EnAppSys
ENERGY INSIGHT

# GB Electricity Market Summary

## Full Year 2022

### Generation and Contribution by Fuel Type

| | | | | | |
|---|---|---|---|---|---|
| Gas: | 12.7GW (+4%) | Coal: | 0.5GW (-14%) | Imports: | -0.5GW (-117%) |
| Nuclear: | 5.1GW (+3%) | Renewables: | 13.7GW (+12%) | Renew' no Biomass: | 10.9 (+21%) |

% changes stated with respect to values in the previous year

# Contents

## Executive Summary

2022 saw a decrease in GB electricity demand from the 2021 levels as a result of unseasonal weather conditions and high energy prices. Despite this, GB saw more generation than any year since 2018, largely due to high volumes of exports. Extended periods of unavailability in the French nuclear fleet due to technical issues resulted in GB exporting large volumes of power into France which consequently increased power prices in GB. Droughts and low reservoir levels across Europe, including the Nordic countries, further contributed to high prices and exports from GB. In addition, an unprecedented increase in gas prices owing to events surrounding the Russia-Ukraine war and the Nord Stream 1 pipeline flows distortion also fed through into electricity prices, resulting in all-time high levels. Average Day-Ahead electricity prices were 72% higher this year than last year and more than four times greater than levels seen in 2020.

The key points from the year are:

- Russia's invasion of Ukraine led to a spike in gas prices in Q1, with fluctuations in gas supply via the Nord Stream 1 pipeline and the subsequent indefinite discontinuation of supply resulting in similarly high gas prices in Q3.
- French nuclear availability decreased substantially as a consequence of stress-corrosion cracking identified in a number of units and at times dropped to ~22GW, the lowest level seen in decades. This increased imports into France from all neighbouring markets, including GB, resulting in high levels of CCGT generation in the GB market. Over the summer, CCGT generation did not see the usual level of seasonal reduction in outputs, due in large part to the exports from GB.
- A drought affected Europe for much of the year, resulting in low reservoir levels in several key markets, including Italy and Norway. GB frequently exported to Norway, further increasing CCGT generation in GB.
- As a consequence of high fuel prices and high thermal generation, Day-Ahead electricity prices saw a 72% increase in 2022 compared to 2021 prices. Day-Ahead prices were around four times the level they were before the COVID-19 pandemic. System balancing prices saw record high averages and peaked at an all-time high price of £4,035.98/MWh on the 24th of January.

- With power prices rising to all-time highs, the spark spreads[1] for CCGT units also reached all-time high levels. Clean spark spreads increased by 2-3 times compared to 2021 levels, and in some cases as much as ~20 times levels seen in 2020.
- Notwithstanding, during Q2 2022, there were occasional intervals of excess gas supply during which GB gas prices fell to low levels. These occurred in May and June during days of low electricity demand coupled with high wind generation whilst LNG imports into GB continued, falling as low as 13p/therm on 9th June compared with a high of 610p/therm seen on 7th March. (LNG imports into GB have been at high levels since the war commenced coupled with increased exports of gas from GB into mainland Europe and Ireland).
- The year saw a 6% decrease in GB electricity demand from 2021 levels, the lowest seen over the last decade.
- GB was a net exporter of electricity over the course of Q2, Q3, and Q4 supplying power to continental Europe.
- Combined renewable generation (including biomass) for the first time since 2020 was higher than gas-fired generation making up 43.4% share of GB generation.
- The largest single contributor to generation this year was CCGT with 40% share in the generation followed by wind at 28%.
- The combined renewable total of 119.5TWh was higher than that in 2021 due to notable high levels of wind, resulting in a record high over the last decade.
- 2022 ended with National Grid putting in place Winter Contingency Contracts with three coal-fired generators and introducing a Demand Flexibility Service scheme to bolster security of supply for the winter.

