Energy Element / October 2019

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Day-ahead gas hits 10-year low, power follows

Day-ahead gas prices fell 10.2% to average 25.4p/th in September. The contract dropped to 19.3p/th on 4 September, a 10-year low, amid the scheduled arrival of several LNG tankers in the month. October 19 gas dropped 4.1% to average 33.4p/th, as supplies are expected to remain comfortable early this winter. Seasonal gas contracts continued to decline, dropping 0.9% on average. However, contracts did see support mid-month as the European Court of Justice overturned a previous ruling that allowed Gazprom to utilise more than half of the capacity of the OPAL pipeline and the Dutch government confirmed plans to cease production at Groningen gas field eight years ahead of schedule in 2022.

Day-ahead power dropped 5.9% to average £37.3/MWh in September. The contract fell to £30.6/MWh on 3 September, the lowest since 8 September 2016 amid higher renewables output and lower gas and carbon prices. October 19 power fell 3.2% to average £42.9/MWh, dropping as low as £40.9/MWh on 3 September. Seasonal power contracts fell 1.2% on average, with winter 19 power declining 1.2% to £53.3/MWh. The winter 19 power contract hit a near 18-month low of £50.6/MWh on 6 September.

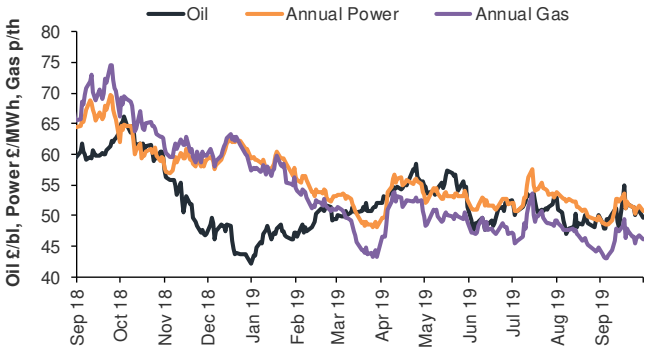
Oil prices find support from Saudi drone attacks, carbon sees volatility

Brent crude oil rose 4.2% to average $62.3/bl in September. Prices rose as high as $68.7/bl on 17 September following news of drone strikes on Saudi Arabian oil infrastructure on 14 September. The strikes knocked out approximately 5.7mn bpd of production, equivalent to 50% of Saudi Arabia's total production capacity and ~5% of total global output. However, prices soon reversed, ending the month at $61.1/bl as Saudi Arabian oil production recovered quicker than expected and as concerns of slower economic growth weighed.

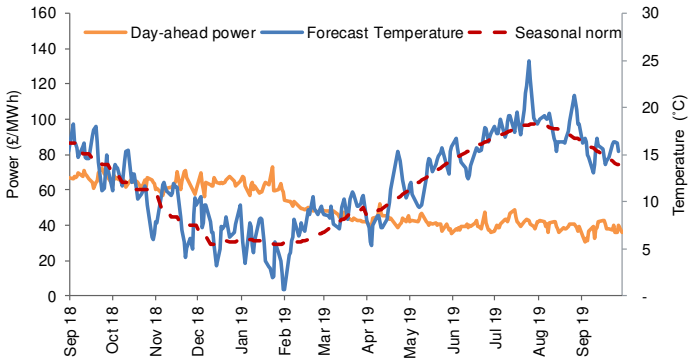
EU ETS carbon prices fell 5.1% to average €25.8/t in September. Prices started the month below €25.0/t, before rising to a near one-month high of €27.3/t on 11 September., This was shortlived and prices fell back towards €25.0/t at the end of the month. Uncertainty surrounding Brexit has continued to provide volatilty to the carbon market, as fears of unauctioned EUAs flooding the market have pressured prices.

