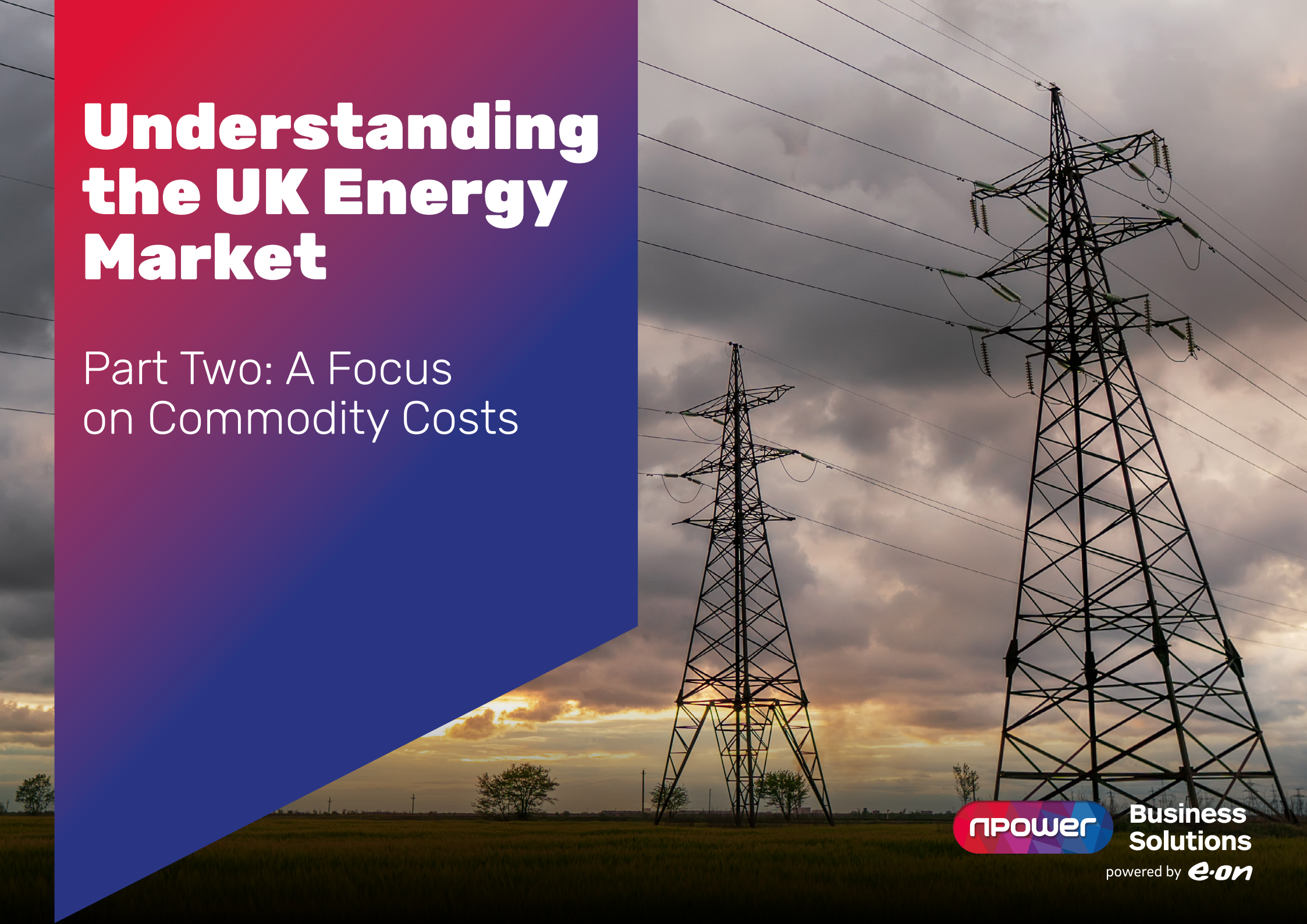
Understanding the UK Energy Market

Part Two: A Focus on Commodity Costs



npower Business Solutions
powered by E.ON

The factors that determine the wholesale cost of energy

In the UK, and around the world, there has probably never been a more pressing time to understand how the energy we use is generated, traded and supplied – as well as all the different factors that influence the price we pay for this vital commodity.

