House of Commons Library

Research Briefing
Number 9340
By Suzanna Hinson,
Paul Bolton
14 January 2022

The energy price crunch

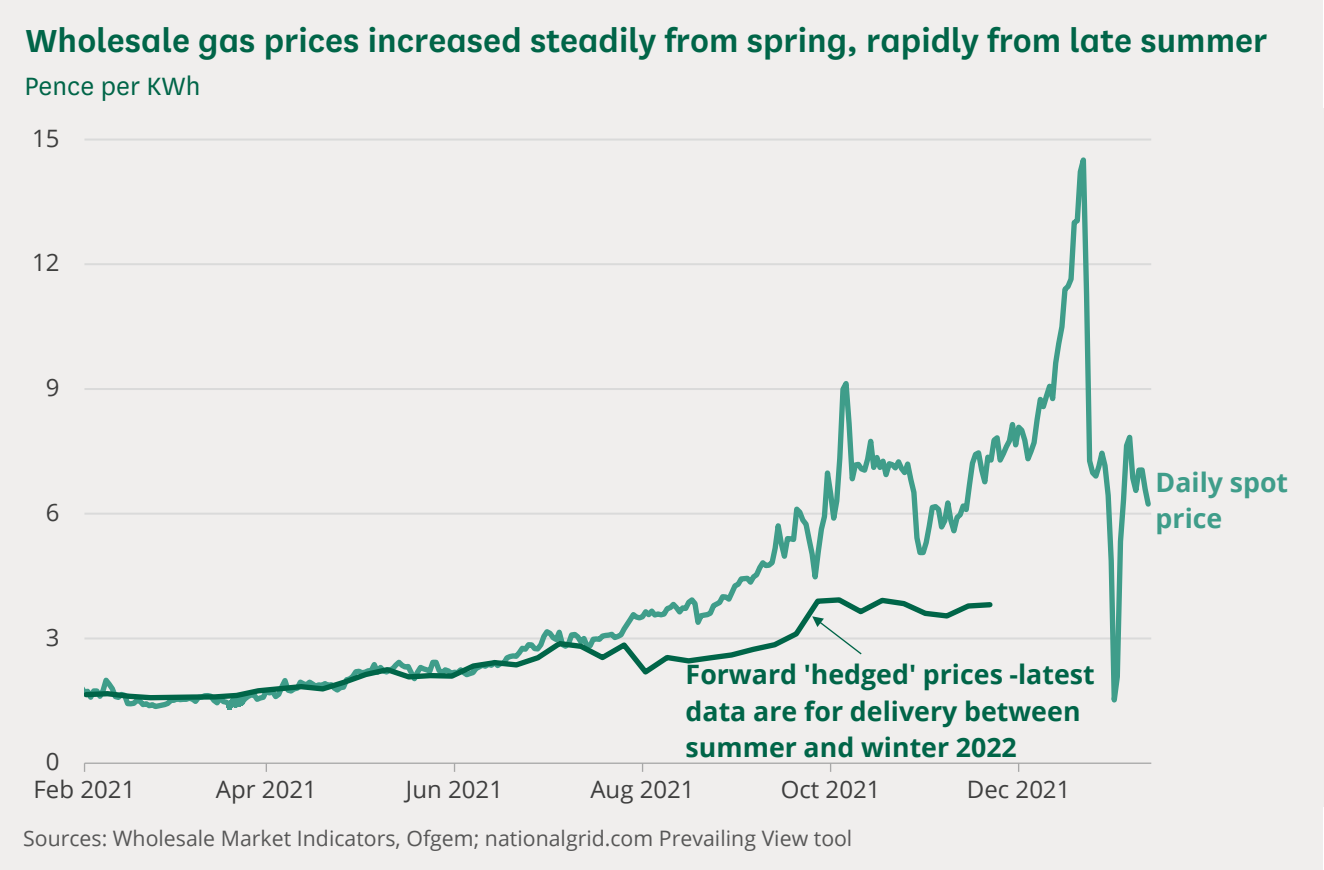
1 Background

The price of energy has dramatically increased in recent months; both in the UK and globally. Gas has led the price rise, but electricity prices have followed as gas is one of the fuels used to generate electricity. The prices are causing widespread concern and knock-on impacts for both domestic and commercial energy consumers.

