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## UK gas – caught short, caught very short?

Chickens coming home to roost?

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## Executive summary

Gas availability during the coming winter is a real concern, especially if prolonged periods of cold weather arise

In recent months, spot prices of UK gas have soared, from ca.30p per therm during the summer to well over £2 per therm by October; they have, though, fallen back from their peak over the last few days. As the soaring prices imply, availability of gas during the coming winter is also a major issue, especially if prolonged periods of cold weather arise.

In fact, gas supply across the globe is a real issue, with relatively few major gas-producing countries. Furthermore, investment in new gas facilities has fallen back in recent years. For the UK, whose North Sea gas resources are diminishing, Norway is the pivotal supplier. Supplies of Liquefied Natural Gas (LNG) are stretched, while Russian EU gas exports via Gazprom are dominated by political and legal issues relating to the divisive Nord Stream 2 pipeline.

Gas demand, post the COVID-19 recovery, is satisfied by what has become a seller's market. Demand is led by Asia, in general, and by China, in particular. LNG shipments are now very much sought after, especially since global gas stocks are low, with Northern economies being keen to re-build their gas reserves before winter.

While the UK media has generally focused on pricing issues, availability of gas, especially during this winter, remains a real concern. Interconnector capacity may look reassuring on paper, but gas supplies, in a tight EU market, can be easily redeployed elsewhere.

UK's gas storage capacity is equivalent to just 2% of annual demand

Most risky of all is the UK's desperately low gas storage capacity. The latest figures show that the UK has gas storage capacity equivalent to just 2% of its annual demand; the figures for the EU's four leading gas markets vary between 25% and 37%.

Domestic customers currently face various issues. The energy price cap was initially set in January 2019 at £1,137 per year for dual supply to a customer on a Standard Variable Tariff (SVT). The next review of the price cap is in 1Q'22, and is set to see further rises, perhaps to over £1,450. Furthermore, a proliferation of bankruptcies among smaller energy suppliers – some 14 have collapsed since early August – means that many customers have been allocated new suppliers by Ofgem.

Major energy users within the industrial sector are particularly exposed to higher – and enduring – gas prices. Sectors such as steel and chemicals are particularly vulnerable, unless they have favourable long-term energy supply contracts in place.

Against this background, it should be recognised that the UK's generation mix has changed appreciably over the past 30 years, with coal-fired plant being almost totally phased-out and new renewables capacity making a material contribution. Although UK gas-fired output is now lower than previously, it still produces ca.35% of UK generated output.

UK domestic customers are very likely to see a pronounced rise in energy prices

Clearly, much of the impact of higher gas prices will depend upon how long they endure. UK domestic customers will, almost certainly, see a pronounced rise in energy prices, and, if the coming winter mirrors some of the freezing temperatures of the past – 1962/63 comes to mind – gas availability will become a key national issue.

## Background

The North Sea has had a profound impact on the UK energy sector

The development of the North Sea's resources over the last ca.50 years has had a profound impact on the UK energy sector, most obviously in terms of oil output. However, it has also given rise to large volumes of gas extraction, much of which has been used to provide space heating, as more – and larger – houses have been built.

CCGTs have lost their place as base-load generators in recent years

By the time that most of the electricity supply industry had been privatised in the 1990s, the use of gas, as a generating fuel, had been greatly expanded by the advent of Combined Cycle Gas Turbine (CCGT) plants, which were constructed in large numbers as baseload generators. In recent years, for varying reasons, many CCGTs have lost their place as base-load generators; instead, they now operate on a mid-merit basis.

The recent surge in gas prices has had an adverse impact on domestic consumers and major energy users

Domestic gas customers, who rely heavily on gas for their heating, will undoubtedly have to pay higher prices, and may face some restrictions if UK gas supplies – for whatever reason – prove inadequate this winter.

Power generation in UK will also be affected, with the generation mix subject to readjustment

Similarly, industrial gas consumers, especially major energy users, may need to take challenging decisions if gas prices remain high. For many years, they have derived material benefits from relatively stable energy prices – this scenario may well change.

