

ESO Coronavirus Preparedness

15th April 2020



Recap of topic areas from the Webinar last week

Please ask any questions via the Q&A section in Webex and we will pick them all up at the end of the session and answer those now which we can.

These slides, event recordings and further information about the webinars can be found at the following location:

data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials

A reminder of our response to the Covid-19 situation and our engagement with industry

An overview of the demand outturn over the previous few days and a view of the forecast demand over Easter weekend

A snapshot of the actions that NGENSO took to securely balance the system over the weekend and more detail around short-term operability

The potential impact on markets and details of a letter that we will be sending to providers

ACCURATE

TIMELY

FLEXIBLE

Commons themes of the questions that we received during the Webinar

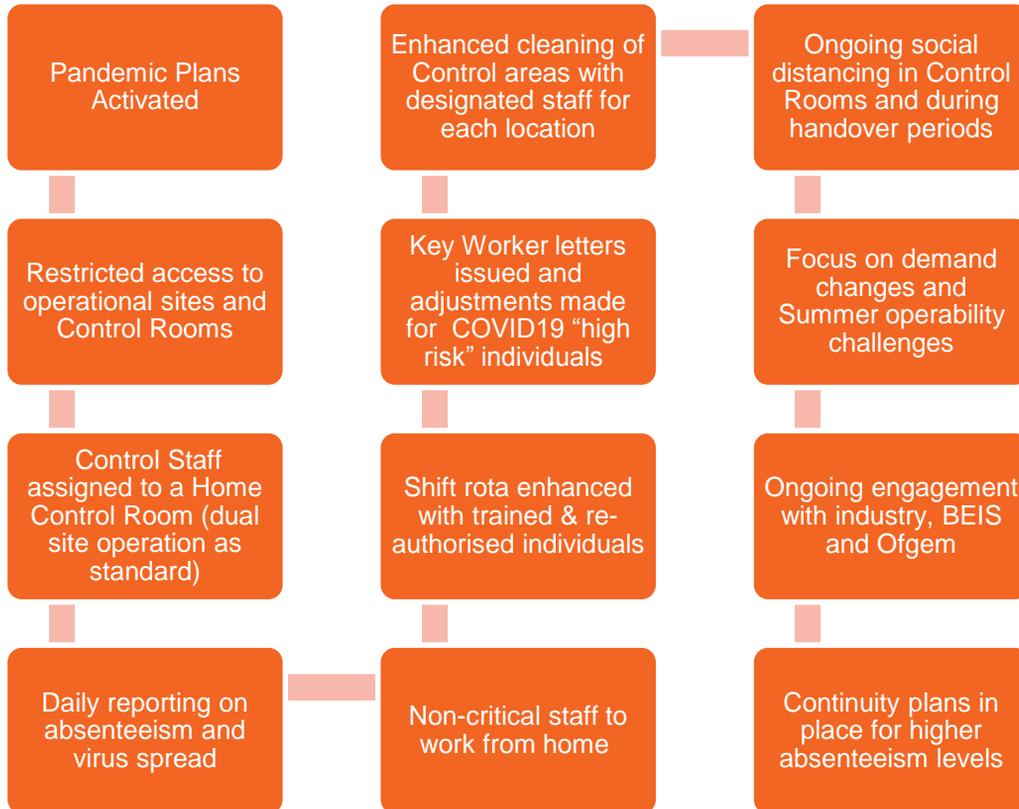
We received positive feedback from the webinar last week, especially around the forward-looking elements, which we will try to continue this week

Following a request from the last webinar, full event recordings of these webinars can now be found alongside the presentations on the NGENSO data portal

We received some quite specific, technical questions that we will attempt to address this week

There were a number of questions about new services that we might require due to the challenges highlighted during the short-term operability work. We will discuss these in more detail later in the webinar

Summary of ESO response to the COVID-19 outbreak



Industry Engagement and Coordination

Engaging through multiple forums:

Weekly ENCC webinar

BEIS' Networks & Interconnector groups

ENA COVID19 Resilience Group

Electricity Task Group, Emergency Planning Managers Forum and other existing platforms