API 2 coal prices recovered slightly in September, up 3.6% to average $67.3/bl. Coal prices started the month at $63.1/t, rose to a near two-month high of $70.6/t on 20 September, and then ended the month at $66.8/t. Prices dropped towards the end of the month amid high coal stocks, with ARA terminal stocks rising to 7.1mt, the highest since May. Higher coal stocks are also partly due to lower water levels in the Rhine river.

Crude oil and annual wholesale gas and power prices



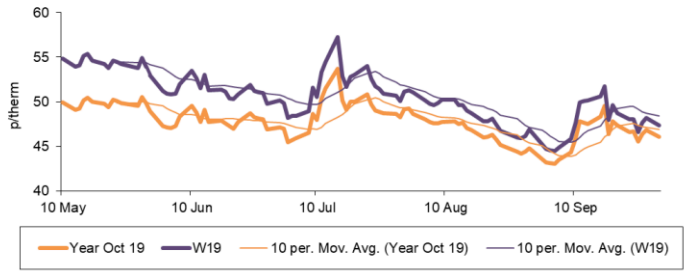
Spot power prices and temperatures



The month-ahead: Cooler temperatures but comfortable supplies

In October, gas prices will find support from forecasts of below seasonal normal temperatures. Concerns of cooler temperatures have been offset by the scheduled arrival of five LNG tankers early in October and high gas storage levels. Oil prices are also expected to fall nearer $60/bl, as Saudi Arabian output picks up and concerns of slower economic growth weigh on prices. Power prices are expected to be relatively unchanged in October, mirroring gas prices, but could experience some volatility amid Brexit and carbon price movements.

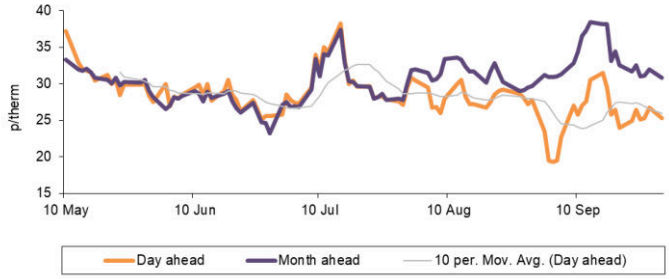
Annual gas prices



All seasonal gas contracts fell in September, down 10.2% on average continuing the decline of the previous month. Winter 19 gas was 2.0% lower, averaging 47.7p/th. The contract hit a two-year low of 44.2p/th on 5 September. Summer 20 gas was down 0.7% to average 44.4p/th.

The annual October 19 gas contract dropped 1.4% to average 46.1p/th, 25.9% lower than in September 2018 when it averaged 62.0p/th.

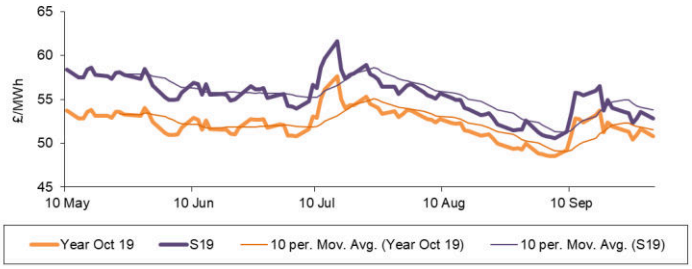
Spot gas prices



In August, day-ahead gas prices fell 10.2% to average 25.4p/th. The contract dropped to a 10 year low of 19.3p/th on 4 September. October 19 gas also dropped, down 4.1% to average 33.4p/th.

Prices have been pressured by lower demand as temperatures were above seasonal normal levels throughout the month. Concerns of cooler temperatures and higher demand have been offset by the scheduled arrival of five LNG tankers early in October and high gas storage levels.