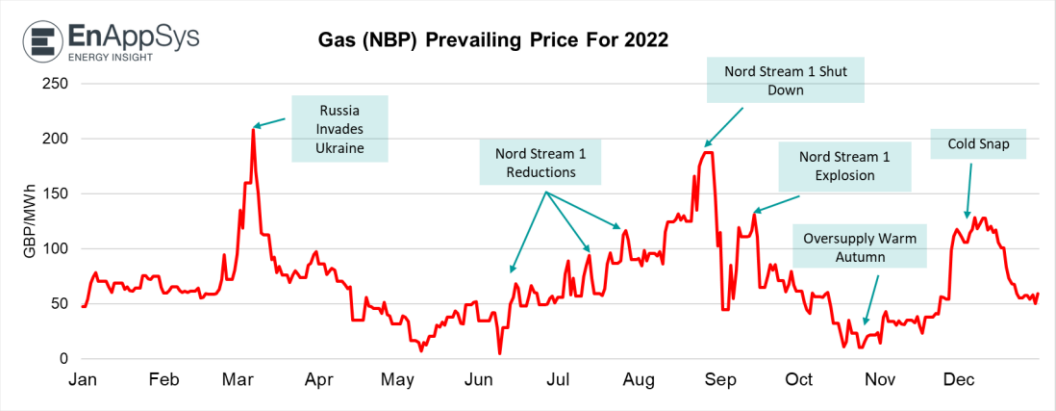


***Figure 1**: GB prevailing gas price 2022. Notable events labelled.*

[1] The clean spark-spread is the difference between wholesale electricity price and the marginal cost of generation for gas-fired generation based on prevailing prices for fuel and emissions allowances. A thermal efficiency of 50% is assumed.

## Prices

The lead up to the Russian-Ukraine war, and subsequent impact on flows through Nord Stream 1 pipeline resulted in unprecedented price increases this year in the gas market with consequent impact on wholesale electricity prices. **The average Day-Ahead electricity price (averaged between both EPEX and Nordpool auctions) rose by 72.5% from £118.29/MWh in 2021 to £204.03/MWh in 2022.**

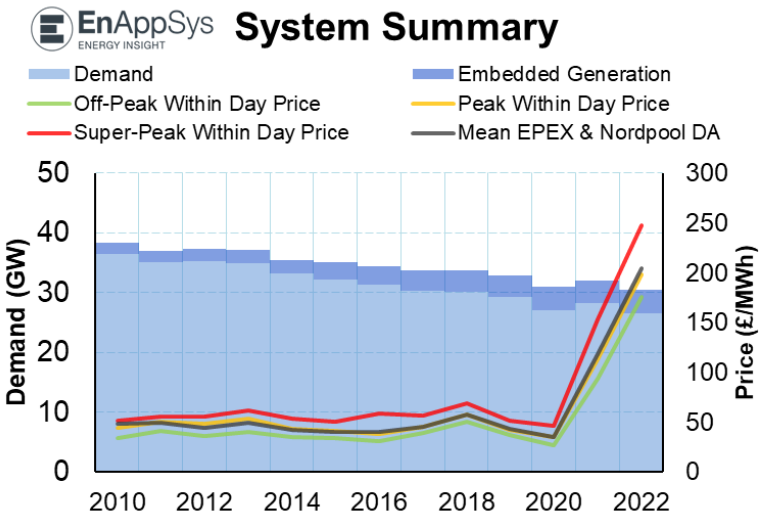


***Figure 2:*** *System Summary (GB)*

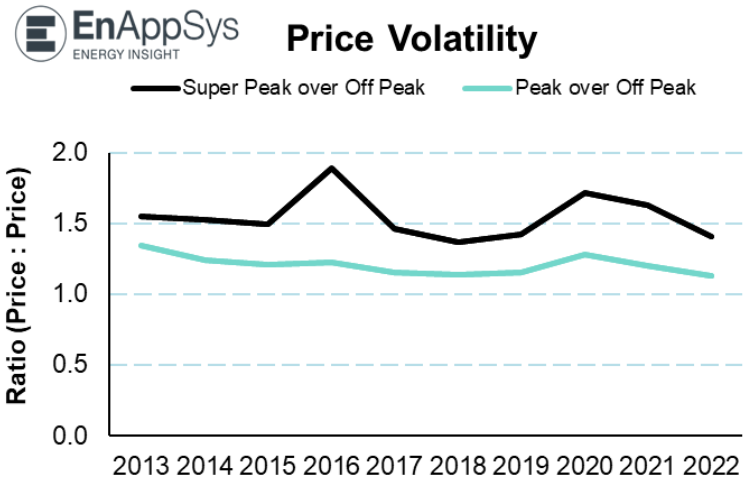


***Figure 3:*** *History of peak (green) and super peak (black) prices to off-peak prices*

The ratio between the price during the super-peak periods (4-7pm) against the overnight price (off-peak price) is a useful metric for analysing price volatility within the British power market. From 2013-2021, the average ratio of super-peak prices to off-peak prices was 1.56, and this year it was 1.41. This is a decrease from last year's ratio of 1.63, and is lower than the average for the last decade. The decrease in volatility compared to last year is a result of high off-peak prices bringing the ratio down. The average off-peak within-day system price from 2013-2021 was £51.24/MWh but this year it rose to £197.50, thereby bringing down the ratio of super-peak to off-peak prices.