The increase in wholesale gas prices in the UK are shown in the graph on the following page (hedging is explained below).

The daily spot price of gas is most volatile. It increased from around 1.5 p/kWh to more than 3 p/kWh from late July and more than 6 p/kWh in October. They fell back briefly in early November before increasing again to more than 9 p/kWh in mid-December. Spot prices peaked on 22 December at 14.5 p/kWh before sharp falls at the end of 2021.

The forward prices shown in the chart on the next page increased much more gradually through most of 2021. They have stabilised since late September 2021 in the 3.6-3.9 p/kWh range; an increase of between 120% and 140% on their early February levels. Forward prices for electricity have followed a broadly similar trend. Their level between late September and November was 100-125% above the early February price. These prices are a much better reflection of the costs paid by most large energy suppliers and hence a better guide to the costs that will feed into the price cap from April 2022.



Sources: Wholesale Market Indicators, Ofgem; nationalgrid.com Prevailing View tool

1. What is 'hedging'?

Energy prices are volatile and constantly rise and fall as they are influenced by numerous factors (including political, social, and climate factors) as well as variations in supply and demand.

Energy suppliers buy energy at a cost to themselves then seek to recoup that cost by selling on to customers at a higher price. To protect themselves from variations in prices, energy suppliers can "hedge" their energy purchasing. This means that rather than buying gas all at once and being exposed to whatever the price may be, suppliers access the market continually, buying some energy up to years in advance. This means suppliers are less exposed to market fluctuations and can offer customers longer term fixed deals, knowing that they have already purchased the energy those customers will use.

There are limitations to this strategy, for instance if energy prices fall then rather than be protected from rising costs, suppliers and customers are locked into higher costs. Hedging also involves upfront purchasing costs that some smaller suppliers may be less able to bear.

Hedging relies on forecasting. Suppliers assess how the market is changing to know when to buy, but also track how many customers they have and what their demand is, to know how much to buy. In the current situation, suppliers are exiting the market and their customers are being passed on to a 'supplier of last resort'. The adopting supplier did not forecast for the additional customers, and therefore was unable to buy sufficient supplies ahead of the rise in prices and so is more reliant on current, higher prices.

