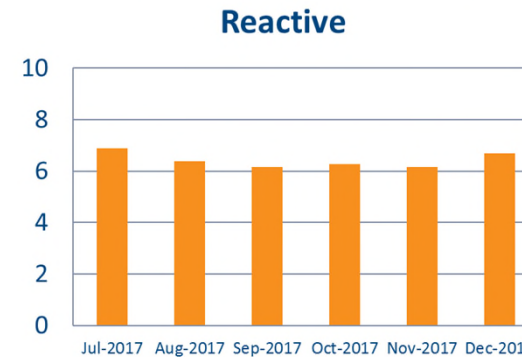
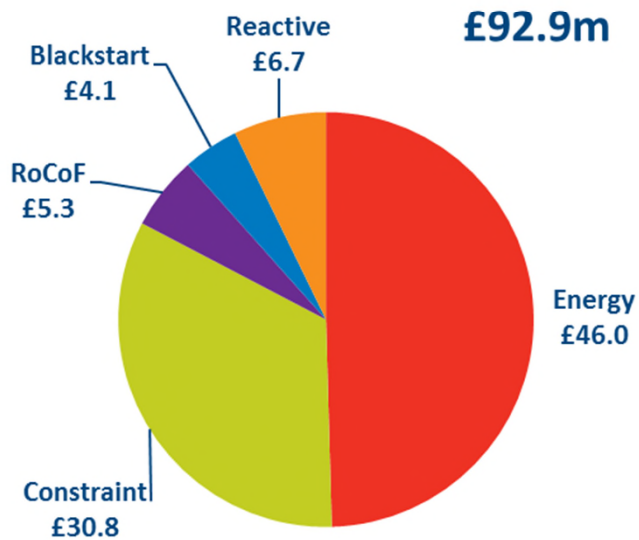
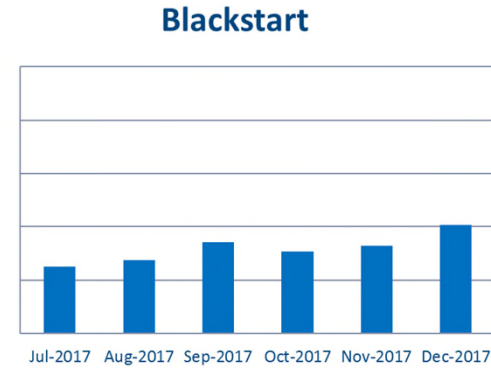
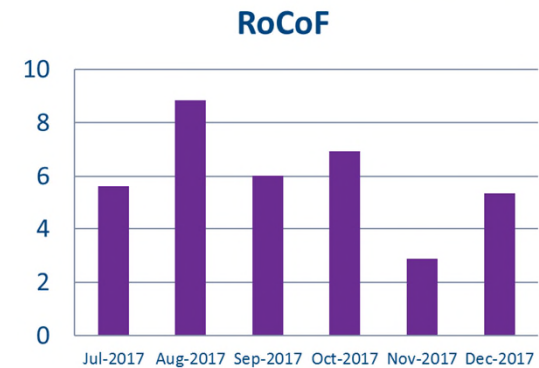
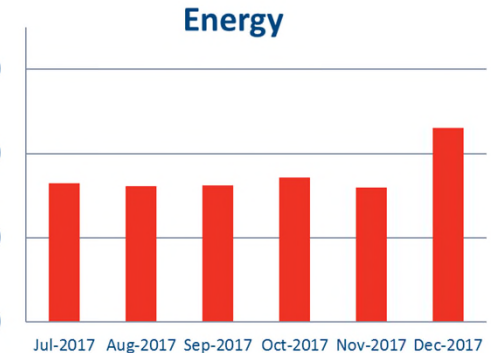
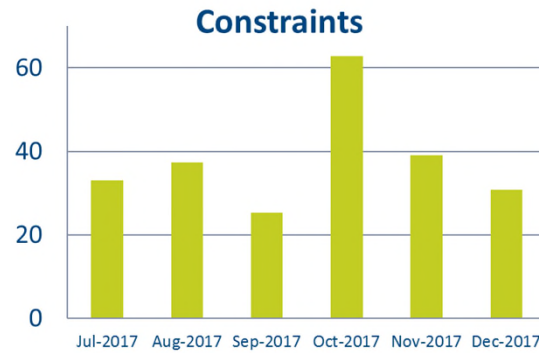
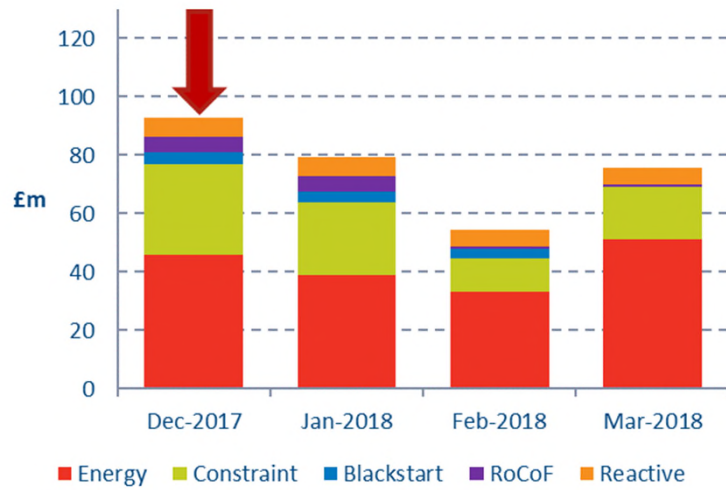