This week*, we've seen eye-watering increases in wholesale energy - around 130% on gas prices and more than 90% on power.

This is clearly a great concern to us all, and especially businesses consuming large volumes of energy. That's why we've created two 'Understanding the UK's Energy Market: A Focus on Commodity Costs' reports – to help our customers have a better understanding of how our energy market works.

In our first report, we looked at UK supply – how this has changed and what sources contribute to our energy generation mix today. And crucially, how this impacts the cost.

And, with so many businesses reeling from the cost impact to their operations, we wanted to take a closer look at what drives the market – and how this could potentially impact prices going forward. In this report (part two), we explore:

- **Energy market drivers**
- **The UK's growing reliance on gas imports**
- **Depleted gas storage facilities**
- **Widespread supply pressures**
- **European dependency on Russian supplies**
- **An end to Dutch gas supplies?**
- **Accelerating demand from Asia**
- **What next for consumers?**

* week commencing 7 March 2022

Energy market drivers

A large range of factors can influence energy commodity prices. Clearly, geopolitical influences have enormous bearing, as we are witnessing with the Russia/Ukraine conflict. But this is only part of the picture, as there are multiple other drivers at play too.

For starters, there's straightforward supply and demand dynamics – the balance between what's being produced and what's needed.

Weather is another key factor, and not only seasonal variations but also unexpected or sustained colder or hotter temperatures that can increase or reduce forecast demand. With our growing volume of wind and solar generation, wind and sun/daylight availability are also important.

Domestic political issues can play a big role too, as has been evident with Brexit. And economic factors also feed into the mix, for example with growing economies in Asia creating increased competition for gas.

So understanding our relationship with gas is key to understanding what's driving the high prices for both gas and electricity we are currently seeing in the UK, across Europe and indeed globally.

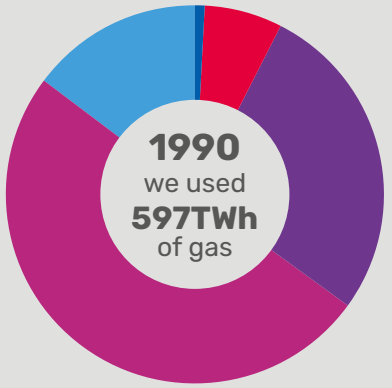
The UK's growing reliance on gas imports

Even though gas-fired generation is responsible for less than half of the UK's electricity, gas remains our most dominant fuel commodity. This is due to its widespread domestic use, heating 87% of UK homes, as well in business, where it's also used for heating as well as in many industrial processes, from paper production to chemicals manufacture.

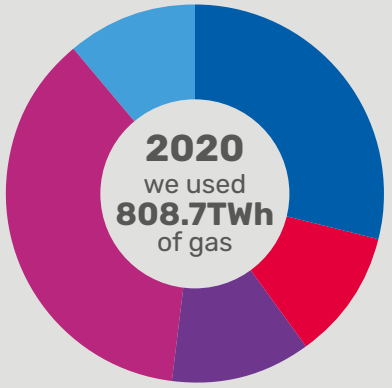
According to industry trade body Oil & Gas UK, we get almost half of our gas supplies from the North Sea. The rest is imported, either via pipelines from Norway and, to a lesser extent, the Netherlands and Belgium. And around a fifth of our demand is met by liquefied natural gas (LNG) shipments, mostly from Qatar but also the USA – and historically, Russia.

In the past, we could have met increasing winter demand by increasing output from our own domestic supplies in the North Sea. But our reserves are dwindling, so this is no longer possible.

The UK's hunger for gas



- **1%** Electricity generation
- **6.5%** Energy industries
- **27.5%** Industrial use
- **50.5%** Domestic use
- **14.5%** Services



- **29%** Electricity generation
- **11%** Energy industries
- **12%** Industrial use
- **37%** Domestic use
- **11%** Services

But this is 28% less than our peak consumption of 1125 TWh in 2004

Source: UK Energy in Brief 2021

Depleted gas storage facilities

The next best thing would be to stock up when prices are cheaper – for example, over the summer – and then draw on those supplies when prices go up.

