We will be starting at 3pm.

If you have any issues please email us directly at
demandflexibility@nationalgrideso.com
Aims and objectives of the session

• Summarise our feedback from the show and listen event
• Share our learning to date
• Offer thoughts on potential routes for future options
• Launch our call for input on DFS
• Continue to collaborate with industry to form and shape future flexibility

Q&A

Please submit your questions using the teams Q&A function

If you have any issues please email us directly at
demandflexibility@nationalgrideso.com
Recap of winter 2022/23 and DFS
Recap of winter 2022-2023

- There were risks and uncertainties for winter 2022/23, as a direct result of possible shortfalls in Europe’s gas supply
- As a prudent system operator, we took steps to ensure we were well prepared to maintain safe and secure operation of the electricity system
- Those steps included actions to build our resilience and mitigate the potential impact to electricity customers in GB
- The Demand Flexibility Service was launched to support a package of winter contingency options for ESO
Design principles for last winter 2022/2023

We had five key design principles for the new demand flexibility service:

- **Simplicity** to maximise participation & enable implementation within the tight timeline for November ‘22
- **Transparency** to ensure we minimise any market distortion as a consequence of our actions
- **Minimising uncertainty** and **making the service viable** for providers as far as possible to maximise participation
- Usage in line with **operational needs**
- Accessing **new flexibility**, not existing flexibility (e.g. CMUs, existing Ancillary Service providers)

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### Service Delivery winter 2022/23

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- **C16 Launched**
- **1 month Industry Consultation Launch 01/09**
- **2 weeks ESO review W/C 3/10**
- **Ofgem Decision**
- **GO LIVE (1st Nov 2022)**
- **SERVICE ENDS (31st Mar 2023)**
- **Service Delivery winter 2022/23**
- **4 weeks Provider Onboarding** onboard in parallel
DFS key statistics

- Over 1.6 million reach
- c.350 MW contracted capacity
- 31 DFS approved providers
- 2 Live events so far
- c.0.6 GWh delivered
- 16 onboarding & regular Tests so far
- >1.6 GWh delivered

DFS volumes over winter 2022-23

- Accepted
- Rejected
- Live
What we’ve heard
Feedback from Show & Listen + 1:1s

- Alignment with BM and Ancillary Services
- Supplier-led
- National alerts
- Elective HH-settlement
- Close to real-time
- Marketing & Opt-in
- Guaranteed Acceptance Price & price discovery
- Role of / number of tests
- Baseline methodology
- MPAN duplication
- Bidding processes and pricing mechanisms
- Boundary vs asset metering
- Automation
- Locational
- Turn-up and turn-down
- Unblocking barriers e.g. smart meters
- Maintaining consumer engagement
- Consumer incentives across providers

Link to the Show and listen feedback summary
DFS learnings
DFS prices compared to other prices

Day Ahead wholesale prices have been well below the Guaranteed Acceptance Price (GAP) all winter.

Despite this, we have seen other parties pursue their own commercial versions of demand flexibility.
Real-time margin prices have only exceeded the GAP on one day this winter (12th Dec 2022).

Typical margin prices have been £250-£300/MWh, around 1/10th of the GAP.
DFS prices compared to other prices

Real-time margin prices exceeded the GAP on nine days last winter, but the maximum price paid last winter was lower than this winter.

Typical margin prices were again £250-£300/MWh, around 1/10th of the GAP.
Long-term vision for flexibility
Energy balancing 101

• One of the most fundamental requirements of an electricity system is that supply and demand are always balanced.

• For us to achieve this energy balancing we need flexibility, in both supply and demand, adjusting both sides to ensure they always match.

• The wholesale market currently provides the majority of system balancing during the day, with the ESO performing the residual balancing and balancing on a second-by-second basis.

