Monthly Monitoring Meeting

Friday 26 June 2020, 10:00 – 12:00

Teleconference

AGENDA

Ref	Time	Title	Owner
1	*10:05 – 10:20*	**SME slot – Balancing costs**	*ESO*
2	*10:20 – 10:35*	**SME slot – Virtual Synchronous Technologies**	*ESO*
3	*10:35 – 10:50*	**SME slot – Power Available**	*ESO*
4	*10:50 – 11:05*	**SME slot – Wind Power Forecast accuracy**	*ESO*
5	*11:05 – 11:15*	**ESO to highlight any notable points from the published report**	*ESO*
6	*11:15 – 11:25*	**ESO to answer any questions which OFGEM has sent prior to the meeting regarding the published report**	*ESO*
7	*11:25 – 11:35*	**ESO to take other questions on the published report**	*Ofgem*
8	*11:35 – 11:45*	**Ofgem to give feedback on ESO performance**	*Ofgem*
9	*11:45 – 12:00*	**Review actions & AOB:** • **Next steps for Incentives performance for 2019-20** • **Forward Plan Addendum**	*All*

Meeting record

Monthly Monitoring Meeting

Date: **26 June 2020**
Time: **10:00 – 12:00**
Venue/format: **Teleconference**

ACTIONS

Meeting No.	Action No.	Date Raised	Target Date	Resp.	Description	Status
25	**59**	26 Jun	30 Jun	Ofgem	Send draft Panel report on 2019-20 performance to ESO	Closed
25	**60**	26 Jun	3 Jul	Ofgem	Ofgem to review the draft version of the Addendum before it is published	Open

MAIN ITEMS OF INTEREST

1. SME slot – Balancing costs

The Electricity System Operator (ESO) presenter gave commentary on the £161m outturn against the £48.4m benchmark.

Key points:

- Costs for May were high compared to this time last year. May is generally a low cost month due to benign weather, a largely intact network before the Summer outage season as well as higher demand seen before mid summer.
  The first two conditions have generally held true with transmission connected wind output at its lowest level since last May. However, the much lower demands (over 1GWh lower than April with one extra day) driven by the lockdown have led to big increases in Constraint and RoCoF costs.
- May this year is similar to April as they are both being driven by the COVID-19 pandemic. Energy costs are broadly in line, but the lower demand levels have driven an increase in Constraints and RoCoF costs.
- Thermal constraints are typically lower through April and May due to the lower levels of wind. However, since the lockdown began and fundamentally changed the generation mix, the cost of synchronising machines for voltage support has increased massively, up to £30m from £4.5m for these two months last year.
- April's RoCoF cost £32.7m was a new record, but this has been surpassed by May's figure of £41.5m. Blackstart and Reactive costs are consistent with last year's
- Graph presented to show the demand reduction, in percentage terms, from what the ESO would have expected the demand to be without the COVID-19 lockdown.

There is a reduction across all periods of the day with the greatest reduction during significant events including Easter and the two May bank holidays. This is percentage reduction and not absolute demand so although Easter Weekend saw the greatest reduction in percentage terms, the absolute demand outturned lower on the second May bank holiday with a new record low of 14.5GW on the Sunday morning.