## Pricing Statistics

The following tables set out some key statistics relating to prices and demand during the year. The wholesale market day-ahead and within-day prices shown are averages across the year, whilst the system prices (balancing mechanism) are minimum, average and maximum values. MW demand values are averages, whilst TWh demand values are totals across the year. Domestic demand shown in the table below is exclusive of interconnector flows or embedded generation (i.e. transmission system demand excluding interconnectors). However, full demand is domestic demand plus embedded generation, but does not include interconnector demand.

| *GB Only (Excludes Northern Ireland) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| **WHOLESALE PRICES (£/MWh)** | | | | | | | | | | |
| Arithmetic Average Nordpool and EPEX Day Ahead Price | 49.69 | 42.02 | 40.43 | 40.38 | 45.32 | 57.44 | 42.85 | 35.26 | 118.29 | 204.03 |
| Average Within Day Price (MIDP) | 50.58 | 42.10 | 39.92 | 38.99 | 44.70 | 56.75 | 41.78 | 33.84 | 112.47 | 197.50 |
| | | | | | | | | | | |
| **WITHIN DAY PRICE BREAKDOWN (£/MWh)** | | | | | | | | | | |
| Average in Off-Peak Hours | 40.21 | 34.99 | 33.83 | 31.29 | 38.99 | 50.50 | 36.55 | 27.11 | 93.98 | 175.63 |
| Average in Peak Hours (excl Superpeak) | 53.96 | 43.48 | 40.85 | 38.26 | 44.93 | 57.34 | 42.28 | 34.62 | 112.90 | 198.52 |
| Average in Superpeak Hours | 62.18 | 53.45 | 50.51 | 59.07 | 56.89 | 69.00 | 51.90 | 46.48 | 153.19 | 247.33 |
| | | | | | | | | | | |
| **SINGLE SYSTEM PRICE BREAKDOWN (£/MWh)** | | | | | | | | | | |
| Average Single System Price | | | | | 44.27 | 57.35 | 42.00 | 35.06 | 113.74 | 199.49 |
| Maximum Single System Price | | | | | 1509.80 | 990.00 | 375.00 | 2242.31 | 4037.80 | 4035.98 |
| Minimum Single Systm Price | | | | | -73.15 | -150.00 | -88.00 | -70.49 | -70.97 | -90.32 |
| | | | | | | | | | | |
| **AVERAGE HH DOMESTIC DEMAND (GW)** | 34.86 | 33.12 | 32.17 | 31.32 | 30.31 | 30.18 | 29.31 | 27.12 | 28.29 | 26.58 |
| **AVERAGE HH FULL DEMAND ESTIMATE (GW) excl. INTERCONNECTORS** | 37.08 | 35.38 | 35.01 | 34.35 | 32.82 | 34.37 | 32.01 | 30.05 | 32.01 | 30.50 |
| **AVERAGE HH AVAILABILITY (GW)** | | | | 50.87 | 51.22 | 53.77 | 55.65 | 53.55 | 52.50 | 51.80 |
| **AVERAGE HH MARGIN (GW)** | | | | 16.48 | 17.67 | 19.18 | 19.53 | 20.57 | 17.54 | 18.98 |
| | | | | | | | | | | |
| **TOTAL DOMESTIC DEMAND (TWh)** | 305.3 | 290.1 | 281.8 | 275.1 | 265.5 | 264.4 | 256.7 | 238.2 | 247.8 | 232.8 |
| **TOTAL FULL DEMAND ESTIMATE (TWh) excl. INTERCONNECTORS** | 324.8 | 309.9 | 306.7 | 301.7 | 287.5 | 301.1 | 280.4 | 263.9 | 280.4 | 267.1 |
| **TOTAL AVAILABILITY (TWh)** | | | | 446.8 | 448.7 | 471.0 | 487.5 | 470.4 | 459.9 | 453.8 |
| **TOTAL MARGIN (TWh)** | | | | 144.8 | 154.8 | 168.0 | 171.1 | 180.7 | 153.7 | 166.3 |
| | | | | | | | | | | |
| **WHOLESALE PRICE RELATIVE TO 2022** | | | | | | | | | | |
| Day Ahead Price | 311% | 386% | 405% | 405% | 350% | 255% | 376% | 479% | 72% | |
| Within Day Price (MIDP) | 290% | 369% | 395% | 407% | 342% | 248% | 373% | 484% | 76% | |
| Single System Price | | | | | 351% | 248% | 375% | 469% | 75% | |
| | | | | | | | | | | |
| **PERCENTAGE DIFFERENCE OF PREVIOUS YEARS VERSUS 2022 LEVELS** | | | | | | | | | | |
| Off-Peak Hours | -77% | -80% | -81% | -82% | -78% | -71% | -79% | -85% | -46% | |
| Peak Hours (excl Superpeak) | -73% | -78% | -79% | -81% | -77% | -71% | -79% | -83% | -43% | |
| Superpeak Hours | -75% | -78% | -80% | -76% | -77% | -72% | -79% | -81% | -38% | |

