NOTE:

This note supersedes the commentary in the main report.

In line with the latest information from the Western Link website, we have updated our forecast with the Western Link in service from the 16th October onwards.

We have adjusted our constraint forecast by -£6.5m for the remainder of October (19th onwards). The total cost forecast for October has increased by £9.1m since our last forecast, this is because we under forecast BSUoS costs between 10th and 18th October by £9.1m.

Please note that October now includes BM and Trade actuals up to 18th October and Ancillary actual up to 7th October.

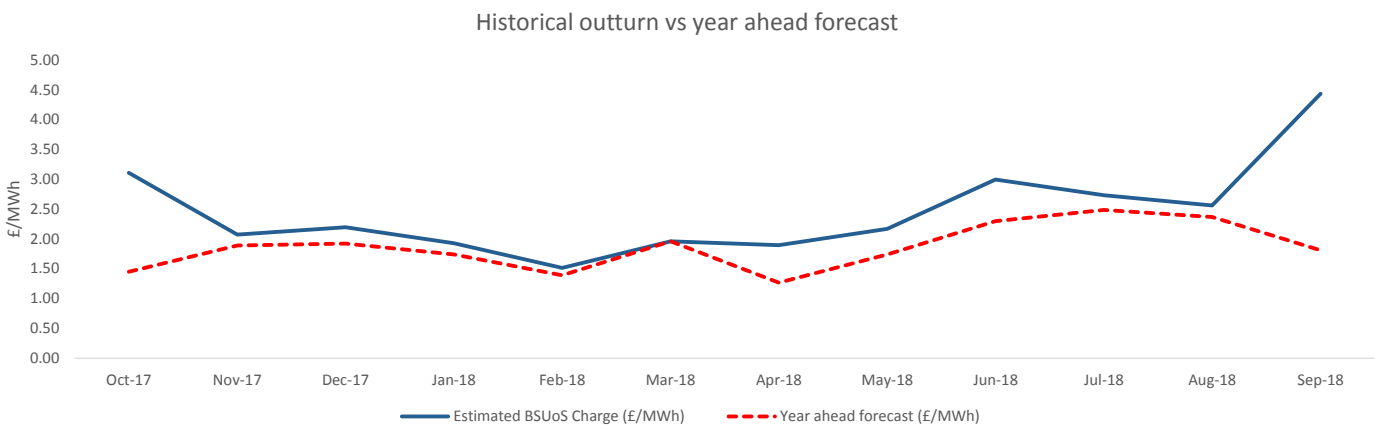
BSUoS Outturn

Average BSUoS charge	£/MWh
Sep-18	4.44
Past 12 months	2.41
2017/18	2.31

Outturn costs for September were significantly higher than forecast. Whilst some provision was made in the forecast for increased constraint costs due to the Western Link fault, additional network outages were also accommodated which further increased constraint costs, however these outages were required to optimise the system for October onwards.

NOTE: Cost categories have been adjusted to align with the daily cost reports and MBSS.

The blue line on the chart shows the estimated monthly average BSUoS charge for the past 12 months. The red line shows our forecast for each month, made at year ahead. The table shows a breakdown of the elements that make up the BSUoS charge (including volume), broken down by cost category. The total cost divided by the volume gives the estimated average charge.



