Monthly Monitoring Meeting

Friday 29 November 2019, 10:00 – 12:00

Ofgem Office South Colonnade and Teleconference

AGENDA

Ref	Time	Title	Owner
1	*10:10 – 10:20*	**SME slot - October balancing costs**	*ESO*
2	*10:20 – 10:35*	**SME slot – Electricity Operational Forum**	*ESO*
3	*10:35 – 10:50*	**SME slot – Balancing and Charging Forum**	*ESO*
4	*10:50 – 11:00*	**ESO to highlight any particular notable points from the published report**	*ESO*
5	*11:00 – 11:10*	**ESO to answer any questions which OFGEM has sent prior to the meeting regarding to the published report**	*ESO*
6	*11:10 – 11:20*	**ESO to take other questions on the published report**	*ESO*
7	*11:20 – 11:25*	**Review actions**	*ESO*
8	*11:25 – 11:40*	**Ofgem feedback on the mid-year performance panel event**	*ESO*
9	*11:40 – 11:45*	**AOB**	*All*

Meeting record

Monthly Monitoring Meeting

Date: **29 November 2019**

Time: **10:00 – 12:00**

Venue/format: **Ofgem Offices London**

Teleconference

ACTIONS

Meeting No.	Action No.	Date Raised	Target Date	Resp.	Description	Status
19	**45**	6 Nov	Dec	Ofgem	Ofgem to send draft of panel report and advise when final report is published	Open

MAIN ITEMS OF INTEREST

1. SME slot – October Balancing costs

The Electricity System Operator (ESO) presenter gave commentary on the £130.8m outturn against £103.3m benchmark.

Key points:

- October was an expensive month due to increased demand, wind levels and Dinorwig-Pentir circuit outage that restricted available options.
- The trend of renewable generation and interconnection replacing conventional generation in 2018 and 2019 has led to increasing response requirements.
- October wind was high in both 2018 and 2019, but the unavailability of Western Link in October 2018 drove much higher costs than 2019.
- The highest constraint cost of the month was £7.14m on 23 October.

Q&A Section:

The balancing costs for August and September were also higher than expected. OFGEM asked the ESO whether this was because the ENCC had done some actions differently, or this was due to external factors. The ESO responded that the commissioning of the NEMO interconnector has increased the cost of voltage and Rate of Change of Frequency (RoCoF) constraints. The system also required more response

holding for energy imbalance. The increasing complexity of power transmission made it more difficult to balance the system on critical periods.

OFGEM asked what was the reason for the ESO to change the response holding volume. The ESO responded that the response holding was constantly reviewed by the control room. The general trend of increased renewable generation makes the system more sensitive to disturbances when the national demand is low. Thus, the ESO needs more response holding to ensure the system is secure from unexpected events.

2. SME slot – Balancing and Charging Forum & Electricity Operational Forum

The ESO is committed to continue to improve customer and stakeholder experience. We recently hosted two industry events which were well received and this is expected to translate positively into CSAT and SSAT scores.

The Charging Forum is held annually to share the information to industry on how the ESO forecast, calculate and bill the transmission charges. This year, the ESO have made important improvements, based on customers' feedback and suggestions. The main change is to introduce interactive workshops on the topics that the customers wanted to have in-depth discussions. The event also had two separate sections for generator and supplier representatives. The discussion was set up with flexible formats such as case studies and games to increase the audience engagement. More than 60 people joined this event and provided good feedback. Following the Forum, the ESO CSAT score for TNUoS and BSUoS services has so far improved from 7.14 to 7.64.

The Electricity Operational Forum is a regular event to provide an update on system operation performance and issues to market participants. The event was held at Faraday House in Warwick to facilitate attendees meeting our experts. The event was organised with strong attendance from all parts of the ESO business in order to commit to providing responses to all question from both online and at the venue. The Materials covered on the agenda addressed the topics which stakeholders had shown interest in. The IT forum was also scheduled along with this event.

Q&A Section:

OFGEM asked the ESO if the questions asked at the Ops forum were recorded, and whether the questions and their associated answers would be available for publication. The ESO responded that they had answered most of the questions verbally. They planned to improve this by looking in to recording and sharing all the Q&A information on the day of the next event.

OFGEM asked the ESO whether it felt that stakeholders were balanced or biased. The ESO found the feedback on the day of the event was balanced, but had experienced some bias in other situations, such as surveys, where some respondents may have particular commercial or political drivers.

