



BSC OPERATIONS HEADLINE REPORT

1 In this report you will find commentary on BSC market operation, identification of key events and reporting of key data.

2 The [Trading Operations Report](#) publishes key market data graphically, giving a performance indicator for the Balancing and Settlement arrangements.

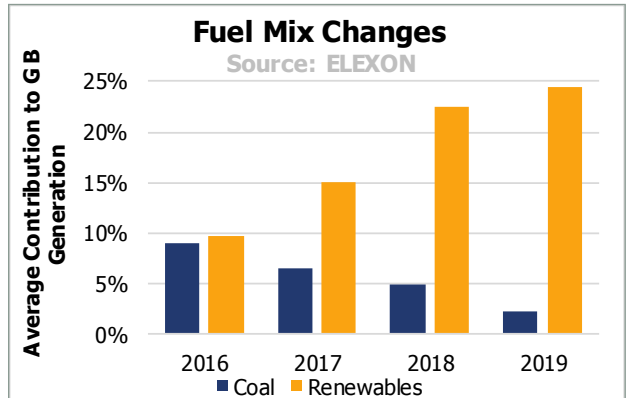
3 Trading Operations Report [Data](#). The graphs and backing data are available in Excel format on the ELEXON website.

COAL MAKES WAY FOR RENEWABLES¹

In May, Great Britain experienced the longest ever period without coal power generation, lasting 18 days and 6 hours (876 Settlement Periods). The record for the longest 'coal-free' period has been broken four times this year; twice in April and twice in May.

During the most recent period, GB generation consisted of CCGT (46%), Nuclear (21%), Wind (14%), Interconnectors (12%) and Biomass (9%).

In the absence of Coal-fired generation, renewable sources have increasingly contributed towards the GB fuel mix. In the latest coal free record period, Biomass contributed on average 8% of generation, the highest on record. Biomass generation's previous peak (in percentage terms) occurred in May last year. As shown in the chart on the right, renewables fuels, such as Wind and Biomass, are increasing to offset the rapid decline in Coal generation. Up to the end of May 2019, renewables accounted for 24% of total generation, behind only CCGT (43%) and ahead of Nuclear (20%).



SYSTEM PRICES IN MAY²

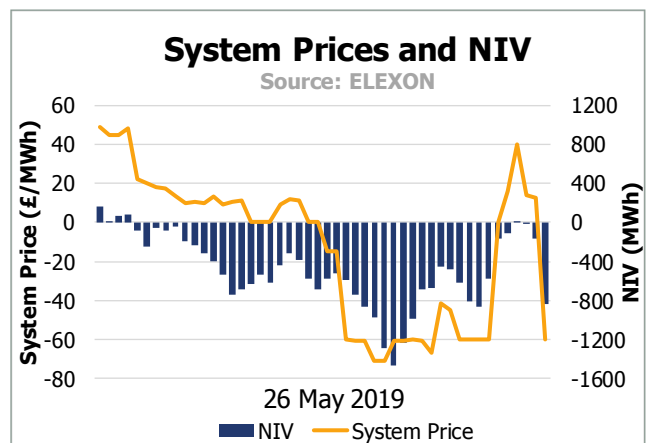
Monthly average System Prices for May 2019 were higher when the market was short (2.2%) and lower when long (-13.9%), compared to April 2019. The average System Price regardless of length was **£39.44/MWh**; 8% lower than last month.

System Prices exceeded £100/MWh 11 times in May, compared to no occurrences last month. The highest System Price of the month, **£157.38MWh**, occurred in Settlement Periods 35, 38 and 39 on 9 May 2019. The price was set by Buy Actions from Pumped Storage and Hydro Balancing Mechanism (BM) Units, all priced at £150/MWh. The Buy Price Price Adjuster (BPA) was £7.38 in all three Settlement Periods.

The lowest System Price, **-£71.26/MWh**, occurred in Settlement Period 31 on 26 May 2019. This was set by two Sell actions from one Wind BMU, priced at -£71.26/MWh. This Settlement Period fell in the longest period of negative prices (18 Settlement Periods) since the Single Imbalance Price (SIP) was established on 5 November 2015. As a result, the 26 May 2019 had the lowest ever daily average System Price of -£12.16/MWh.

The Net Imbalance Volume (NIV) shows the market was long for 43 Settlement Periods on 26 May 2019. The National Electricity Transmission System operator (NETSO) took Sell actions to reduce the amount of surplus energy on the system. When these actions have a negative price associated with them, the NETSO pays generators to decrease output or suppliers to increase demand. Most actions with a negative price are from Wind BM Units. During the 18 consecutive Settlement Periods with a negative price, 72% of Sell actions were from Wind BM Units; all of which had negative Bid prices.

Period	Average (£/MWh)		Average (£/MWh) Peak 07:00-19:00	
	Short System	Long System	Short System	Long System
May-19	59.16	25.77	63.49	25.56
Apr-19	57.87	29.92	60.94	30.07
Mar-19	62.28	29.08	64.11	29.03
Spring 19	59.77	28.26	62.85	28.22
Winter 18/19	79.64	42.31	85.94	44.31
Autumn 18	82.75	45.80	86.62	48.39
Summer 18	73.46	42.02	76.60	42.52
Spring 18	83.53	37.68	92.59	37.97
May-18	70.45	36.80	75.78	36.86



¹ Generation data is taken from the ELEXON Portal from the [Historic Fuels HH](#) webpage.