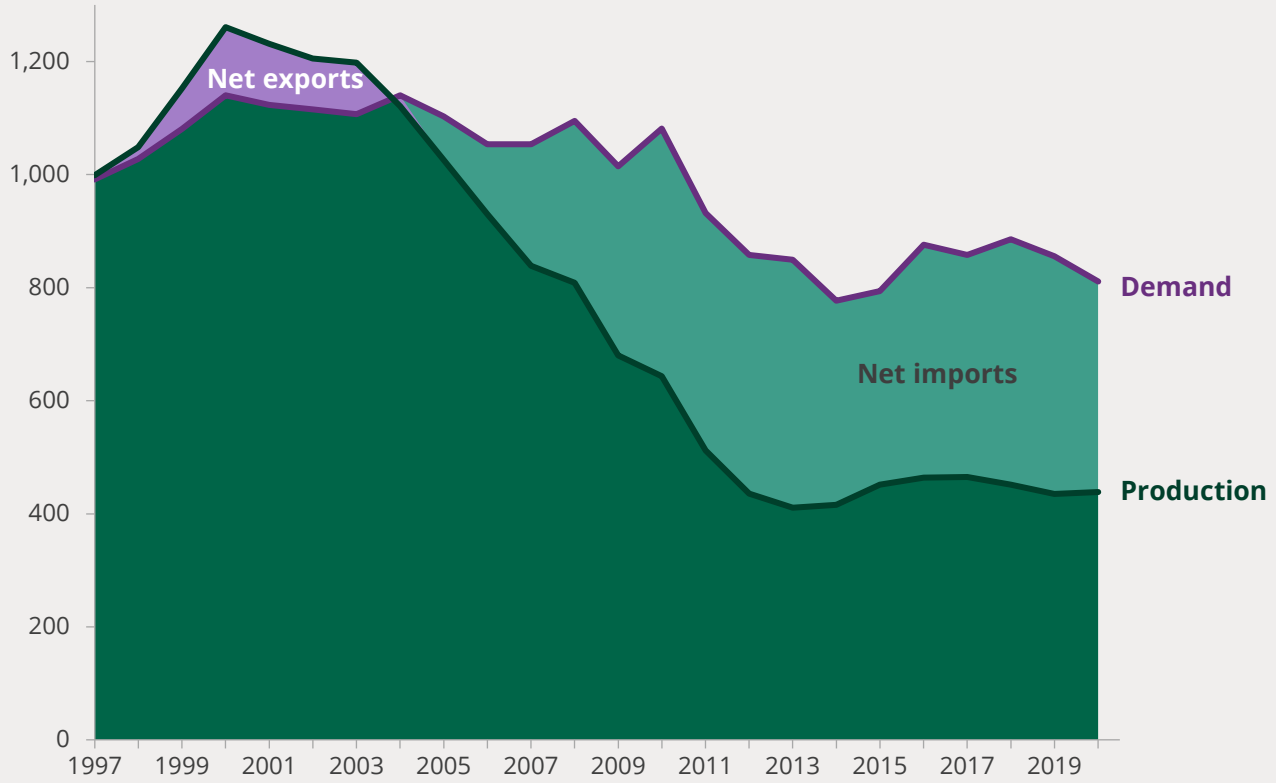
1.1 The UK gas situation

The UK is vulnerable to global price volatility as it is a net importer of natural gas (meaning it imports more than it exports). The graphs below show that the UK imports around 40% of its gas demand and sets out the source of these imports.[1]

[1] The Library paper on Energy Policy: an overview sets out background to the UK energy mix, including that the UK is a net importer of electricity and gas. It also includes a section on UK energy security though this is in general and does not reflect the current situation.

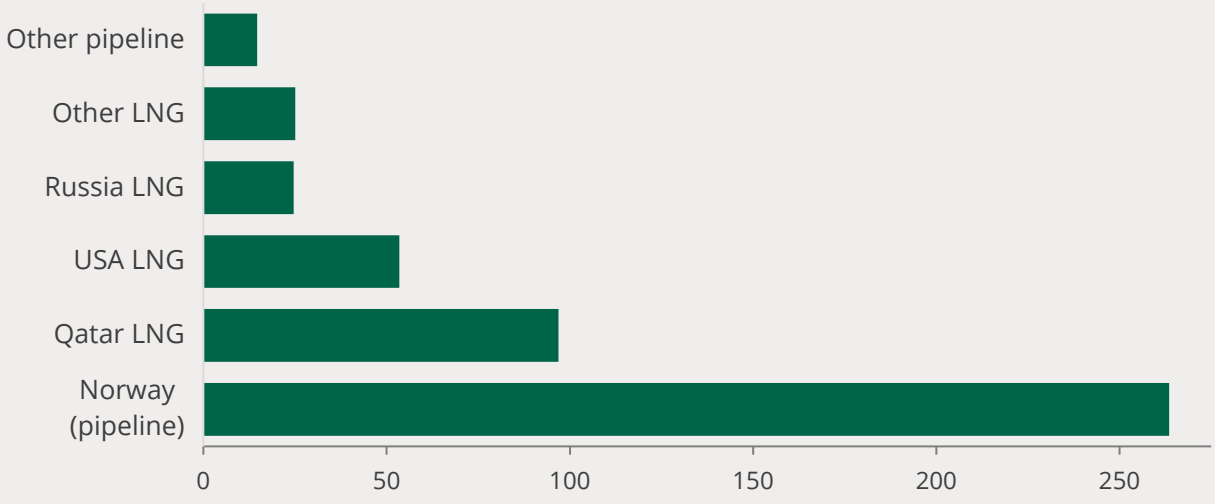
UK gas production has fallen faster than demand, leading to greater reliance on imported gas

