

# ESO Forward Plan 2020-21

## Monthly Reporting: August

21 September 2020

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# Foreword

Welcome to our monthly performance report for August 2020. Each month, we report on a subset of metrics and performance indicators. This report provides an update on our performance and metrics against our deliverables set out in the 2020-21 [Forward Plan Addendum](#)<sup>1</sup>.

We report our progress against our deliverables on the [Forward Plan tracker](#)<sup>2</sup> which is updated monthly on our website. The Forward Plan tracker has been updated to take account of the revisions to deliverables set out in the Forward Plan Addendum.

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A summary of our monthly metrics and performance indicators covering August is shown in Table 1 below.

Metric/Performance Indicator	Performance	Frequency	Status
Balancing Cost Management	£114.3m outturn against £102m benchmark	Monthly	●
Energy Forecasting Accuracy	Both demand and wind forecast targets were not met	Monthly	●
Security of Supply	0 excursions for voltage and frequency	Monthly	●
System Access Management	2.88/1000 cancellations	Monthly	●
Month-ahead BSUoS Forecast	37% forecasting error	Monthly	●
Right First Time Connection Offers	95% first time connection offers	Monthly	●

Table 1: Summary of metrics and performance indicators

- Exceeding expectations
- Meeting expectations<sup>3</sup>
- Below expectations

You can find out about our vision, plans, deliverables and full metric suite in the Forward Plan pages of our website<sup>4</sup>. We welcome feedback on our performance reporting to [box.soincentives.electricity@nationalgrideso.com](mailto:box.soincentives.electricity@nationalgrideso.com)

**Gareth Davies**

ESO Regulation Senior Manager



<sup>1</sup> <https://www.nationalgrideso.com/document/173131/download>

<sup>2</sup> <https://www.nationalgrideso.com/document/162046/download>

<sup>3</sup> We have updated the colour scheme for our metrics to give increased transparency of our performance, noting that meeting expectations still represents good performance. This should give a clearer representation of the status of our activities.

<sup>4</sup> <https://www.nationalgrideso.com/our-strategy/forward-plan>

# Role 1 Control Centre operations

## 1A Balancing cost management

### August 2020 Performance

The approach we use for measuring our Balancing Costs performance is based on a linear trend in a five year rolling mean, based on annual Balancing Services Costs (excluding Black Start). In order to meaningfully employ a linear trend, the data points need to handle one-off permanent changes to the system network which would not be captured by the five-year trend. So far, the only change modelled in this way has been the Western Link. We also make adjustments for significant events which we expect to have an impact on balancing costs, whether this is an upwards or downwards adjustment. These are trends which we would not expect to be captured in the 5-year rolling average, because they relate to either new assets or new trends in market behaviour. Additional information regarding balancing costs calculation and benchmark adjustment can be found on our website<sup>5</sup>.

Low demand periods are challenging to manage and the volume of actions required by the ESO to ensure the system remains secure lead to higher costs. During the period where demand is impacted by the COVID-19 pandemic, the ESO's balancing costs spend is expected to be significantly higher than the benchmarks stated here. During this period, we will continue to report our performance in comparison to the benchmark but will focus on providing a detailed narrative which explains the costs we have incurred. We also welcome Ofgem's review of costs incurred over the summer period and will be transparent with our stakeholders about the actions we have taken.

Please note that the benchmarks were re-calculated in July 2020 to remove the ElecLink adjustor since the interconnector go-live date has been delayed.

	Apr	May	Jun	Jul	Aug	Sep	Total
Benchmark cost (£m)	67.0	48.2	82.6	65.5	102.0	103.7	1199.3
Additional cost forecast due to WHVDC fault (£m)	0	0	0	0	0	0	0
Benchmark adjusted for WHVDC (£m)	67.0	48.2	82.6	65.5	102.0	103.7	1199.3
Outturn cost (£m)	121.4	159.0	135.1	135.6	114.3		
Status							

Table 2: Apr-Sep 2020 Monthly balancing cost benchmark and outturn.