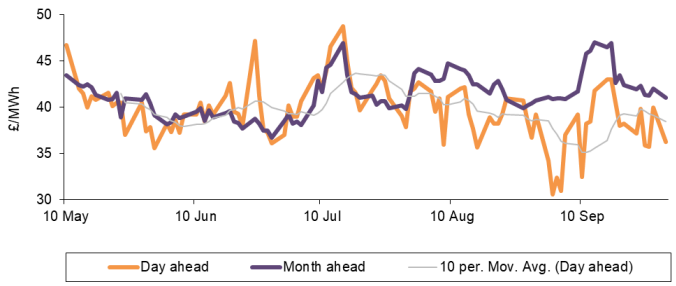
Annual power prices



All seasonal power contracts also moved lower, down 1.2% on average, with winter 19 power dropping 1.2% to £53.3/MWh. The winter 19 power contract hit a near 18-month low of £50.6/MWh on 6 September. Summer 20 power fell 0.7% to average £48.6/MWh, hitting £46.4/MWh on 5 September, the lowest since April.

The annual October 19 power contract continued lower, decreasing by 1.1% to average £51.0/MWh. This was 14.0% below August 2018 when the contract was at £59.2/MWh.

Spot power prices



Day-ahead power dropped 5.9% to average £37.3/MWh in September. The contract fell to £30.6/MWh on 3 September, it lowest level since 8 September 2016. October 19 power fell 3.2% to average £42.5/MWh, dropping as low as 40.9/MWh on 3 September.

Although day-ahead power prices continued to follow their gas counterparts lower, a monthly rise in wind generation also pressured prices. Wind generation accounted for 19.9% of the generation mix in September, up from 18.9% in August.

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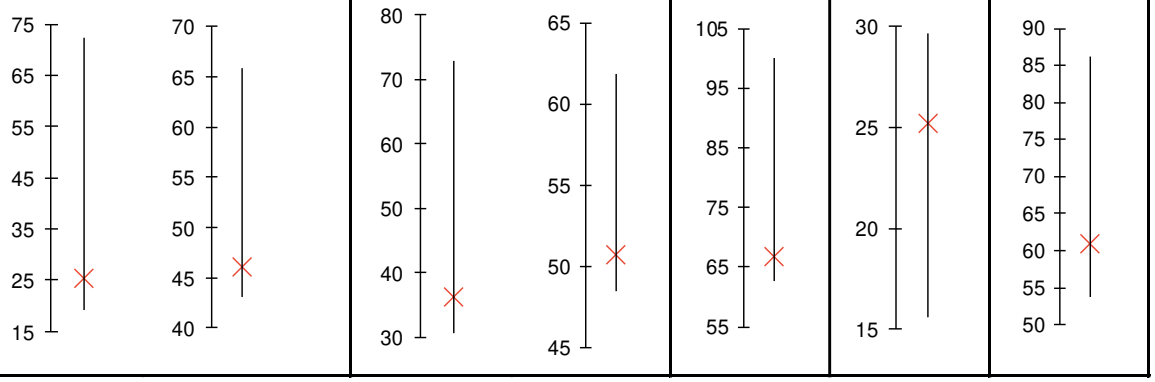
Key market indicators: 30/09/2019

	Gas (p/th)		Electricity (£/MWh)		Coal	Carbon	Brent crude
	Day-ahead	Year-ahead	Day-ahead	Year-ahead	($/t)	(€/t)	($/bl)
This month 30 Sep 19	25.30	46.05	36.30	50.76	66.75	25.19	61.05
Last month 30 Aug 19	27.75	44.80	39.25	49.96	64.50	26.85	60.90
Last year 1 Oct 18	68.00	62.94	63.25	58.31	97.75	20.80	83.24
Year-on-year % change	(63%)	(27%)	(43%)	(13%)	(32%)	21%	(27%)
Year high	72.25	65.85	73.00	61.91	100.15	29.66	86.12
Year low	19.30	43.07	30.60	48.51	62.75	15.60	53.82

This table shows the price at the end of this month compared with prices from the previous month and year. The graphs show the position of this month's prices with a red X and the range of prices over the year is represented by the black line.



Commodities

Carbon: EU Emissions Trading Scheme carbon is quoted as over-the-counter (OTC) latest opening prices. All carbon prices are in euros per tonne (€/EUA).

