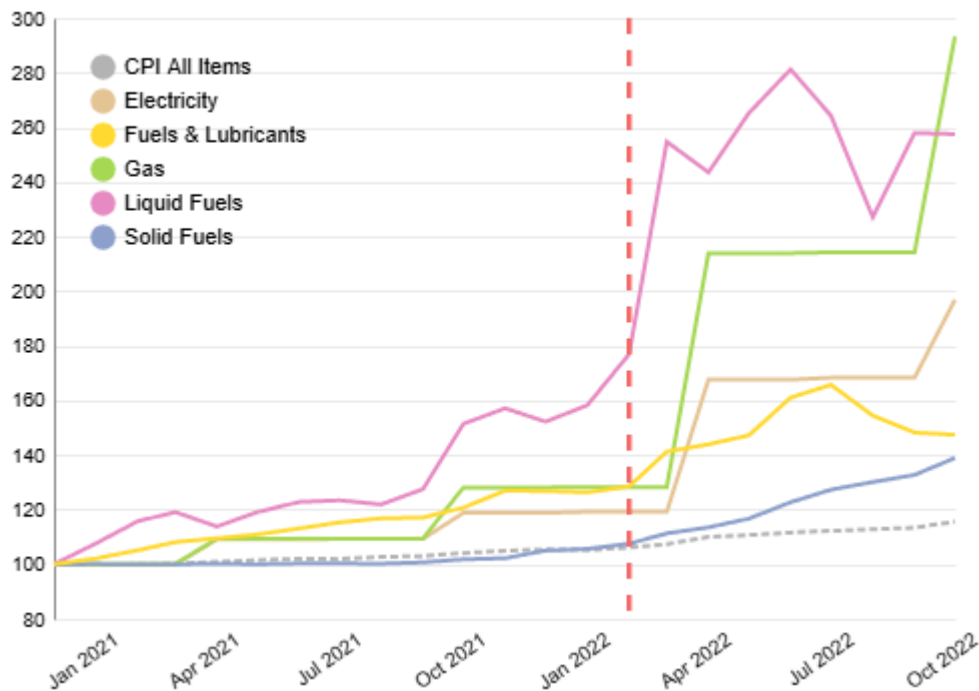
This is a result of increasing prices and because cost changes have limited effects on consumption – what economists refer to as highly inelastic demand. The expenditure shares for poorer households are much larger and, consequently, they experience a higher rate of inflation.

First, we can look at how energy prices have changed since December 2020 for the five categories of energy contained directly in the calculation of CPI. Figure 1 shows the price levels, with all set to one in December 2020. The level of the CPI is shown by the dotted line.

### **Figure 1: Energy prices, December 2020 to October 2022**

Source: [Office for National Statistics \(ONS\) consumer price inflation](#), November 2022

Note: December 2020 = 1



We can see that in October 2022, the CPI was at 1.16, implying that the general level of prices was 16% above its value in December 2020. This increase wasn't uniform across different energy types: solid fuels were higher than in December 2020 by 157%, fuels and lubricants by 39%, electricity by 96%, gas by 193% and liquid fuels by 157%.

If we exclude fuels and lubricants, household energy prices rose by 132%. This alone contributed almost one third of the CPI inflation over that period. Fuels and lubricants contributed over one tenth of CPI inflation. Combined, the five categories made up over 40% of total CPI inflation, despite having a weight in the index of less than 7%.

Second, Figure 1 shows that most of the increase in energy prices has come after the Russian invasion of Ukraine at the end of February 2022, indicated by the vertical line.

Western countries – led by NATO and the European Union (EU) – responded to the invasion by imposing severe economic sanctions on Russia. These have had a major impact on the supply of energy around the world, but particularly in Europe.

European countries, including the UK, sought to reduce rapidly their use of Russian oil and natural gas, and the newly completed Nord Stream 2 pipeline was never activated. Indeed, both Nord Stream 1 and 2 were sabotaged in a terrorist attack in September, so there is now no direct supply of natural gas to Germany (although other pipelines including the recent Turk Stream continue to supply Europe on a smaller scale).