	Oct	Nov	Dec	Jan	Feb	Mar	Total
Benchmark cost (£m)	126.9	82.8	126.6	133.2	142.5	118.3	1199.3
Additional cost forecast due to WHVDC fault (£m)	0	0	0	0	0	0	0
Benchmark adjusted for WHVDC (£m)	126.9	82.8	126.6	133.2	142.5	118.3	1199.3
Outturn cost (£m)							665.4 [YTD]
Status							

Table 3: Oct-Mar 2020-21 Monthly balancing cost benchmark and outturn.

<sup>5</sup> <https://www.nationalgrideso.com/document/166231/download>

## Supporting information

The balancing costs for August were lower than July and closer to our benchmark than any time since COVID-19 began. More benign weather and fewer periods of very low demand meant less action was required to secure the system which led to lower balancing costs. Although total wind was similar to July across the month, there were fewer periods of extremely high wind, and therefore a reduction in constraint costs associated with managing thermal constraints. Similarly, although the monthly demand for August was only marginally higher than previously, there were fewer periods of extremely low demand which can be very expensive to manage.

## Performance benchmarks

- **Exceeding expectations:** at least 10% lower than the figure implied by the benchmark.
- **Meeting expectations:** within 10% of the figure implied by the benchmark.
- **Below expectations:** at least 10% higher than the figure implied by the benchmark.

## 1B Energy forecasting accuracy

### August 2020 Demand Forecasting Performance

As outlined in the Forward Plan Role 1 Energy Forecasting Accuracy metric (Metric 1b), the ESO's forecasting performance will be assessed at the end of the performance year. Annual performance targets have been calculated with exceeding, in-line with and below expectations values set out. To allow transparency of our performance during the year, each month we will report an indicative performance for both metrics.

