

ESO Coronavirus Preparedness

22nd 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

During the last webinar, we reviewed the impact on the system of Easter bank holiday weekend and some of the actions that we needed to take to manage inertia and other system constraints

We made a call out to any providers that would be interested in a Super SEL contract to speak to their account manager or commercial.operation@nationalgrideso.com - an email on this topic has been sent out.

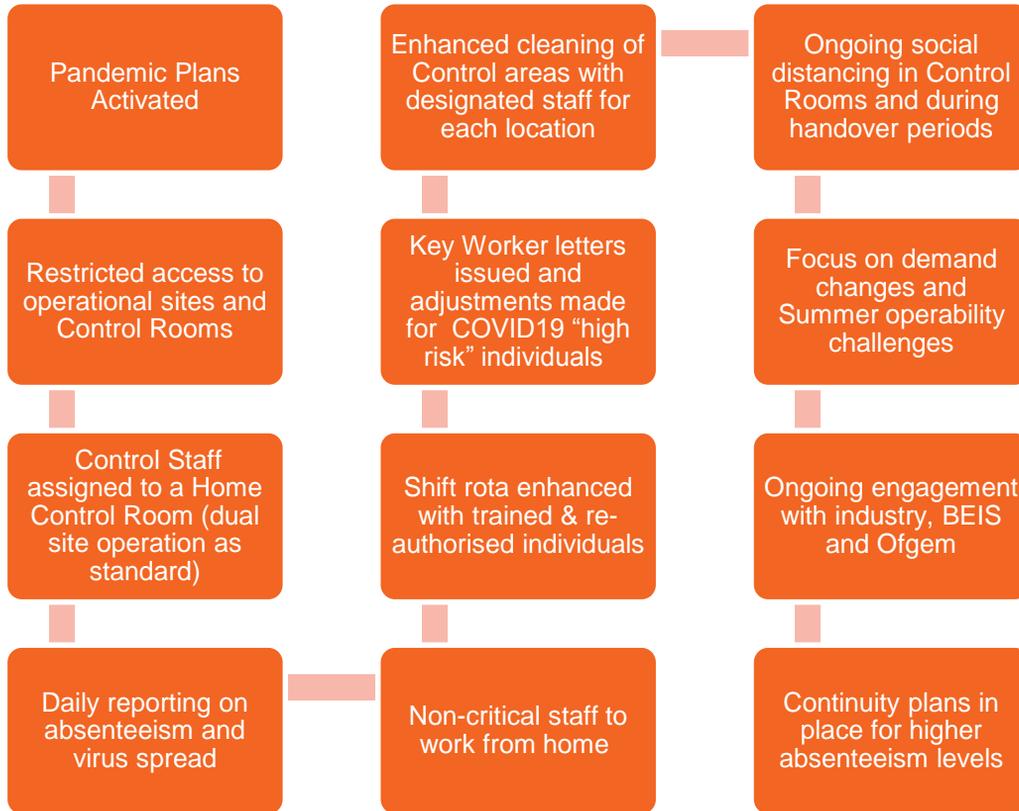
Note that the Summer Outlook Report has now been published and we have sent letters out to all providers – if you have not received a letter, please let us know

ACCURATE

TIMELY

FLEXIBLE

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.