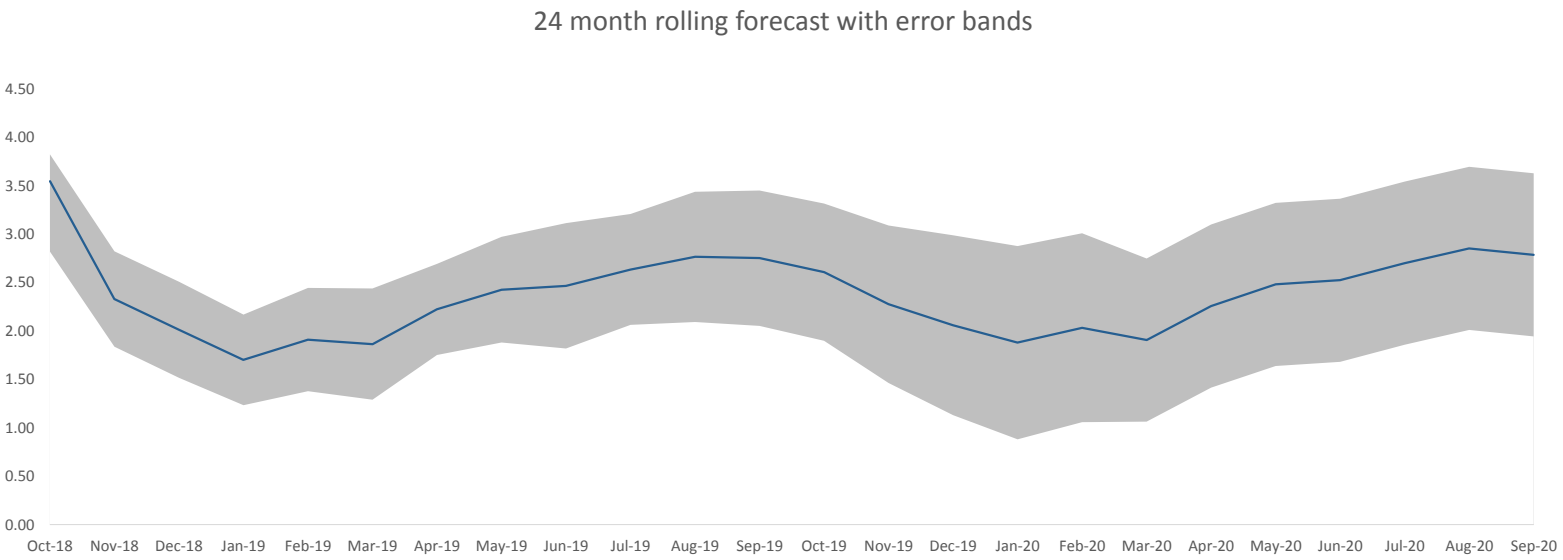
Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18
Energy Imbalance	-2.8	-3.1	5.1	-1.9	-3.0	3.3	-5.7	-6.8	-2.8	-1.1	-3.9	-0.6
Operating Reserve	6.0	6.1	9.0	8.6	9.2	15.9	4.1	4.4	3.5	4.8	4.7	5.6
STOR	6.2	8.9	9.4	9.4	8.6	8.1	6.1	7.0	6.6	7.4	6.7	5.7
Constraints - E&W	10.0	16.3	9.8	12.3	4.0	14.2	9.1	20.3	33.3	37.3	32.3	78.4
Constraints - Cheviot	54.6	15.5	19.2	11.9	5.4	2.3	13.2	1.5	7.8	1.4	1.6	18.2
Constraints - Scotland	2.9	7.1	5.2	5.4	2.8	1.4	0.4	2.1	6.3	0.2	1.3	4.1
Constraints - AS	1.7	2.7	1.9	0.5	0.4	3.7	2.7	0.9	3.8	0.2	0.3	1.3
Negative Reserve	0.8	0.6	0.1	0.9	0.1	0.4	0.4	2.1	0.4	0.6	0.4	0.4
Fast Reserve	7.6	7.0	7.7	8.1	6.9	7.8	6.5	6.5	6.0	7.6	8.2	7.0
Response	11.4	10.3	11.4	10.4	9.3	11.6	11.0	12.2	11.5	10.5	10.7	11.4
Other Reserve	1.6	1.2	1.3	1.6	1.2	1.1	0.8	0.9	0.8	1.2	1.2	1.1
Reactive	6.3	6.2	6.7	6.6	5.7	5.9	6.5	7.1	7.4	6.6	6.7	6.2
Minor Components	3.3	0.9	2.1	1.8	1.6	1.2	1.4	1.0	1.2	1.2	2.1	1.4
Black Start	4.6	3.5	4.5	3.8	3.4	3.7	3.4	3.7	3.2	3.1	3.6	3.7
Total BSUos	114.0	83.4	93.4	79.4	55.3	80.7	59.8	62.9	89.0	80.8	75.9	143.7
Estimated BSUos Vol (TWh)	41.5	47.2	49.2	48.9	45.4	48.7	40.4	37.0	35.3	36.0	36.4	36.2
Estimated Internal BSUos(£m)	14.0	13.5	14.0	14.0	12.6	14.0	15.6	16.1	15.6	16.1	16.1	15.6
Estimated NGET Profit/(Loss)	0.8	0.8	0.8	0.8	0.8	0.8	1.2	1.3	1.2	1.3	1.3	1.2
Estimated BSUoS Charge (£/MWh)	3.11	2.07	2.20	1.93	1.51	1.96	1.90	2.17	3.00	2.73	2.56	4.44
Year ahead forecast (£/MWh)	1.45	1.89	1.92	1.74	1.39	1.96	1.27	1.74	2.30	2.49	2.37	1.81