System Cost Update

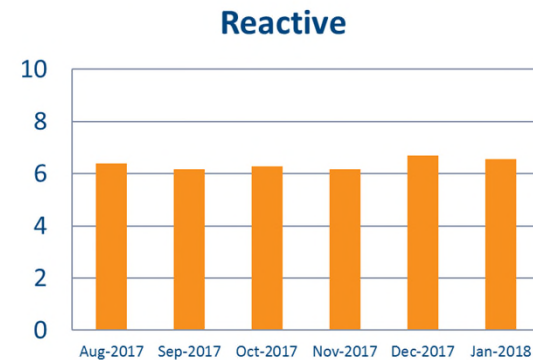
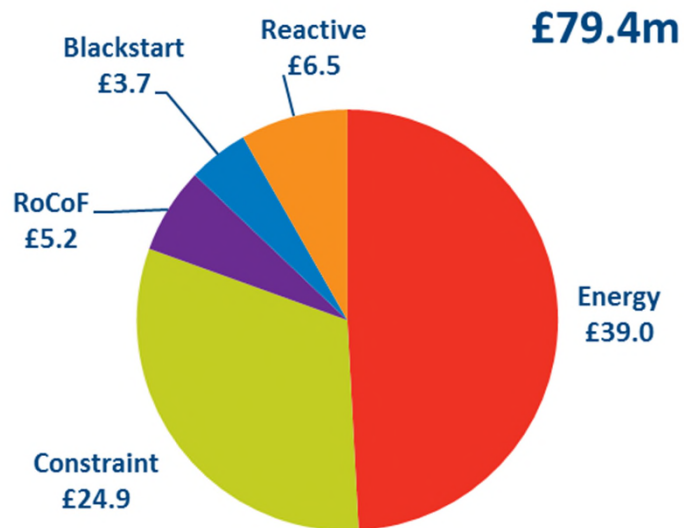
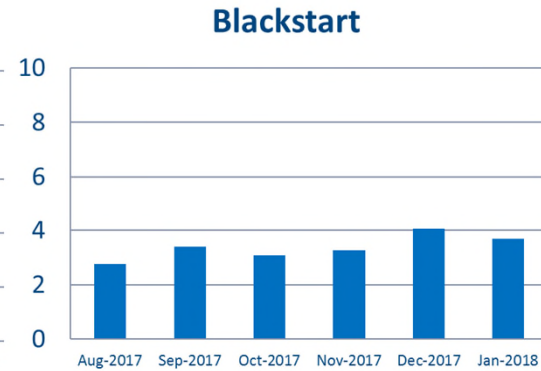
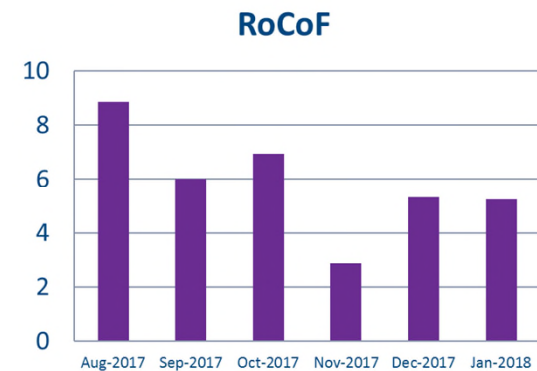
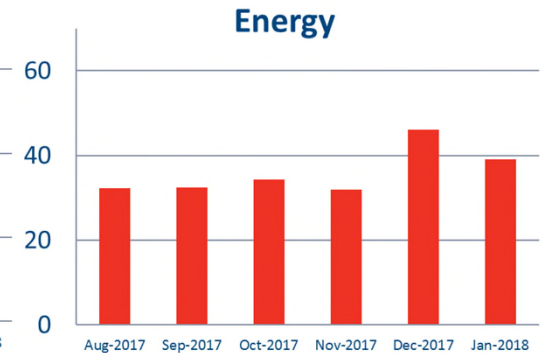
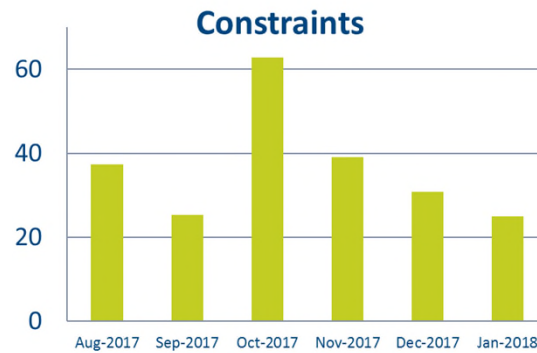
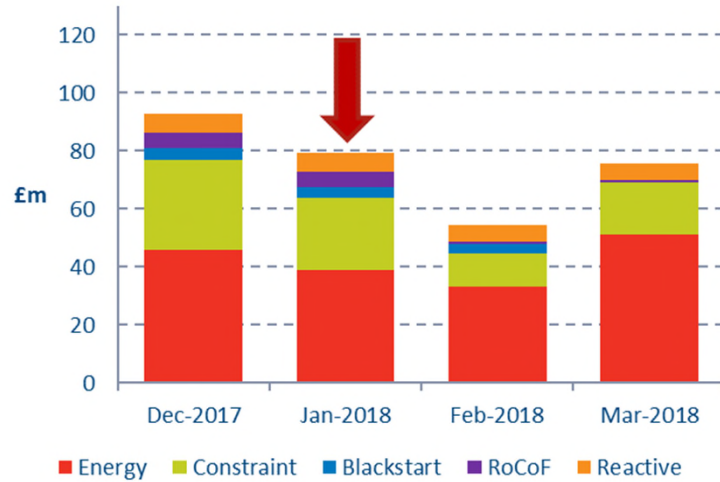


April 2018

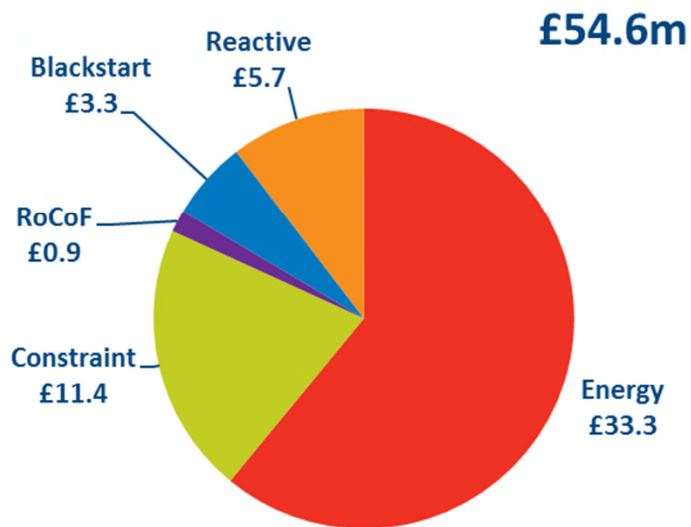
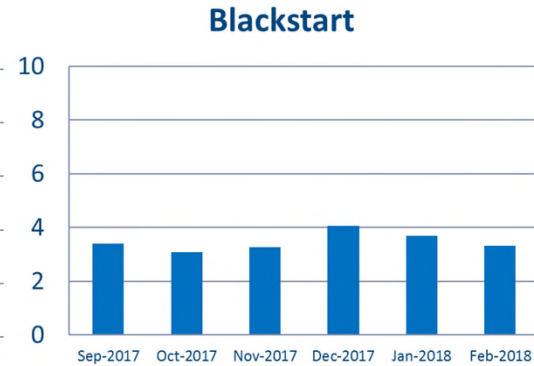
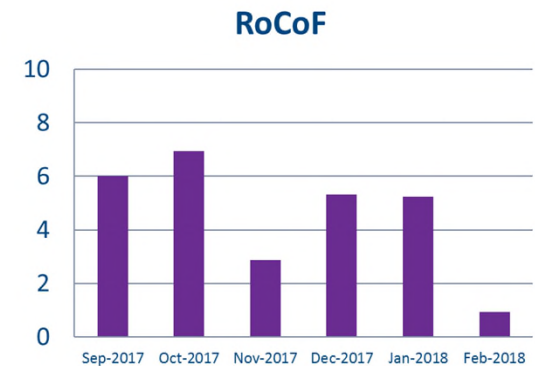
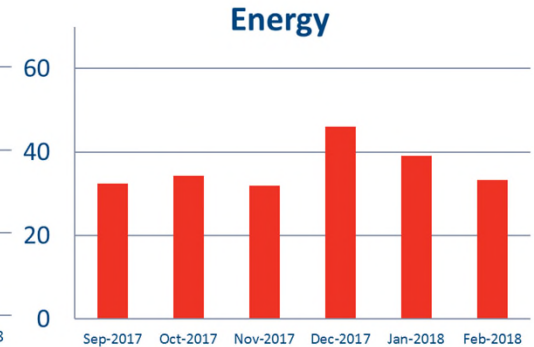
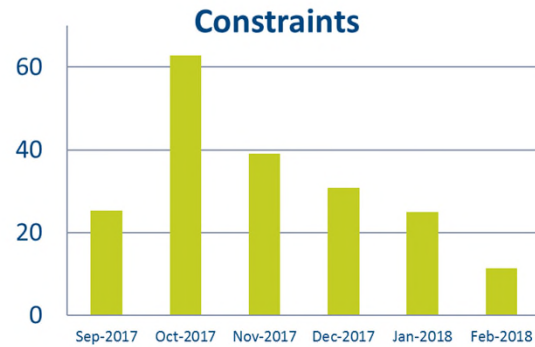
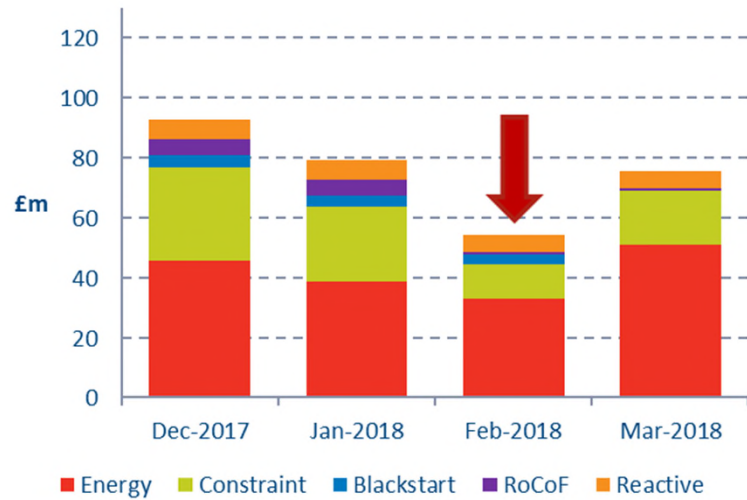
December 2017 : £2.17/MWh