Efforts to replace Russian energy are proving challenging and often mean using more expensive alternatives, such as liquified natural gas (LNG) from the United States.

While the UK does not directly consume much gas from Russia, it is linked very closely to the European wholesale market, which means that supply problems in continental

Europe feed directly into UK prices. These and other factors have all contributed to the rapid rise in energy prices since the sanctions were imposed.

While the Russian invasion of Ukraine has had a major effect, energy prices were already rising before the war. This partly reflects a ‘base effect’: prices have risen from a very low levels as a result of the lack of demand during the Covid-19 pandemic. Recovery in 2020 and 2021 meant that energy prices also came back.

Supply problems in the energy industry – which were common across many other sectors post-pandemic – have also contributed. Increasing output after a period of very low production caused problems of its own. In fact, the global supply chain issues lasted much longer than predicted early in 2021, and only eased by the end of that year.

### **How did inflation expectations evolve in 2021?**

In [May 2021](#), with CPI inflation at 1.7%, the Bank of England was primarily focused on recovery from the pandemic. Its forecast for post-pandemic inflation was for a gradual rise, with average CPI up to 2.3% at the end of 2022 and down to 2% the next year.

The Bank was not alone in this view. In its [May 2021 Economic Outlook](#), the National Institute of Economic and Social Research (NIESR) stated:

‘We forecast CPI inflation to rise over the coming months, reaching 1.8 per cent in the final quarter of 2021, before falling to 1.5 per cent at the end of 2022 and settling just below its 2 per cent target between 2023 and 2025.’

Of course, both NIESR and the Bank of England stressed that their forecasts were highly uncertain. In an [Economics Observatory article](#) written in June 2021, I discussed the various issues around supply chains and the labour market, and stressed the uncertainty. Of course, things turned out rather differently than predicted.

Fast forward to [November 2021](#) and inflation was much more prominent on the agenda. The rise in inflation was faster than had been anticipated, having reached 3.1% the month before. Major increases resulting from the Ofgem price cap rises in October 2021 and April 2022 were already in the pipeline.

The Bank of England predicted a peak of inflation of around 5% in April, falling back to 2% thereafter (towards the end of 2023). In its [October 2021 Economic Outlook](#), NIESR also forecast a peak of 5% in the second quarter of 2022 and declining to target in 2024.

The reason for this increase in inflationary forecasts was primarily the behaviour of energy prices – and, to a lesser extent, food prices – in mid-2021. The changes to the Ofgem price cap at the end of September could be seen by October 2021, causing a record 1.1% jump in the CPI inflation rate. This was the [largest increase since 1993](#).

### **Figure 2: Bank of England base rate, 1990-2022**

Start year:2010

End year:2022

Source: Bank of England



After the January 2022 figures were released, the expectation was that inflation would peak at 6% in April and then come down (see my February 2022 NIESR blog: [What to expect for inflation throughout 2022 and beyond](#)). Supply chain issues were finally resolving, and it was expected that after the April price cap increase, inflation would come down, albeit slowly.

### **How has the invasion of Ukraine affected inflation?**

As discussed above, the invasion of Ukraine – and sanctions subsequently imposed on Russia – has had a significant impact on energy prices. The prices of wheat, fertiliser and other commodities supplied by Russia have also gone up. Indeed, this had already started at the end of 2021 in expectation of war.

The impact on inflation was dramatic. By March 2022, inflation was already at 7%, well above the peak predicted in November 2021. In its [May 2022 monetary policy report](#), the Bank of England was predicting a peak of 10% by the end of 2022. By [August 2022](#), the Bank had already increased this to 13% ‘in the coming months’.

Changes to the energy price cap have also had an effect, with further rises by Ofgem predicted for October 2022, January 2023 and April 2023 (before recent government intervention).

The Bank of England also started to raise interest rates. They have been close to zero since 2009, at 0.5% for most of the period. In February 2022, the interest rate was still just 0.5%. The policy rate subsequently rose, reaching 1% in May, 1.75% in August and 3% in November.