Terawatt hours



Source: Digest of UK energy statistics 2020, BEIS (Table 4.2)

Sources of UK gas imports (TWh), 2020



Source: Energy Trends: UK Gas, BIS (Table 4.4)

1.2 What are the causes of the price rises?

The price rise has several causes. An important factor is the return of global gas demand as economies restart after pandemic-related restrictions. Demand has been particularly high in some areas due to cold weather.[2] Supply has not been able to keep up with demand; for example, global liquified natural gas (LNG) production has been lower than normal due to several unexpected outages and delayed maintenance.[3]

Regional factors in Europe may have worsened the situation. Parts of Europe receive gas through pipelines from Russia. There is debate about whether the Russian supplier Gazprom could do more to increase supply. A new pipeline - Nordstream 2 - which will supply Russian gas direct to Germany has recently been completed but is not yet approved. Some stakeholders have expressed concern that Russia may be limiting supply to exert pressure on regulators to approve the pipeline.[4] The International Energy Agency (IEA) published a statement on the issue which, in addition to highlighting the global factors, also expressed a view that Russia "could do more" to increase gas availability in Europe.[5] However, Russia has denied manipulating the market, and the German Chancellor, Angela Merkel, has also said Russia is fulfilling its contractual obligations and so questioned instead whether insufficient gas was ordered.[6]

As a net importer, the UK is exposed to volatility in gas prices. There are some additional factors within the UK that have contributed to the high price. Low levels of wind, outages at nuclear plants, and a fire that has shut down a key electricity interconnector (that imports electricity from France) have all contributed to a need for greater use of gas power stations, which has added to demand. [7] The UK also has reduced gas storage after closing the Rough gas storage site in 2017, although the significance of this to current price rises is debated.[8]