Coal: Coal is quoted as OTC latest opening prices. All coal prices are in US dollars per tonne ($/t).

Electricity: UK power base-load and peak-load are quoted as OTC latest opening prices. All UK electricity prices are in pounds per megawatt hour (£/MWh).

Gas: UK National Balancing Point (NBP) gas is quoted as OTC latest opening prices. All UK gas prices are in pence per therm (p/th).

Oil: Brent crude oil is quoted as OTC latest opening prices. All Brent crude oil prices are in US dollars per barrel ($/bl).

Language/ terms

Bearish: A bearish market shows a general decline in prices over a period of time.

Bullish: A bullish market shows a general increase in prices over a period of time.

Curve: A graph of forward prices over a future time period.

Margin: The indicated UK imbalance of a given settlement period. It is the difference between the sum of the indicated generation available, and the national demand forecast made by National Grid.

Over-the-counter (OTC): The trade of a commodity directly between two parties, often on standardised terms.

Spark/ Dark spread: The theoretical net income of a gas/ coal-fired power plant from selling electricity having purchased the necessary fuel. The clean spark/ dark spread is this net income adjusted for the cost of carbon.

Disclaimer

Conference seasons sees parties offering different net zero visions

The conference season kicked off at the end of September, with the Liberal Democrats, Labour and the Conservatives offering different visions and timeframes for the UK achieving net zero emissions.

The Liberal Democrats had their conference first, during which they passed a motion committing to achieving net zero emissions by 2045 – this is five years earlier than the current UK target.

From the motion, the Liberal Democrats' key priorities for "tackling the climate emergency" are:

- setting ambitious targets for reducing UK greenhouse gas emissions by 75% by 2030 and to net zero by 2045;
- carrying out an emergency programme of action to reduce greenhouse gas emissions from all UK buildings to near-zero by 2030, cutting fuel bills and ending fuel poverty;
- accelerating the development of renewable power, reaching at least 80% of electricity generation by 2030;
- encouraging electric vehicle (EV) uptake by ending new diesel and petrol cars and small van sales by 2030; and
- decarbonising finance and investment and requiring companies and financial institutions to implement climate targets.

The Labour conference saw the party commit to achieving net zero by 2030 if it came to power, alongside nationalisation of the Big Six energy companies, the guarantee of "new good unionised jobs as part of a worker-led just transition," free or affordable integrated green public transport and support for the Global South and climate refugees.

The party also committed to expand EV uptake through a variety of policies. To support business car fleets becoming 100% electric by 2025, the party will introduce incentives, such as removing the £320 Vehicle Excise Duty surcharge on EVs purchased for private fleet use above £40,000 for two years. The party will also commit to making the entire government car fleet electric by 2025. The current government's aim is for 25% of its fleet to be electric by 2022.

Additionally, Labour would invest £3.6bn in EV charging networks in order to eliminate concerns about range anxiety. Shadow Chancellor John McDonnell announced that Labour will introduce 2.5mn interest-free loans of up to £33,000 for the purchase of EVs. Access to the interest-free loans would be contingent on participation in a mass trial of vehicle-to-grid technology. In addition, Shadow Business Secretary Rebecca Long-Bailey said the next Labour government will subsidise the purchase of new EVs when drivers trade in cars over 10 years old. The scheme will initially be available for one year and will aim to replace 400,000 conventional cars.

The Conservative conference saw the government committing to up to £1bn of investment in the automotive industry to promote EV expansion. The government would invest in the manufacturing of batteries, electric motors, drives, power electronics and hydrogen fuel cells, along with their component and materials supply chains. On generation, the government announced plans to design, develop and build a fusion power plant by 2040. There will be an initial £200mn investment in the first five-year development phase of the Spherical Tokamak for Energy Production (STEP) with an ambition to develop and build a commercially viable fusion power plant by 2040, offering "clean, safe and carbon-free fuel supplies".