- The next two graphs showed National Demand for May and the daily minimum National Demand. On Saturday 23 May and Sunday 24 May the minimum National Demand was under 15GW.
- Presented a visual of the system on Saturday morning. This showed the transmission system demand, it is slightly different from the National Demand as it includes elements of interconnector flows and pumped storage. There are some inaccuracies due to the way the figures are compiled, but it presented an illustration of the challenges faced during this period. The ESO took 1GW of ODFM, without this service demand would be even lower. Generation mix is what the ESO would expect to see in the future with a lot more generation coming through interconnectors, wind and renewables with little coming from CCGT and Biomass. In order to secure the system the ESO needed to increase CCGT and Biomass generation by roughly 3.4GW and reduce interconnector exports by 1.3GW, this was offset by almost 5GW of wind curtailments in order to make room for the extra generation.
- It was a similar situation into the afternoon with 5GW of solar generation now added to the mix and the market still providing very little CCGT and Biomass. The ESO increased the Optional Downward Flexibility Management (ODFM) requirement and started taking close to 2GW. The ESO continued running around 4GW of CCGT and Biomass, and restricted export to the continent as well as curtailing wind to create room on the system.
- The ESO showed a graph to demonstrate why demand has an effect on balancing costs and showed Balancing Costs and Minimum Daily Demand. When the ESO see very low demands, this drives up the balancing costs.
- The second May Bank Holiday weekend was a case in point with high winds and low demands creating a very challenging picture resulting in very high costs. Saturday was the highest single day so far this year and Friday is the second. The new ODFM service was enacted at various levels on Saturday, Sunday and Monday.
- Control Room operational challenges in real time and subsequent actions performed were discussed and explained.

Q&A Section:

Ofgem asked if there are any more actions the control room are taking in addition to reducing interconnector export and curtailing wind. ESO responded that those are the main types of action, there are certain standards that ESO are required to do to secure the system as required by the SQSS. The system is constantly changing, and ESO don't own any generation or assets therefore, the companies that do own this equipment will be trying to optimise as best as possible across their portfolios, and ESO need to react to that. During the days with low demands ESO are having to instruct particular machines to raise

inertia or voltage support which isn't usual for the daytime. In order to do this, ESO have to curtail additional non synchronous and wind generation where possible which has high costs.

Ofgem queried BSUoS charges for CUSC modification CMP345 and if this changes anything in the control room and BSUoS forecasting. ESO replied that it won't change actions in the control room because ESO still need to secure the system. Monthly BSUoS forecasts will be unaffected as it is a top down methodology which does not look to forecast for each half hour. One change the ESO have made is in our half hourly BSUoS forecast where ESO have applied a cap.

2. SME slot – Virtual Synchronous Technologies

The Electricity System Operator (ESO) presenter gave commentary on the Virtual Synchronous Technologies publication.

Key points:

- Generally large generators are synchronous machines and provide instantaneous inertia, short circuit current, and very fast dynamic voltage support. Due to the nature of these machines they resist any change in the system, hence if anything goes wrong, they continue to spin.
- Traditional converters use PLL (Phase Locked Loop) technology and rely on measurements followed by a delay for processing before an appropriate response is delivered. This approach is robust whilst the network is in a steady state. However, when the network is disturbed, this approach is limited in its ability to "track" the voltage and frequency.
- The grid forming or virtual synchronous machine (VSM) concept allows a converter to act like a synchronous machine. The voltage source behaviour is a critical concept for a converter to respond instantaneously to system changes. Therefore, when the disturbance occurs, VSM can supply fault currents and contribute to system inertia.
- VSM is trying to resist any change to the system, which is the principle of the synchronous machines. With the control system, it can do this and not rely on any measurement of voltage and frequency. Because of this, it could provide large inertia and frequency response. It can also provide fast dynamic reactive current to the system.
- Analysis was done to understand what would happen if all converter technology in the system was implemented with the VSM concept and it had some inertia contribution. The graphs presented were from the report itself and showed examples in the "Two Degrees" Future Energy Scenario of the VSM effects in the 2025 and 2030 years.
- VSM expert group set up in April 2018 to consider if VSM is a feasible concept and develop a specification. It comprised of interested parties and the output of this work has been heavily influenced by the research work undertaken, the feedback received from the Expert Group, and the Stability Pathfinder work.
- Grid Code modification GC0137 Minimum Specification Required for Provision of Virtual Synchronous Machine (VSM) Capability was initiated early 2020. The

specification will enable converter technologies to offer an additional grid stability service which will provide the opportunity to take part in a commercial market-based system. Currently not mandatory. Work is ongoing in this area.