---

2 China, one cold winter, and the origins of Britain's fuel crisis, The Times, 7 October 2021

3 IEA, Statement on recent developments in natural gas and electricity markets, 21 September 2021

4 Jillian Ambrose, What caused the UK's energy crisis? The Guardian, 21 September 2021

5 IEA, Statement on recent developments in natural gas and electricity markets, 21 September 2021

6 Gas markets whipsaw after Russia offers to stabilise prices. Financial Times, 6 October 2021

7 Jillian Ambrose, What caused the UK's energy crisis? The Guardian, 21 September 2021

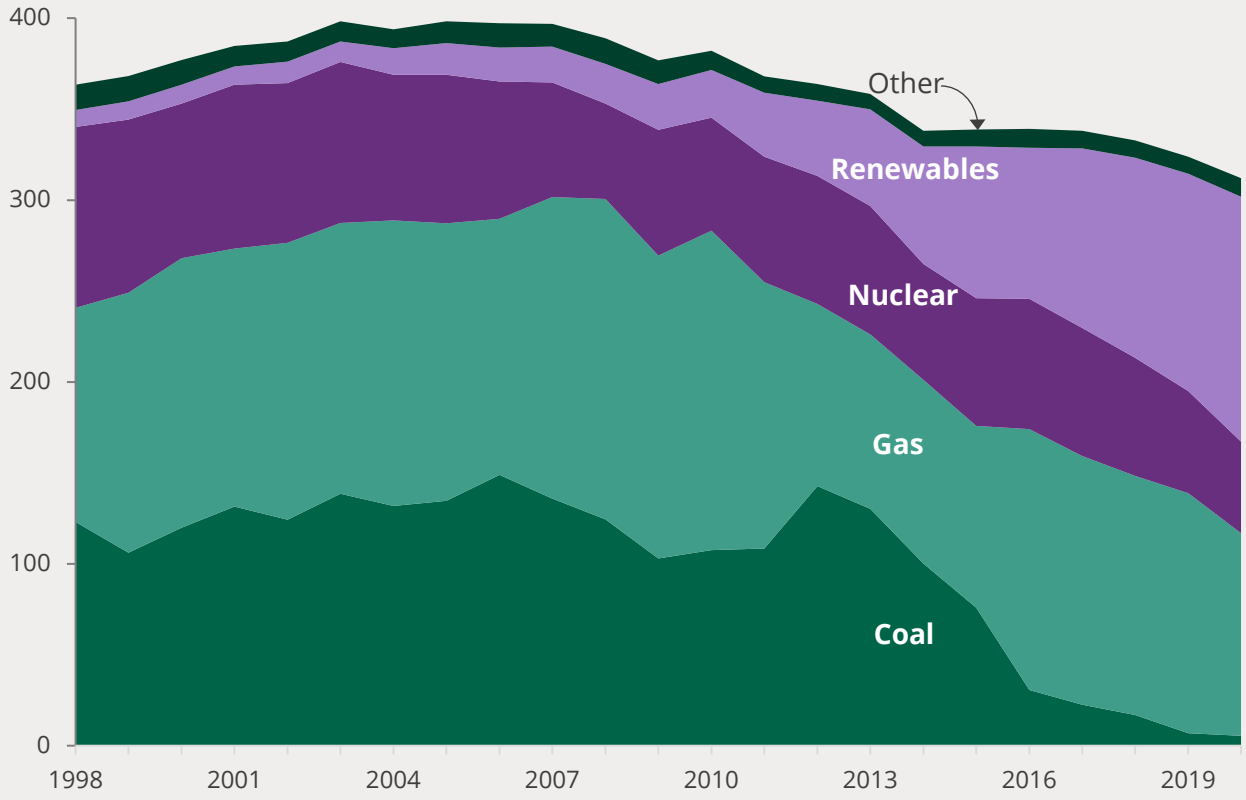
8 The Government for instance has said that the site was not relevant to the current situation as gas storage is only used for short term balancing as the UK has diverse supply so does not need long term storage – see Henry Edwardes-Evans, UK does not back Nord Stream 2, nor needs long term gas storage: minister, 22 September 2021

1.3 How is the UK affected?

Most heating in the UK is supplied by gas. Gas also makes up a proportion of the UK's electricity mix, as shown in the graph below.

Renewables and gas replace coal generation over the last decade

UK generation by type of fuel (TWh)



Source: Energy Trends: UK Electricity, BEIS (Table 5.1)

The gas price rise has forced several energy suppliers out of the market, triggering an Ofgem process to find a new supplier for their customers, known as the 'supplier of last resort'.[9]

The reasons for the collapses of suppliers are mixed. There are issues relating to whether suppliers have hedged their customer needs by buying gas in advance (hedging is explained in Box 1 above), but suppliers have also blamed the cap for preventing them raising tariffs in response to higher prices. Although the price cap was never popular with suppliers, renewed criticism of the cap, and the fact that the cost of failed suppliers is ultimately

[9] The Ofgem webpage on What happens if your energy supplier goes bust contains information that may be of interest to customers concerned about their energy supplier.

passed onto energy bills, has resulted in calls for a review of the cap and broader market regulation.[10]

Industrial consumers, especially energy intensive industries, are also being affected and - unlike domestic customers - do not have a price cap. Representatives for several industries, including steel, ceramics, chemicals, and paper manufacturers, are all warning that the high prices could lead to shut-downs, or at best, higher prices being passed on to consumer for their products. The Government is in talks with several industries that have requested support.[11]

The shut-down of some industries has already caused knock-on effects on wider supply chains. A shortage of carbon dioxide (CO_2) has been caused by a shut-down in the production of fertiliser (CO_2 is a by-product of the fertiliser manufacturing process). On 15 September 2021, CF Industries (one of few companies producing refined CO_2in the UK) announced it would close its sites in the UK, due to the high natural gas prices. The resulting concern of a CO_2 shortage led the Government to step in with a deal to restart fertiliser production in September 2021.[12]

Energy bills and the price cap

As a result of the reliance on gas, domestic energy bills will go up. The energy regulator Ofgem enforces a price cap on some domestic tariffs.[13] The cap is not intended to protect against rising wholesale prices, instead it is intended to ensure that customer tariffs accurately reflect the true cost of supplying energy. As such, if the cost of supplying energy rises, so too does the cap. Recently, there has been a narrowing of the gap between the cheapest energy deals available and the price cap (see chart below).