Liberal Democrats Labour Conservatives

Almost half of businesses planning to become net zero in a decade

According to a YouGov poll, 46% of businesses in the UK are planning to become net zero within the next 10 years.

Published on 30 September, the poll found that, of the 502 business people surveyed, 6% of them are planning for their businesses to become carbon neutral within the next six months, 8% within the next year, 14% in the next two to three years, 11% in the next five years and 7% in the next 10 years. It was also found that 8% are already net zero. The poll found that 14% don't know if they are planning to become carbon neutral and 31% of businesses have no plans to become carbon neutral.

However, 59% of business people think that business and industry can be an effective force in combating climate change and 92% say they believe the climate is changing and that humans are at least somewhat responsible, with just 2% responding they do not believe the climate is changing at all.

YouGov

Renewables' share of electricity generation hits Q2 record

The government published the latest *Energy Trends* quarterly publications, covering the second quarter of 2019, finding that renewables' share of electricity generation achieved a record high for Q2.

In the data, published on 26 September, it was found that renewables' share of electricity generation increased from 32% in Q218 to 35.5% in Q219, the highest Q2 on record for renewables. However, renewables' share of generation decreased 0.3pp on Q119, when renewables generation was boosted by high wind speeds.

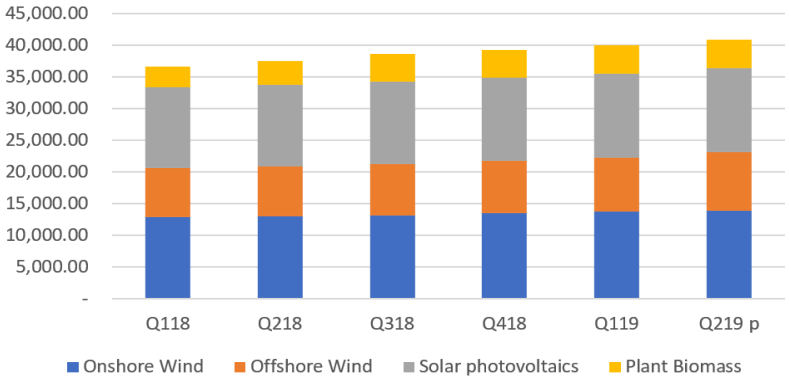
Between Q218 and Q219, coal's share of electricity generation fell from 1.6% to 0.6%, marking the first time since the 19th Century that coal has had a less than 1% share. Gas's share increased from 41.7% to 43.6% and nuclear's fell from 21.6% to 17.1% due to outages at Hunterston B (unplanned) and Dungeness B (planned).

For the rise in renewables' share of electricity generation between Q218 and Q219, the government cited increased renewables capacity. Renewable electricity capacity was 45.9GW at the end of the Q219, a 7.9% rise (3.4GW) on a year earlier, with two-thirds of the annual increase coming from wind.

Breaking down renewables capacity further, wind accounted for just over half of the UK's renewable capacity, with onshore wind representing 30% and offshore 20%. After onshore wind, solar PV had the highest share of any specific renewable technologies at 29%. Bioenergy represented 16% of capacity and hydro 4%.

Total renewables capacity increased 8% between Q218 and Q219 – Figure 1 shows the capacity increase since Q118. The government found that the majority of this extra capacity was in wind, which increased 18% to 9.2GW.

Figure 1: UK renewable electricity capacity (MW)



Source: BEIS

Solar PV capacity increased 2.8% to 13.3MW, with BEIS noting that the increases in capacity are slower than the rapid expansion seen in 2010–2016, partly due to the closure of the Renewables Obligation and Feed-in Tariffs. BEIS also noted that solar generation decreased 0.3% as the small increase in capacity was offset by lower load factors.

Renewable Energy Agency (REA) Head of Policy Frank Gordon said: "With coal coming off the system in its entirety by 2025, and the expected retirement of much of our existing nuclear generation capacity by the early 2030s, these statistics highlight how we urgently need supportive policy that encourages the construction of a wide range of new renewable power sites, including onshore wind and solar PV."