- This work feeds into the Stability Pathfinder Phase 2. The ESO published the RFI for phase 2 in Scotland and want to enable new technology including VSM to participate. ESO have designed a process to allow for a feasibility study where solutions can demonstrate meeting technical specification prior to submitting a commercial tender. ESO have incorporated the feedback on technical specification from the Grid Forming technology manufacturers and potential users in its final tender specification.

Q&A Section:

Ofgem queried grid code modification GC0137 and the added incentive for participants to take part in a future commercial market-based system. ESO responded that currently the Stability Pathfinder is looking at long term tenders as ESO want to compare the commercial solutions against the TO owned solutions. So, the providers who are successful in the Stability Pathfinder tender are not going to be able to participate in the market environment as ESO will not want to pay twice for the same service. When ESO envision the stability market, it is a more agile day or week or year ahead procurement of stability services based on what is already connected on the system. ESO is in very early stages of stability market thinking.

Ofgem asked about one question received from stakeholders on the webinar held recently, and whether ESO would wait for the Grid Code modification to conclude. The ESO stated that ESO could progress without waiting. ESO replied that the two projects, VSM and Stability Pathfinder, are working alongside each other. The specification for the VSM Grid Code is essentially copied from the Stability Pathfinder specification. This also prevents the Stability Pathfinder Phase 2 from being delayed.

Ofgem questioned what key threat the ESO see to VSM participation. Ofgem mentioned one may be the Stability Pathfinder comes through and there aren't any VSM technologies chosen. ESO replied that it is a possibility, ESO are currently in conversations with stakeholders, and are trying to make sure that specifications do not provide disadvantages. However, the tender assessment will determine what would be successful. ESO are hoping these technology solutions are cheaper, and are learning through practice.

3. SME slot – Power Available

The Electricity System Operator (ESO) presenter gave commentary on the implementation of Power Available.

Key points:

- Power Available (PA) is a mandated real time signal communicated from every wind farm to the ESO control centre. PA shows a MW reading of how much active power a site could provide. This takes account of wind conditions and turbine availability, and PA should be the same as metered output readings the control room is

receiving. Once the control room has visibility of PA they determine what happens if the site is not producing enough MW and if it's been constrained. Having PA means that the control room engineers can see how much headroom is available in real time as that changes with changing weather conditions. This will replace the Maximum Export Limit system which is currently used at all sites, this is fixed for a period after submission and, for wind, more of an approximation. PA will allow greater granularity of visibility of the site's potential MW, and having this in the control room also means the ESO can flow that signal and data feed through to the settlement systems. This means the headroom that the site is providing when it has been sent a balancing instruction is able to be reflected on how much it's being paid.

- PA is quite a big IT change that has had various technical hurdles. The system changes to enable PA signalling into the control room successfully went live on 19 May 2020. The ESO have engaged throughout the project with impacted stakeholders in the wind community through the Wind Advisory Group (WAG). From October 2019 to February 2020, ESO consulted with stakeholders and WAG about the development of PA Accuracy Standards. The control room need to know the PA signal is of good quality so if a balancing instruction is sent, the PA signal that remains gives an accurate representation of the active power that would be available should the constraint be lifted from the site. ESO would prefer 100% accuracy. However, the WAG wanted leeway so, the ESO worked collaboratively to find the ideal compromise. This was published in March 2020, following this the control room engineers have been having bilateral conversations with wind sites looking at the Accuracy Standard that was developed. ESO have developed a bespoke assessment report for every site in the BM and worked on a bilateral basis to create confidence for control room engineers to use the sites.
- Between 19 May to 24 June, there have been 158 instructions. This shows PA is having a significant impact on using more wind units for Mandatory Frequency Response. Having more wind in the market typically bring costs down, as it is a cost effective option to provide response for high frequency events. Also, more participants in the market drive competition.
- Power Available Phase 2 to be delivered in Q3 2020-21. There will be specific changes to the advice that control room engineers will receive, such as blending the PA signal into existing forecasting processes. The K factor better reflects Turbine Availability in the 8 hour ahead forecasting, and there is more support for the control room engineers in forward planning for wind output in real time decisions. Streamlining the BM systems accommodates wind characteristics, and there will also be more engagement about the accuracy of PA with industry.

