Electricity

Section 5 – UK Electricity
April to June 2020

Key results show:

Electricity generation is driven by demand, which fell by 12 per cent over this period because of the lockdown restrictions imposed in response to the COVID-19 pandemic. As a result of the low demand, total electricity generation was 67.5 TWh in Quarter 2 of 2020, the lowest value on the published data series. (Chart 5.1).

Renewable generation in Quarter 2 2020 exceeded the total from fossil fuels, up 12 per cent to 30.1 TWh. There were increases for all forms of renewable energy. Coal generation fell to record low levels, as a result of the 67-day coal free period in Great Britain1 between March and June, the longest since the 19th century. (Chart 5.1).

The share in electricity generated from renewables was 44.6 per cent in Quarter 2 2020, the second highest share on the published data series. There was a corresponding decrease in the share of generation coming from fossil fuels to 35.1 per cent. This is only the second time that the share of generation from renewables exceeded the share of generation from fossil fuels. (Chart 5.2)

Low carbon electricity accounted for 62.1 per cent of electricity generated, 9.3 percentage points higher than in Quarter 2 2019. This increase was driven by the increase in share for renewables, as the share of generation from nuclear was similar in both years. (Chart 5.3).

Fuel used in electricity generation continued to fall in Quarter 2 2020, to a total of 13.2 Mtoe (million tonnes of oil equivalent), an 11 per cent decrease compared to Quarter 2 2019. This was the lowest amount of fuel used for any quarter on the published data series and reflects the unusually low demand for electricity. (Chart 5.4).

Final electricity consumption was down by 13 per cent to 60.5 TWh, the lowest level in the published data series. Consumption decreased in all sectors with domestic consumption down 1.7 per cent, industrial consumption down 17 per cent and consumption by other final users (including the commercial sector) down 20 per cent. Consumption in both non-domestic sectors was at the lowest quarterly value on the published data series. (Chart 5.5).

The UK had total net imports in Quarter 2 2020 of 4.5 TWh, 6.5 per cent of total electricity supply (excluding own use) over the period. Net imports were down 21 per cent compared to Quarter 2 2019, with imports down 9 per cent to 5.6 TWh and exports more than doubling (up 121 per cent) to 1.1 TWh. (Chart 5.6)

Relevant tables

5.1: Fuel used in electricity generation and electricity supplied
5.2: Supply and consumption of electricity
5.6: Imports, exports and transfers of electricity

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Total electricity generation was 67.5 TWh in Quarter 2 of 2020, the lowest value on the published data series and a decrease of 11 per cent compared to the same period the previous year. Electricity generation is driven by demand, with electricity generated or imported as needed and demand fell by 12 per cent over this period. This was mainly because of the lockdown restrictions imposed as a result of the COVID-19 pandemic, but warmer average temperatures also reduced electricity demand for heating.

In Quarter 2 2020, gas was the single fuel with the highest generation at 23.2 TWh, despite a decrease of 30 per cent compared to Quarter 2 of 2019. Taken as a group, generation from renewable sources (comprised of wind, solar, hydro and bioenergy) was higher than the amount from gas, at 30.1 TWh. This was the second quarter where renewable generation exceeded gas generation, which first happened in Quarter 1 2020. Since coal generation remained low, this also meant that renewable generation in Quarter 2 2020 exceeded the total from fossil fuels.

Renewable generation increased by 12 per cent in Quarter 2 of 2020 compared to the same period in 2019. Increases in generation were seen for all forms of renewable energy with the largest increase for offshore wind, up 31 per cent compared to Quarter 1 2019. Average wind speeds were up slightly but this also reflects increased offshore wind capacity, up 21 per cent over the same period.

Nuclear generation fell by 9.2 per cent compared to Quarter 1 2019, to 11.9 TWh. The low nuclear generation was linked to outages, with an outage completed at Heysham 2 but continuing at Dungeness B, Hunterson B and Hinkley Point B and starting at Sizewell B.

Coal generation fell to a record low level of 0.4 TWh, down 20 per cent on the same period last year. The quarter also saw a 67-day coal-free period in Great Britain\(^1\) between March and June, the longest since the 19th century.

\(^1\) Data for these statistics was provided by Elexon. Half-hourly electricity generation data is available from their website.
The shares of electricity generation by fuel for Quarter 2 2020 showed similar patterns to the total generation, with a substantial increase for renewables and an equivalent decrease in the share from gas. The shares for other fuels remained relatively consistent. The share in electricity generated from renewables was 44.6 per cent in Quarter 2 2020, up from 35.6 per cent in Quarter 2 2019, the second highest share on the published data series after Quarter 1 2020.

