

Get in touch with us

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Demand Flexibility Service

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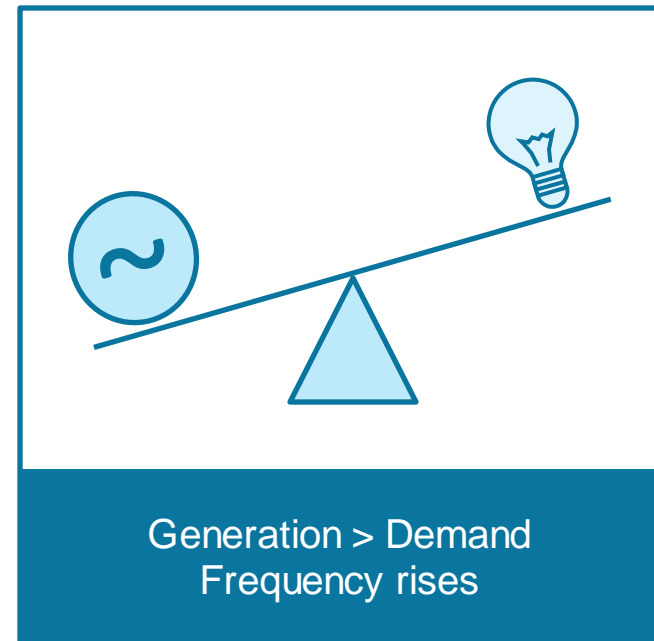
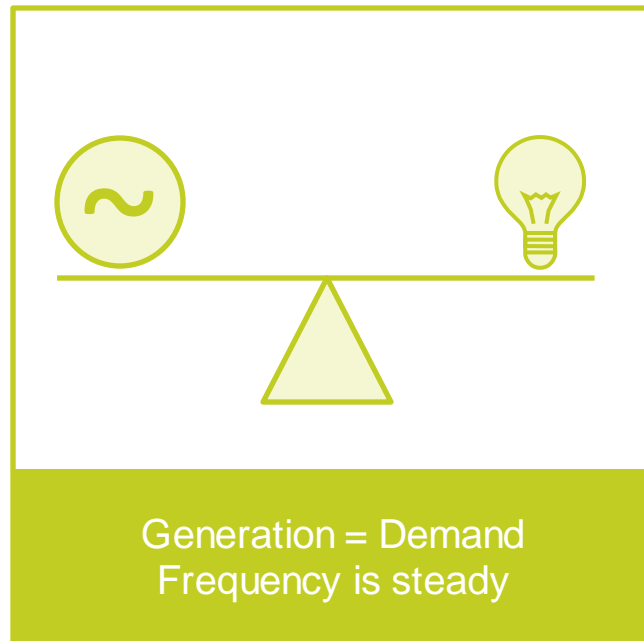
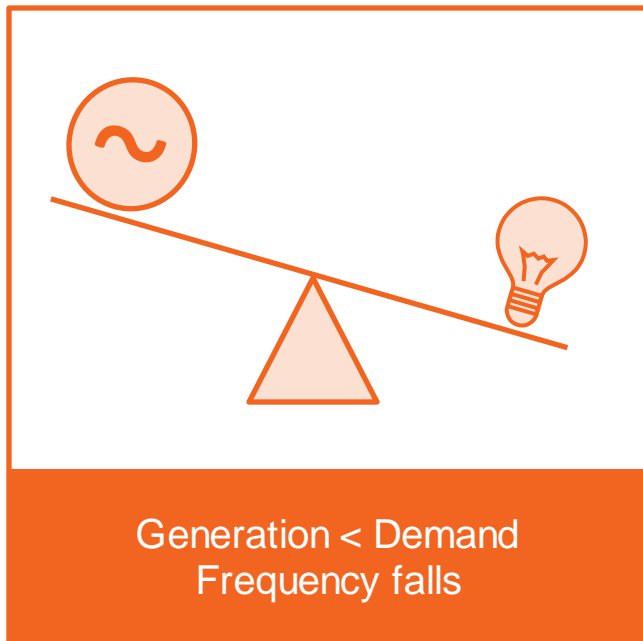
Food & Drink Federation

What is DFS?



Energy balancing 101

- One of the most fundamental requirements of an electricity system is that supply and demand are always balanced, to preserve the overall integrity of the system for everyone
- 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



DFS context

- Due to the risks and uncertainties for winter 2022/23, we developed a package of winter contingency options to ensure we were well prepared to maintain safe and secure operation of the electricity system
- We took the opportunity to accelerate the transition to a smart, flexible power system and launched the Demand Flexibility Service in November 2022
- Our award-winning service was a nationwide demonstration of a demand reduction service, enabling domestic consumers, industrial and commercial users to be incentivised for shifting demand to avoid the peak
- 1.6 million households and businesses supported the service by shifting demand, saving over 3,300MWh of electricity - enough to power ~10 million homes across GB.