Q&A Section:

Ofgem asked what the main blockers have been since Ofgem approved Grid Code GC63 five years ago and how the ESO overcame them. ESO responded that the blockers have been changing an old system. There had been a suggestion to introduce PA with other system changes ESO were making to the BM at the same time. These fell away and it was created as a new project in itself, the ESO have learnt that having a separate project has been helpful to push it forward.

Ofgem said as there is now a standardised way of receiving accurate data from wind generators, is the next step to bilaterally engage on how there can be a balance between accurate and realistic data. ESO replied that when the accuracy question came up, ESO analysed the PA signal from about 70 wind BMUs. Over half were misleading so often stuck on one value. ESO ended up standardising the accuracy of the PA signal, there is a 1.5% band, based on installed site capacity.

Ofgem queried Phase 2 A and B in the Forward Plan, and if these are the two sub headings. ESO answered that in the Forward Plan, ESO have three milestones and ESO combined the first two into Phase 1. Phase 1 and Phase 2 A became the same one. The ESO have completed the first two milestones. Phase 2 is optimising the system.

Ofgem asked about the opportunities to call on the wind BMUs and if it is having an immediate effect on the control room actions or if it is a long term improvement. ESO responded that hopefully it is a bit of both. ESO have seen a doubling after going live in the number of instructions to wind farms for the mandatory frequency response service, and there are still a few sites with inaccurate signals so that is flagging as red to the control room. The ESO are continually building on this and working through obstacles.

Ofgem queried the two weekly Power Accuracy report and if they are going to be internal. ESO replied that this is ongoing work with the wind community and how comfortable they are with sharing their data and balancing this against having more transparency. The ESO need to continue talking to industry.

Ofgem questioned what the main risks are associated with Phase 2. ESO answered that the standard risk is SME time and testing changes in the control room. Also changes happening in the advice that comes out of the systems. In terms of the timing, ESO were down to the wire with Phase 1, so IT development that would have been happening post Phase 1 has been running concurrently.

Ofgem asked if there will be a Phase 3. ESO replied that no, this will be the end of the PA project. However, the ESO like to see more use of the PA signal and how can it be used in different avenues.

4. SME slot – Wind Power Forecast accuracy

The Electricity System Operator (ESO) presenter gave commentary on wind forecasting accuracy and negative electricity market price.

Key points:

- Several factors came together resulting in negative electricity market price on the second May Bank Holiday. There was low demand, an effect of COVID-19 and the Bank Holiday Effect. High wind and thus Wind Power Output, sunny conditions and high Solar PV Output were also factors. It was difficult electricity system conditions with low inertia.

- The negative electricity price had a knock on effect as shown by the causes and subsequent effects on the slide. Wind farms that have contracts for Difference Market Arrangement are obliged to shut down when there is a negative electricity price in the forward market for six hours or more. This is helpful behaviour in the electricity market, but it has a knock on effect for wind power forecast accuracy. This then affects our incentives performance.
- The graph presented showed the average wind power forecast error for the month of May 2020 as a percentage of installed capacity. The second May Bank Holiday (22 to 24 May) shows a very large forecast error. This increased the average error for the month of May to 5.24% against a target of 4.54%.
- The control room do corrections for wind farms that are instructed off for constraint management purposes. The ESO forecast before control instructions are given, therefore the way ESO forecast is for the unrestricted output of wind farms. In this case the wind farms decided independently to reduce their output and that was not automatically considered, therefore, it manifested as a large error. This is a rare set of circumstances.
- The ESO propose that they address this situation when it occurs by providing a commentary as part of monthly incentive reporting. Ofgem can then take this into account in its evaluative assessment of our performance. As the ESO do not anticipate this happening frequently throughout the year, ESO propose to not make an adjustment to the metric methodology or benchmark.

