



GB Electricity Market Summary

FOURTH QUARTER 2015
OCT TO DEC

Recorded Levels of GB Generation by Fuel (based upon Ofgem & NG Embedded Forecasts & FUELHH data):

CCGT: 10.2GW (-0%)
COAL: 7.5GW (31%)

RENEWABLES: 8.5GW (32%)
INTERCONNECTIONS: 2.1GW (-23%)

NUCLEAR: 7.9GW (12%)

Contents

EXECUTIVE SUMMARY	1
FUEL ACTIVITY	2
RENEWABLES	4
DEMAND, MARGIN AND PRICES	6
NOTES ON THE REPORT	8
ABOUT ENAPPSYS	9

EXECUTIVE SUMMARY

The fourth quarter of 2015 saw a large increase in levels of generation at coal stations and renewable generators, as coal units came out of outages for maintenance and higher wind speeds resulted in increased levels of generation at wind farms.

Despite the increased levels of coal-fired generation, gas-fired plants continued to generate the most electricity within the GB electricity market with levels of generation having remained consistent over the last 48 months; and any increased electricity requirements in winter met by either coal plants or wind farms. Total levels of generation at gas-fired power stations were similar to the previous quarter.

Overall levels of renewable electricity generation exceeded total levels at either nuclear or coal plants, with levels of renewable generation climbing 32% from the previous quarter.

Increased renewable output came as wind farms saw levels of generation climb by 66%, with hydro plants seeing output increase by 108% due to more wet and windy weather. This more than offset decreased levels of generation at solar farms.

In this quarter, 28.2% of electricity generation came from gas-fired plants, 23.6% from renewable sources, 21.8% from nuclear plants, 20.7% from coal-fired plants and 5.8% via imports from Ireland and the continent.

Levels of overall availability within the market were down 14% from Q4 2014. The margin between supply and demand in the market was also down 16% at 16.9GW. Within this backdrop, the minimum margin dropped to 3GW (down 29% from Q4 2014), with system margins becoming very tight between 2-4th November and balancing mechanism prices reaching £2,500/MWh over this three-day period.

The reduced levels of demand, along with lower gas prices, contributed to falling wholesale prices; despite increased carbon costs both gas plants, and at coal plants in particular. This meant that within-day power prices fell by 11% to £39.85/MWh. This reduced the profitability of generating plants that had already seen reduced levels of generation due to high levels of renewable output.

FUEL ACTIVITY

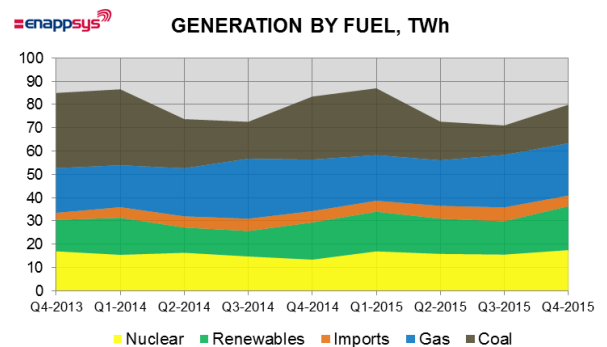
The fourth quarter of 2015 saw a large increase in levels of generation at both coal-fired and renewable power generations. This was coupled with a smaller increase in levels of nuclear generation, offset by a reduction in levels of electricity imported from the continent and Ireland.

Gas-fired plants generated the most power - contributing 22.5TWh (10.2GW) - with levels of output remaining similar to the previous quarter. This came as wind farms and coal plants, not gas-fired plants, were the greatest beneficiaries of increased levels of demand for electricity generation.

The largest increases in levels of electricity production came at renewable generators, with renewables as a whole generating 18.8TWh (8.5GW), up 32% from the previous quarter. This came as wet and windy weather resulted in high levels of generation at both wind farms and hydro plants across much of the quarter; and particularly in December

These levels of renewable generation were up 18% from the levels seen in Q4 2014.

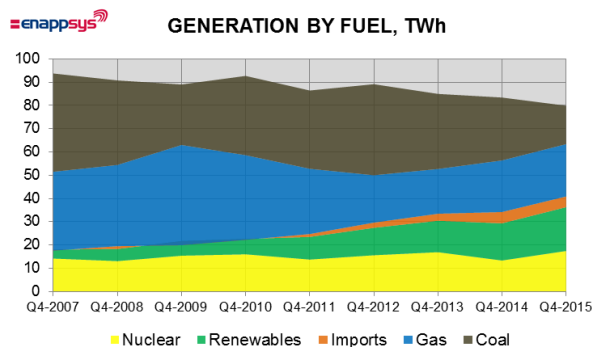
Nuclear plants saw levels of generation totaling 17.5TWh across the quarter (7.9GW), with the Wylfa plant closing down for the last time towards the end of the quarter. Wylfa has been operational in the market since 1971, with the remaining nuclear plants set to close, roughly within the next ten years.