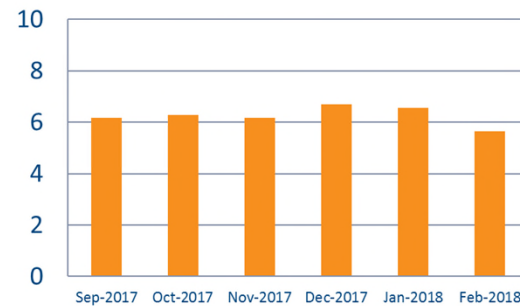
January 2018 : £1.91/MWh



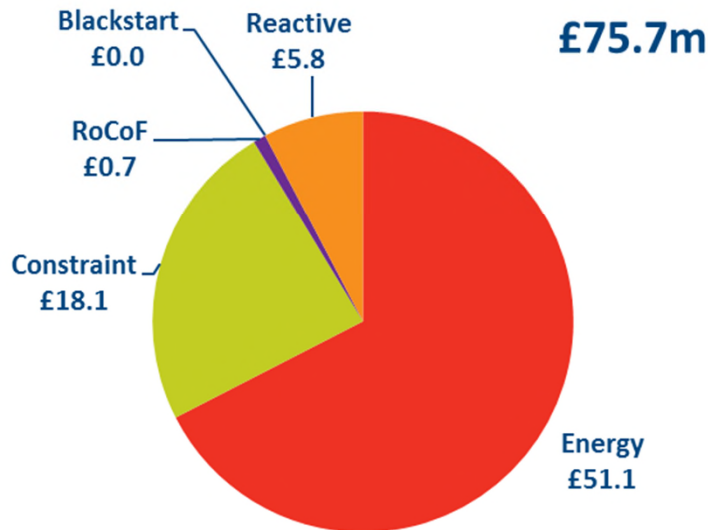
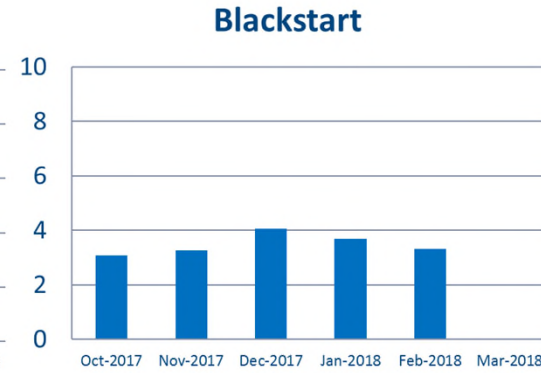
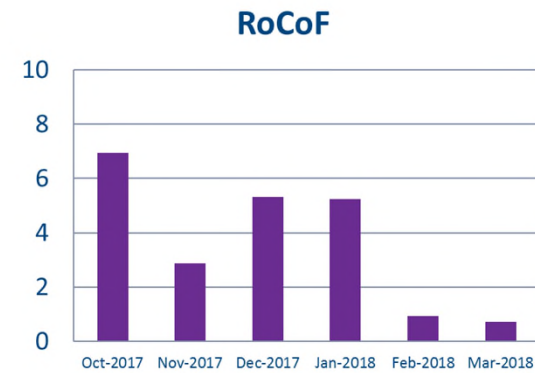
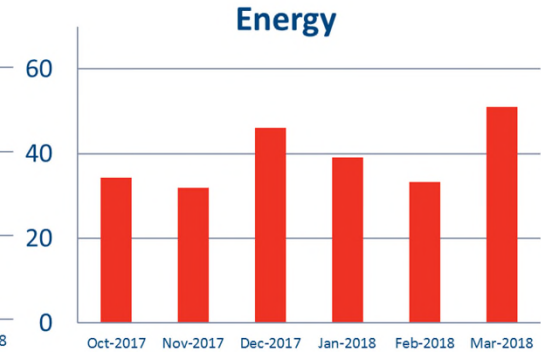
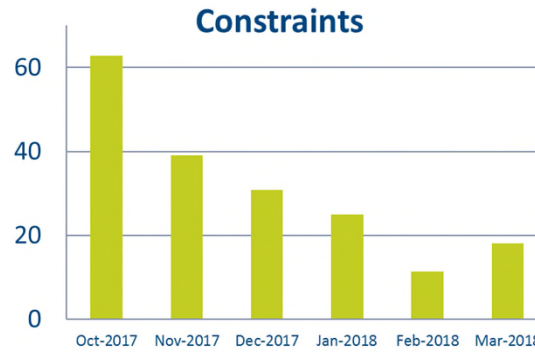
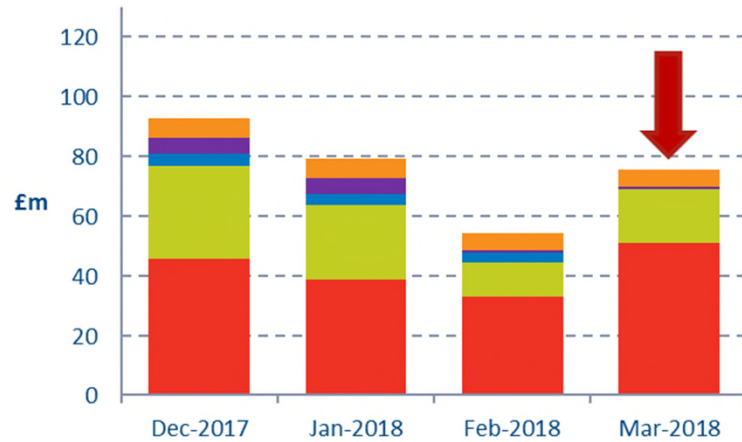
February 2018 : £1.48/MWh