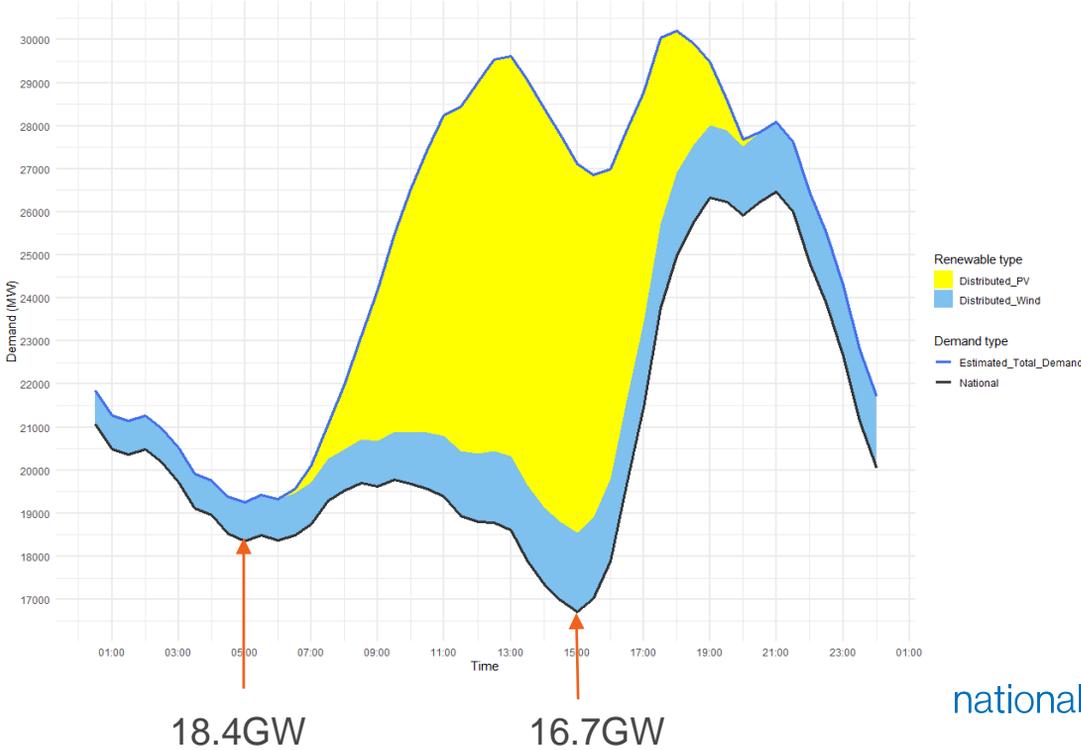
#clapforcarers | Demand Pickup



Demand Outturn and Solar Generation Record

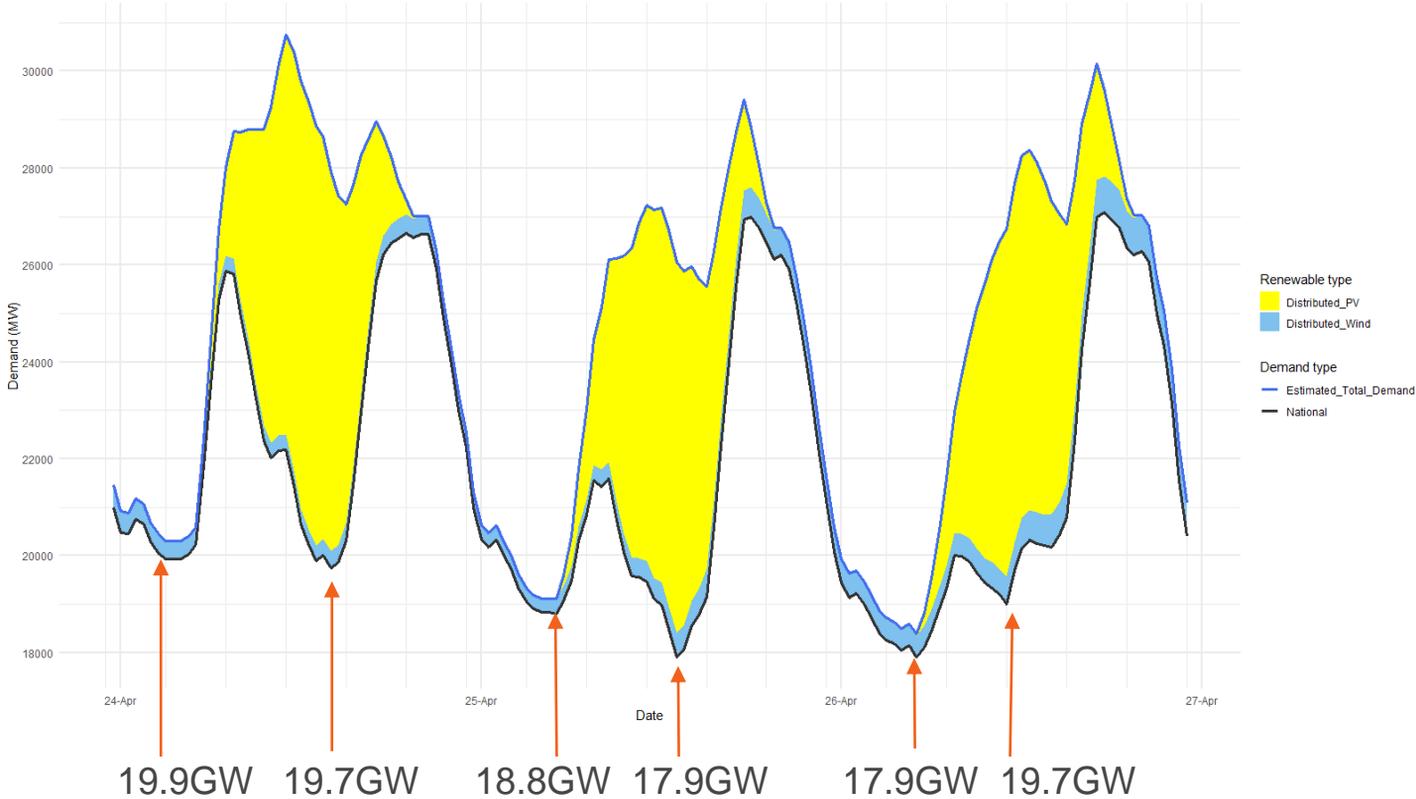
This beautiful weather saw the sun power us to highest solar generation we have ever observed