Having seen reduced levels of generation in Q4 2014 due to a number of operational issues at nuclear plants, levels of nuclear generation were 31% higher than in the same quarter in 2014.

Despite levels of generation increasing by 31% as coal-fired stations returned from periods of outage for maintenance over the summer months, coal stations were as a group only the fourth largest source of electricity generation

within the GB electricity market.



Total levels of coal-fired generation amounted to 16.5TWh (7.5GW), down 39% from Q4 2014 and down 58% from the recent high for coal generation in Q4 2012.

With high levels of wind and hydro generation falling in the winter months,

the fourth quarter of the year has seen a dramatic change in levels of generation by fuel type.

Having provided just 4.5% of total generation in Q4 2007, renewable generators provided 23.6% of total electricity generation in Q4 2015, with fossil fuels seeing their share of generation fall from 89.6% in Q4 2007 to 48.8% over the same period.

Over this period, total levels of fossil fuel generation have fallen 49% from 76.2TWh to 39.0TWh. This reduction is estimated to have reduced carbon emissions within the electricity market by 52.3%, from 44.4 million tonnes to 21.2 million tonnes.

During this quarter, 28.2% of electricity generation came from gas-fired plants, 23.6% from renewable sources, 21.8% from nuclear plants, 20.7% from coal-fired plants and 5.8% via imports from Ireland and the continent.

Statistics

The following tables contain some of the key statistics relating to the quarter:

*GB Only (Excludes Northern Ireland)	Q4-2013	Q1-2014	Q2-2014	Q3-2014	Q4-2014	Q1-2015	Q2-2015	Q3-2015	Q4-2015
TOTAL GENERATION BY FUEL (TWh)									
Coal	32.31	32.61	21.11	15.87	27.07	28.70	16.60	12.63	16.53
Gas	19.24	18.06	20.67	25.81	22.18	19.65	19.63	22.57	22.50
Imports	3.01	4.56	4.79	5.27	4.86	4.69	5.48	5.98	4.60
Nuclear	16.93	15.40	16.30	14.70	13.34	16.90	15.81	15.51	17.45
Renewables	13.51	15.93	10.87	10.95	16.00	17.05	15.15	14.31	18.83
TOTAL	85.01	86.55	73.74	72.60	83.44	86.99	72.67	71.01	79.91

SHARE OF GENERATION (%)									
Coal	38.0%	37.7%	28.6%	21.9%	32.4%	33.0%	22.8%	17.8%	20.7%
Gas	22.6%	20.9%	28.0%	35.5%	26.6%	22.6%	27.0%	31.8%	28.2%
Imports	3.5%	5.3%	6.5%	7.3%	5.8%	5.4%	7.5%	8.4%	5.8%
Nuclear	19.9%	17.8%	22.1%	20.2%	16.0%	19.4%	21.8%	21.8%	21.8%
Renewables	15.9%	18.4%	14.7%	15.1%	19.2%	19.6%	20.9%	20.2%	23.6%

*GB Only (Excludes Northern Ireland)	Q4-2007	Q4-2008	Q4-2009	Q4-2010	Q4-2011	Q4-2012	Q4-2013	Q4-2014	Q4-2015
TOTAL GENERATION BY FUEL (TWh)									
Coal	42.28	36.35	26.01	34.10	33.68	39.18	32.31	27.07	16.53
Gas	33.90	34.93	43.10	36.41	28.06	20.37	19.24	22.18	22.50
Imports	-0.44	1.23	-1.78	-0.40	1.22	2.22	3.01	4.86	4.60
Nuclear	14.20	13.08	15.41	16.01	13.76	15.60	16.93	13.34	17.45
Renewables	3.83	5.21	6.29	6.61	9.73	11.80	13.51	16.00	18.83
TOTAL	93.77	90.80	89.03	92.74	86.46	89.18	85.01	83.44	79.91