OFGEM made a comment on the Electricity Operations Forum that the topics of the balancing cost and difficult day of 9 August were useful. The ESO provided a good opportunity for questions. There were minor issues on IT facilities such as microphone and cable connection, but the overall event and customer feedback were good.

3. ESO to highlight any particular notable points from the published report

OFGEM asked the ESO what the justification was for balancing costs being higher the benchmark, given that expected seasonal variations such as wind levels would have been captured in the benchmark. The ESO answered that increased costs would be expected as more wind and interconnector connected to the grid. The balancing cost may vary due to the price difference between Britain and continental Europe.

The ESO asked how Ofgem would give regular feedback to the ESO, and whether the monthly meetings were the right place for this? OFGEM said they were happy providing feedback and it should be represented in the published minutes.

OFGEM asked the ESO how, with limited knowledge of power system control engineering, the industry could better understand the ESO's reports and ask specific questions. The ESO said they were working on a way to provide our non-confidential control room information to increase industry transparency. In the longer term, the ESO will provide business plan documents and workshops to explain how the control room is performing and what drives them to improve services in the future.

OFGEM asked how the ESO forecasted response holding especially when the volume had significantly changed, and what the long-term trend was. The ESO said response holding was a complex decision that depended on the system conditions, on-going outages and significant events. As more interconnectors are commissioned and other non-synchronised generators are connected to the grid, the system will need to hold more response services to deal with unexpected events. The ESO said that its increase in response holding is in line with the 2019 trend and the year-on-year increase as a whole.

OFGEM is keen to understand the internal and external factors which contributed to monthly balancing costs differing from the benchmark. The ESO agreed to consider including a list of such factors in its monthly report.

4. ESO to answer any questions which Ofgem have sent prior to the meeting regarding the recently published report

Ofgem questions sent prior to meeting:

Q1. Sterilised headroom costs have more than tripled since April 2019. What have been the main drivers of this and what are the ESO doing to remedy this?

A1. Sterilised headroom is seasonal as it is due to network constraints. During April, most of the network is intact and Sterilised headroom will be low. Through the summer as outages are taken on the network this figure will increase and September and October will generally be the highest months as demand is increasing, weather is getting worse and outages are still ongoing or have overrun. For comparison, the sterilised headroom was £20.4m for October 2019 and it was £21.4m in September 2018 and £18.3m in October 2018.

Q2. We note that there were numerous high-cost days at the start of the month (6th October to 11th October). From the ESO's daily balancing cost report, a driver is reported as high wind levels and the corresponding thermal constraint measures taken. What is the ESO doing to address this?

A2. The high levels of wind generation and low levels of flexible generation in Scotland means that if we have to restrict wind generation due to the capability of the network it will be expensive. We saw lower constraint costs in October this year than September and October last year due to the availability of the Western Link. We are constantly planning ahead of time to optimise outages or put contracts in to minimise costs but sometimes these costs will be unavoidable as we will have to restrict wind generation.

Q3. Was the Western HVDC link operational for the whole month? If so, what effect did it have on constraint costs?

A3. The Western HVDC Link was operational for the whole month. Note that last year we saw constraint costs of £101.5m and £104.3m in September and October respectively (however not that this is not solely due to Scottish wind). October 2019 saw higher wind output than last year but constraint costs were much lower, at £76m (however not that this is not solely due to Scottish wind).

Q4. Final commissioning work on the Western HVDC Link concluded on the 22nd November 2019. Will this affect constraint costs going forward?

A4. No - as Western Link has been operational for a while, the commissioning activities will not influence constraint costs going forward.

Q5. Why were energy imbalance costs very high in October?

A5. Due to increased wind and interconnection; conventional, flexible plant is being displaced from the system. The system is still long more often than it is short, but the fall in conventional generation has seen the average bid price drop and therefore we are receiving much less revenue from balancing a long system (and sometimes incurring costs if we have to bid off wind to balance the system), and it is costing more to increase generation to balance a short system.

Q6. In the last 3 months, costs have been above £100m – does the ESO expect this trend to continue? What are the reasons for this? What actions is the ESO planning to undertake?

A6. The Dinorwig - Pentir outage finished on 30 October, and November is currently forecast to outturn below the benchmark (which is £100m). We will continue to look ahead and balance the system as economically as possible.