[10] Natalie Thomas, Ofgem hints at UK energy price cap reform and tighter regulation of suppliers, Financial Times, 7 October 2021

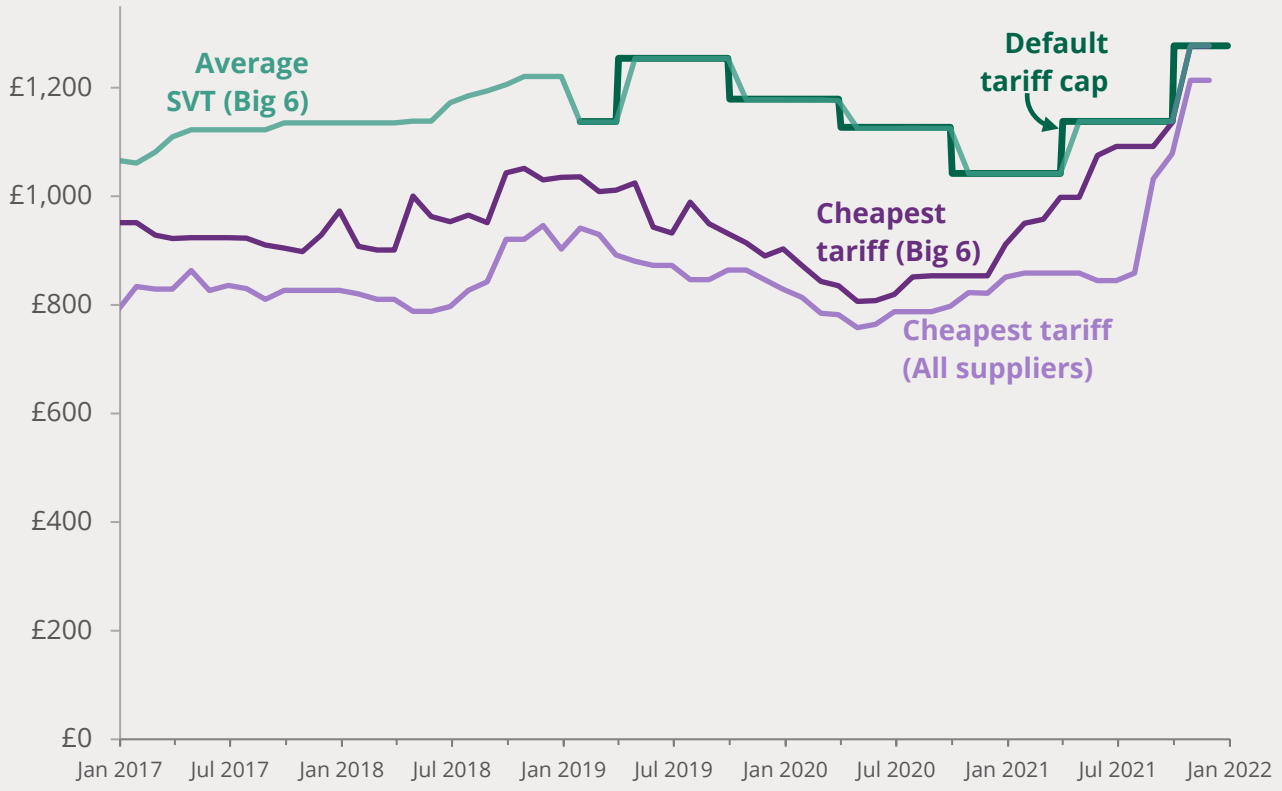
[11] Firms call for help over surging gas prices, BBC News, 11 October 2021

[12] Gov.uk, Government secures agreement to ensure CO2 supplies, 21 September 2021

[13] The Library briefing on Energy bills and tariff caps (last updated August 2021) provides background information on the energy market and the domestic tariff cap.