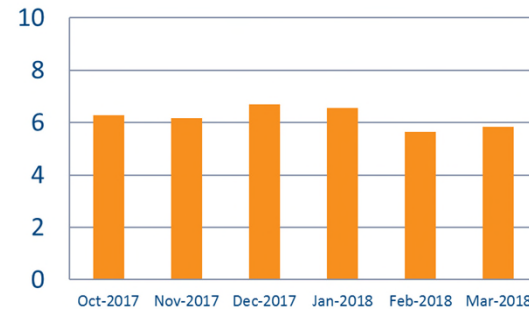
Reactive



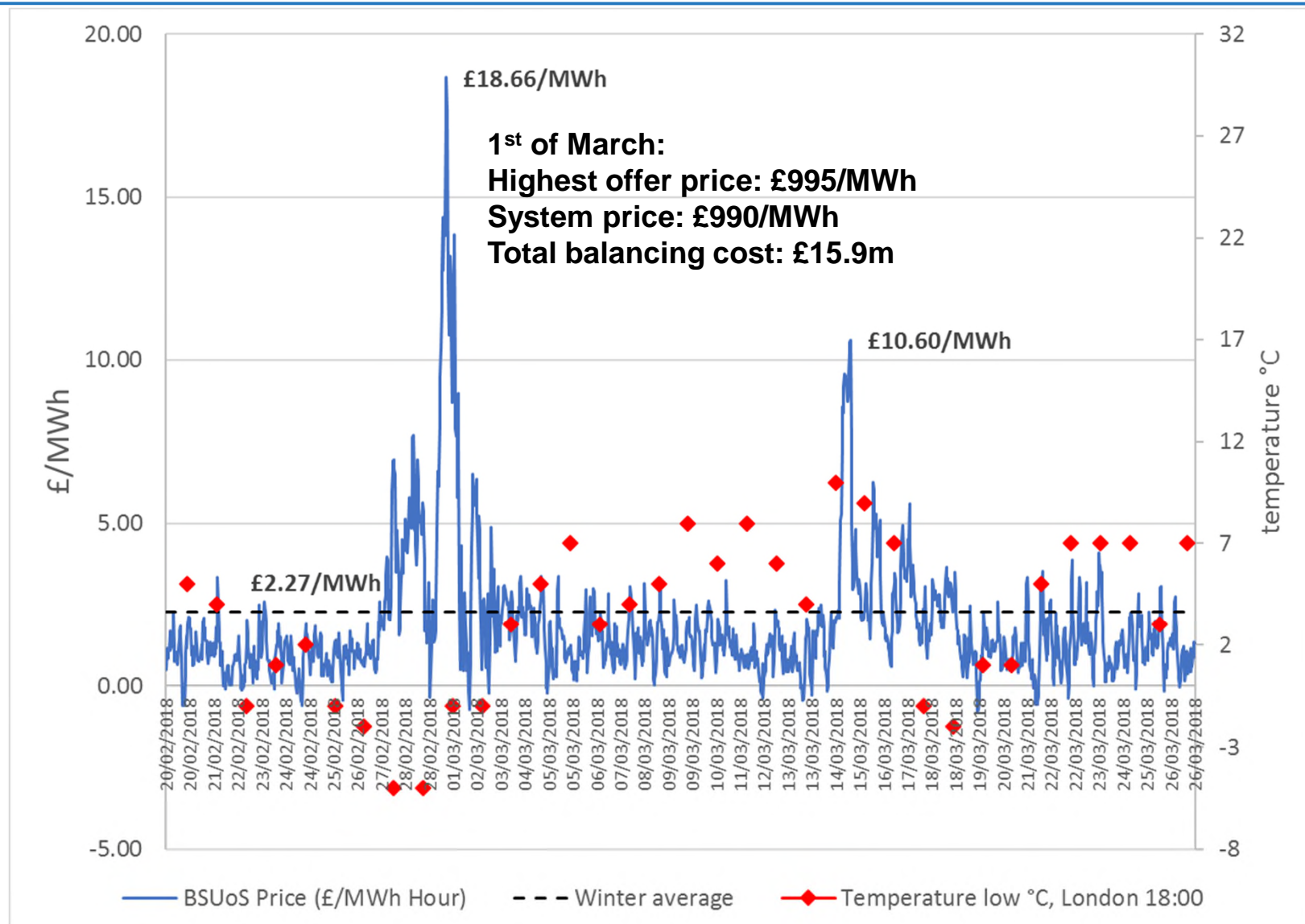
March 2018 : £1.91/MWh



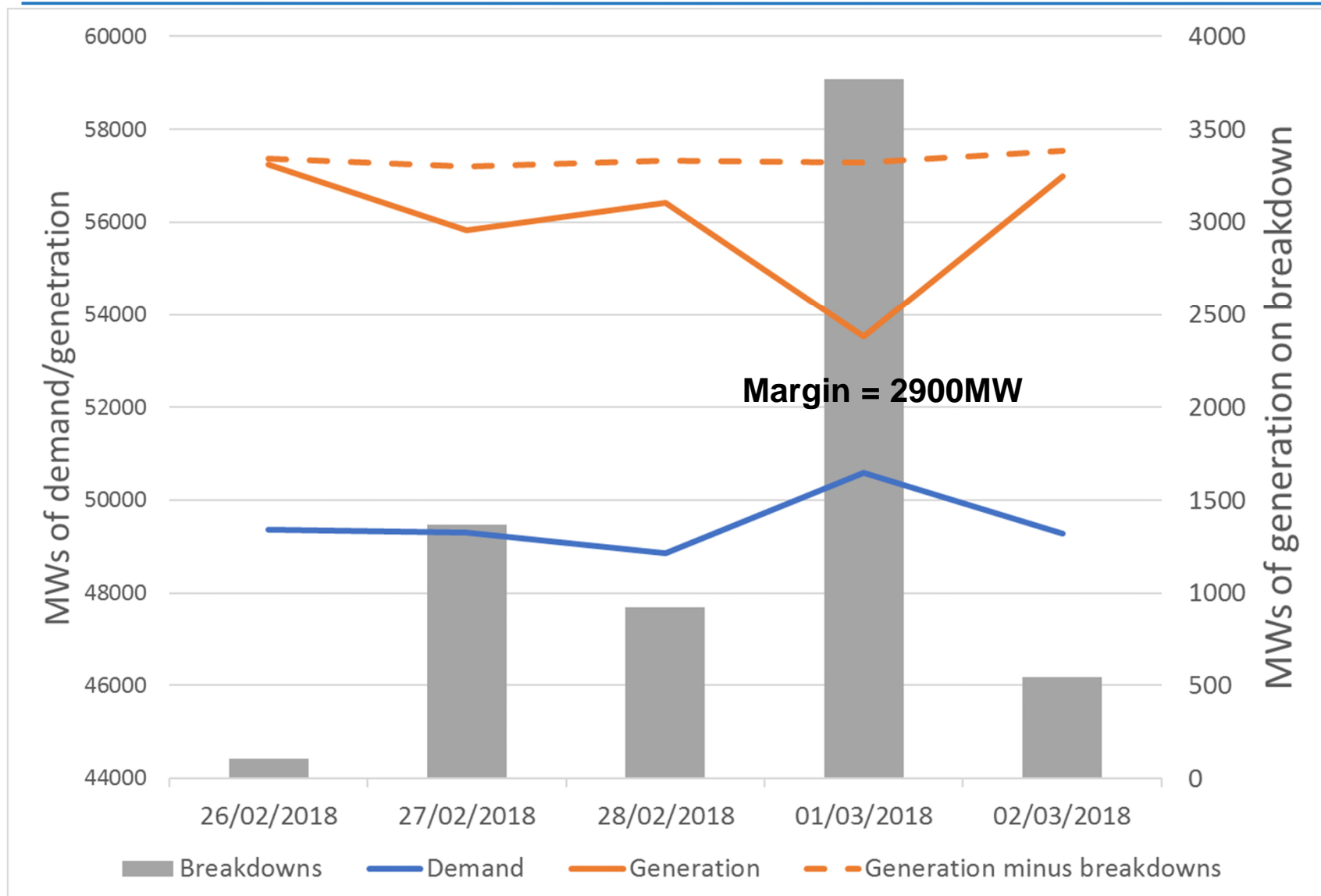
Reactive



'Beast from the east'