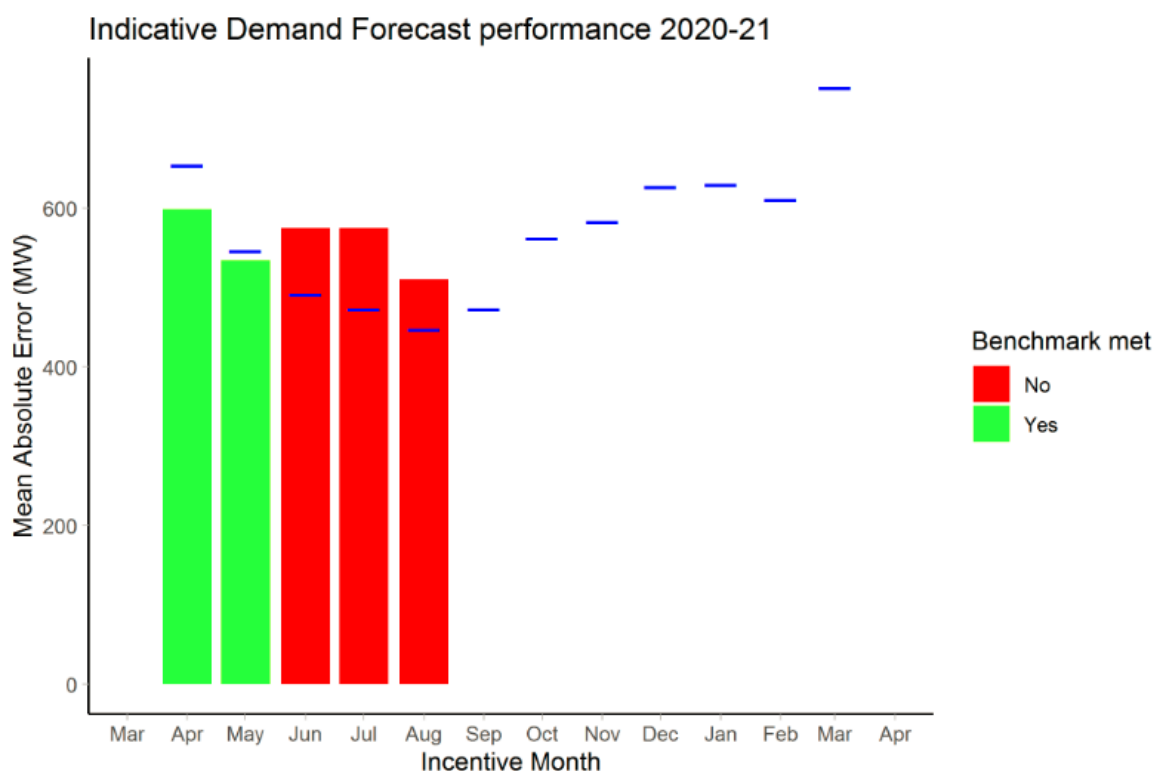


Figure 1: Demand Forecasting , shows our performance for April as the green histogram against the blue target line.

#### Day ahead demand forecast benchmarks for financial year 2020-21

Month	Benchmark (MW)	Month	Benchmark (MW)
April	654	October	562
May	546	November	583
June	491	December	627
July	473	January	630
August	447	February	611
September	473	March	752

Table 4: Demand Forecasting Benchmarks

## Supporting information

### DA Demand Indicative Performance for August: 510MW

In August 2020, our day ahead demand forecast indicative performance was not within the benchmark of 447MW. The monthly mean average error (MMAE) in August was 510MW. The Optional Downward Flexibility Management service (ODFM) was not enacted this month.

The target for August was the most ambitious of the 2020-21 scheme. The performance during August in the three previous years, which were used to calculate the current target, was very strong. Typically, August is a stable month and demand is relatively easier to forecast. However, this year people's holiday plans were significantly affected by the pandemic, and the changed behaviour has led to increasing uncertainty and greater errors.

### August 2020 Wind Generation Performance

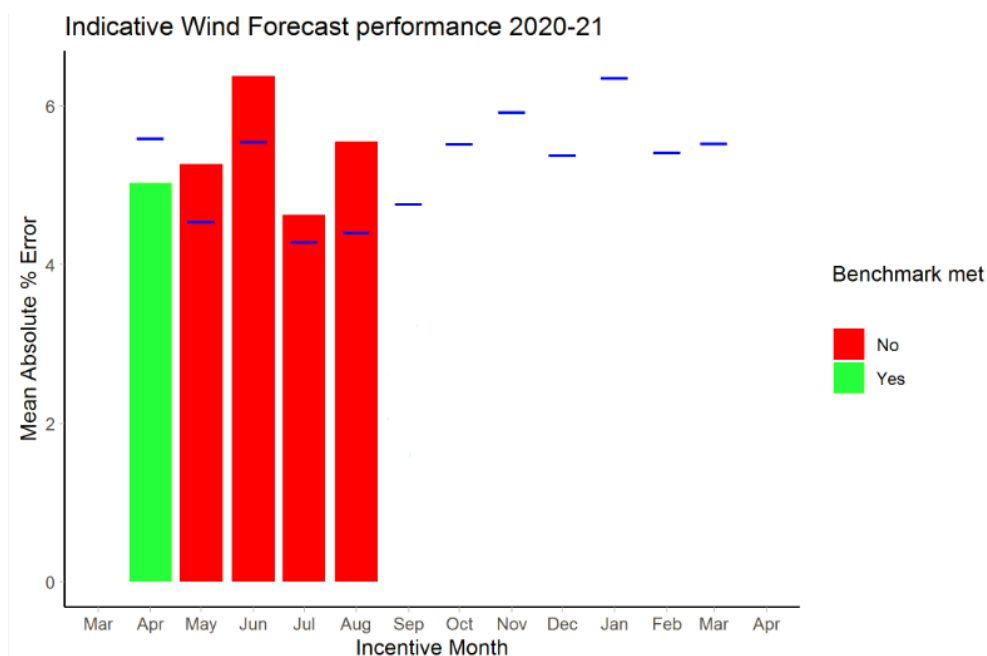


Figure 2 shows our performance this month as the green histogram, against the blue monthly target.<sup>6</sup>