The gap between the price cap and the cheapest tariffs has narrrowed rapidly

Average annual dual fuel bill in cash prices, Great Britain



Source: Retail Market Indicators -Prices and profits, Ofgem

The cap is reviewed twice a year; the price rose by £139 at the previous review in August 2021 (which came into effect in October), and it has been reported it could rise by a further £400 at the next review in February 2022.[14] The increases in bills is of particular concern for fuel poor households as the UK approaches winter.

The current annual price cap for dual fuel direct debit customers is £1,277. The cap sets maximum prices for a unit of energy, not maximum annual bills. These unit prices for gas and electricity are multiplied by typical consumption levels and added to standing charges to arrive at the illustrative annual figure. An individual customer's annual bill will largely depend on how much energy they use. According to Ofgem the main component of the price cap is wholesale costs at 41%, followed by network costs (21%), operating costs (16%), policy costs (12%) and VAT (5%). Supplier 'profit' margins are assumed to be 2%.[15]

The next price cap will come into force in April 2022 and will be based on Ofgem's analysis of supplier costs between August 2021 and January 2022. An

[14] Energy prices: Significant rises to come, says regulator, BBC News, 9 October 2021
[15] Default tariff cap level: 1 October 2021 to 31 March 2022, Ofgem

announcement on the cap is expected in February 2022. It is widely assumed that the cap will rise substantially because of higher wholesale costs.

Ofgem has published data on the wholesale price measure it uses for its analysis[16] up to the end of November 2021. These are prices agreed in forward contracts for future delivery of gas and electricity, or 'hedged' prices which are not as volatile as daily spot prices. This data covers four of the six months it will base the new price cap on. If it is assumed that these prices remain at their late November level for the following two months, then gas and electricity prices would be around 70% and 60% higher respectively (across the whole period) than in the previous six month period.[17]

Given the breakdown of the current default tariff cap, and assuming no other change in costs, this implies an increase of **£350-400** in the price cap (after VAT) of **27-31%** due to rising wholesale prices alone.

Clearly any further increases in the forward wholesale prices would mean larger increases and *vice versa*. Changes to other costs will also affect the final cap level. At the end of October 2021 the chief executive of the energy company Centrica said that paying for the costs of energy supply firms that have gone out of business would add around £100 to average bills. He added that this cost could double 'over the next few weeks' with more firms going out of business.[18] If these costs are added to the price cap then the total increase could be **£450-600**, making it **50-65%** higher than at the start of 2021.

1.4 What does this mean for UK energy policy?

In the short term, there are calls from most sectors for the Government to step in with emergency funding. Longer term, the crunch has led to calls for changes to energy policy.

Some have responded to the gas price rise by making a case for a return to domestic natural gas, either through storage or fracking.[20] The Government has been clear that it views the future as moving away from dependency on gas.[21]

[16] Forward delivery contracts for summer 2022 and winter 2022/23. The forward electricity data published by Ofgem is used in the price cap methodology. The published gas price data is obtained directly from brokers, while the data is uses to set the price cap is from a third-party agency.

[17] Wholesale Forward Delivery Contracts Price Trends, Ofgem (accessed 14 January 2022)

[18] Ofgem and net zero, oral evidence 26 October 2021 (Q110 and Q111), House of Lords Industry and Regulators Committee,

[20] Dr Simon Cran-McGreehin, Reheating the shale gas debate will not solve the gas crunch, Business Green, 6 October 2021

[21] HC Deb, UK Gas Market, Vol 701, C23, 20 September 2021

For the electricity sector, the Government has announced plans for all electricity generation to be low carbon by 2035.[22] This will reduce reliance on gas, but also help meet the statutory decarbonisation target of net zero by 2050. The Government has highlighted support for renewables such as offshore wind[23] and wants to catalyse progress in nuclear power (where in recent years progress to replace ageing reactors approaching the end of their operating lives with new reactors has been slow).[24] There is also support to help energy intensive industries switch away from gas to low-carbon fuels.[25]

However, addressing UK demand for gas for heating is also important. Switching to low-carbon heating, as well as insulating homes are important parts of decarbonisation and would significantly reduce the UK's dependence on gas and consumer vulnerability in future crises. The Government has been criticised for a lack of policy in this area,[26] although a new heat and buildings strategy is expected, which may include new policy.