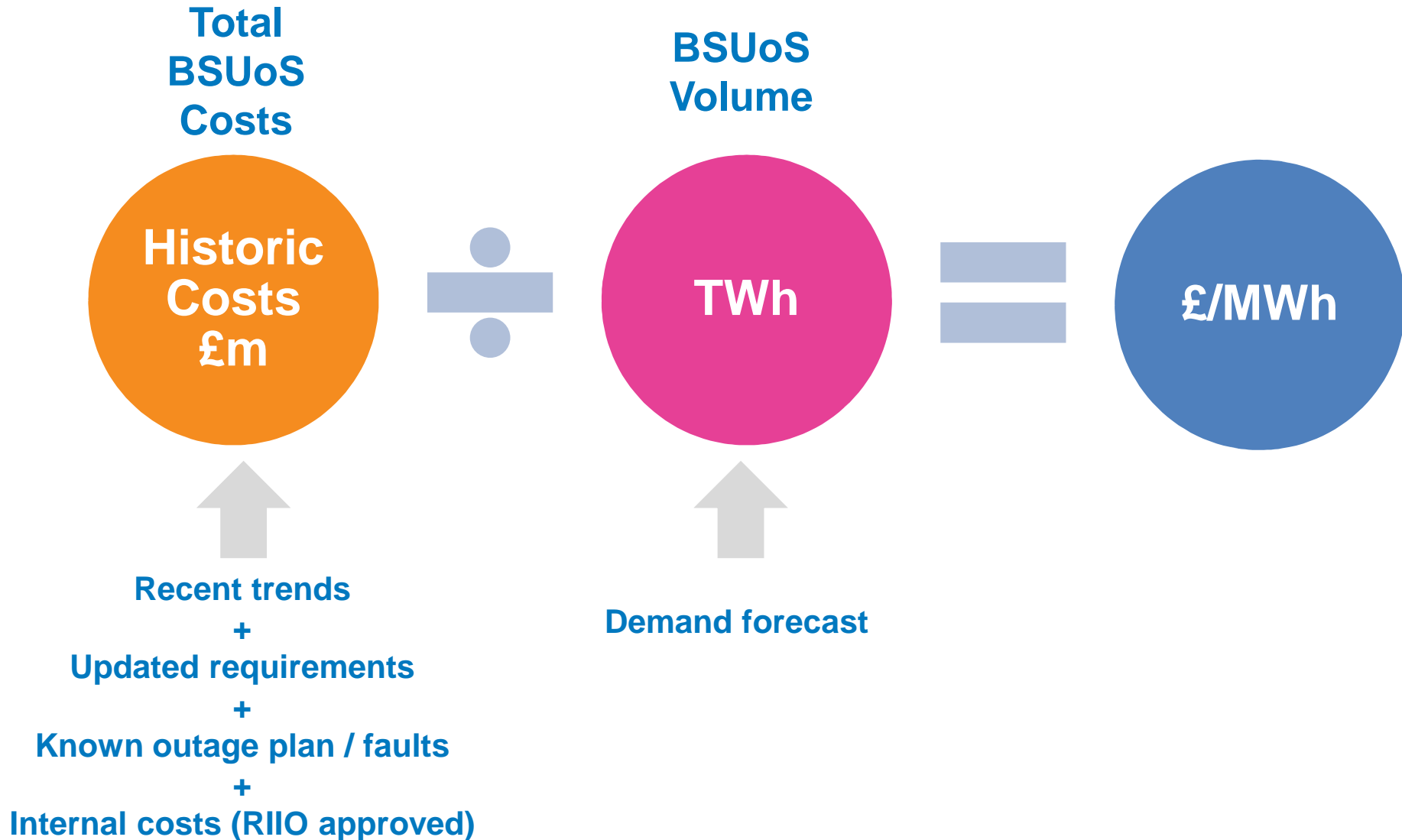
Margin and generator breakdowns



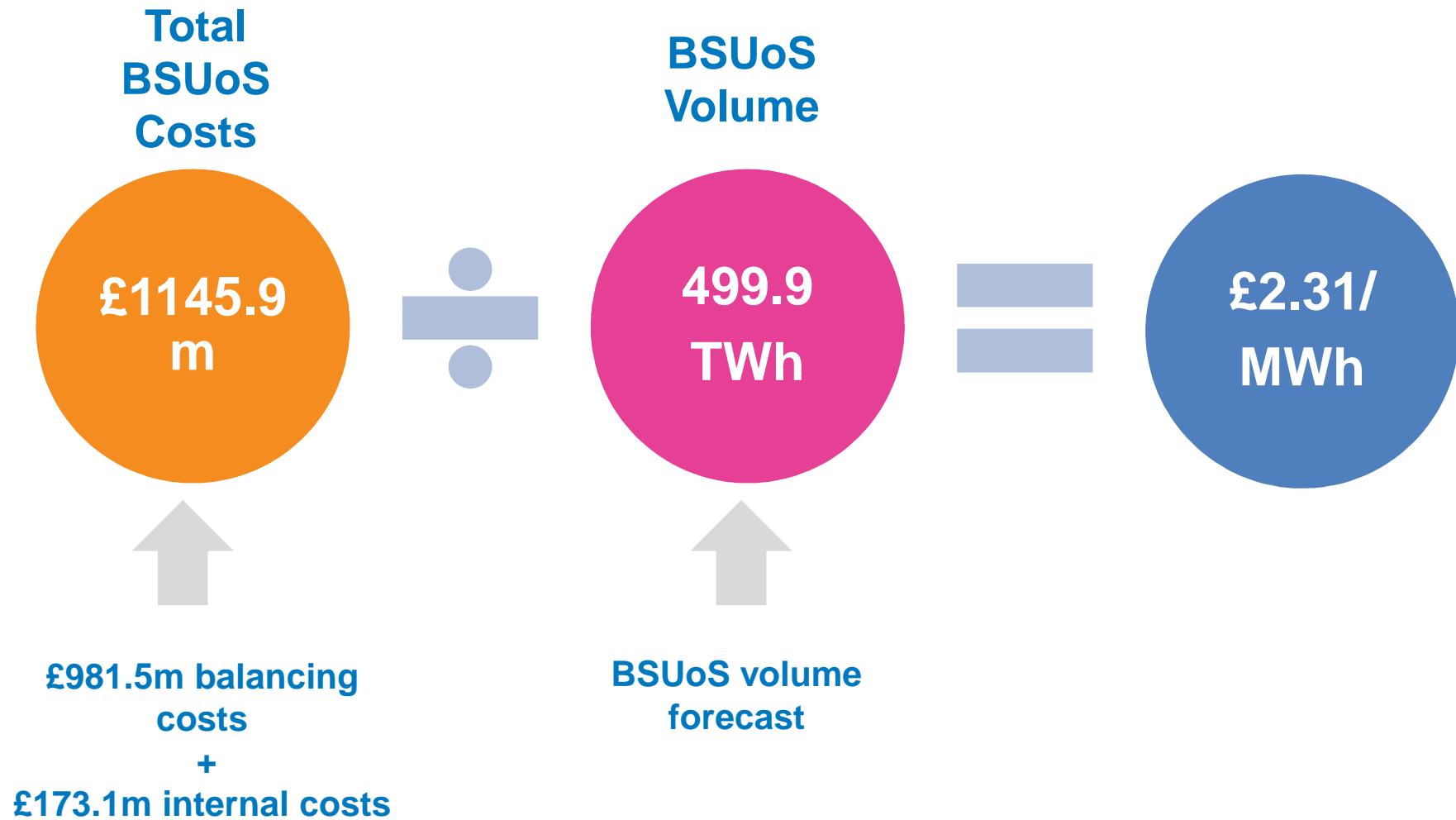
Balancing Service Use of System (BSUoS) Forecasting