Q&A Section:

Ofgem asked whether ESO had any lessons learnt or anything to take forward aside from reporting as the likelihood of this happening again may increase, particularly as a result of low demand during COVID-19. ESO responded that one thing to consider is whether they internally need to forecast for this kind of event to let the control room know that certain wind farms don't need to be sent a balancing instruction, this will prove difficult technically. ESO will take this away. ESO are constantly looking at the demand forecast and the effects of various parameters like COVID-19. If this were to happen again it may be August Bank Holiday, however quite a few factors would have to come together. ESO are happy to treat this as a one off, if things change ESO will consider putting long term corrections in place.

5. ESO to highlight any notable points from the published report

- Balancing costs covered during presentation.
- For Demand Forecasting, ESO are meeting our target. As per our previous conversation, there is an adjustment for the use of ODFM. There are still uncertainties due to COVID-19.
- For Wind Generation there were a few unusual weather effects and with also the Contract for Difference (CfD) effect as described previously, the combination of this made us miss our benchmark.
- Good month for Security of Supply with no voltage or frequency excursions.
- System Access Management, as the lockdown eases, industry are seeing more outages. ESO are within our benchmark as there were no delays this month, this shows that the new ways of working during lockdown are efficient.

- Trial of storage Balancing Mechanism Units (BMUs) for reserve service regarding Arenko.
- Power Available implementation covered during presentation
- For BSUoS monthly forecasting, ESO were below target as discussed during balancing cost presentation. Due to COVID-19 our forecasting wasn't as accurate as hoped.
- Grid Code change GC0143: Last Resort Disconnection of Embedded Generation.
- Sizewell generator contract which assists in operating the system economically and securely.
- For Right First Time connection offers, there were no ESO related re-offers on contracts signed in this period, which means that ESO are meeting our target.
- Early Competition engagement has been approached in an agile way to accommodate lockdown. Workshops have been held for stakeholders to provide input. Consultation will be published on 3 July.

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

Role 1

- **Balancing costs**

Q. What stakeholder feedback has the ESO received around the administration and use of the Optional Downward Flexibility Management (ODFM) service.

A. ESO have been pleased by the response and uptake by the market having signed over 4.2GW of capacity onto the terms, bringing new players into the balancing services markets for the first time. Having issued four instructions now, feedback from providers has been positive, with some areas for improvements identified which ESO are working to address as part of the recent EBGL consultation. In addition, ESO have worked closely with the DNOs to ensure that use of this service considers whole system impacts. This involved developing and running a weekly process of data exchange with all DNOs which is running smoothly each week.

Q. How has the ODFM service progressed and evolved over May.

A. Having launched the service on 7 May, four instructions have been issued so far, on each of the bank holidays to meet our need for additional downward flexibility. ESO are pleased to report 98% performance delivery of the service based on the instructions so far. In this time ESO have continued to sign more providers onto the terms of the service, held an ODFM focused industry webinar as well as sharing details relating to the drivers behind decisions to use the service through our weekly operational webinars – feedback on this has been very positive.

Our understanding of managing low demand periods has evolved with every challenging day and this has fed into our continual review of assumptions behind ODFM decisions.

Briefing notes have been prepared for the market for periods of very low demand which give more detail around the assumptions and drivers behind decisions, including ODFM.

Q. What were the volumes and spends on ODFM over May.

A. This was covered during the incentives performance balancing costs presentation.

- **Forecasting accuracy**

Q. The ESO mention that the Power Available (PA) signal has been implemented into the ESO's control systems and processes on 19 May. What effect, if any, did ESO see this having on Wind BMU forecasting accuracy in the latter half of May?

A. The power available signals have no effect on forecasting accuracy at the current time because the signals are not currently connected into the forecasting systems. It is the intention to make use of Power Available in the forecasting system in future. The timing of this will depend on the progress of the Platform for Energy Forecasting Project.

Q. How accurate is the Power Available signal from renewable generators.

A. This depends very much on the generator supplying the data. Some are very accurate, and others are less so. The ESO are currently considering what the best framework would be to compare submissions from different generators in a consistent way.