Q7. A new forecasting tool was mentioned in the October Performance Report. How has this tool affected your demand accuracy, and are there any learnings that can be taken forward to address the rising percentage errors in wind forecasting?

A7. The process for forecasting electricity demand is very different from the process for forecasting wind power output. For this reason, it is difficult to take learning that has been successful in one area and expect it to be successful in another. It is worth considering that the metrics for measuring forecast performance in demand forecasting work differently in wind power forecasting.

The forecast performance for electricity demand forecasting uses the following metric.

$$MMAE\ (MW) = \frac{\sum_{CP}^{Month} |Forecast\ (MW) - Operational\ Metering\ (MW)|_{CP}}{Total\ numer\ of\ CPs\ of\ the\ month}$$

The forecast performance for wind power forecasting uses this metric.

$$MMAPE\ (\%) = \frac{\sum_{HH}^{Month} \left[\frac{|Forecast\ (MW; excluding\ BOAs) - Settlement\ metering\ data\ (MW)|}{Total\ Operational\ Capacity}\right]_{HH}}{Total\ numer\ of\ HHs\ of\ the\ month}$$

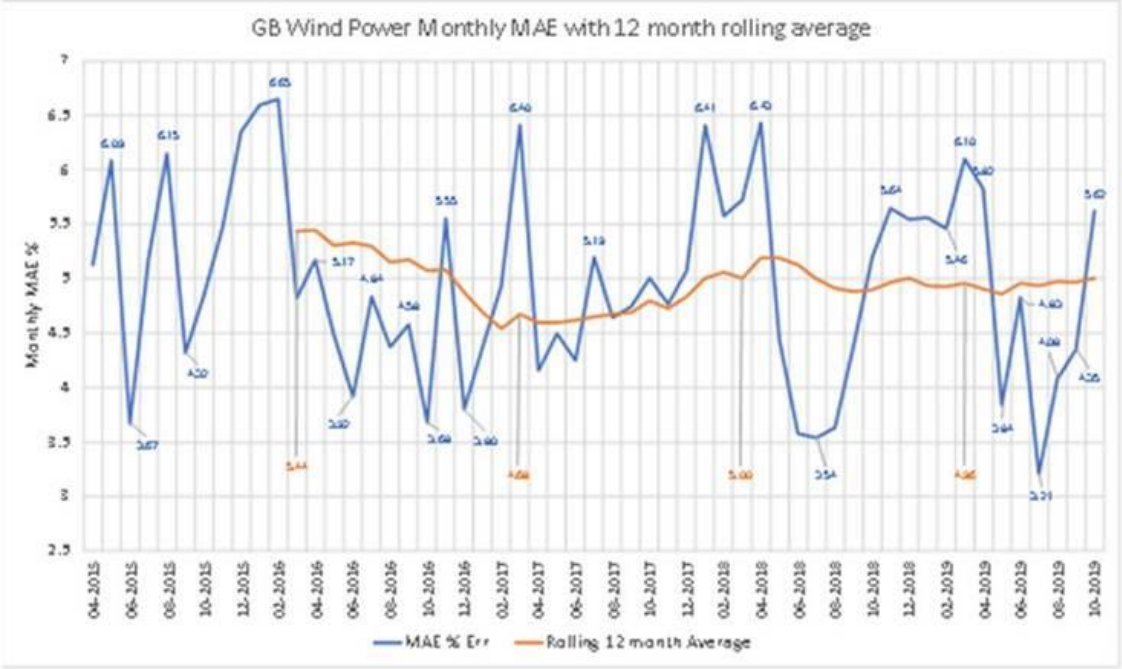
These two metrics are not consistent with each other and so a technique used to improve accuracy of electricity demand forecasting cannot automatically be applied to wind power forecasting and be expected to achieve a similar improvement

Q8. Why has the wind forecasting error been increasing over the past four months?

A8. The four months referred to are July, August, September and October. It is the natural seasonal variation that as we progress from Summer to Winter via Autumn more turbulent and difficult-to-forecast weather is created by the atmospheric system. Generally speaking, the winter months are more difficult to forecast than the summer months for this reason- although that does not preclude the occasional storm passing over the UK in the Summer.

A similar trend can be seen in the wind power forecast incentive targets. The target for November (for example) is set by calculating the average accuracy achieved for November 2018, 2017 and 2016. It is the same process for calculating the targets for each month of the year. So the targets are a reflection of the level of difficulty in forecasting accurately on a month by month basis.