SHARE OF GENERATION (%)									
Coal	49.7%	42.0%	35.3%	47.0%	40.4%	45.0%	44.5%	38.1%	20.7%
Gas	39.9%	40.4%	58.5%	50.2%	33.6%	23.4%	26.5%	31.2%	28.2%
Imports	-0.5%	1.4%	-2.4%	-0.6%	1.5%	2.6%	4.1%	6.8%	5.8%
Nuclear	16.7%	15.1%	20.9%	22.1%	16.5%	17.9%	23.3%	18.8%	21.8%
Renewables	4.5%	6.0%	8.5%	9.1%	11.7%	13.6%	18.6%	22.5%	23.6%

RENEWABLES

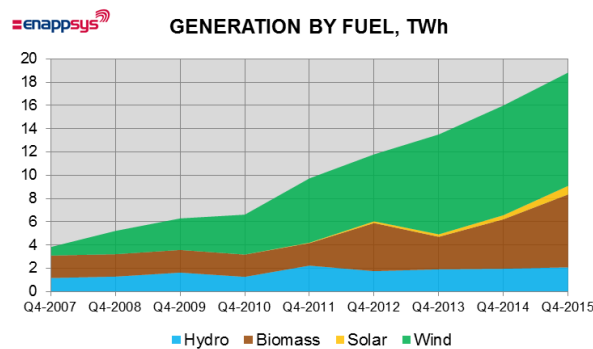
Levels of renewable generation continued to show a strong upward trend in the quarter as levels of biomass generation climbed 47% from the levels achieved in Q4 2014, following on-going conversions from coal to biomass at Drax units.

With levels of wind generation typically increasing in winter as levels of hydro and wind generation increase, renewable generators as a whole were the second largest source of power overall after gas-fired plants.

Wind continued to provide the largest share of renewable generation in the month, while levels of solar generation decreased from the previous quarter as levels of solar radiation decreased.

Total levels of wind generation amounted to 9.7TWh (4.4GW), up 66% from the previous quarter, but only marginally up 3% from Q4 2014. Levels of wind generation increased notably in Q4 2013, but have only slightly increased each year since, However, wind power still provided over half the total levels of renewable generation.

Biomass provided the second largest share of renewable generation - totaling 6.3TWh (2.8GW) – with this having increased 35% from Q4 2014 as Drax units have continued to convert from coal to biomass.

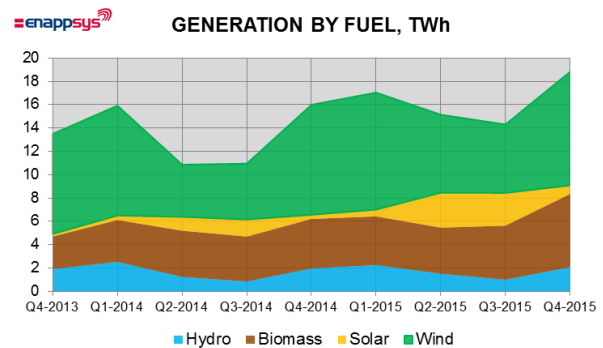


Hydro units provided the third largest share of renewable generation (at 11.0%), with total levels of generation at 2.1TWh (0.9GW); up 108% from the previous quarter and up 6% from Q4 2014.

Despite low levels of solar radiation across the quarter, solar farms still generated 0.7TWh (0.3GW). These levels of generation were down 74% from the third quarter of the year which naturally saw brighter weather with more hours of sunlight.

In the quarter, 51.7% of renewable generation came from wind farms, 33.3% from biomass plants, 11.0% from hydro plants and 3.9% from solar farms.

Statistics



DEMAND, MARGIN AND PRICES

The fourth quarter of 2015 saw levels of demand for electricity generation climb 2% from the previous quarter, but drop 13% from the previous year. This follows an on-going trend of declining demand, driven by increased levels of distributed generation and energy efficiency.

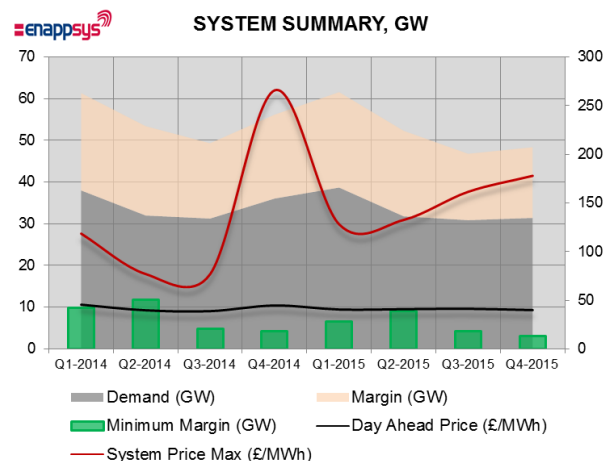
The reductions mean that while levels of overall market availability were relatively low within the quarter, this did not translate into any major issues within the system. However, 4th November saw very high prices within the system as margins became very tight whilst the National Grid was preparing for a changing in the system price methodology.