BSUoS Forecast

Average BSUoS charge	£/MWh
Oct-18	3.55
2018/19	2.45
2019/20	2.30
Next 12 months	2.34

October forecast includes outturn for 1st-9th Oct. The remainder of the month includes increased constraint costs whilst we continue to assume the Western Link is out of service. However, with the return of a significant outage driving constraints in Northern England, we should still see a reduction in constraint costs. In November, constraint costs have increased to cover outages in Scotland and potential costs associated with NEMO link commissioning (as per project timeline). In addition, Operating Reserve costs have been reduced in October and November, however costs in November remain high due to some Nuclear plant being unavailable during a period of increased demand.

The chart shows the average monthly BSUoS forecast for the next 24 months. The grey band shows the upper and lower range of the forecast. The forecast uses a combination of forecast models and historical data. Constraint costs are adjusted in line with major changes to the outage plan, system faults, and commissioning programmes. The other energy cost categories are forecast using a baseline of historical trends with adjustments for expected changes in system operation or balancing services markets.



Month	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
Energy Imbalance	0.9	-1.5	-1.7	-0.9	1.1	-1.9	-6.9	-4.9	-4.2	-3.5	-4.1	-2.3	-1.5	-1.5	-1.7	-0.9	1.0	-2.0	-6.9	-4.9	-4.2	-3.5	-4.1	-2.3
Operating Reserve	6.9	12.1	11.7	9.8	12.8	13.1	8.2	8.9	5.8	7.0	8.2	14.1	16.3	16.1	11.8	10.0	13.0	12.9	8.3	9.0	5.8	7.0	8.2	14.1
STOR	6.0	7.4	7.5	7.6	6.5	7.4	5.2	5.6	5.4	6.0	5.8	6.3	6.2	7.4	7.5	7.6	6.5	7.6	5.2	5.6	5.4	6.0	5.8	6.3
Constraints	84.0	44.7	29.4	15.9	17.8	23.3	21.3	25.2	23.7	27.5	31.6	29.6	28.6	30.5	26.5	19.9	19.1	19.5	21.3	25.2	23.7	27.5	31.6	29.6
Negative Reserve	0.4	0.5	0.5	0.6	0.1	0.2	0.4	0.9	1.6	1.8	1.7	1.8	1.2	0.5	0.5	0.6	0.1	0.2	0.4	0.9	1.6	1.8	1.7	1.8
Fast Reserve	7.6	7.9	10.0	10.3	8.7	9.7	9.0	9.0	8.8	9.1	9.6	8.8	9.1	9.4	10.0	10.3	8.7	9.9	9.0	9.0	8.8	9.1	9.6	8.8
Response	10.3	11.3	12.1	11.9	12.3	11.4	11.8	11.6	11.2	11.8	11.6	11.5	11.7	11.3	11.4	11.2	11.1	11.6	11.8	12.6	11.9	12.6	13.1	11.3
Other Reserve	1.4	1.2	1.3	1.6	1.2	1.1	1.1	0.9	1.0	1.2	1.3	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.1	0.9	1.0	1.2	1.3	1.0
Reactive	6.2	5.8	6.4	6.3	5.1	5.4	6.0	6.8	6.4	6.2	6.1	5.9	6.1	5.8	6.4	6.3	5.1	5.4	6.0	6.8	6.4	6.2	6.1	5.9