#### BMU wind generation forecast benchmarks for financial year 2020-21

Month	Benchmark (%)	Month	Benchmark (%)
April	5.60	October	5.53
May	4.54	November	5.93
June	5.56	December	5.38
July	4.29	January	6.36
August	4.41	February	5.42
September	4.77	March	5.54

Table 5: Wind Forecasting Benchmarks

<sup>6</sup> Corrected on 28 January 2021

## Supporting information

### DA Wind Indicative Performance for August: 5.21%<sup>7</sup>

In August 2020, our day ahead wind forecast indicative performance was not within the target of 4.41%. The monthly mean absolute percentage error (MMAPE) in August was 5.21%<sup>7</sup>

At the beginning of the month a large frontal system passed over Scotland. This progressed more slowly than predicted, resulting in the large forecast errors. Very warm temperatures, 32°C across the greater London area on 10 August, prompted thunderstorms. Increased thunderstorm activity was observed for almost half of the month. Thunderstorms are an indication of atmospheric instability, and more difficult to predict localised wind conditions. When these thunderstorms passed over wind farms they increased the amount of wind power forecasting error.

Storms Ellen and Francis passed over the UK on 19 and 25 August respectively. This stormy weather had a knock on effect on wind power predictability.

The forward price for electricity remained positive throughout August. In previous months we have seen that wind farms with Contracts for Difference (CfD) arrangements have reduced output during times of negative prices which resulted in increased wind power forecast error. This was not the case in August.

There is some missing data for 10 and 11 August. We are currently investigating and hope to have this remedied soon. This was due to an IT problem and we are working on re-constructing this data.

## Performance benchmarks

- **Exceeding expectations:** Error which is at least 5% lower than the benchmark
- **Meeting expectations:** Error which is within 5% of the benchmark
- **Below expectations:** Error which is at least 5% higher than the benchmark

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<sup>7</sup> Corrected on 28 January 2021

## 1C Security of Supply

### August 2020 Performance

Quality of service delivered in running the electricity network by providing the number of reportable voltage and frequency excursions that occurred during the previous month, and a total for the year to date.

	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Voltage excursions	0	0	0	0	0							
Frequency excursions	0	0	0	0	0							

Table 6: voltage and frequency excursions over 2020-21

### Supporting information

There were no excursions on both voltage and frequency. Our performance was therefore exceeding expectations in August.

### Performance benchmarks

- **Exceeding expectations:** 0 excursions for both voltage and frequency over 2020-21
- **Meeting expectations:** 1 excursion for either voltage or frequency over 2020-21
- **Below expectations:** More than 2 excursions in total over 2020-21



## 1D System Access Management

Publishing this metric encourages the ESO to investigate the causes of outage cancellations and amend processes where appropriate to prevent a repeat. We will ensure that we seek to minimise costs across the whole system and all timescales when making a decision to recall or delay an outage on the transmission system.