International TSO liaison and working groups

Bilateral discussions with individual parties

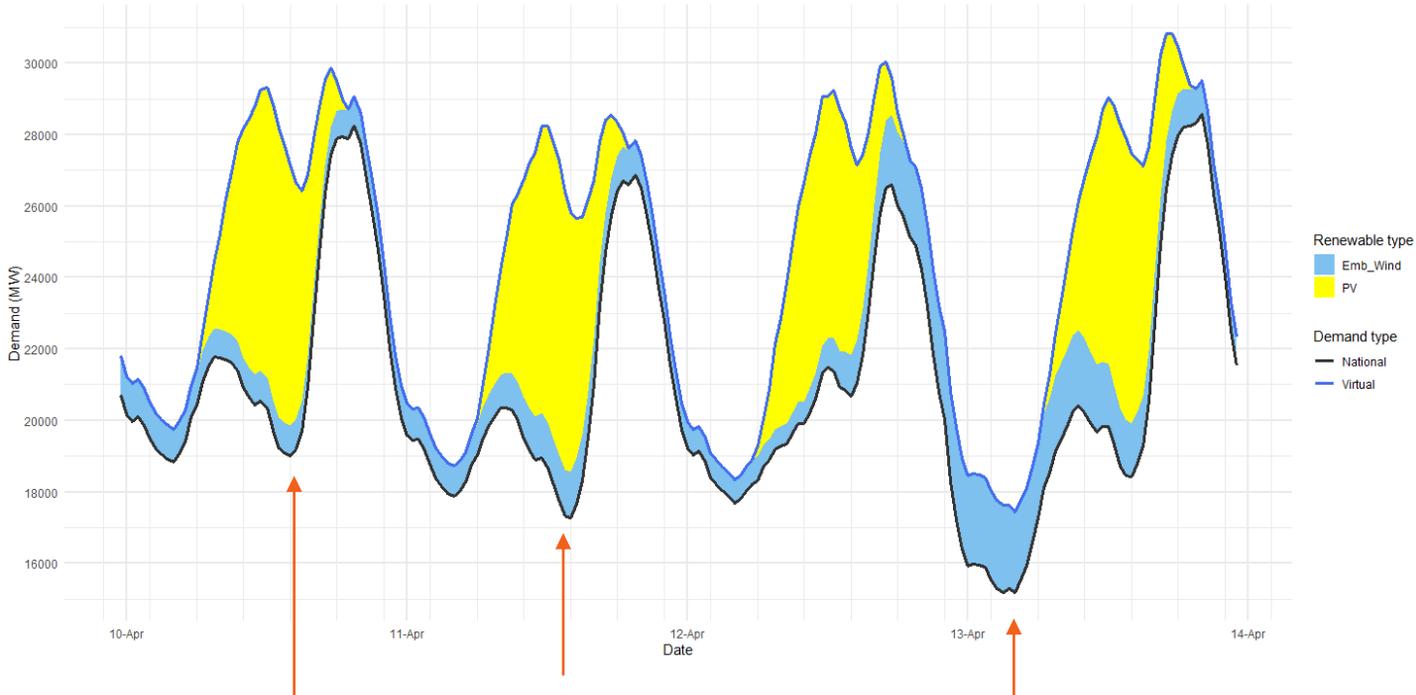
TO & DNO Meetings to discuss operating procedures

Please continue to engage with your Account Manager or normal point of contact.

Raising of issues or concerns is important so that ESO can maintain a realistic view of system operation and upcoming challenges.

Bank Holiday Weekend | Demand

ESO National Demand from Good Friday to Easter Monday 2020



6 **19 GW** | afternoon demand only slightly higher than overnight (18.8GW)

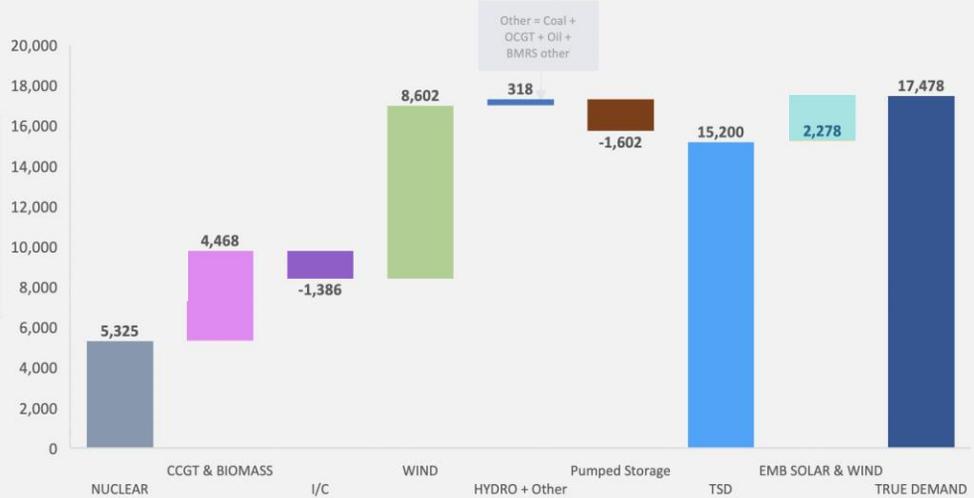
17.3GW | afternoon demand lower than overnight (17.8GW)