## How have policy-makers responded to higher energy costs?

There have been two major policies to respond to the rising cost of energy:

- The [energy bills support scheme](#) (EBSS), announced in April 2022. This is a fixed sum payment of £400 to all eligible households, paid over the winter months (October to March inclusive). For pensioners, this is in addition to the winter fuel payment.
- The [energy price guarantee](#) (EPG). This came into effect in October 2022 and operates by keeping the Ofgem price cap fixed. When first introduced – during the brief premiership of Liz Truss – it was due to last for two years. In Jeremy Hunt's November 2022 budget statement, the EPG was set to continue for 18 months after April 2023, but at a less generous rate.

The rationale for the EPG was that energy bills for the typical household were predicted to increase to £5,000 or more in 2023. The EPG aimed to limit average household bills to a maximum of £2,500 (or £2,100 when combined with the EBSS). From April 2023, this will increase to a maximum of £3000.

The fiscal cost of the EPG – to be paid by taxpayers or by increasing borrowing – could be massive. This will depend on what happens to natural gas prices over time, but estimates of the cost have ranged from £70 billion to £140 billion over the two years.

The impact of these two schemes on inflation are different. The EBSS counts as a transfer payment, as the amount is not directly linked to the consumption of domestic energy.

The EPG, on the other hand, is treated like an indirect tax (VAT) or subsidy, in that it affects the unit price that households pay for their energy. As a result, it will be taken into account by the Office for National Statistics (ONS) when it calculates inflation ([this was announced on 31 October](#)).

The original two-year guarantee was predicted to reduce inflation by 3-4% over 2023-24, with inflation peaking at around 11% in early 2023 (see [NIESR inflation blog for September 2022](#) for an analysis of this). The revised EPG will reduce inflation by 2-3% after April 2023.

In reality, energy prices remain very uncertain and depend not only on events in Ukraine and the possibility of a negotiated end to the war, but also on the weather over the winter months.

## What are the broader effects of energy price inflation?

In addition to the direct effect of energy on the consumer basket, it is also a key input in the production of almost all goods and services.

Fuel is required for lorries to distribute most goods, and energy in the form of electricity is essential for the provision of all goods and services. In national accounting terms, energy is an intermediate input into all sectors.

As a result, there is an indirect and more gradual effect of energy on inflation through this mechanism, as energy adds costs to each stage in the supply chains of goods and services consumed by households. This has the potential to generate further inflation in the coming months.

But energy price inflation will also reduce the value added of producers in the UK (the difference between the value of their output and their inputs, which include energy). This will be reflected in a fall in GDP and productivity relative to what they would have been without the increase in energy prices.

Rising energy costs will lead directly to an increase in imports. Indeed, the ONS reported in its [balance of payments report for April to June 2022](#) that:

*‘The goods deficit remained at record levels, increasing to £61.1 billion in quarter two 2022. High fuel prices continue to affect imports as oil and other fuels imports rose to £29.2 billion in quarter two 2022, an increase of £4.4 billion compared with the previous quarter’.*

Energy prices affect the UK government’s tax revenues and public spending – that is, they have a major fiscal impact. The costs incurred by the government to supply education, health and other services will increase directly as a result of rises in energy costs. If public sector wages go up in response to rising inflation, this will also have an effect on government spending.

On the positive side, the increase in fossil fuel costs will accelerate the development of alternative energy supplies, particularly renewables and nuclear. While the development of these will take time, the process of reducing fossil fuel usage will be much faster as a result of events in 2022.

Further, the decline in economic growth caused by the rise in energy prices will also reduce the consumption of fossil fuels in the countries affected, including the UK and the EU. In the face of the looming climate crisis, this is an unintended but encouraging side-effect.

### **Where can I find out more?**

- [How the energy crisis will reduce GDP growth, productivity and real wages](#): Blog post by Huw Dixon.

### **Who are experts on this question?**

- Jagjit Chadha

- Richard Davies
- Huw Dixon
- Michael McMahon

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