² System prices are based on the previous month's Interim Information (II) run data.

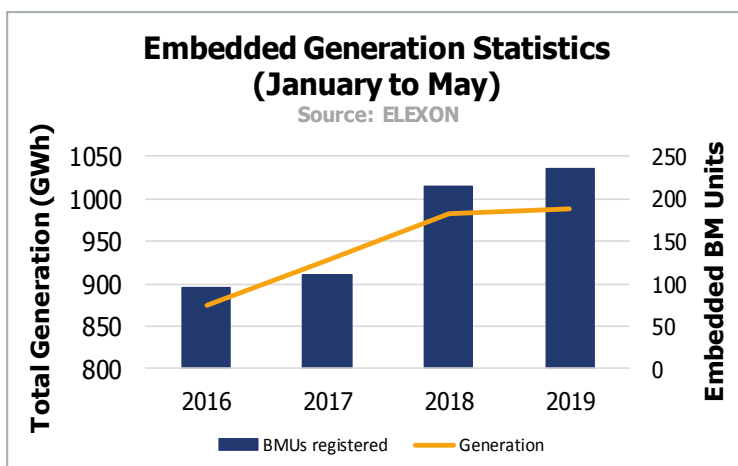
HIGHEST EMBEDDED GENERATION IN 2019³

Embedded generation is sourced from BM Units connected to the low voltage Distribution Network rather than the high voltage Transmission Network (like larger more traditional generators). Although the fuel type associated with embedded generation can vary, the majority comes from renewable sources.

Generation from these units has amounted to 989GWh from January to May 2019, more than any previous year for this period. Since 2016, embedded generation output has risen on average by 4% per year. The highest monthly output for the analysed period was seen in March 2019, where the generation for the month reached 228GWh.

There has been a consistent increase in the number of embedded BM Units registering to become a BSC Party since 2016. As at the end of May 2019, 235 embedded BM Units have been registered, 140 (147%) more than 2016. However, total generation from embedded BM Units has only risen 13% across the same period.

A large proportion of embedded generation plant is located in Scotland. Over the past 4 years, the two Scottish Grid Supply Point (GSP) groups have contributed an average of 27% of the total GB embedded generation.



BALANCING MECHANISM VOLUMES IN APRIL⁴

The total volume of balancing actions taken in the BM for April 2019 was 1,524GWh, a 39% decrease from March 2019. The majority (80%) of balancing volume in April came from Gas BMUs.

Accepted **Bid** volume decreased by 39% from last month. Gas Bid volume accounted for 69%, and Wind 22%, of all Bid volume. Bid volume from Hydro and Wind increased by 84% and 65% respectively.

Accepted **Offer** volume in April decreased by 40% from March 2019. Gas accounted for 90% of Offer volume in April, but was 43% lower than last month in volume terms. Only Biomass (4%) and Pumped Storage (4%) contributed a significant amount of Offer volume this month. Biomass Offer volume increased by 53%, whereas Wind Offer volume decreased 46% compared to the month before.

Volume from **Other** fuel types (mainly Battery Storage) continues to increase. Total BM volume from this fuel type increased 90% from March 2019, but this fuel type still remains small in volume terms.

Fuel Type	Bid Volume (MWh)		Offer Volume (MWh)	
	Apr-19	Mar-19	Apr-19	Mar-19
Coal	-1,092	-2,345	12,054	13,134
Gas	-493,864	-576,382	723,841	1,279,552
Hydro	-8,754	-54,766	7,195	4,991
OCGT	0	0	1,662	270
Pumped Storage	-51,407	-77,609	33,025	28,350
Wind	-154,640	-441,186	1,417	2,635
Biomass	-4,461	-11,320	28,898	18,952
Other	-544	-286	780	700
Grand Total	-714,762	-1,163,893	808,873	1,348,584

TRADING CHARGES IN APRIL⁴

Gross Party Imbalance cashflows were £97m in April 2019, a decrease of 1% from March. Credits for being long increased by £0.7m, and debits for being short decreased by £1.6m, between March and April 2019.

Gross Party Imbalance Volumes decreased by 4%. Energy Imbalance Volumes decreased by 1% for Parties for that were long, and decreased by 7% for those that were short, compared to last month.

April **Offer** cashflow and volume both decreased compared to last month, by 42% and 40% respectively. The average price Offer price also decreased, by 3% to 61.87/MWh.

Net **Bid** cashflow was -£2m in April, compared to £17m in March where cashflow from negative bids was particularly high. April Bid cashflow decreased by 66% for negative Bids, and decreased by 17% for positive Bids, compared to the month before.

Total Cashflow (£m)	Apr-19	Mar-19	Feb-19	Jan-19
Long Imbalance Charge (Credit)	-47.97	-47.23	-54.34	-73.40
Short Imbalance Charge (Debit)	48.87	50.50	51.19	70.06
RCRC Credit	7.17	10.86	6.95	9.02
RCRC Debit	-6.26	-7.60	-10.11	-12.36
Offer Cashflow	50.04	86.26	52.79	41.52
Bid Cashflow (Positive Bids)	-13.70	-16.45	-20.29	-24.16
Bid Cashflow (Negative Bids)	11.23	33.47	10.44	9.96

³ Generation data is taken from the published data in the ELEXON [Trading Operations Report](#).

⁴ Balancing volumes and trading charges appear as per the latest month with Initial Settlement (SF) run data available.