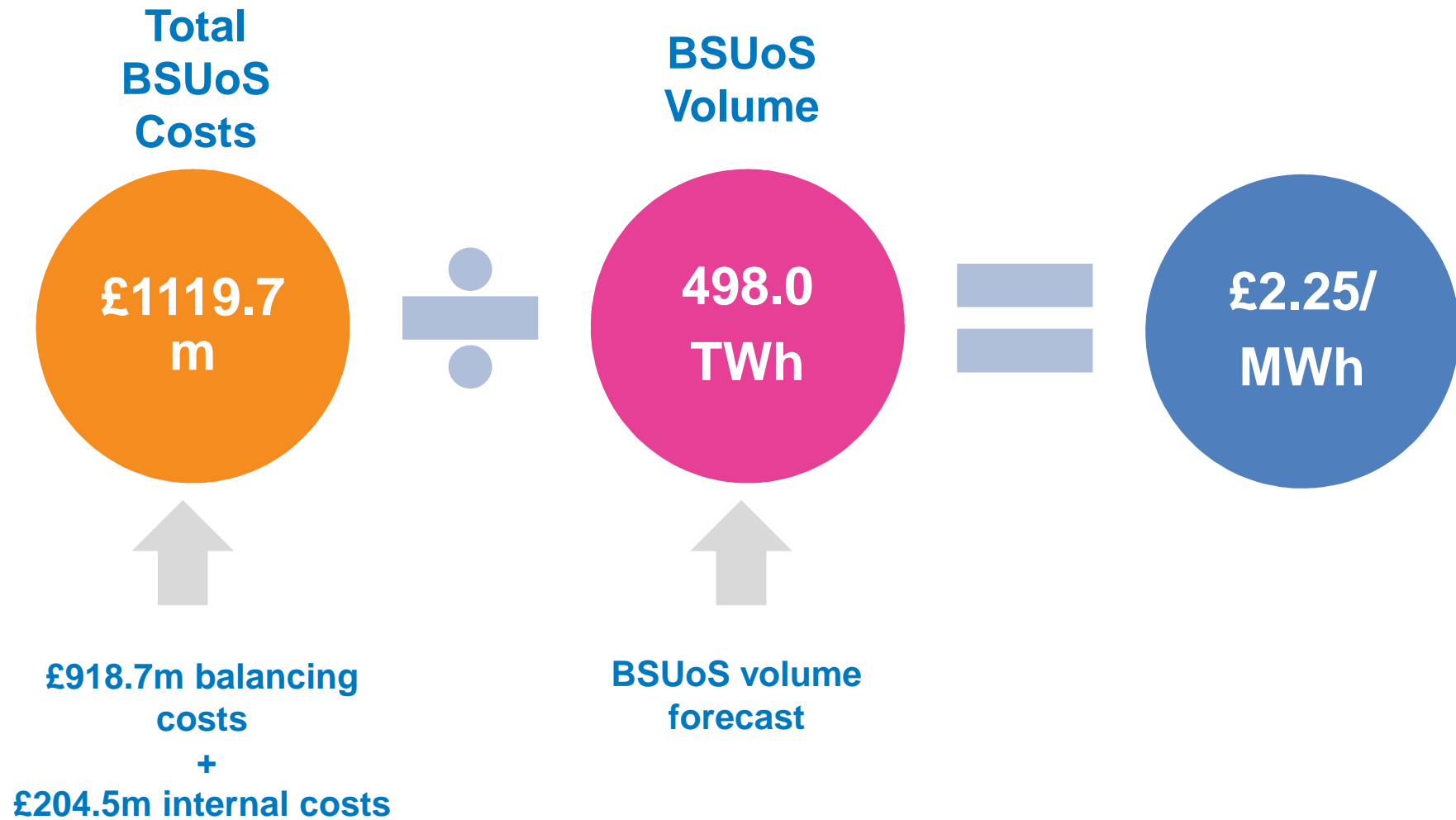
How do we forecast BSUoS each month?