At 13.30 on Sunday we had 9.41GW of solar generation, which was eclipsed by new record on Monday; 9.68GW



Demand Forecast

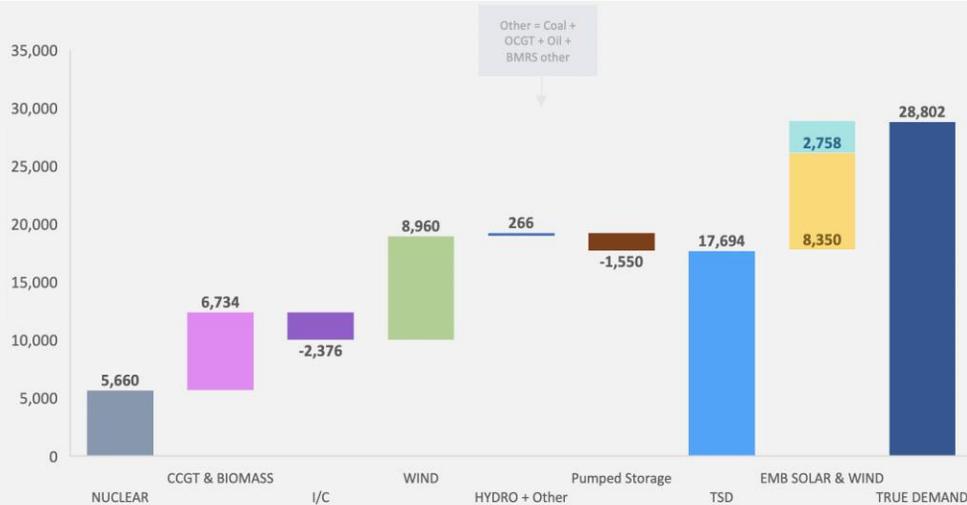
ESO Demand from Friday 24th Apr to Sunday 26th Apr 2020



Focus on Monday 20th April 15:00 | Managing Low Inertia

Date: 20/04/2020

SP: 30



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.