There was a corresponding decrease in the share of generation coming from fossil fuels, which is mainly gas generation. The fossil fuel share was 35.1 per cent in Quarter 2 2020, which was the second lowest share on the published data series and only the second time that the fossil fuel share has dropped below 40 per cent of generation. Quarter 2 2020 was also the second time that the share of generation from renewables exceeded the share of generation from fossil fuels.
Low carbon electricity accounted for 62.1 per cent of electricity generated in Quarter 2 2020. This was 9.3 percentage points higher than in Quarter 2 2019 and just slightly lower than the record high proportion in Quarter 1 2020 (62.6 per cent). This increase was driven by the increase in share for renewables, as the share in generation from nuclear was similar in both years (up 0.3 percentage points compared to Quarter 2 2020).
Fuel used in electricity generation continued to fall in Quarter 2 2020. The total used over this period was 13.2 Mtoe (million tonnes of oil equivalent), an 11 per cent decrease compared to Quarter 2 2019. This was the lowest amount used for any quarter on the published data series and reflects the unusually low demand for electricity as a result of the COVID-19 lockdown restrictions as well as the continuing shift towards more efficient non-thermal renewable sources.

Aside from non-thermal renewables, thermal renewables (bioenergy) was the only fuel with an increase in Quarter 2 2020. Bioenergy use was up by 10 per cent to 3.4 Mtoe, the highest quarterly total for bioenergy fuel use on the published data series. This reflects an equivalent increase in electricity generated from bioenergy, up 9.7 per cent compared to Quarter 2 2019.

The other fuels showed decreases in Quarter 2 2020 in line with their lower generation. The amount of gas used fell by 27 per cent to 4.2 Mtoe and coal use was down by 19 per cent to 0.1 Mtoe. Similarly, fuel used by nuclear generators was down by 9.2 per cent as a number of outages reduced the amount of electricity generated from nuclear sources.
Quarter 2 2020 saw a substantial fall in electricity consumption. This was mainly a result of the lockdown in response to COVID-19 which began at the end of March and continued throughout the quarter, though with some restrictions lifted in May. There was also warmer weather in all three months, reducing the demand for electricity for heating. Final electricity consumption was 60.5 TWh in Quarter 2 2020, down by 13 per cent compared to the same period in 2019 to the lowest level in the published data series.

Consumption decreased in all sectors in Quarter 2 2020, particularly for non-domestic consumers as the lockdown restrictions closed services and industries during the quarter. Consumption in both non-domestic sectors was at the lowest quarterly value on the published data series. Electricity consumed by the industrial sector fell by 17 per cent to 18.3 TWh, reflecting a drop in the manufacturing Index of Production\(^2\). Consumption by other final users (including the commercial sector) was 18.1 TWh, a decrease of 20 per cent.

Domestic electricity consumption was less affected by the lockdown restrictions, but still decreased to 22.7 TWh in Quarter 2 2020, a decrease of 1.7 per cent compared to Quarter 2 2019. This reflects higher average temperatures over the period reducing the electricity demand for heating.

\(^2\) For more information on the Index of Production, please see the latest publication from the Office for National Statistics:

www.ons.gov.uk/economy/economicoutputandproductivity/output/bulletins/indexofproduction/previousReleases
UK based electricity generation is supported by five interconnectors allowing trade with continental Europe: England-France (2 GW capacity), England-Netherlands (1 GW), England-Belgium (1 GW), Northern Ireland-Ireland (0.6 GW) and Wales-Ireland (0.5 GW). The England-Belgium ‘Nemo Link’ interconnector is the newest and became fully operational on 31st January 2019.

The UK has been a net importer of electricity since Quarter 2 2010, with total net imports in Quarter 2 2020 of 4.5 TWh. This accounted for 6.5 per cent of total electricity supply (excluding own use) over the period. Net imports were down over a fifth (-21 per cent) in Quarter 2 2020 compared to the same period the previous year, with imports down 9 per cent to 5.6 TWh and exports more than doubling (up 121 per cent) to 1.1 TWh. The increase in exports is linked to lower demand for electricity, because of the UK’s Covid-19 lockdown restrictions and also warmer average temperatures compared to Quarter 2 of 2019.

Net imports decreased on most of the UK’s interconnectors with Europe, down 36 per cent on the UK-Netherlands interconnector, 19 per cent on the UK - Belgium interconnector and 12 per cent on the UK-France interconnector. The interconnector from Northern Ireland to Ireland remains the UK’s only net exporting interconnector.