Power generation in the UK will also be impacted, as the generation mix, which has changed enormously in recent years as coal-fired plant is being phased out, will be subject to major readjustment.

## Current UK gas situation

### UK gas supplies

**Norway and Qatar in the van**

With gas resources in the UK's section of the North Sea declining, there is now far more reliance on gas imports – Norway is, by some way, the UK's most important gas supplier, followed by LNG from Qatar.

**Russian export volumes to UK are comparatively low**

Although Russia was the UK's fourth-largest supplier in 2020, its gas volumes represent less than 10% of those exported to the UK by Norway. However, mainland EU, and especially Germany, are very large importers of Russian gas. Hence, serious interruption of Russian gas supplies, for whatever reason, would have serious repercussions, both directly within the EU and indirectly on the UK.

The table below lists the leading natural gas exporters to the UK during 2020; also included is the UK's own gas supply figure.

UK gas suppliers (GWh) 2020	
UK	439
Norway	266
Qatar	97
United States	53
Russia	25
Trinidad and Tobago	11
Netherlands	11

Source: BEIS

**UK gas storage at desperately low level**

With supply interruptions being a real risk, it should be noted that the UK is even more exposed, given its absurdly low – and very dangerous – gas storage levels, which have been exacerbated by the closure of the offshore Rough storage facility in 2017. Discussions are under way with Centrica, which owns the Rough facility, regarding a partial re-opening of it.

**Gas reserves – UK's 9TWh plays Italy's 168TWh**

The latest figures from Gas Infrastructure Europe show that the UK has just 9TWh of gas reserves capacity, which is equivalent to a paltry 2% of its annual demand. In contrast, the figures in Germany, France, the Netherlands and Italy are between 25% and 37% of annual demand (and Italy boasts a formidable 168TWh of storage capacity).

### Recent wholesale gas price movements

In recent weeks, UK wholesale gas prices have risen very sharply – for a combination of reasons. Heavy demand, especially from outside the UK, and various constraints on supplies have been crucial.

**30p per therm to well over £2 per therm**

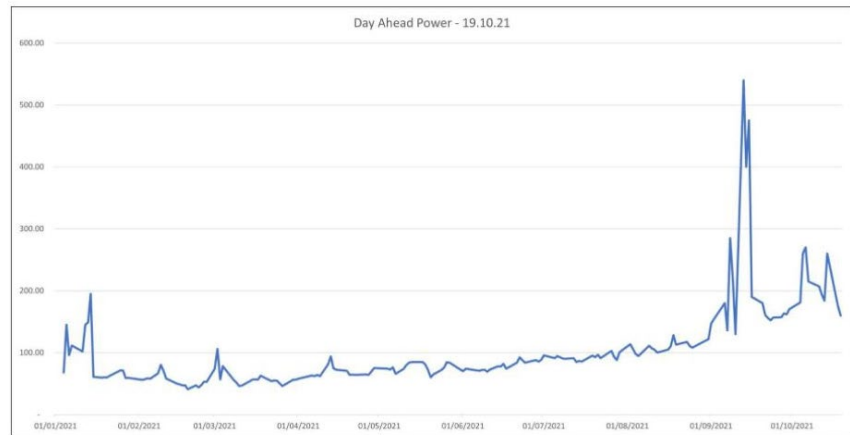
As such, during this summer, when wholesale spot prices were often as low as ca.30p per therm, they have recently breached the £2 per therm threshold. No doubt, much of this rise is due to both panic and to extensive market speculation, but the underlying message is that gas prices are rising and are unlikely to return – for some time at least – to the levels that were seen a year or so ago.

## UK Gas – Caught Short, Caught Very Short?

This trend is illustrated by two graphs published recently by Catalyst Digital Energy – the take-off of gas prices in October 2021 is very visible in both graphs.

More specifically, the first graph below shows wholesale supply data on a day-ahead basis.