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

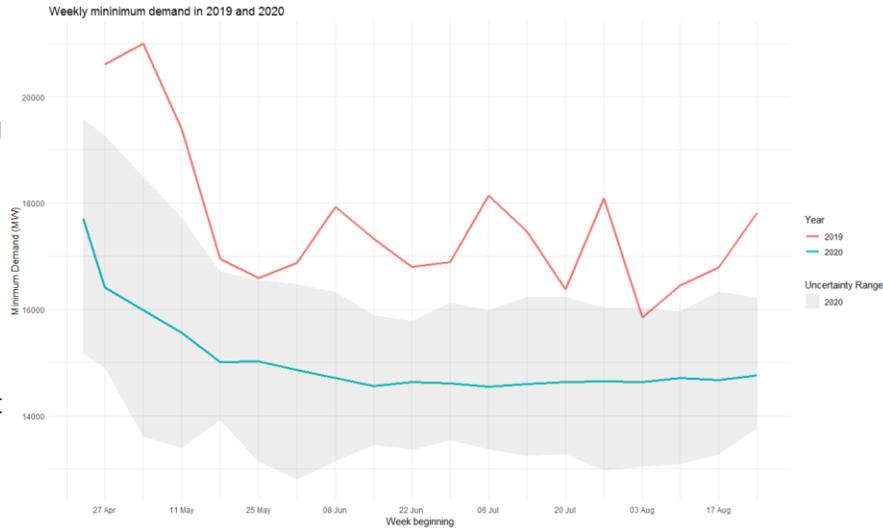
Outputs

Designing & implementing
solutions to resolve system
need & meet requirements

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

Operability | Demand | Planning for the summer

- As per the summer outlook, demand levels on a seasonal normal basis are expected to be persistently low across the summer months assuming current lockdown restrictions
- We are further testing those scenarios from the summer outlook as a way to provide testing to our scenarios.
- For operational purposes we are stretching assumptions to ensure that we have created a scenario which is worse than we expect to experience.
- With typical weather conditions demands could be around 15GW at some point every weekend between mid-May and end of lockdown.
- If weather is warmer than usual, and wind overnight is higher, we could see demands close to 13GW during any weekend across the summer. Exact weather conditions cannot be forecast accurately more than about 2 weeks ahead, so we cannot put an exact value or timing on the low points
- Colder temperatures and lower wind output would cause higher demands, but they would still be below 16GW



- Blue line is seasonal normal weather
- Grey areas are extremes from changes in weather

Operability | Next Steps

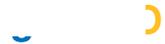
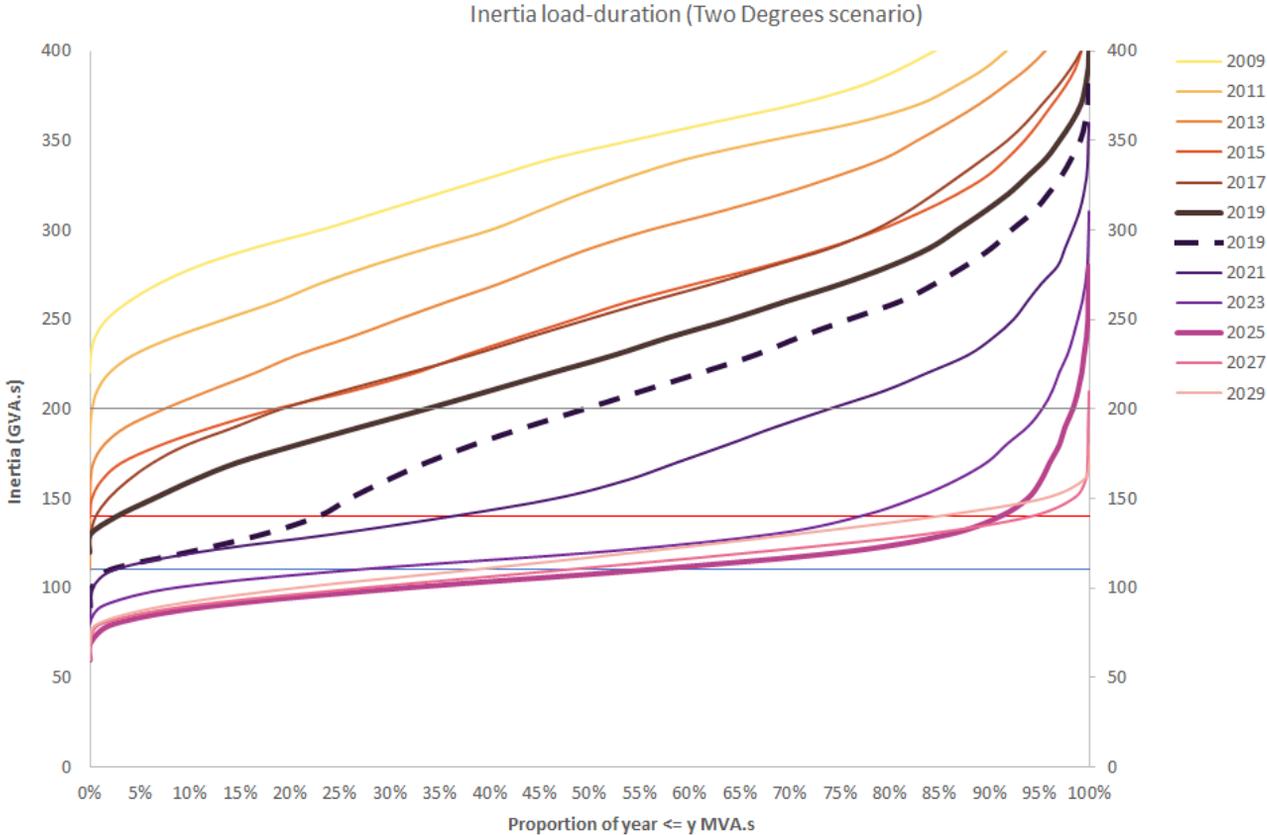
Key Challenges