## Demand

Total GB domestic demand fell from 247.8TWh in 2021 to 232.8TWh this year, a decrease of 6%. The average demand per half hour settlement period was 26.6GW, a decrease of 6% from last year's 28.3GW. This year's demand is the lowest in the last decade. The chart to the right shows the demand shape of 2022 compared with previous years. The profile exhibits seasonality with higher demand during winter periods and hence a high proportion of demand around the first and last quarter of the year. The reduction in demand for 2022 is particularly noticeable from Q2 onwards reflecting the impact of the war on the market and also unseasonal weather conditions including a summer heatwave and exceptionally mild autumn.

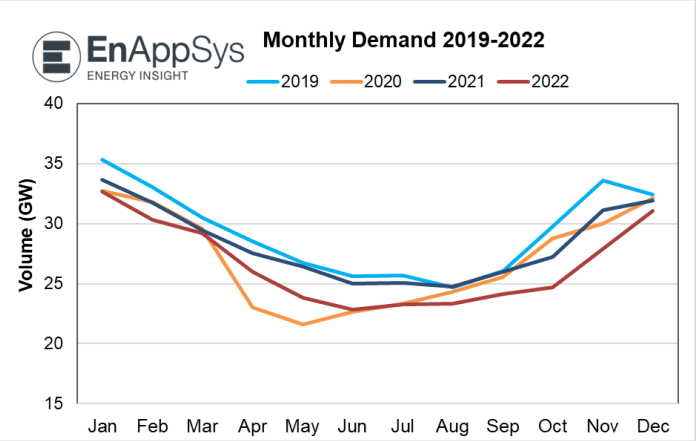


***Figure 4:*** *Monthly Demand 2019-2022*

## Generation

Gas-fired CCGT generation was the largest contributor to the system generation mix with a total output of 111.7TWh, although lower than the combined total of all renewable generation 119.9TWh. This equates to a 40.4% proportion of the generation mix for gas and 43.4% for renewables, though this drops to 34.6% for renewables if the dispatchable biomass fleet is not considered. **The overall proportion was split between 40.4% for gas, 28.1% for wind, 16.3% for nuclear, 8.8% for biomass, -1.5% for imports, 4.5% for solar and 1.6% for coal.**