Parliament Labour REA

Non-domestic electricity prices rise 4.6% between Q218 and Q219

On 26 September, the Department for Business, Energy and Industrial Strategy (BEIS) published its quarterly annual gas and electricity prices for the non-domestic sector, with metrics including and excluding the Climate Change Levy (CCL). Between Q218 and Q219, average electricity prices in cash terms (excluding CCL) in the non-domestic sector rose 4.6%.

Prices for all the business consumer size bands increased over the same period, ranging from 1.3% in the Very Large band to 7.2% in the Small band. The average electricity prices including the CCL also increased by 7.2% over the period.

During this period, average gas prices in cash terms (excluding CCL in the non-domestic sector) also rose by 2.8%. Gas price changes for various consumer bands over the same period varied with a fall of 11% in the Very Large band to an increase of 11% in the Very Small band. Average gas prices including the CCL increased by 4.6% between Q218 and Q219. The rates of CCL for electricity and gas rose significantly on 1 April 2019 due to the closure of the Carbon Reduction Commitment (CRC).

BEIS

CfD AR3: Low-carbon generation auction clears at record prices

On 20 September the government published the results of Contracts for Difference (CfD) Allocation Round Three (AR3). The CfD is the government's low-carbon generation support scheme and AR3 is the latest round.

The government published the details for the AR3 on 1 May. It was open to Pot 2 "less established" technologies only, which for the first time included remote island wind (greater than 5MW). The overall budget for the allocation round was set at £65mn (2011-12 money) meaning that the total spend across Delivery Years could not exceed this level.

An overall capacity cap of 6GW was also set for the auction to drive competitive tension. This was in light of potential low clearing prices not impacting auction budgets which could lead to high levels of awarded contracts without some other constraint.

A total of 5,774.82MW of capacity across 12 projects was offered contracts at clearing prices (in 2011-2012 money) of £39.65/MWh for Delivery Year 2023-24 and £41.61/MWh for Delivery Year 2024-25.

Figure 1: Summary of AR3

Technology	No. of projects	Total capacity (MW)	Strike Price range (£/MWh)
Offshore wind	6	5,466	39.65-41.61
Remote Island Wind	4	275.22	39.65-41.61
ACT	2	33.6	39.65-41.61

Source: BEIS

The government welcomed the result. Prime Minister Boris Johnson said: "The UK is leading the way in the fight against climate change, and it's great news that millions more homes will be powered by clean energy at record low prices."

Energy and Clean Growth Minister Kwasi Kwarteng said: "Offshore wind is a British success story, with new projects at record low prices creating new opportunities for jobs and economic growth as we leave the EU."

Scottish Minister for Energy, Connectivity and the Islands Paul Wheelhouse welcomed the six Scottish winning contracts, but added that the Scottish government is concerned that not enough remote island wind projects were successful. He said: "I'm calling on the UK government to review the auction system to be far more expansive so that Scotland can meet our net zero emission commitments."

Trade association RenewableUK described the results as the "biggest step yet towards net zero emissions". Chief Executive Hugh McNeal said: "As these results show, offshore wind is the key technology for this country in tackling the climate emergency. Offshore wind will be the backbone of the UK's clean, modern energy system and will supply at least a third of our power by 2030."

Renewable Energy Association (REA) Head of Policy Frank Gordon described the result as a "landmark moment for the industry". However, to reach 2050 net zero, Gordon called for "a fair and inclusive route to market for all technologies".

BEIS RenewableUK REA Scottish government

Hinkley Point C project expected to cost £1.9-2.9bn more

A review by EDF Energy into its proposed Hinkley Point C nuclear power station has found that the project will now cost between £21.5bn and £22.5bn. Announced on 25 September, this is between £1.9-£2.9bn more than previous estimates.