Minor Components	0.7	-1.1	-0.3	-2.0	1.1	-0.8	1.8	2.1	1.4	1.1	0.1	-0.3	0.9	-0.8	0.0	-1.6	1.3	-0.6	3.0	3.0	2.6	2.6	1.5	1.1
Black Start	3.8	3.7	3.8	3.8	3.5	3.8	3.7	3.8	3.7	3.8	3.8	3.7	3.8	3.7	3.8	3.8	3.5	3.8	3.7	3.8	3.7	3.8	3.8	3.7
Total BSUos	128.1	92.0	80.7	64.9	70.2	72.6	61.8	69.8	65.0	72.1	75.7	80.1	83.4	83.3	77.2	68.2	70.4	69.3	63.0	71.7	66.9	74.2	78.6	81.3
Esitmated BSUos Vol (TWh)	41.0	46.7	48.7	48.4	44.9	48.3	35.3	35.8	33.1	33.8	33.6	35.1	38.6	43.9	45.8	45.4	42.2	45.3	35.3	35.8	33.1	33.8	33.6	35.1
Estimated Internal BSUos(£m)	16.1	15.6	16.1	16.1	14.5	16.1	15.6	16.1	15.6	16.1	16.1	15.6	16.1	15.6	16.1	16.1	14.6	16.1	15.6	16.1	15.6	16.1	16.1	15.6
Esitmated NGET Profit/(Loss)	1.3	1.2	1.3	1.3	1.2	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Esitimated BSUoS Charge (£/MWh)	3.55	2.33	2.01	1.70	1.91	1.86	2.22	2.43	2.47	2.64	2.77	2.75	2.61	2.28	2.06	1.88	2.03	1.91	2.26	2.48	2.52	2.70	2.85	2.79
High Error Band (£/MWh)	3.82	2.82	2.51	2.17	2.44	2.44	2.69	2.97	3.11	3.21	3.44	3.45	3.32	3.09	2.99	2.88	3.01	2.75	3.10	3.32	3.37	3.54	3.70	3.63
Low Error Band (£/MWh)	2.81995	1.83786	1.51693	1.23393	1.37842	1.29061	1.75224	1.88116	1.81931	2.0634	2.09288	2.05267	1.89903	1.4632	1.13122	0.88162	1.05881	1.06412	1.4153	1.63849	1.68149	1.85826	2.01089	1.94394

BSUoS Volatility and Forecast Accuracy

The first chart shows the volatility of the cost categories that make up BSUoS. Constraint costs shown in red are the most variable and difficult to predict, mainly driven by the output of wind generation combined with the transmission outage plan at the time. A fault on the transmission system can add to the underlying volatility and cause large unforeseen increases in constraint costs. Reserve, shown in yellow, is generally stable but can have large deviations when the cost of generator margin increases significantly when generation is short. Predicting increases in the cost of reserve is difficult at long timescales, and can have a significant impact on the average BSUoS charge. Energy Imbalance is the other category that contributes to BSUoS volatility, which is the cost of residual balancing when the energy market is long or short. The other cost categories are relatively stable across the year, although there may be longer term trends that we consider.

The second chart shows the annual outturn BSUoS charge compared with the forecast made at 12 months ahead, and the absolute percentage error for each year.

The third chart shows the month ahead forecast compared with outturn and absolute percentage error.