But since 2017, when the Rough storage facility (a depleted gas field in the North Sea) was closed because it required too much investment to keep it operational, the UK lost 70% of its gas storage capacity.

We can now only store the equivalent of 9 terawatt hour (TWh) of gas – around 2% of our annual demand. Compare this to Italy's 168 TWh capacity, Germany's 152 TWh and France's 117 TWh – which equates to around 25% of their annual demand – and you can see why this leaves us more exposed to market volatility.

This vulnerability was first tested when the 'Beast from the East' icy blast hit Britain in March 2018, and National Grid issued a warning that the UK didn't have enough gas to meet surging demand. Luckily, we didn't run out – but only just. And gas prices soared by almost 75% at the time.

Thankfully, we haven't experienced a repeat of this freezing weather – or at least not yet.

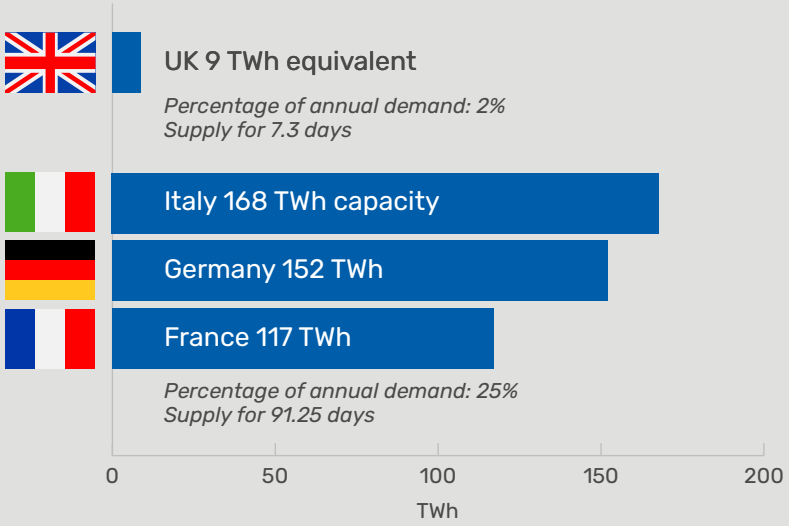
But due to lower than expected wind output last summer, and rising carbon levies making coal-fired generation less competitive, we turned to gas generation to keep the lights on. So once we got to September 2021, our gas reserves were even more depleted than normal. And then two additional supply challenges escalated.

The UK's declining gas storage

Loss of gas storage capacity after Rough* closed in 2017:

*UK's largest site in depleted gas field

Current gas storage



Source: New Statesman 2021, Gas Infrastructure Europe,inews

Widespread supply pressures

Firstly, Russian gas flows into Europe were lower than expected, which left reserves depleted (more on this below). And secondly, competition for LNG cargo ship deliveries increased from Asia and Latin America as their economies started picking up, which led to a drop in supplies coming into the UK and Europe.

This created a tight global gas market and sent prices sky high.

European dependency on Russian supplies

Much of Europe is dependent on Russian gas supplies. Even before the recent Russian invasion of Ukraine and resulting sanctions, the volume of Russian gas flowing into Europe had fallen, and eight Russian-controlled storage sites across Europe were not being replenished.

Analysts believed Russia was withholding gas from Europe to press for quicker approval of its Nord Stream 2 pipeline, although Russian president Vladimir Putin said it was due to needing to replenish Russia's own supplies.

Nord Stream 2 runs alongside the existing Nord Stream 1 pipeline, which has been bringing Russian gas to Germany via the Baltic Sea since 2011 (it was built to bypass existing pipelines which crossed Ukraine, a route Russia was keen to avoid).

This second pipeline was completed last year in 2021, but construction was fraught, with the USA imposing sanctions on companies working on the project alongside Russian state gas firm Gazprom.

There were hopes that Nord Stream 2 would become operational by November 2021, which would have eased supply pressures. Prior to the Russian/Ukraine conflict, some analysts estimated that Europe's gas prices could fall by half if Russia agreed to increase its exports by 20%. But in the current political climate, that's clearly not going to happen.