Wholesale power prices have remained relatively flat in recent quarters, although profit margins at generating plants have been squeezed by reduced gas prices and higher carbon costs; with lower gas prices forcing coal plants to reduce their profit margins.

The minimum margin was very tight in Q4 2015, dropping down to 3.0GW; down 29% from Q3 2015 and also down 29% from Q4 2014. Levels of availability were down 14% from the same quarter in the previous year, with the overall margin down 16% to 16.9GW.

Statistics

The following table contains some of the key statistics relating to the quarter:



DEMAND, MARGIN AND PRICES

*GB Only (Excludes Northern Ireland)	Q4-2013	Q1-2014	Q2-2014	Q3-2014	Q4-2014	Q1-2015	Q2-2015	Q3-2015	Q4-2015
WHOLESALE PRICES (£/MWh)									
Day Ahead Price	49.41	44.27	39.18	38.65	45.21	40.88	41.97	41.41	39.92
Within Day Price (MIDP)	49.57	45.44	39.65	38.77	44.62	40.47	40.80	41.19	39.85
WITHIN DAY PRICE BREAKDOWN (£/MWh)									
Off-Peak Hours	38.76	36.87	33.86	32.06	35.10	33.62	34.38	35.28	36.02
Peak Hours (excl Superpeak)	51.63	46.92	42.30	41.48	45.46	41.09	43.64	43.62	41.40
Superpeak Hours	66.83	59.99	43.46	44.46	63.20	53.91	45.33	46.06	43.07
SYSTEM BUY PRICE (£/MWh)									
Maximum	161.73	118.76	77.31	77.31	266.11	128.33	132.90	161.80	178.22
Average	56.27	51.99	44.28	43.69	52.62	46.47	45.79	47.22	42.77
Minimum	16.84	19.42	25.06	5.44	6.45	3.65	-2.61	17.54	-73.48
SYSTEM SELL PRICE (£/MWh)									
Maximum	161.73	118.76	77.31	77.31	266.11	128.33	132.90	161.80	178.22
Average	43.23	40.59	34.57	33.23	40.34	36.54	35.46	36.86	35.17
Minimum	-12.45	5.56	10.93	-78.00	-57.23	-35.33	-36.96	17.54	-73.48
DEMAND (MW)	36,756	37,992	31,977	31,251	36,049	38,682	31,791	30,854	31,401
AVAILABILITY (MW)		61,325	53,400	49,308	56,160	61,561	52,292	46,785	48,348
MARGIN (MW)		23,333	21,422	18,057	20,111	22,879	20,501	15,930	16,947
MIN MARGIN (MW)		9,907	11,747	4,869	4,233	6,638	9,125	4,217	3,007
DEMAND (TWh)	81.2	82.1	69.8	69.0	79.6	83.6	69.4	68.1	69.3
AVAILABILITY (TWh)		132.5	116.6	108.9	124.0	133.0	114.2	103.3	106.8
MARGIN (TWh)		50.4	46.8	39.9	44.4	49.4	44.8	35.2	37.4
MIN MARGIN (TWh)		21.4	25.7	10.8	9.3	14.3	19.9	9.3	6.6

NOTES ON THE REPORT

The figures used in the report refer to GB only, against DECC figures that refer to GB and Northern Ireland. This selection has been made since Northern Ireland is separated 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 gives 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 Ofgem data on certificate awards.

Within this report, levels of offshore wind have not been split apart 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 publically available data stream and figures can only be estimated and not distributed. FPNs at wind farms do not correlate well with metered volumes and so cannot be used reliably.

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

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

ABOUT ENAPPSYS

EnAppSys provides services to companies in the energy and power markets, specifically by providing data, information and consultancy services.

The company has a GB power market database stretching back to 2003 and an online platform that provides readily available information ranging from forwards market prices to historic generator operations.

Enappsys is focused on providing information and analytical services covering the energy sector and is actively growing the business to provide products with enhanced analysis and forecasting capabilities and extending the geographic and sector coverage beyond the UK and the electricity market.

The company's business objective is to make available timely, optimal and insightful information, analysis and systems to the energy sector to ensure all sizes of company have the best available tools and information to make informed decisions and to optimise their business strategy.

To find out more about EnAppSys contact the company at about@enappsys.com or visit the company's website at www.enappsys.com.