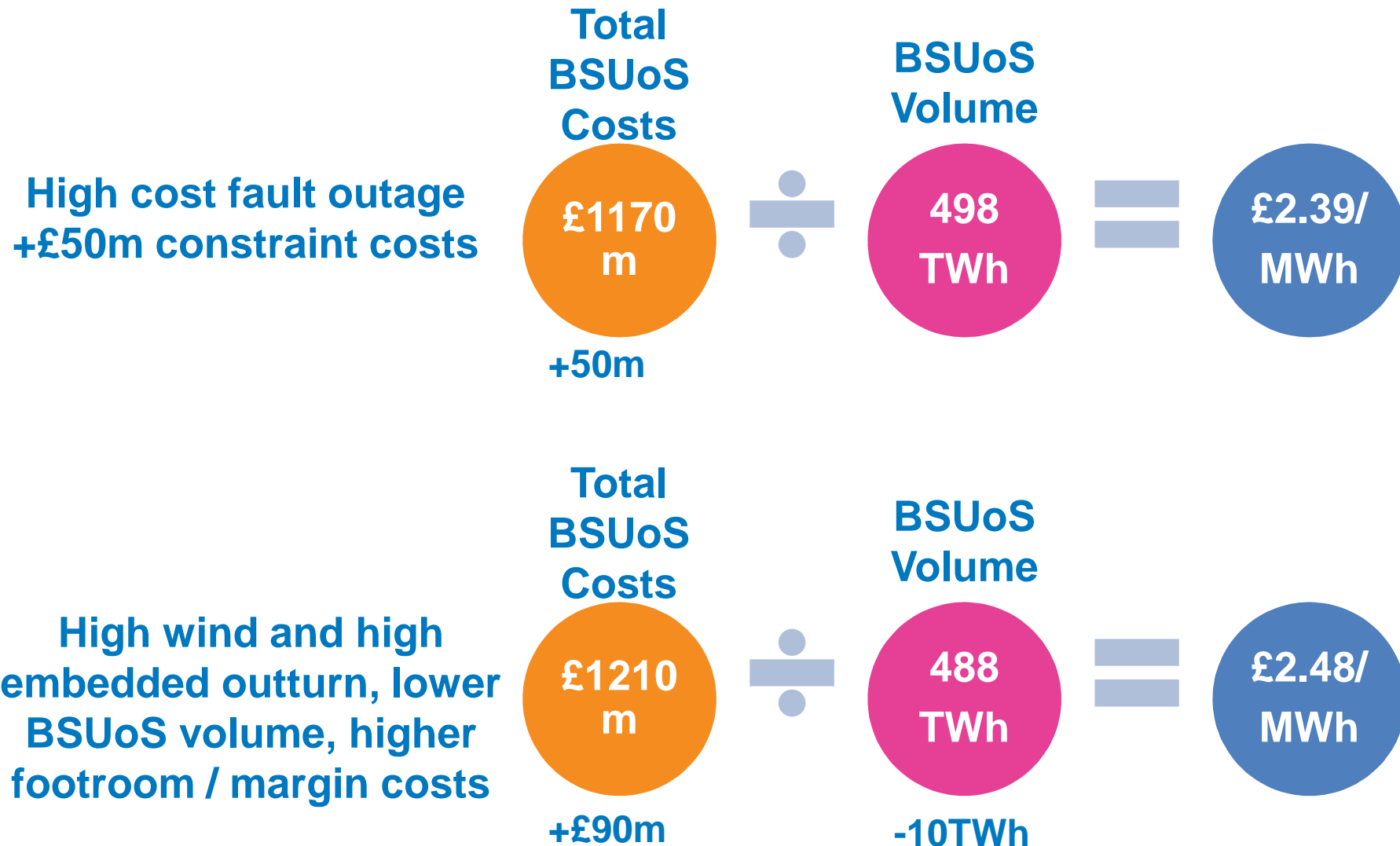
BSUoS outturn 17/18 – as at April 2018



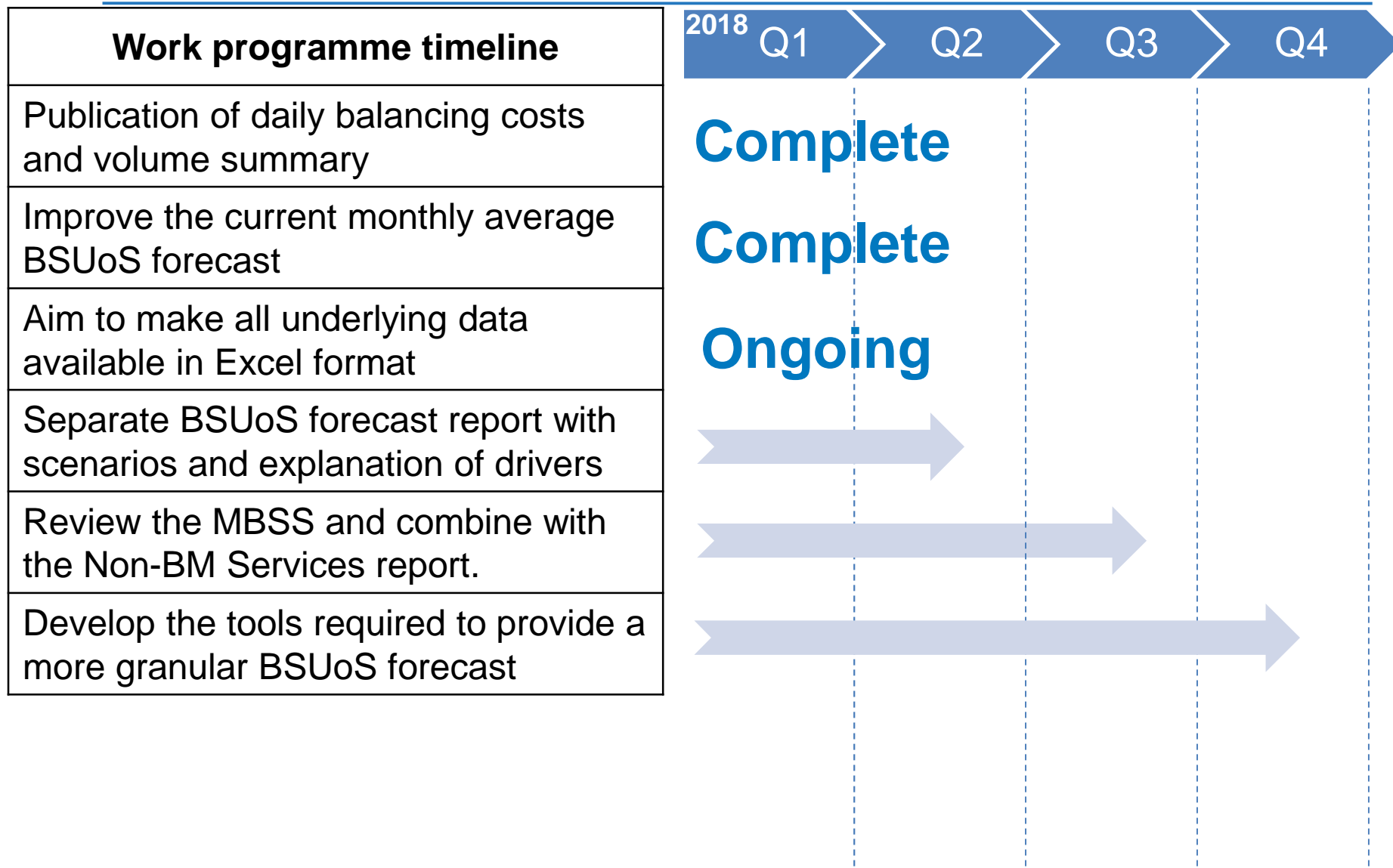
BSUoS 18/19 forecast – as at April 2018



BSUoS sensitivity analysis 18/19



Forecast improvements and transparency

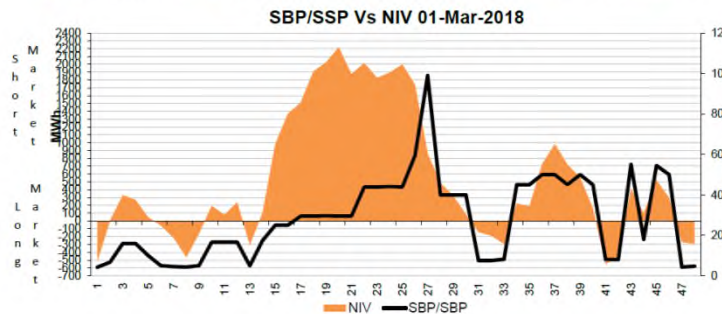
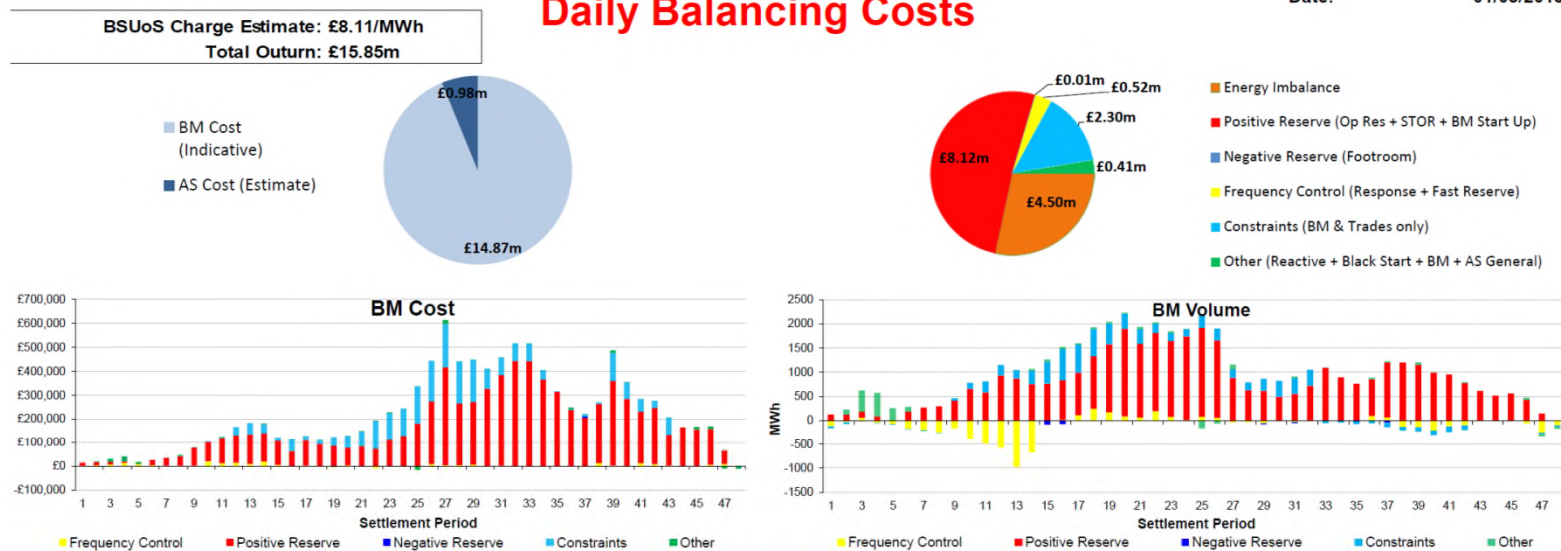


New Reporting

Daily Balancing Cost Report (available now)

<https://www.nationalgrid.com/uk/electricity/market-operations-and-data/system-balancing-reports>

Date: 01/03/2018



Commentary

Special actions were taken to cover risk of potential gas plant interactions following GNCC issuing a Gas Deficit Warning for Gas Day commencing 6am. This uncertainty compounded widespread technical issues with generating plants' performance throughout the day, which were mainly due to the low ambient temperatures being experienced across GB. A significant volume of generation expected to synchronise for the morning pick-up failed to do so or was delayed. In the late afternoon, an interconnector was declared to half its capability for the rest of the day following a technical fault. To address the short market, additional generation was required. Furthermore, the darkness peak was the highest recorded for this winter period, with a half hour average 18:00 to 18:30hrs of 50.1GW. Some BM actions were taken to solve power flow restrictions between Scotland and England and to manage voltages levels. Overnight Trades on the interconnectors were taken for Rocof.