The chart below is a summary of forecasting performance over the past few years. As you can see that many of the instances of larger wind power forecasting error happen in the Winter months. It can also be seen that there is a trend for errors to get larger month by month between August and November in previous years.



As well as this seasonal effect, there is another effect which happens in the Autumn months. It is worth considering that most construction of new wind farms takes place during the Summer. This is due to more favourable weather conditions. When the Autumn arrives, with higher wind speeds, new power comes from these newly constructed wind farms. This explains why we normally achieve a record for wind power output in September or October of each year. For these new wind farms, it takes a month or two for us to gather enough data to create optimized models for these wind farms. So, for new wind farms it is normally the case that the wind power forecast accuracy will be a lot worse during the first few months of their commissioning. This effect contributes to the increasing overall wind power forecasting error during the Autumn months.

Q9. In October's report, incorrect availability in TOGA declarations have been attributed to October's high error levels. What is the root cause of this, and how are you engaging with wind farms to mitigate this effect?

A9. There is no single root cause. The circumstances are different for each individual wind farm. In some cases, there is failure of process or practice at the wind farm so that they fail to declare their intention to reduce availability (or revise that declaration if they should change their mind). At the present time, there is no penalty applied to any generator for mis-declaring their availability so some may choose not to allocate sufficient resource to meet this Grid Code obligation.
It is recommended that the Generation Margin Analysis team construct a table which ranks the generators that have been declaring inaccurately. Those generators will be informed and given the opportunity to improve. Generators will be contacted in priority order.

5. ESO to take other questions on the published report.

There were no further questions.

6. Review Actions

Action 45 is still open.

7. OFGEM feedback on the mid-year performance panel event

OFGEM gave a verbal update to the ESO on the key messages of the performance panel.

8. AOB

The next monthly meeting will be on 10 Jan 2020.

Appendix 1 – Timetable

1. Annual Requirements

- Monthly
  - 15th working day of M+1 keeps cost basis historic
  - Meeting 20th working day of M+1
- Quarterly
  - 15th working day of M+1 following Q end (Jul, Oct, Jan)
- Half Year Report
  - 15th working day in October (M+1 after half year completed)
- Year End- Ofgem's Proposal
  - 7th May -consultation & draft licence (5 wks after year end)

2019	2019	2019	2019	2019	2019	2019	2019	2020	2020	2020	2020
May	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**
M	**M**		**M**	**M**		**M**	**M**		**M**	**M**	
		Q						**Q**			
					1/2YR						**FYR**

2. Monthly requirements

Date	Action	Owner	Note
15th Working Day	Monthly report submission date	ESO	
No later than 5 Working Days before meeting	Provide the Chair with meeting papers	ESO	
20th Working Day	Monthly Monitoring Meeting	Technical Secretary	
25th Working Day	Minutes from meeting submitted	ESO	
End of Month	Chair to approve minutes from meeting	Chair	
2nd Working Day after approval of the minutes	Publication of meeting minutes	Technical Secretary	

3. 2019-2020 Reporting & Meeting Dates

Month	Report Published (15th WD)	Ofgem Meeting (20th WD)	Report Type
May	22/05/2019	30/05/2019	
June	21/06/2019	28/06/2019	
July	19/07/2019	26/07/2019	Q1 Report
August	21/08/2019	29/08/2019	

September	20/09/2019	27/09/2019	
October	21/10/2019	28/10/2019	Half Year Report
November	21/11/2019	29/11/2019	
December	20/12/2019	10/01/2020	
January	22/01/2020	29/01/2020	Q3 Report
February	21/02/2020	28/02/2020	
March		28/03/2020	
April			
May			End of Year Report

Appendix 2 – Previously Closed Actions

Meeting No.	Action No.	Date Raised	Target Date	Resp.	Description	Status
17	**40**	27th Sep	11th October	Ofgem	Provide agenda for panel event	Closed
17	**41**	27h Sep	11th October	Ofgem	Ofgem to share stakeholder responses for Call for Evidence	Closed
17	**42**	27h Sep	1st November	ESO/ Ofgem	Advance phone call to discuss logistics and attendees for panel event	Closed
18	**43**	6th Nov	8th Nov	ESO	List of panel attendees and dietary requirements	Closed
18	**44**	6th Nov	11th Nov	ESO	ESO to send responses for Ofgem and Panel questions for mid year report	Closed