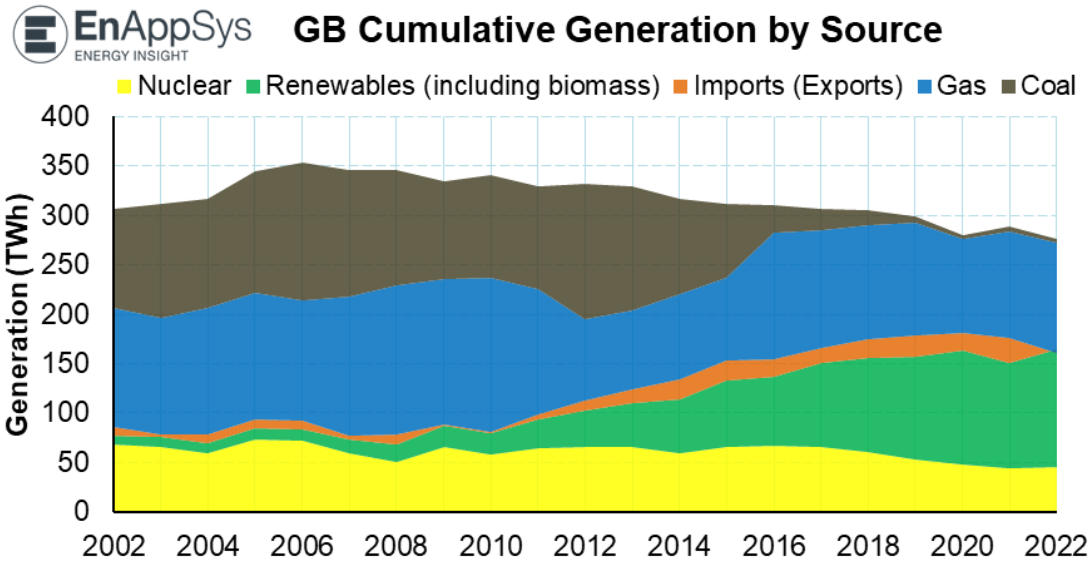


***Figure 5:*** *GB cumulative generation by source*

Renewable output saw an increase compared to the 2021 levels of 107.5TWh reaching 119.9TWh in 2022 making it the highest on record over the last decade. This was primarily because of the high winds this year which kept renewable generation very high. Wind generation was the highest generation source after gas with a total output of 77.6TWh compared to 62.4TWh in 2021, a 15TWh increase which is the largest increase in wind generation in GB over the last decade. The only other increase was the rise of 14.3TWh from 2017 to 2018. At the end of the year a new record of 20.9GW wind output was seen on 30 December 2022. This year's increases were driven by a number of new wind farms coming on line this year including three units at Hornsea (B1-B3) each of 440MW capacity.

Total nuclear output also increased this year from 43.4TWh in 2021 to 44.8TWh this year. The slight increase in generation followed some units returning to service early in the year (Hartlepool 1 & 2), offsetting the impact of unit closures at Hunterston B7 and Hunterston B8 and Hinkley B.

## Interconnectors

This year, GB had prolonged periods of net export, more than any other year in the last decade. The interconnector positions swung to net export after the Q1 and remained so until November after which net imports began to be seen again. As a result GB was in a net export position on average for 2022 with a net export of 4.2TWh of power leaving GB for continental Europe and Ireland. France had the largest net volume of 10TWh imports from GB due to stress corrosion cracking and drought which affected the output of its nuclear fleet. It is, however, worthy of note that in Q3 2022 the North Sea Link (NSL) also saw exports from GB due to low reservoir levels in Norway which resulted in low

hydro output. Despite that, NSL had the largest net import of any country to GB in the year with a net volume of 2.8TWh.

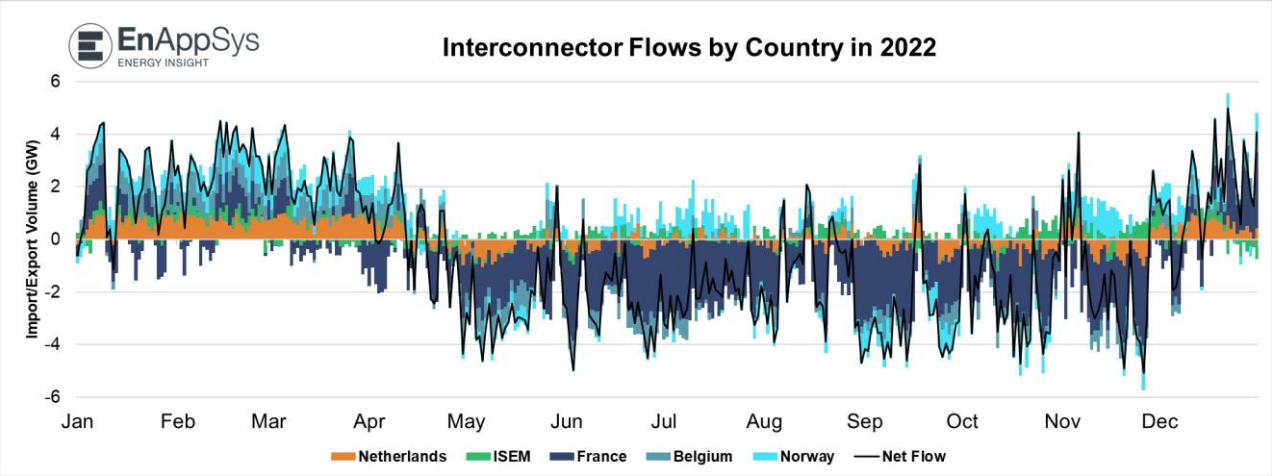


***Figure 6:*** *GB Interconnector Flows 2022*

## Generation Statistics

The following tables contain sets out key statistics relating to GB generation in the year:

| *GB Only (Excludes Northern Ireland) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TOTAL GENERATION BY FUEL (TWh)** | | | | | | | | | | |
| Coal | 125.74 | 96.63 | 74.45 | 27.99 | 20.61 | 15.38 | 5.93 | 4.37 | 4.97 | 4.29 |
| Gas | 80.23 | 86.70 | 84.35 | 127.26 | 119.27 | 115.30 | 114.39 | 94.86 | 107.45 | 111.74 |
| Imports (Exports) | 13.02 | 19.48 | 20.75 | 17.86 | 15.67 | 19.26 | 21.69 | 18.30 | 24.96 | -4.22 |
| Nuclear | 65.93 | 59.72 | 65.68 | 66.75 | 65.54 | 60.61 | 52.71 | 47.25 | 43.40 | 44.84 |
| Renewables (including biomass) | 44.51 | 54.43 | 66.63 | 70.12 | 84.97 | 94.68 | 103.72 | 115.37 | 107.45 | 119.91 |
| TOTAL GB GENERATION (excl. Imports) | 316.41 | 297.49 | 291.11 | 292.11 | 290.40 | 285.97 | 276.75 | 261.84 | 263.27 | 280.77 |
| TOTAL GB CONSUMPTION (incl. Imports/exc. Exports) | **329.43** | **316.97** | **311.86** | **309.97** | **306.07** | **305.22** | **298.45** | **280.15** | **288.23** | **276.56** |

| *GB Only (Excludes Northern Ireland) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| **AVERAGE GENERATION BY FUEL (GW)** | | | | | | | | | | |
| Coal | 14.35 | 11.03 | 8.50 | 3.19 | 2.35 | 1.76 | 0.68 | 0.50 | 0.57 | 0.49 |
| Gas | 9.16 | 9.90 | 9.63 | 14.49 | 13.61 | 13.16 | 13.06 | 10.83 | 12.27 | 12.72 |
| Imports (Exports) | 1.49 | 2.22 | 2.37 | 2.03 | 1.79 | 2.20 | 2.48 | 2.09 | 2.85 | -0.48 |
| Nuclear | 7.53 | 6.82 | 7.50 | 7.60 | 7.48 | 6.92 | 6.02 | 5.39 | 4.95 | 5.10 |
| Renewables (including biomass) | 5.08 | 6.21 | 7.61 | 7.98 | 9.70 | 10.81 | 11.84 | 13.17 | 12.27 | 13.65 |
| AVERAGE GB GENERATION (excl. Imports) | 36.12 | 33.96 | 33.23 | 33.26 | 33.15 | 32.64 | 31.59 | 29.89 | 30.05 | 31.96 |
| AVERAGE GB CONSUMPTION (incl. Imports/exc. Exports) | **37.61** | **36.18** | **35.60** | **35.29** | **34.94** | **34.84** | **34.07** | **31.98** | **32.90** | **31.48** |
| | | | | | | | | | | |
| **SHARE OF GENERATION (%)** | | | | | | | | | | |
| Coal | 38.2% | 30.5% | 23.9% | 9.0% | 6.7% | 5.0% | 2.0% | 1.6% | 1.7% | 1.5% |
| Gas | 24.4% | 27.4% | 27.0% | 41.1% | 39.0% | 37.8% | 38.3% | 33.9% | 37.3% | 40.4% |
| Imports | 4.0% | 6.1% | 6.7% | 5.8% | 5.1% | 6.3% | 7.3% | 6.5% | 8.7% | -1.5% |
| Nuclear | 20.0% | 18.8% | 21.1% | 21.5% | 21.4% | 19.9% | 17.7% | 16.9% | 15.1% | 16.2% |
| Renewables (including biomass) | 13.5% | 17.2% | 21.4% | 22.6% | 27.8% | 31.0% | 34.8% | 41.2% | 37.3% | 43.4% |
| | | | | | | | | | | |
| **PERCENTAGE DIFFERENCE OF PREVIOUS YEARS VERSUS 2022 LEVELS** | | | | | | | | | | |
| Coal | -97% | -96% | -94% | -85% | -79% | -72% | -28% | -2% | -14% | |
| Gas | 39% | 29% | 32% | -12% | -6% | -3% | -2% | 18% | 4% | |
| Imports | -132% | -122% | -120% | -124% | -127% | -122% | -119% | -123% | -117% | |
| Nuclear | -32% | -25% | -32% | -33% | -32% | -26% | -15% | -5% | 3% | |
| Renewables (including biomass) | 169% | 120% | 80% | 71% | 41% | 27% | 16% | 4% | 12% | |
| | | | | | | | | | | |
| **Fossil Fuels** | | **183.34** | **158.80** | **155.25** | **139.88** | **130.68** | **120.33** | **99.23** | **112.42** | **116.02** |
| Fossil Fuel Share | | 57.8% | 50.9% | 50.1% | 45.7% | 42.8% | 40.3% | 35.4% | 39.0% | 42.0% |
| Renewable Share | | 17.2% | 21.4% | 22.6% | 27.8% | 31.0% | 34.8% | 41.2% | 37.3% | 43.4% |