Q. Regarding the PA signal, it is mentioned in the monthly report that the ESO's control systems "accurately calculate the response and reserve capability held on each generator". After this calculation, is the decision to utilise wind generators for response/reserve an automatic or manual one?

A. The decision of whether or not to utilise the BMU for response is manual. The systems only give advice to the engineers, this is the same for all technology types. The actual instruction of the BMU is still manual but there is a possibility it may be part of Phase 2 of PA to make the instruction process automatic once the engineer has made the decision to call the BMU on.

- **System Access Management**

Q. The ESO mention that it has engaged with transmission owners and DNOs, and that this engagement will continue to prioritise outages. Are these bi-lateral discussions (i.e. NGESO-TO and NGESO-DNO) or trilateral discussions (TO-NGESO-DNO)? What is the general, high-level process for the ESO prioritising outages? Is it the same process for DNO outages and TO outages?

A. The ESO are still in the stage of recovering the outage plan of major scheme works submitted by the TOs/DNOs, the ESO are having a combination of bi-lateral calls and tri-lateral calls on a weekly and monthly basis. There is a weekly managerial bi-lateral discussion between NGESO and NGET, in which NGESO provide the TO with a copy of

the top five highest priority outage requests based on the priority submitted in the Transmission Outages Generation Availability (TOGA) system, any offline discussions and from the previous meeting. Once those five requests have been assessed, the process repeats to submit an additional five requests. It is worth noting that these requests are typically of a complex nature and can have a large impact on the Main Interconnected Transmission System (MITS)Outages. There is a similar weekly managerial discussion between NGESO and SPT to discuss the outage plan and their priorities. Another example is a tri-lateral discussion between NGESO, SHE-T and SHEPD, of which the outage plan is discussed to ensure all parties are aware and agreeable to the outage plan, and system access has been granted for the highest priority works to the TO and DNO.

It is also worth noting that under the System Operator Transmission Owner Code Procedures (STCP), there are monthly System Access Meetings (SAM) between NGESO and relevant TOs, which gives both parties the opportunity to discuss the outage plan, requested outages and scheme changes. Additionally, there are User Plan Review Meetings (UPRMs), which are a tri-lateral discussion between NGESO, TO and DNOs to discuss system access from Week Ahead to 16 Weeks Ahead. These monthly discussions contribute to effectively providing system access with the opportunity to highlight any clashes and/or give NGESO the opportunity to prioritise resources on important works for the DNO/TO, and most importantly ensuring the system is operated in a safe manner.

The usual process is a DNO/TO submits outage requests within TOGA, and it is mandatory to select the prioritisation (one being highest and five being lowest). Based on the date of the outage and prioritisation submitted, NGESO will assess the requests in this order, in particular for MITS outages, which require careful analysis to ensure the system will be securable under all system conditions and per the SQSS. As the major schemes are being recovered, there are a large volume of outage requests which were previously planned in Year Ahead which may have different outage combinations that need to be re-assessed.

- **Notable Events in May**

Q. How is the trial with Arenko (regarding flexibility from storage) progressing and how often have Arenko's assets been used so far? Are there any early lessons learnt from the trial?

A. In response to a request for flexibility, the ESO have been working with Arenko on an operational arrangement to allow us to secure upward or downward reserve ahead of time using their battery storage BMU. This is not a new service, it is trial is for an operational arrangement.

During the trial, the Control Room signals an upcoming need for upward or downward reserve which is analogous to the existing arrangements. All actions are taken within the existing framework i.e. the BM. Arenko will then submit Bid Offer Acceptances (BOA) prices for this nominated window. Assuming that the BMU is within cost, the Control Room will then issue a net zero volume combination of BOA to cover the nominated window, resulting in a pseudo-availability payment for the period. This will secure the BMU to be available during the window, resulting in a guarantee of upward/downward reserve which could be

accessed through further BOAs as required. This action will be assessed against all Control Room options and will only be instructed in those situations where it is the most economic and efficient option in line with our Balancing Principles Statement.