The irony is that in the UK, we import very little Russian gas, with most of our supplies coming directly from Norway or via LNG deliveries from Qatar. But the price we pay is governed by international markets – and with supply down while global demand is up, prices go upwards.

An end to Dutch gas supplies?

Europe also gets supplies from the Groningen gas field in the Netherlands, which is the largest in Europe. But production has been winding down for years, due to safety concerns about earthquakes triggered by extraction impacting residents living around the field.

The Dutch government was due to shut it entirely by mid-2022, although it has recently doubled output in the short-term to meet increasing European demand.

But if supply stops this year – and the Russian/Ukraine invasion remains unresolved – then Europe could be in a worse position come the start of next winter.

Accelerating demand from Asia

The Asian appetite for gas is also accelerating. For example, demand in China has doubled in the past decade and is expected to increase further as its economy expands.

Japan has also turned to gas as it replaces its nuclear power stations with gas generation in the wake of the Fukushima nuclear disaster.

The high prices don't seem to deter demand either. Gas buyers in Asia are often state-backed entities willing to pay whatever it takes to meet government targets for gas supplies, which incentivises LNG tankers to head east.

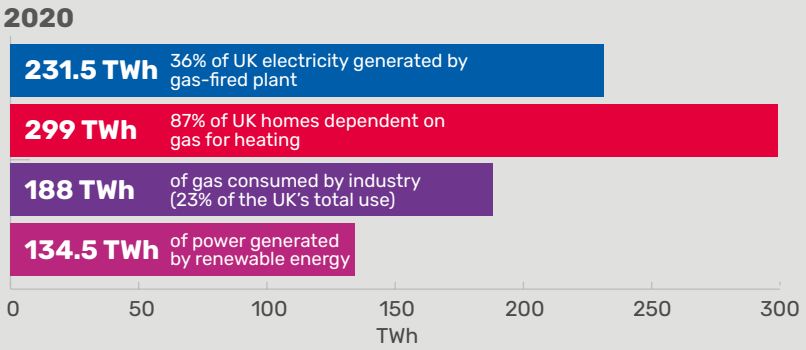
What next for consumers?

As warmer weather comes, demand for electricity and gas will naturally ease across Europe. But let's not let the current milder weather make us feel too complacent. We may well experience a cold blast before spring really arrives. After all, back in 2018, the Beast from the East brought us snow in March.

We may therefore see many more bumps in the market. And with little end in sight for the Russian/Ukraine conflict, an ongoing gas shortage is likely to continue for some while – and this will create ongoing pressure on prices. All eyes will be on the Netherlands to see what it decides about Groningen gas flows.

But even if prices do start to settle down once we get to the summer, stocking up on cheaper gas is no longer an option for us in the UK.

Despite increasing renewable generation, the UK is still reliant on gas



For businesses, consulting energy purchasing experts to make a strategic plan is more important than ever.

Those on a fixed contract may want to consider a longer-term contract when it comes to renewal, as this will offer cheaper rates than expensive one-year supply deals.

Flexible purchasers should re-evaluate their strategy to ensure it reflects their current level of risk appetite, and that electricity and gas budgets are realistic in the current climate.

Don't forget to factor in non-commodity charges, which historically have accounted for around half of total invoiced energy costs.

In our next 'Energy Made Simple' reports, we'll look in more detail at non-commodity charges – and forthcoming changes which could increase costs for many business consumers.

How we can help

Contact us:

0800 622 6966

npowerbusinesssolutions.com/
focus-on-commodity

Follow us:

@npower_nbs

npower Business Solutions

npower Business Solutions

Phone calls: We may monitor and/or record calls for security, quality or training purposes. Call charges to numbers beginning with 0800 should be free if you are calling from a business mobile or landline but this will depend on your contract. Please check with your operator for exact charges.

npower and npower Business Solutions are the trading names of Npower Commercial Gas Limited (Registered No. 3768856).
Registered Office: Westwood Way, Westwood Business Park, Coventry, CV4 8LG.

npm15705/MM21808/02.22

npower Business Solutions
powered by e·on