15.2GW | lowest ever recorded demand

Focus on Easter Monday | Managing Overnight Minimum

Date: 13/04/2020

SP: 10



CCGT & BIOMASS



I/C



WIND



The ESO was actions to add CCGTs and Biomass to the system for Inertia management, voltage support and additional frequency capability

To make space for these units we were taking actions on the interconnectors, pump storage units and wind providers

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*The numbers on these graphs are for indicative purposes only.

Focus on Easter Monday | Managing Afternoon Minimum



Rate of Change of Frequency relays are set to activate from 0.125 Hz/s.

- There is up to 700 MW of DER which could be lost due to a RoCoF greater than 0.125Hz/s
- We can calculate for a given loss size the amount of inertia required to prevent the relays from activating – The RoCoF trigger level. We ensure that losses greater than this value are effectively managed

The Vector shift relays can activate for a transmission fault.

- The above graph shows the vector shift forecast and the inertia levels from Sunday

From this we can see over the morning and afternoon we ran an additional 17 units worth of inertia (blue line to yellow line) to ensure that a transmission fault and subsequent Vector Shift loss did not cause the activation of the RoCoF relays and cause a larger loss and a potential frequency deviation.

Short Term Operability | Purpose

Input Workstreams

Confirming system condition
assumptions

- Demand
- TO's
- DNO's
- Directly Connected
- Providers

Operability & Scenario Workstreams

Identifying system **need** &
setting **requirements**

- Frequency
- Voltage
- Thermal
- Stability
- Restoration
- Scenario planning

Outputs

Designing & implementing
solutions to resolve system
need & meet requirements

- Frequency
- Voltage
- Thermal
- Stability
- Restoration
- Scenario planning

Operability Services | Super SEL

Footroom is the ability to reduce generation output/increase demand on units to balance the electricity system.

In most cases, the wholesale energy market delivers sufficient footroom based on the generation of self-dispatching units.

When demand on the system is very low, however, it is more likely that actions will be required to manage the footroom requirement.

Super SEL is utilised to directly decrease the sum of the minimum MW level (SEL) of generators synchronised to the system.

Super SEL service does not require a change in energy output of the generation, it is to give access to a reduced minimum active power level at no more than 6 hours notice

The service will be paid on utilisation of lower SEL capability (£/MW/hr) for the periods between Start Up Period and End Time.

- Separate payment as normal for any instruction to reduce output via bids or trades.

Interested Super SEL providers should contact commercial.operation@nationalgrideso.com and outline their capability to provide the footroom service

- Including impact on reactive power range, inertia and response capability

Summer Outlook Report

The NGESO Summer Outlook Report will be published on Thursday 16th April
Following feedback from industry, we have included a section on Covid-19
Please visit the NGESO website to find out more:

www.nationalgrideso.com/research-publications/summer-outlook

Letter to Industry

A letter has been sent out to individuals from generator and provider companies
If you think that you should have received a letter but have not then please let us
know

Specific Questions from the last Webinar

If you want people in the BM are you going to allow the use of API not EDL/EDT?

- As per our commitments in the ESO forward plan we looking to widen out availability of the wider access API to all market routes
- We are currently performing an impact assessment to understand the practicalities of extending availability to the API and what this would mean in terms of required changes to processes, systems and contractual frameworks
- We will provide a decision including commitment timescales for delivery on this specific question, as soon as possible.

We are currently discussing the Terre impact with OFGEM and will keep you informed as we know more

Q&A

Please ask any questions via the Q&A section in Webex and we will try to answer as many as possible now

Please continue to use your normal communication channels with ESO

If you have any questions after the event, please contact the following email address:

box.NC.Customer@nationalgrid.com

nationalgrideso.com

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