### UK day-ahead wholesale supplies

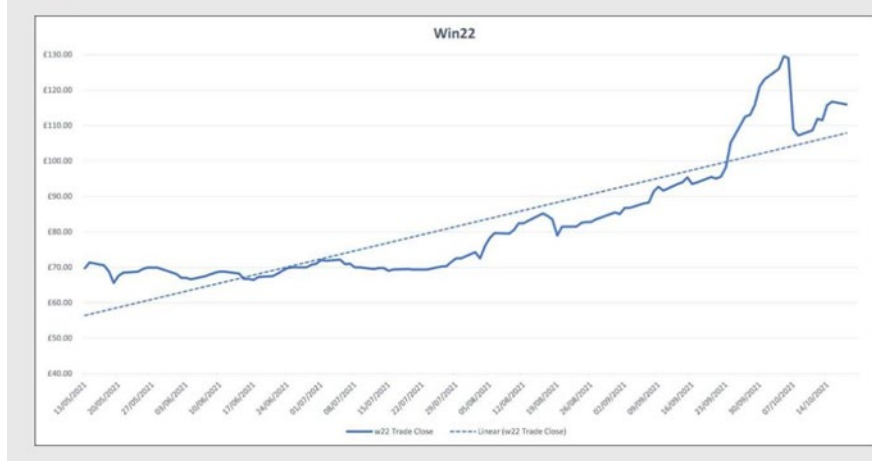


Source: Catalyst Digital Energy

### High prices expected from October 2022 onwards

The second graph below focuses on one year out – the winter season of 2022. It shows high prices being quoted from October 2022 onwards, as expectations of very strong gas demand and enduring supply issues persist.

### UK wholesale price chart, winter 2022



Source: Catalyst Digital Energy

Importantly, neither of these tables, and especially the latter, suggest that UK gas prices are set to regain their previous levels for some time.

## Impact on domestic prices

Clearly, recent gas developments are going to impact the domestic sector – for home heating bills and, less directly, through electricity price increases.

### Energy price cap provides some protection

Some protection has been accorded by the energy price cap, which is set every six months by Ofgem. The price cap has been operational since January 2019 and prescribes a maximum figure for the average dual fuel bill, as applicable to those using SVTs, which covers most energy consumers.

For energy suppliers, real protection is provided by the “cost pass through” (CPT) mechanism, which enables higher gas input costs to be passed through to domestic consumers.

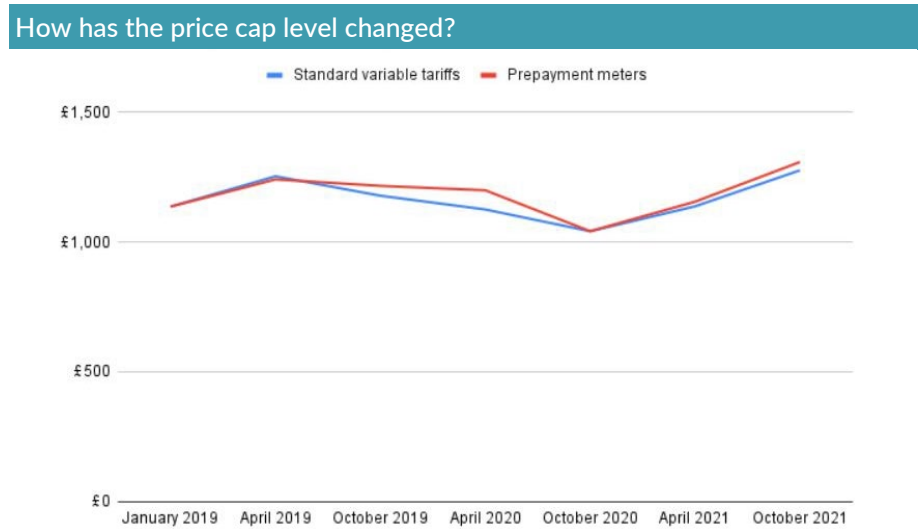
### More regular review of the energy price cap would address impact of short-term fluctuations

The energy price cap has been criticised on many grounds, including its delay in responding to movements in gas input costs. In fact, it is likely that the regular review of the figures – currently on a six-month basis – will take place more often; it can then address more quickly the impact of major short-term fluctuations.