With a strike price of £92.50/MWh already secured under the Contracts for Difference (CfD) scheme, these additional costs are not expected to affect consumers or the taxpayer. However, the power station's CfD could be terminated by the Low Carbon Contracts Company if "neither reactor has been commissioned by four years after the last day of the target commissioning window for reactor 2 i.e. November 2033 "the longstop date," according to a 2015 government document on the decision to enter into a contract with the subsidiary of EDF Energy responsible for the development of the station.

The company stated: "Cost increases reflect challenging ground conditions which made earthworks more expensive than anticipated, revised action plan targets and extra costs needed to implement the completed functional design, which has been adapted for a first-of-a-kind application in the UK context."

When complete, Hinkley Point C will consist of two nuclear reactors and aim to provide low-carbon electricity for an estimated 6mn homes. The first reactor is set to begin generating power by the end of 2025.

EDF Energy Parliament

Major power company commits to net zero by 2040

Power company RWE has revealed its intention of becoming carbon neutral by 2040. Announced on 30 September, RWE decreased its emissions by one-third from 2012 to 2018, showcasing a decline of 60mn metric tons, where an additional reduction of approximately 70% is envisaged by 2030.

The company will also decommission its last coal-fired power station in the UK, place investment in storage, biomass and gas-fired power stations primarily fired by green gas and deliver an annual €1.5bn in net capital expenditure for offshore and onshore wind turbines, as well as photovoltaics and storage.

RWE

MPs "disappointed" by government's CCUS ambition

On 20 September the government published its response to a BEIS Committee report on carbon capture usage and storage (CCUS). The committee's 20th report of session 2017–19, entitled *Carbon Capture Usage and Storage: Third Time Lucky?*, was published on 25 April. It highlighted widely held views among policy makers and climate experts that use of CCUS will be necessary to achieve net zero emissions by 2050. The report also claimed that cost estimates had fallen in recent years and were often cheaper to deploy in industrial settings compared to power plants. It also urged the government to view CCUS primarily as a tool for decarbonisation, rather than as an extra cost on power generation and that it would reduce the overall cost of meeting the UK's emissions reduction targets.

The government response said it agreed with the committee that CCUS can support decarbonisation. However, on calls for more ambition – including enabling CCUS commissioning from 2023 rather than 2025 and setting specific emissions reduction goals for CCUS – the government's response was non-committal, with no new dates or targets announced. Most of the response consisted of the government repeatedly stating that it was continuing to work with industry to address challenges and reiterating previously announced funding and its commitment to delivering the CCUS Action Plan, which was published in November 2018.

Parliament

Chancellor unveils £30mn for net zero in Spending Round

Chancellor of the Exchequer Sajid Javid delivered 2019's Spending Round to Parliament on 4 September, setting out departmental spending plans for 2020-21. Javid claimed that the Spending Round delivers the fastest planned real growth in day-to-day departmental spending in 15 years.

Energy-related announcements included: the Department for Business, Energy and Industrial Strategy will receive a 2.1% increase in its resource budget from 2019-20 to 2020-21, excluding the Nuclear Decommissioning Authority; an additional £30mn will go towards accelerating progress on developing decarbonisation schemes which support the UK in meeting its 2050 net zero target; a further £243mn will be also provided for the Nuclear Decommissioning Authority to enable it to continue the work of safely decommissioning the UK's nuclear legacy sites; and up to £250mn will also be delivered to the international climate and environment funds, including the Green Climate Fund.

HM Treasury

2000MW coal-fired power stations closes down after half a century

EDF confirmed on 30 September that the 2000MW Cottam Power Station in Nottinghamshire has switched off its generating plant for the final time since its commissioning in 1968.

Since it started generating in 1968 the station has produced nearly 500 terawatt hours of electricity – enough to single-handedly power the UK for around 18 months. It was originally planned to operate for 30 years. Cottam is capable of generating enough electricity for approximately 3.7 million UK homes.

The government has set a target to phase out all coal generation by 2025 as part of efforts to decarbonise the UK's power sector.

EDF Energy