### August 2020 Performance

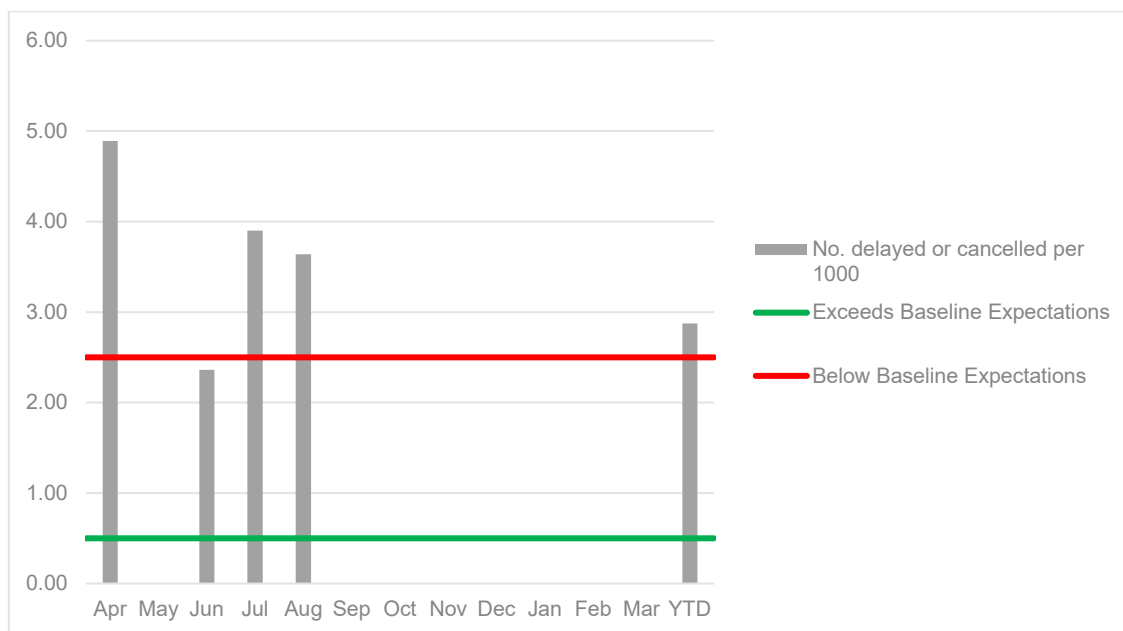


Figure 3: Number of outages delayed by > 1 hour, or cancelled, per 1000 outages

	Number of outages	Outages delayed/cancelled	Number of outages delayed or cancelled per 1000 outages
<b>Apr</b>	409	2	4.89
<b>May</b>	629	0	0
<b>Jun</b>	847	2	2.36
<b>July</b>	769	3	3.90
<b>Aug</b>	824	3	3.64
<b>Sep</b>			
<b>Oct</b>			
<b>Nov</b>			
<b>Dec</b>			
<b>Jan</b>			
<b>Feb</b>			
<b>YTD</b>	3478	10	2.88

Table 7: Number of outages delayed by > 1 hour, or cancelled, per 1000 outages

## Supporting information

For August, the number of delays or stoppages per 1000 outages has risen to 2.88: this was caused by three events.

The first delay was due to a SuperGrid Transformer (SGT) outage being requested by the TO that has multiple connected circuits on the low voltage side. The Outage Planning database, Transmission Outage and Generator Availability (TOGA), only included the SGT request and did not reference the connected circuits. One of the Distribution Network Operator (DNO) connected circuits was missed due to human error and the DNO was not notified in advance of the outage. On the day, liaison to obtain agreement was taken, however this became finalised just over the one-hour delay cut off. As a preventative action, the data has been amended to include all the circuits and affected parties for all outage combinations in the vicinity. Additionally, there is a weekly liaison call with the DNO to discuss outages and ensure that the impact of the outages is understood in advance.

The second delay was due to a 132kV DNO busbar protection depletion. This is under investigation to determine the root cause and highlight preventative actions.

The final delay was due to an outage combination that would have put a large synchronous generator at double circuit risk. This outage was discussed with the generator and DNO, and agreement was reached for the short duration of risk. However, the protection of the generator was questioned overnight by the control room. As the generator was unsure on clearance times, the outage was delayed for further analysis to ensure the generator would remain stable under all scenarios. The outcome identified was that the generator would become unstable and it was decided to re-plan this outage when system conditions permitted.

## Performance benchmarks

- **Exceeding expectations:** < 1 outage cancellations per 1,000 outages
- **Meeting expectations:** 1 - 2.5 outage cancellations per 1,000 outages
- **Below expectations:** > 2.5 outage cancellations per 1,000 outages

## Notable events this month

### GB wind generation hits new record

Wind generation broke a new record on 22 August. Owing to high wind speeds during Storm Ellen, that wind output accounted for 59.1% (13.5GW) of the total electricity generation mix at 1:00am on 22 August. During August there were however very few periods with such high wind. Further analysis indicates that wind generation could have further exceeded this record in the subsequent days due to Storm Francis.

# Role 2 Market development and transactions

## 2E Month ahead forecast vs outturn monthly BSUoS

BSUoS forecasts are important to our stakeholders, although we note that our ability to forecast BSUoS is impacted by factors outside of our control. BSUoS costs are factored into the wholesale price of energy charged by generators, and therefore a forecast is vital for those parties when working out where to price their generation.