Generation < Demand  
Frequency falls

Generation = Demand  
Frequency is steady

Generation > Demand  
Frequency rises
Energy balancing over different timescales

- **Real-time Frequency (< 30 minutes)**
  - Managing imbalances second by second, mainly acting within a settlement period

- **Within-day Flexibility (< 24 hours)**
  - Managing daily peaks and troughs of supply and demand, lasting a few hours

- **Flexibility for Adequacy (> 24 hours)**
  - Managing periods of over and undersupply from renewables lasting for days, weeks and months

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Real-time frequency

- We’re in the middle of reforming our response and reserve services, and different types of demand flexibility can fit well into these.
- For example: heat pumps and fridges in Static Recovery, EVs in Quick Reserve.

**Dynamic Regulation**
- Assist in keeping frequency near to 50Hz during normal conditions.

**Quick Reserve**
- Recover frequency back towards 50Hz, mainly during normal conditions.

**Slow Reserve**
- Recover frequency back to 0.2Hz within 15 minutes.

**Dynamic Containment**
- Prevent frequency deviations outside -0.8Hz / +0.5Hz following large losses.

**Dynamic Moderation**
- Assist in keeping frequency within 0.2Hz, especially during more volatile conditions.

**Balancing Reserve**
- Instructed via BOA
- Manage real-time imbalances and replace activated reserves

**Static Recovery**
- Recover frequency to 0.5Hz within 50 seconds following large losses.
Within-day Flexibility

Allowing the market to deliver

• Changes to market arrangements, including REMA and market-wide HH settlement, are key to unlocking within-day flexibility

• In the future, we want energy balancing to continue to be mainly delivered by price signals and markets, with the ESO acting as a “residual balancer”

Bridging gaps

• The timelines for the market arrangements, consumer incentives, technology roll-outs and data provisioning are not currently clear

• The system need for this capability might arise before the market is fully able to provide it

• If necessary, the ESO will bridge gaps between stages by creating temporary alternative mechanisms to help price signals get through to new providers of flexibility

• We will also continue to run trials so that we, and future participants in flexibility markets, can continually learn, informing more appropriate enduring arrangements
Potential routes forward
Potential routes forward

Next step after DFS?

Provide industry support

- With financial incentive → Supplier/market lead schemes
- Without financial incentive → Government, Suppliers

ESO-led

- Existing projects → BM, Response & Reserve Reform, Power Responsive Trials
- Without financial incentive
  - “Flex Alerts” or “EcoWatt” type app
  - Enhanced action (like winter 2022/23)
  - In-merit, stepping-stone competitive service
- Paid-for service
Design stages

- Develop, improve & finalise service design through industry engagement
- Industry Article 18 consultation & ESO review
- Ofgem review & approval of Article 18 submission
- Provider on-boarding
- Service go-live

**Indicative timescales**

- Ongoing
- 1-2 months
- 2 months
- 2 months
- November 2023
Next steps
What’s next

- Publishing a call for input tomorrow
- 2 week submission window
- 2 deep dive days to collaborate on the top priorities
- Progress to confirming desired route forward

Call for input

Please help us shape the future of flexibility and provide your feedback to our call for input

Closing date
3rd April 10am
Key dates

- 4 x deep dive virtual workshops
- Topics to be confirmed
- Invitation and registration for the deep dive events will follow after the call for input responses have been reviewed

The Role of DFS
- 18 April 10am – 12pm
- 18 April 2pm – 4 pm

Process / operational delivery
- 20 April 10am – 12pm
- 20 April 2pm – 4 pm
Email questions if you experience any issues with the Q&A function.

demandflexibility@nationalgrideso.com
The virtual Q&A team

Richard Hanson
Flexibility Services Development Manager

Hannah Rochford
Senior Balancing Markets Development Officer

Rob Westmancoat
Senior Strategy Analyst

Michael Coldwell
Market Requirements Future Design and Development Manager

Francisco Sanchez
Senior Strategy Analyst

Nigel Talboys
Balancing Markets Development Officer

Laura Parkes
Consumer Strategy Manager

Annie Truong
Consumer Strategy Specialist

James Kerr
Consumer Strategy Lead

Michael McLaughlin
News and Social Media Manager

Iris Hau
Senior Contract Manager
Please email demandflexibility@nationalgrideso.com with any questions.

Get involved in the debate on the future of energy and join our LinkedIn group Future of Energy by National Grid ESO.

For further information on ESO publications please visit: nationalgrideso.com