## Renewables (including biomass)

Total renewable output level this year was 119.9TWh, a notable increase from the 107.5TWh seen in 2021. This year, renewables contributed 43.4% to the generating mix with wind farms being the biggest source of renewable generation in the GB system. Total wind output in 2022 was 77.6TWh, a 21% increase in output from 2021 which had seen 62.4TWh from the wind fleet. In 2022 wind generation made up 64.7% of the overall renewable generation, more than any other source. The wind output this year strongly indicates that the overall trend of increasing wind generation in the GB system is continuing.

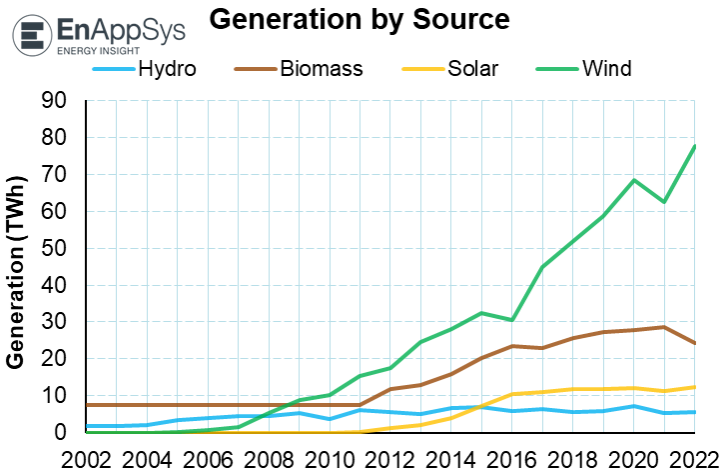


***Figure 7**: Generation by renewable source*

The biomass fleet was the second biggest component of renewable generation after wind, comprising 20.3% of the renewable fuel mix. However, with a total output of 24.3TWh, it decreased by 15% compared to the 28.6TWh seen last year.

Total solar output this year was 12.3TWh, the highest ever annual total and an increase of 9.2% from the 11.2TWh seen in 2021. Despite this, the solar fleet comprised only 10.2% of renewable generation in 2022 though, this rises to 12.9% if the biomass fleet is counted separately as a dispatchable.

Hydro again represented the smallest proportion of the renewable generation mix with 5.7TWh giving a proportion of 4.7%, though this rises to 6.0% if the dispatchable biomass fleet is not included. This was an increase of 8.0% from 5.2TWh in 2021.

## Renewable Generation Statistics

The following tables sets out key statistics relating to renewable electricity output during the year:

| *GB Only (Excludes Northern Ireland) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TOTAL GENERATION BY FUEL (TWh)** | | | | | | | | | | |
| Biomass | 12.84 | 15.85 | 20.11 | 23.39 | 22.91 | 25.61 | 27.37 | 27.90 | 28.59 | 24.36 |
| Hydro | 5.06 | 6.57 | 6.88 | 5.75 | 6.39 | 5.48 | 5.99 | 7.12 | 5.22 | 5.65 |
| Solar | 2.12 | 3.99 | 7.29 | 10.40 | 10.92 | 11.79 | 11.77 | 12.01 | 11.22 | 12.28 |
| Wind | 24.49 | 28.01 | 32.36 | 30.58 | 44.75 | 51.80 | 58.58 | 68.35 | 62.42 | 77.63 |
| TOTAL RENEWABLES | **44.51** | **54.43** | **66.63** | **70.12** | **84.97** | **94.68** | **103.72** | **115.37** | **107.45** | **119.91** |