Due to the volatility in the comparison of our month ahead forecast with the outturn, we report the percentage variance so there can be large swings in accuracy. This metric does not just look explicitly at the volatility, but at the number of occurrences outside of a 10% and 20% band of absolute percentage error (APE).

### August 2020 Performance

Month	Actual	Month-ahead Forecast	APE	APE>20%	APE<10%
April-20	4.74	3.69	0.22	1	0
May-20	6.24	3.87	0.38	1	0
June-20	5.28	7.18	0.36	1	0
July-20	4.79	5.56	0.16	0	0
Aug-20	4.09	5.61	0.37	1	0
Sept-20					
Oct-20					
Nov-20					
Dec-20					
Jan-21					
Feb-21					
Mar-21					

Table 8: Month ahead forecast vs. outturn BSUoS (£/MWh) Performance

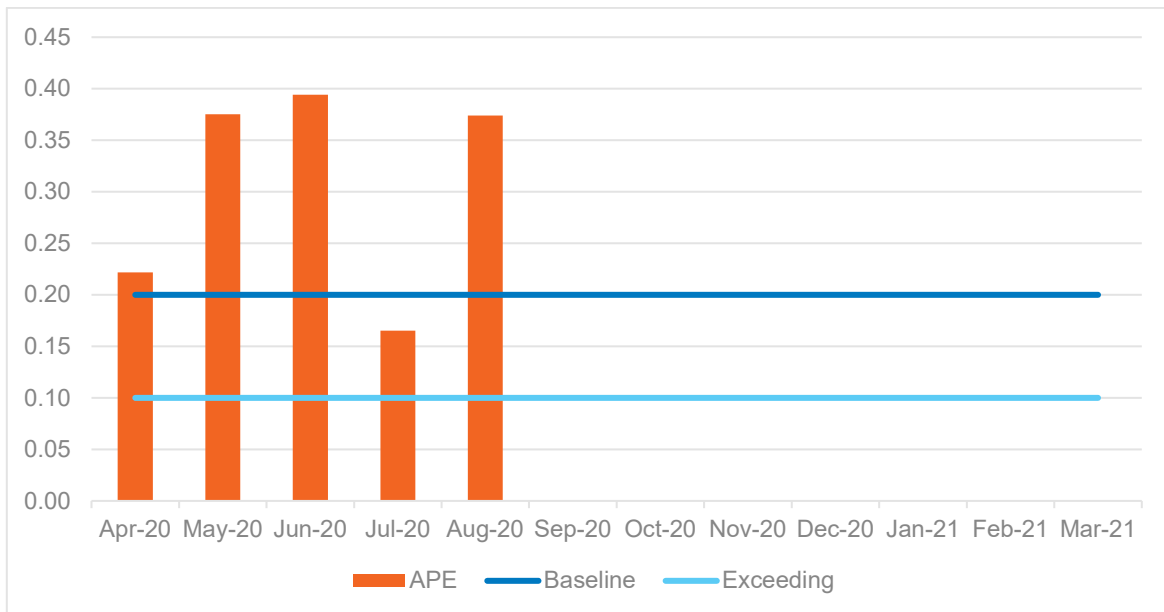


Figure 4: Monthly BSUoS forecasting performance

### Supporting information

Less extreme weather and a further relaxing of lockdown restrictions leading to less severe minimum demands resulting in lower constraint costs for August. We forecast an increase in BSUoS for August based on higher forecast costs as observed in June, however the reduction in balancing costs combined with the higher demand meant BSUoS outturned at its lowest level since March and thus giving an APE of 37%

### Performance benchmarks

- **Exceeding expectations:** Less than 5 out of 12 monthly forecasts are above 20% Absolute Percentage Error, and 5 or more forecasts less than 10% Absolute Percentage Error
- **Meeting expectations:** Less than 5 out of 12 monthly forecasts are above 20% Absolute Percentage Error
- **Below expectations:** 5 or more out of 12 monthly forecasts above 20% Absolute Percentage Error