### £1,137 per year was the opening figure in January 2019

Currently, the energy price cap, as announced on 6 August 2021, is £1,277 per year – a record-high figure since its introduction in January 2019.

The graph below, compiled by USwitch, shows how the energy price cap figure has moved upwards over the past 30 months.



Source: USwitch

### The only way now is up

Looking forward, it seems certain that the energy price cap will rise further over the coming months, given that Ofgem’s previous data was based on mid-summer 2021 figures, and not those covering October 2021, when wholesale gas prices really took off.

### The fallen 14 – and counting

A small minority of consumers will also be allocated new energy suppliers by Ofgem, following the collapse of 14 – and counting – small energy suppliers since early August 2021.

## UK Gas – Caught Short, Caught Very Short?

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### Ofgem's seriously flawed competition model

In recent weeks, Ofgem has had to accept that its much-criticised model to further competition in the energy sector is severely flawed. Many small undertakings were permitted by Ofgem to become energy suppliers, despite both the real risk of price shocks and their lack of the necessary capital to surmount them. The latest wholesale gas price surge has already taken out many small suppliers – and will assuredly claim other victims.

### Some sectors facing real cost pressures, and will continue to do so...

Most major energy users will experience real financial pressure from the soaring costs of wholesale gas. The impact will vary from sector to sector but some, such as steel production and chemical manufacturing, are facing – and will continue to face – real cost pressures.

### ...and it will be an “each for himself” scenario

In the final analysis, every company will have to respond appropriately, based on its individual position. Likely scenarios may include:

- ▶ the signing of one-off deals, which may include the “interruptible” option not to take gas at periods of very high demand, with individual major energy users;
- ▶ some cutbacks in the use of gas, possibly accompanied by plant reductions or closures;
- ▶ reduced gas pressure – and therefore costs – if this can be accommodated;
- ▶ some price inflation, as companies seek to pass through the impact of higher gas bills to their customers; and
- ▶ some government financial support to especially vulnerable sectors, such as manufacturers of carbon dioxide.

## UK generation mix

### Gas came of age in the latter part of 20<sup>th</sup> century

Since the privatisation of most of the UK electricity supply industry in the 1990s, the importance of gas as a generating fuel has risen very considerably. Indeed, the “dash for gas”, which saw the construction of numerous CCGT plants, established the fuel as a key component of base-load generation.

### Move of many CCGTs to mid-merit status

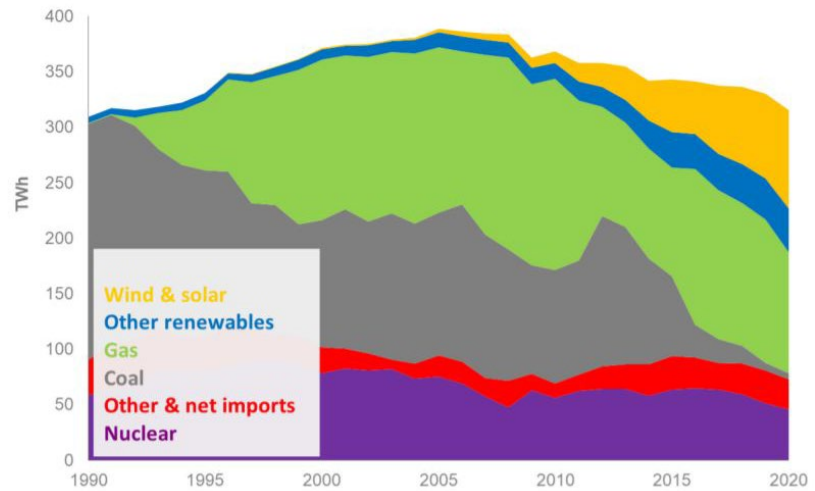
However, this position eroded, as nuclear power, with its low variable costs, and renewables output – on the back of substantial subsidies – displaced much of the gas-fired output. Hence, many CCGTs moved to mid-merit status. Nonetheless, output from gas-fired units remains crucial, especially during the high-demand winter period.