| *GB Only (Excludes Northern Ireland) | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TOTAL GENERATION BY FUEL (GW)** | | | | | | | | | | |
| Biomass | 1.47 | 1.81 | 2.30 | 2.66 | 2.62 | 2.92 | 3.12 | 3.18 | 3.26 | 2.77 |
| Hydro | 0.58 | 0.75 | 0.79 | 0.65 | 0.73 | 0.63 | 0.68 | 0.81 | 0.60 | 0.64 |
| Solar | 0.24 | 0.46 | 0.83 | 1.18 | 1.25 | 1.35 | 1.34 | 1.37 | 1.28 | 1.40 |
| Wind | 2.80 | 3.20 | 3.69 | 3.48 | 5.11 | 5.91 | 6.69 | 7.80 | 7.13 | 8.84 |
| TOTAL RENEWABLES | **5.08** | **6.21** | **7.61** | **7.98** | **9.70** | **10.81** | **11.84** | **13.17** | **12.27** | **13.65** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **SHARE OF RENEWABLE GENERATION (%)** | | | | | | | | | | |
| Biomass | 28.9% | 29.1% | 30.2% | 33.4% | 27.0% | 27.0% | 26.4% | 24.2% | 26.6% | 20.3% |
| Hydro | 11.4% | 12.1% | 10.3% | 8.2% | 7.5% | 5.8% | 5.8% | 6.2% | 4.9% | 4.7% |
| Solar | 4.8% | 7.3% | 10.9% | 14.8% | 12.8% | 12.5% | 11.4% | 10.4% | 10.4% | 10.2% |
| Wind | 55.0% | 51.5% | 48.6% | 43.6% | 52.7% | 54.7% | 56.5% | 59.2% | 58.1% | 64.7% |
| LARGEST RENEWABLE SOURCE | WIND | WIND | WIND | WIND | WIND | WIND | WIND | WIND | WIND | WIND |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **PERCENTAGE DIFFERENCE OF PREVIOUS YEARS VERSUS 2022 LEVELS** | | | | | | | | | | |
| Biomass | 89.7% | 53.7% | 21.2% | 4.2% | 6.3% | -4.9% | -11.0% | -12.7% | -14.8% | 0.0% |
| Hydro | 11.6% | -14.1% | -17.9% | -1.8% | -11.7% | 3.0% | -5.8% | -20.7% | 8.2% | 0.0% |
| Solar | 479.6% | 207.6% | 68.5% | 18.1% | 12.5% | 4.2% | 4.3% | 2.3% | 9.4% | 0.0% |
| Wind | 217.0% | 177.1% | 139.9% | 153.9% | 73.4% | 49.9% | 32.5% | 13.6% | 24.4% | 0.0% |
| Total | **1.41** | **0.97** | **0.61** | **0.53** | **0.26** | **0.13** | **0.04** | **-0.07** | **0.00** | **-0.10** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **DIFFERENCE RELATIVE TO PREVIOUS YEAR** | | | | | | | | | | |
| Biomass | | 23.5% | 26.8% | 16.0% | -1.8% | 11.8% | 6.9% | 1.9% | 2.5% | -15.0% |
| Hydro | | 29.9% | 4.7% | -16.6% | 11.5% | -14.2% | 9.4% | 18.7% | -26.7% | 7.9% |
| Solar | | 88.4% | 82.5% | 42.3% | 5.3% | 8.0% | -0.2% | 2.0% | -6.6% | 9.1% |
| Wind | | 14.4% | 15.5% | -5.8% | 46.8% | 15.7% | 13.1% | 16.7% | -8.7% | 24.0% |
| Total | | **22.3%** | **22.4%** | **4.9%** | **21.5%** | **11.4%** | **9.5%** | **11.2%** | **-6.9%** | **11.3%** |

## Notes on the Report

The figures used in the report refer to GB only, against BEIS figures that refer to GB and Northern Ireland. This selection has been made since Northern Ireland is separate from GB and is more closely linked to the electricity grid of the Republic of Ireland.

Generation levels by fuel from 2009 are based upon National Grid FUELHH data, which give the operationally metered totals by fuel, down to a 5-minute resolution.

Prior to 2009, individual plant data has been aggregated from our databased matching of National Grid fuel-type relationships.

To account for embedded wind and solar, the National Grid forecasts for these generators have been used as if they were output figures. Embedded hydro and biomass have been accounted for using analysis of historic Ofgem data on certificate awards. Note: embedded generation output is not seen as transmission system demand.

Within this report, levels of offshore wind have not been separated from the wind total. This is because this can only be reliably done using metered volumes at a generating unit level. This is not a publicly available data stream and figures can only be estimated and not distributed. Final Physical Notifications (FPNs) at wind farms do not correlate well with metered volumes and so cannot be used reliably.

Price and demand data primarily come from Elexon (as does the FUELHH data), with the exception of the EPX day-ahead prices.

Availability levels are calculated by totalling levels of recorded availability at all plants in the market.

Domestic demand is stated exclusive of interconnector flows or embedded generation (i.e. transmission system demand excluding interconnectors). However, full demand is domestic demand plus embedded generation, but does not include interconnector demand.

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