- Lower demands and changing plant mix are requiring us to take more actions to manage voltage.
- Lower market provided inertia is requiring us to take more actions to manage Loss of Mains Relay Risks

Steps we are taking

- We are following up with providers who can offer us flexibility
 - Super SEL – we are seeing more usage of existing providers of this service
 - Access to plant which is 'inflexible' in the BM
 - Developing a commercial service to access DER resources, a lot of co-ordination is happening across ESO/DNOs/stakeholders to get a commercial service started. More to follow
- The Accelerated Loss of Mains Change Programme is progressing
- Developing costs forecasts for low demand periods to be able to share BSUoS forecasts
- We have also confirmed and enacted a number of smaller items to ensure security of supply.

Inertia Levels | Historic and Forecast

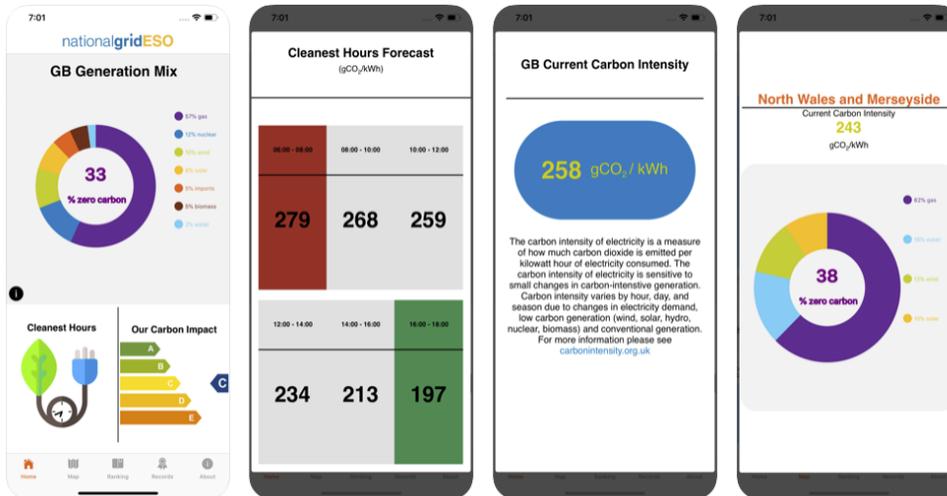


The National Grid ESO App

Climate change is the challenge of a generation. We play a leading role in the decarbonisation of the energy system by enabling the transition to a more sustainable energy future.

National Grid Electricity System Operator (ESO) has announced it will be able to fully operate Great Britain's electricity system with zero carbon by 2025.

The App allows the user to monitor the generation types that make up your electricity supply and see when the cleanest time to use electricity will be. See the carbon impact level of electricity generation, how your region compares to others in GB and be notified when a record towards decarbonisation breaks.



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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