### Coal's near exit, but renewables have grown sharply

The table below, taken from UK Energy Briefing 2021, shows how the UK's generation mix has undergone profound change over the past 30 years: coal has virtually disappeared, while renewables, especially onshore wind, have grown sharply over the past decade.



Electricity supplied by fuel type, 1990 to 2020



Source: UK Energy Briefing

Gas input costs are the financial drivers

Crucially, in assessing the returns from a CCGT, the gas input costs are key – a scenario that differs markedly from nuclear, wind and solar generation. As such, when the gas input costs are, say just 30%, CCGTs can be very profitable; at a ca.70% ratio, the opposite is the case. In reality, the wide fluctuations of recent weeks will be mitigated by the existence of long-term gas supply contracts, which enable adjustments to be made for shorter-term gas price movements.

Higher gas prices could make other forms of generation more attractive

The implications of higher gas prices mean that other forms of generation become comparatively more attractive. Indeed, some coal-fired plant, despite all its controversial environmental implications, is being brought back – presumably, on a temporary basis.

It should be expected, too, that – assuming no technical shortcomings – the UK’s nuclear power fleet will also be increasing its total output, despite the increasing concern about the age of all UK nuclear plants, except Sizewell B.

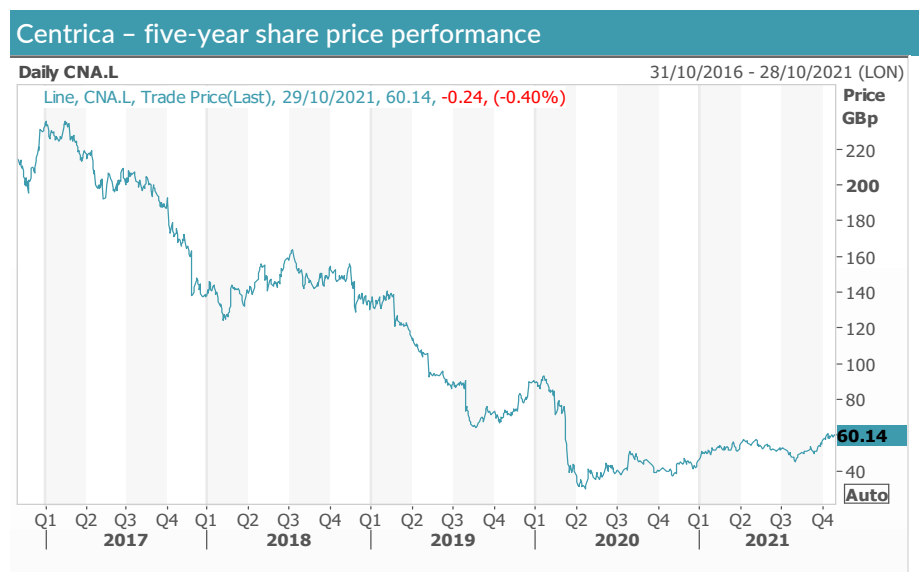
Ironically, given that the lack of wind over the past two months has been one of many factors in raising UK gas prices of late, higher renewables’ output should also be expected – but this may be limited by grid constraints.

## Share price movements

### Centrica’s “dead cat bounce”

The recent surge in UK gas prices has, to a modest extent, boosted Centrica’s market rating. After all, Centrica remains the UK’s leading gas company, despite the many challenges it has faced over the past few years.

The graph below highlights Centrica’s very poor performance, in terms of enhancing shareholder value, over the last five years – dividend cuts have been a dominant feature. However, there has been a slight upward movement in recent weeks, which suggests that Centrica, despite the energy price cap, is still regarded as a beneficiary of higher gas prices.