1.5 Further reading

Library briefing papers

- Energy policy:
  - The Library briefing on Energy Policy: An overview, sets out background information on UK energy policy, including the three main aims of affordability, security, and decarbonisation. The briefing also contains links to other Library publications covering various aspects of energy.
- Consumers:
  - The Library briefing on Energy bills and tariff caps sets out background information on the retail energy market, the components of an electricity bill, and background to the energy tariff cap.
  - The Library briefing on Fuel Poverty sets out the different definitions, targets, and strategies to address fuel poverty across England,

[22] Gov.uk, Plans unveiled to decarbonise UK power system by 2035, 7 October 2021

[23] HM Gov, The ten point plan for a green industrial revolution, 18 November 2020

[24] Energy: Boris Johnson considers Wylfa for new nuclear power, BBC News, 1 October 2021. More information on nuclear is available in the Library briefing on New Nuclear Power.

[25] The Library briefing paper on UK Steel industry: statistics and policy (June 2021) provides helpful background information on support for industry with decarbonisation in section 5.5 on Steel Industry Decarbonisation. Although this is written in the context of steel it is relevant to other energy intensive industries.

[26] For example, see the House of Commons Environmental Audit Committee's 2021 inquiry on Energy efficiency.

Scotland, Wales and Northern Ireland. It also summarises the policy support available for those experiencing fuel poverty.

- The Library casework article Help with heating and energy efficiency may be of interest for constituents who are interested in reducing their gas bills.

Parliamentary material

Gas Prices and Energy Suppliers

HC Debate

23 September 2021

Background

What is behind soaring energy prices and what happens next?

International Energy Agency

12 October 2021

Gas shortages: what is driving Europe's energy crisis?

Financial Times

11 October 2021

This energy supply crisis was years in the making

The Times

23 September 2021

Gas price spike: how UK government failures made a global crisis worse

The Conversation

20 September 2021

Energy rationing feared as Russia's gas squeeze exposes the UK's perilously low reserves

Daily Telegraph

5 September 2021

Other press material

Steve Baker MP: British employers face imminent ruin due to energy crisis

The Times

12 October 2021

Lord Agnew points finger at Putin's war or warmth ploy on gas prices

The Times

12 October 2021

Octopus CEO: We need strong competition to insulate us from future energy crises

City AM

12 October 2021

UK ministers should support industry through energy price spike

Financial Times

12 October 2021

An industry bailout isn't the answer to our energy crisis

Daily Telegraph

11 October 2021

Kwarteng backs energy price cap amid pleas for support from suppliers and heavy industry

The Guardian

10 October 2021

Energy price cap not fit for purpose, say suppliers

BBC News

10 October 2021

Ofgem hints at UK energy price cap reform and tighter regulation of suppliers

Financial Times

7 October 2021

EU energy chief says gas price surge has no quick fixes

Financial Times

7 October 2021

Reheating the shale gas debate will not solve the gas crunch

Business Green

6 October 2021

Disclaimer

The Commons Library does not intend the information in our research publications and briefings to address the specific circumstances of any particular individual. We have published it to support the work of MPs. You should not rely upon it as legal or professional advice, or as a substitute for it. We do not accept any liability whatsoever for any errors, omissions or misstatements contained herein. You should consult a suitably qualified professional if you require specific advice or information. Read our briefing 'Legal help: where to go and how to pay' for further information about sources of legal advice and help. This information is provided subject to the conditions of the Open Parliament Licence.

Feedback

Every effort is made to ensure that the information contained in these publicly available briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Please note that authors are not always able to engage in discussions with members of the public who express opinions about the content of our research, although we will carefully consider and correct any factual errors.

You can read our feedback and complaints policy and our editorial policy at commonslibrary.parliament.uk. If you have general questions about the work of the House of Commons email hcenquiries@parliament.uk.