## Notable events this month

### Consultation on terms of conditions for Dynamic Containment (DC) service

In accordance with the requirements of the EU Electricity Balancing Guidelines (EGBL), we issued a consultation on Friday 21 August on the terms and conditions for Dynamic Containment (DC). This service is designed for deployment after a significant frequency deviation in order to meet the need for faster acting frequency response. Currently the electricity system is experiencing lower inertia and larger, more numerous losses than ever before. To meet our system operability needs, we decided to launch DC in October. However, this tight timeline means we won't have a well-developed auction platform in place to support DC day ahead auctions. On day one we will need to run all processes manually. Day one procurement volume will be 500 MW Low Frequency, (in full delivery phase, we are aiming to procure 1GW for both Low Frequency and High Frequency). Compared with the full launch, the launch in October will be a "soft launch". We are working on an enduring solution to enable us to fully deliver this service in 2021. The DC team have decided to take a similar delivery approach to the weekly auction trial, in learning by doing through a phased delivery. We will be procuring DC close to real-time, in line with stakeholder feedback. Responses are requested by 21 September.

### Clean Energy Package Article 6.4 and 6.9 engagement

On 5 August we held a webinar to provide more information on the Clean Energy Package Regulations 6.4 and 6.9. These slides were then published on our website<sup>8</sup>.

### Transmission Network Use of System (TNUoS) charges five-year view

We published our five-year view from 2021-22 to 2025-26 of TNUoS charges<sup>9</sup> on Monday 31 August. The total TNUoS revenue to be collected is forecast to rise from £3,048.6m to £3,758m over the period. Due to the implementation of reform of the Transmission Generator Residual (TGR), total revenue to be recovered from generators has increased significantly in 2021-22 to £826.4m compared to the 2020-21. The average generation tariff for 2021-22 is forecast at £10.74/kW and is expected to increase to £11.96/kW by 2025-26, the rise mainly due to the increase in the generation charging base and increases in local charges. Correspondingly, revenue from demand is forecast to reduce to £2,222m in 2021-22, then rise to £2,558m by 2025-26. The TNUoS element of the consumer bill is forecast to be £31.87 in 2021-22, rising to £33.38 in 2025-26. Several uncertainties were highlighted such as the ongoing charging methodology changes as well as the RII0-2 price control process. No account has yet been taken of the impacts of COVID-19 on the demand charging base.

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<sup>8</sup> <https://www.nationalgrideso.com/research-publications/future-balancing-services>

<sup>9</sup> <https://www.nationalgrideso.com/charging/transmission-network-use-system-tnuos-charges>

# Role 3 System insight, planning and network development

## 3A Right First Time connection offers

### August 2020 Performance

This metric measures whether the ESO aspects of connection offers were correct the first time they were sent out to customers.

Connections Offers	Results
Year to date number of connections offers	130
Year to date ESO related reoffers	6
Year to date percentage of Right First Time connections offers determined from ESO related reoffers	95%