Initial trialling began on 22 May and the results will be shared with industry next week (planned date Tuesday 30 June) with an opportunity for industry feedback.

Details of the trial can be found here.

Role 2

- **BSUoS Forecasting**

Q. The ESO mention that an additional BSUoS forecast was released in early May 2020. The ESO has also introduced more forecasts for June 2020 based on different scenarios (15%, 10% and 5% demand suppression from pre-COVID-19 levels). What stakeholder feedback have the ESO received about this new approach (if any)?

A. The ESO have not received anything specific, but it is always discussed at the COVID-19 Webinars and gets a lot of focus with regards to CMP345.

Q. Will the use of scenarios be used over the whole course of Summer and beyond (conditional upon COVID-19 and its effects to societal behaviour)?

A. That is the intention, but this is subject to change if the market states a strong preference for a different methodology.

Q. Which "scenario", if any, are the ESO using to report BSUoS forecast performance in Metric 2E?

A. ESO will use the 10% scenario for June.

Q. In the ESO's BSUoS Forecast Update, it is mentioned that "forecasts have been calculated by taking each scenario demand suppression and creating multiple weather scenarios (using Monte Carlo techniques) around the demand suppression". Could the ESO further explain this methodology – is this referring to ensemble forecasting?

- It is mentioned that "each weather scenario has been costed, and the average (or expected) additional cost is then calculated for each of the demand suppression scenarios". Is the ESO reporting the range of costs seen as well?

- If Monte Carlo techniques are used to create multiple weather scenarios, how do these interact (if at all) with weather forecasts used by the Control Centre to make balancing decisions?

A. The Monte Carlo technique is not the same as using ensemble (weather) forecasts. ESO generate possible future weather scenarios using Monte Carlo sampling. This is used to

generate a demand scenario, based on an assumed level of demand suppression, using our standard demand forecast models.

- It is not usual practice to report a range of possible values (where the ESO has to decide on what size of confidence interval is required) when providing an actuarial-style forecast of the expected cost. But it could be done (as ESO did in the initial work in April).

- They don't interact at all. Weather forecasts cannot be relied upon more than 14 days out, and only have limited data within the 7-14 day range. Particularly solar forecasts, which have an even shorter window of accuracy.

- **Notable events in May**

Q. Could the ESO share more information on the cost-benefit analysis for the Sizewell contract to explain why it is a "more cost-efficient and secure outcome for consumers compared to daily payments to EDF"?

A. Sizewell is always the largest loss on the system. This means that it typically sets the requirement for low frequency response. De-loading Sizewell will reduce the largest loss and low frequency requirement for a large portion of the period, resulting in cost savings for frequency response. Previously the only way to access Sizewell on a daily basis was within the BM where it can be commercially inflexible. Striking a contract allows ESO to access their flexibility at a reasonable price.

7. ESO to take other questions on the published report

Ofgem queried Grid Code GC0143 modification and how would it get to the point of last resort for embedded generation. ESO responded that this is something they use when all other alternatives have been exhausted.

8. Ofgem to give feedback on ESO performance

One issue is that it has been difficult to reach out to different people. Some of the feedback Ofgem were given on the Open Networks project is the ESO contact attends the meetings and works on the workstream and it has been noted there has been an improvement in the ESO's engagement.

The Panel have reviewed the 2019-20 performance year and the results will be published soon.

Regarding action 58 for Ofgem to consider if the ESO can adjust Demand forecast considering the ODFM service, Ofgem are happy to have this retrospectively reported. However, Ofgem still expect the original benchmark to apply.

Ofgem provided views on the balancing costs metric benchmarks and Code Admin assessment.

9. Review Actions

- Actions 55 to 58 have been completed.
- Actions 59 and 60 have been added.

10. AOB

- Discussed next steps for 2019-20 performance year. The Panel report is intended to be published on 1 July.
- Discussed Forward Plan Addendum.

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)

2020	2020	2020	2020	2020	2020	2020	2020	2021	2021	2021	2021
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	