New Reporting

BSUoS Forecast Report (end of May)

<https://www.nationalgrid.com/uk/electricity/market-operations-and-data>

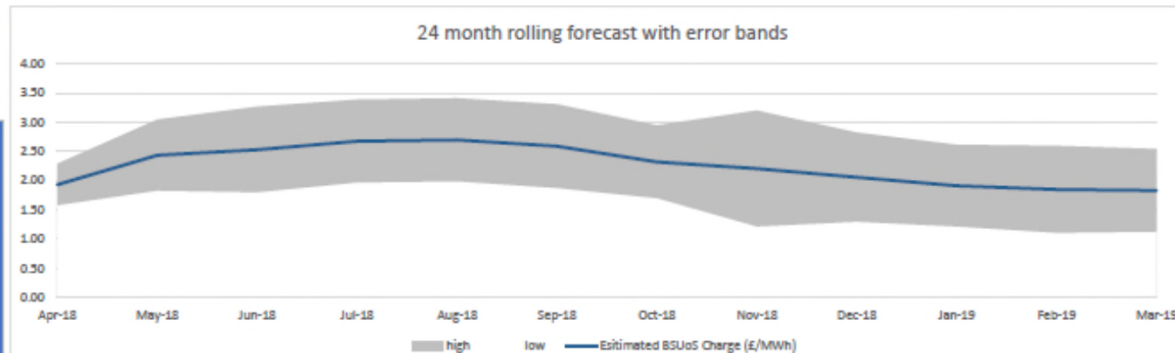
BSUoS Forecast

National Grid

Reporting month: February

Average BSUoS charge	£/MWh
April (next month)	1.93
2017/18	2.47
2018/19	2.253511556

Explanation of any changes to the forecast



Month	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Energy Imbalance	-8.3	-1.1	-3.0	-2.9	-2.7	-1.3	-2.8	-3.0	-3.0	-3.0	-3.0	-3.0
Operating Reserve	6.0	10.2	6.0	5.1	6.2	6.2	6.3	10.0	10.0	10.0	7.6	7.2
BM Startup	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3
STOR	5.5	6.8	6.0	6.5	6.3	5.9	6.1	7.0	8.7	7.0	6.2	6.2
Constraints - E&W	-1.0	1.2	-0.4	2.1	-1.0	2.0	1.1	1.3	0.9	0.3	1.1	-1.3
Constraints - Cheviot	19.2	20.1	27.1	30.5	31.2	31.9	32.0	30.5	28.8	26.4	19.6	20.0
Constraints - Scotland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Footroom	1.2	1.3	1.5	1.7	1.2	1.2	1.0	0.8	0.8	0.8	0.8	1.0
Fast Reserve	8.4	7.3	7.4	7.1	7.0	7.3	7.4	7.2	7.2	7.5	7.1	7.2
Response	12.0	12.2	11.6	13.0	13.5	12.2	11.0	10.5	10.0	10.0	11.0	11.0
Reactive	7.0	8.0	7.5	7.5	7.4	7.3	8.3	8.1	9.4	9.0	8.2	9.5
Minor Components	1.4	1.3	1.1	1.6	0.4	0.3	1.1	0.9	-0.9	-1.3	0.4	-1.0
ROCOF (E&W)	5.8	3.8	7.2	5.6	8.8	6.0	6.9	6.3	6.3	6.3	6.3	6.3
Black Start (non-incentivised)	3.7	3.8	3.7	3.8	3.8	3.7	3.8	3.7	3.8	3.8	3.5	3.8
Total BSUoS	60.9	75.0	75.6	81.6	82.2	82.8	82.2	83.4	82.0	76.8	68.8	67.3
Estimated BSUoS Vol (TWh)	39.6	37.4	36.0	36.5	36.4	38.0	42.4	44.9	47.6	48.6	45.1	45.5
Estimated NGET Profit/(Loss)												
Estimated Internal BSUoS(£m)	15.6	16.1	15.6	16.1	16.1	15.6	16.1	15.6	16.1	16.1	14.5	16.1
Estimated BSUoS Charge (£/MWh)	1.93	2.44	2.53	2.68	2.70	2.59	2.32	2.21	2.06	1.91	1.85	1.83

New Reporting

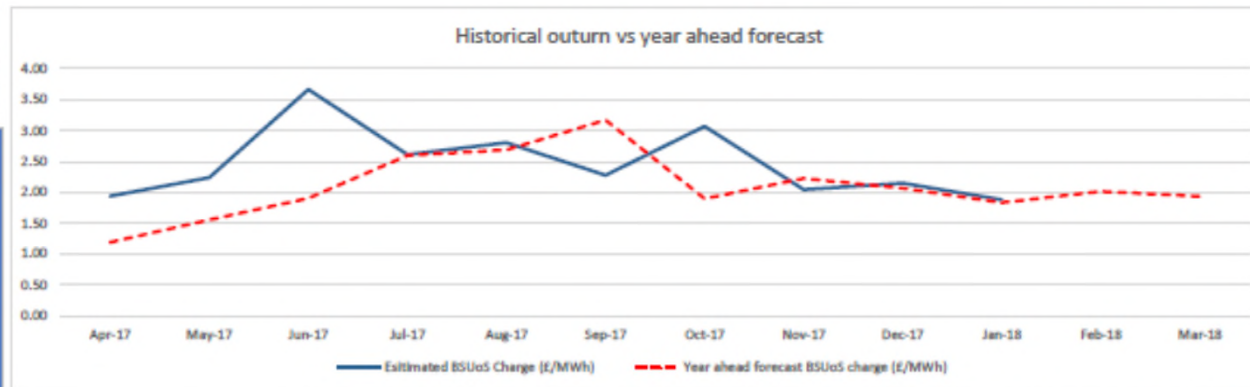
BSUoS Outturn

National Grid

Reporting month: February

Average BSUoS charge	£/MWh
December (last month)	0.0
Past 12 months	2.47
2016/17	2.21

Narrative behind outturn costs, last months and 12 months to date. E.g. A fault outage on Eccles – Torness has increased the cost of constraints over the past 3 months... The expected return to service in ... we have adjusted our forecast to account for this additional cost.



Month	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18
Energy Imbalance	-8.4	-1.0	-3.1	-3.0	-2.7	-1.3	-2.8	-3.1	5.1	-1.9	-3.9	-3.0
Operating Reserve	5.9	10.0	5.8	4.6	6.0	5.9	6.3	6.2	9.0	8.8	5.2	7.2
BM Startup	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3
STOR	5.7	6.9	6.0	6.6	6.4	5.9	6.2	8.9	9.4	9.4	7.5	6.2
Constraints - E&W	5.9	15.1	32.5	12.3	11.3	7.1	4.9	16.3	6.4	7.5	3.0	5.0
Constraints - Cheviot	9.5	0.8	24.4	18.1	21.6	17.2	35.0	15.5	19.2	11.9	11.9	26.3
Constraints - Scotland	4.2	1.7	10.2	2.7	4.5	1.0	3.0	7.1	5.2	5.4	2.6	0.0
Footroom	1.2	2.6	1.2	1.3	0.9	0.7	0.8	0.6	0.1	0.9	0.3	1.2
Fast Reserve	7.4	7.5	7.5	7.2	8.0	7.6	9.0	8.1	8.6	9.1	6.9	7.0
Response	11.1	13.1	13.9	13.5	12.0	11.7	11.4	10.2	11.3	9.9	9.3	9.0
Reactive	7.8	7.7	6.2	6.7	6.2	6.0	6.0	6.0	6.6	6.5	7.1	9.3
Minor Components	1.5	1.8	2.6	2.8	1.8	2.1	3.6	1.1	2.3	1.8	-0.6	1.2
ROCOF (E&W)	5.8	3.8	7.2	5.6	8.8	6.0	6.9	2.9	5.3	5.1	0.0	0.0
Black Start (non-incentivised)	2.5	2.4	2.2	2.5	2.5	2.8	3.1	3.3	3.3	3.3	0.0	0.0
Total BSUoS	60.2	72.4	116.8	81.1	87.3	72.6	113.3	83.1	92.0	78.1	49.5	69.8
Estimated BSUoS Vol (TWh)	37.9	38.5	35.6	36.4	36.1	37.8	41.5	47.2	49.2	48.8	0.0	0.0
Estimated NGET Profit/(Loss)												
Estimated Internal BSUoS (£m)	13.5	14.0	13.5	14.0	14.0	13.5	14.0	13.5	14.0	14.0	12.6	14.0
Estimated BSUoS Charge (£/MWh)	1.94	2.24	3.65	2.61	2.81	2.28	3.07	2.05	2.15	1.88		

New Reporting

BSUoS Volatility and Forecast Accuracy

National Grid

Text explaining cost volatility, and categories that contribute the most.
 Commentary around NG forecasting performance, and targets.