Table 9: Connections re-offers data

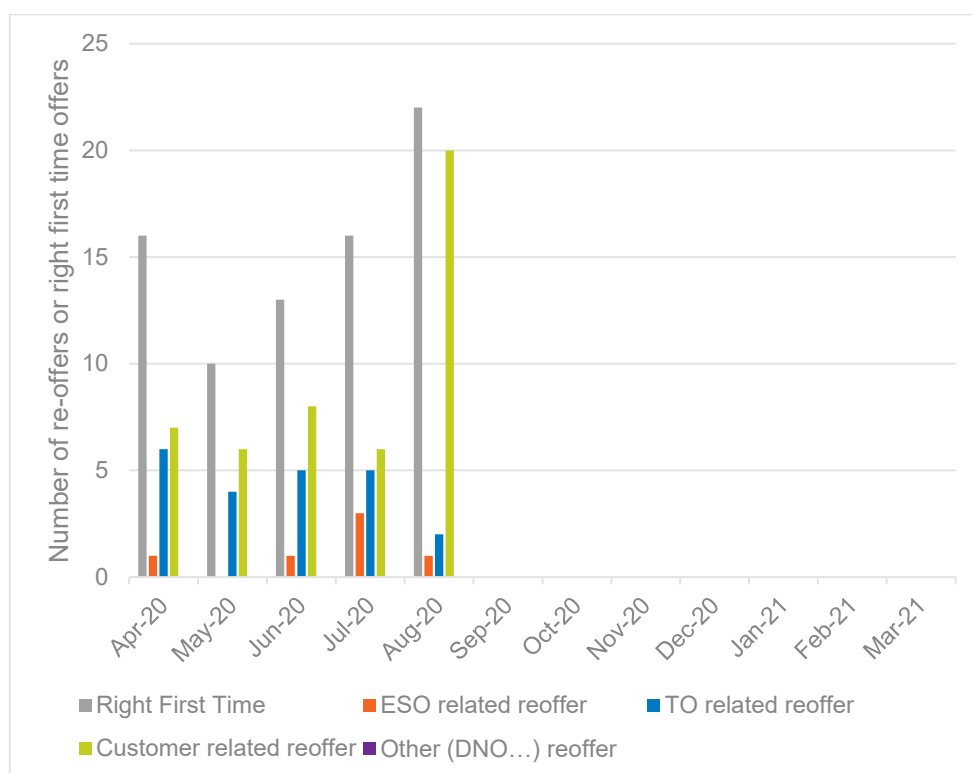


Figure 5: Connections offers monthly performance

### Supporting information

We saw 26 offers returned in August, four of which were subject to a re-offer. There was one recorded ESO related re-offer on contracts signed in this period which means that we are still meeting our target at 95% Right First Time. The ESO related re-offer was due to an update required on the Constraint Agreement Appendix H. The works were categorized as attributable based on an out of date Transmission Owner Connection Offer (TOCO), when in fact they're non-attributable.

## Performance benchmarks

- **Exceeding expectations:** 100% of connection offers Right First Time (excluding those where the error was not due to the ESO)
- **Meeting expectations:** 95-99.9% of connection offers Right First Time (excluding those where the error was not due to the ESO)
- **Below expectations:** Less than 95% of connection offers Right First Time (excluding those where the error was not due to the ESO)

## Notable events this month

### Network Options Assessment (NOA) third party options

We have officially launched the Interested Persons' (IP) options submission process for NOA 2020-21. This process will allow third parties to propose new, innovative ideas and supports the ESO's ambition to increase the diversity of options considered within the NOA. It is worth noting that IP options cannot receive a "proceed" recommendation, instead they can receive a "viable" recommendation. This recommendation avoids signalling a need for the IP to spend money on the option and instead emphasises that we see value in such an option and more work should be carried out in collaboration with the ourselves and incumbent TO to progress ahead of the next NOA.

The deadline for submission for NOA 2020-21 was 14 August for options with an Earliest In Service Date (EISD) between 2026 and 2028, and 31 August for options with an EISD of 2029 or later.

Since the two deadlines have passed, there has been one option submitted. We are currently engaged in initial conversations and progressing on the viability check.

### FES: Bridging the Gap to Net Zero programme

Last year the ESO built on the success of our Future Energy Scenarios (FES) by launching FES: Bridging the Gap to Net Zero. The report gives a collaborative view from across and outside the energy industry, focussed on going beyond FES to recommend actions to progress the UK towards its net zero 2050 target. With FES 2020 published recently, we are now starting to work on next year's Bridging the Gap publication. In a year of increased uncertainty, the next report will look at a different topic – how the energy system needs to evolve to manage unpredictable demand. We'll be holding a series of events starting in the autumn to discuss questions on how to address how peaks and troughs could impact the system and consider the levers, enablers and mechanisms that can help us manage the system effectively. On 13 August we published a blog on our website<sup>10</sup> which explains why we've chosen to focus on this topic and how people can get involved.

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<sup>10</sup> <https://www.nationalgrideso.com/news/introducing-bridging-gap-2020-peaks-and-troughs>



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