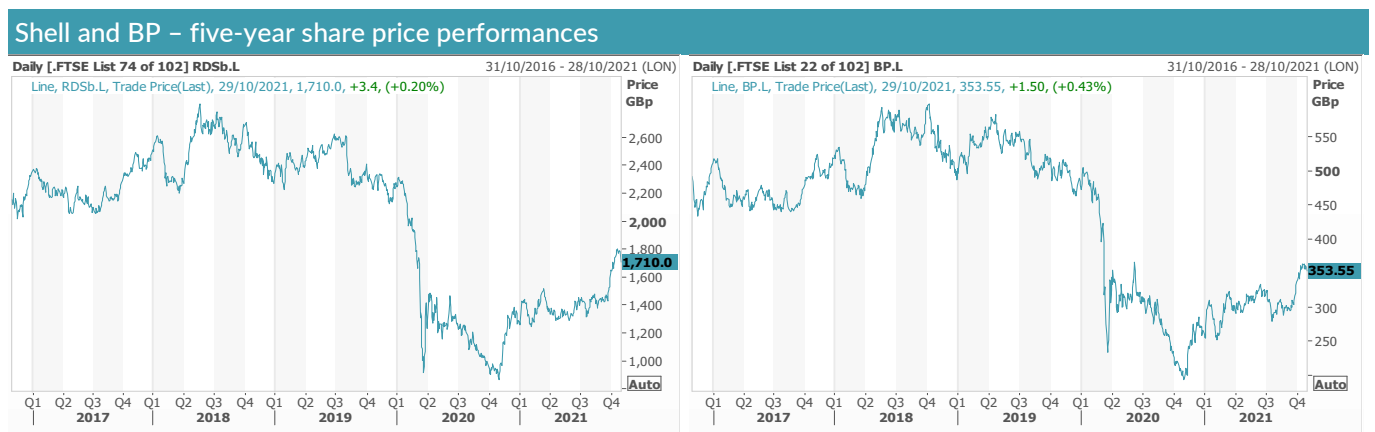


Source: Refinitiv

### Shell and BP rally

While global oil prices, which have also strengthened of late, are far more important than gas prices for both oil majors, Shell and BP, their share price ratings have certainly improved since the dark, early days of the COVID-19 pandemic in 1H'20, during which Shell famously implemented its first dividend cut since WW2.

The two graphs below highlight the share price performance of both Shell and BP over the last five years – and the pronounced recovery in their market ratings over recent months.



Source: Refinitiv

## UK Gas – Caught Short, Caught Very Short?

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ca.20% rise for Shell B and BP, respectively, over the past three months

Most unsatisfactory position for UK gas currently

A repeat of the horrors of the 1962/63 winter?

Indeed, it is noticeable that shares in both Shell B and BP have outperformed the FTSE 100 over the last three months – their shares are up by ca.20%.

### Conclusion

Clearly, the UK's current gas position is far from satisfactory – and subject to some very real risks. It is not helpful, either, that it is happening at a time of a very high environmental profile. Coal-fired output, especially in the EU, has been rising sharply, while the UK will also be expecting additional coal-fired output as a replacement for more expensive CCGT-generated output.

If the UK were to experience a very tough winter weather-wise – the very long and very cold winter of 1962/63 springs to mind – political sparks really will fly. No doubt, the closure of the Rough gas storage facility in 2017 would be at the centre of the ensuing political storm.

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## About the author

### *Nigel Hawkins*

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*Nigel specialises in the energy sector, with a particular focus on the expanding renewable generation market, both in the UK and overseas, about which he has written several reports assessing the sector's finances. He has been involved in analysing the utilities sector since the 1980s. He covered the privatisation of the water and electricity companies for Hoare Govett between 1989 and 1995. Subsequently, he researched the UK and EU telecoms sector for Williams de Broe. He has also written many feature articles for Utility Week magazine since the mid-1990s. Between 1984 and 1987, Nigel was the Political Correspondence Secretary to Lady Thatcher at 10 Downing Street. Nigel joined Hardman & Co in February 2016. He holds a BA (Hons) in Law, Economics and Politics from the University of Buckingham, and is a senior fellow of the Adam Smith Institute.*

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