Role of DFS in winter 2022-23

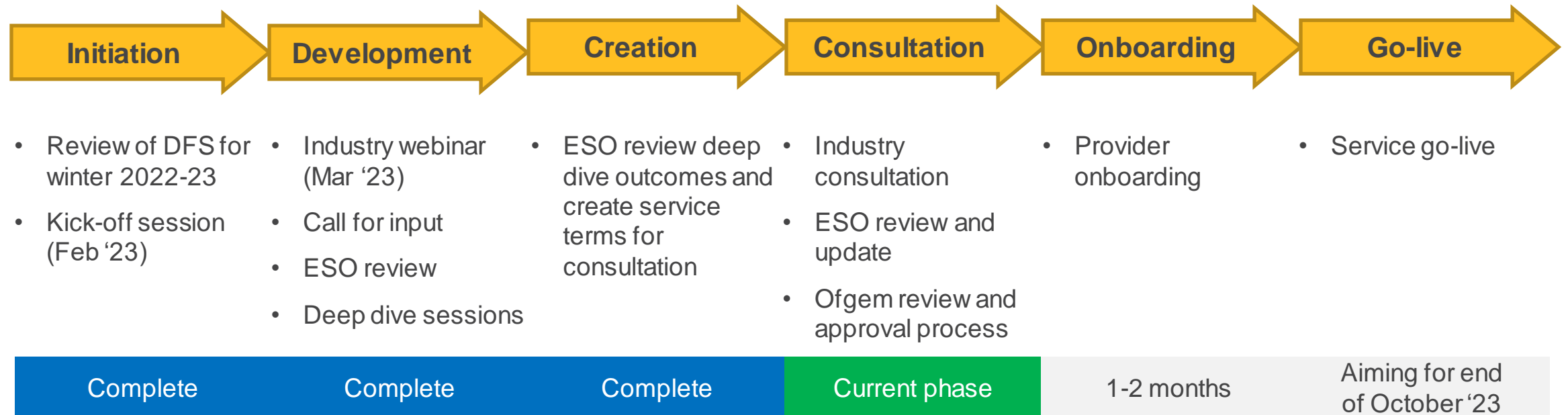
Order of Action: Winter 22

Everyday Actions	Order	Comments
Reconfigure Transmission Network to reduce network congestion, including: Change substation running arrangements, Tap Quad Boosters, to control flow of energy and Making use of enhanced ratings	Normal operating practice – no cost	Changing daily operating conditions can result in different network configurations to reduce congestion
Review and refine reserve requirement within day dependent on system conditions	Normal operating practice – no cost	Changing system conditions can relieve requirements for reserve or increase requirements. This can change at any time as the conditions change.
All deliverable Offer action on all available BM participants	#1 based on Cost	Scheduled from Day Ahead, action taken in real time – some offers may not be available due to network congestion
Issue warming instructions to cold BM participants including Winter Contingency units	#1 based on Cost	Scheduled from Day Ahead, action taken in real time
Buy energy from continental Europe	#1 based on Cost	Scheduled from Day Ahead, action taken from Day Ahead to 4hrs ahead of time by ESO Traders
Reconfigure CCGTs to increase available energy (e.g.sync additional GTs)	#1 based on Cost	Scheduled from Day Ahead, managed within the control timescales within day
SO-SO trade in cost order	#1 based on Cost	SO to SO trade with other SO in Europe/ Ireland

Enhanced Actions (if everyday actions are insufficient)	Order	Comments	Notices are issued at any time as required	Comment
Recall TO assets from outage to increase network availability and increase available capacity	#2	Anytime through to control room timescales, depending on ERTS (Emergency Return to Service) time	Issue Electricity Margin Notice (EMN)	Request to market to increase available energy or reduce demand. Likely to be issued at Day Ahead. Updated regularly
Plan use of Emergency Assistance (EA) from other SO	#3	Enacted close to real-time. Only applicable if capacity is available on interconnectors. EA can be withdrawn at any time	Issue a High Risk of Demand Reduction (HRDR) system warning	Warning network operators of high likelihood of demand control. Further request to market to increase available energy or reduce demand. Closer to real-time than ENM
Instruct Demand Flexibility product	#4	Decision made at timescales as determined by product created (instruction at 24 hours)	Issue Demand Control Imminent (DCI) system warning	If possible, this system warning will be issued 30 minutes prior to demand control. Warning to network operators
Instruct Winter Contingency Units	#5	Decision made at timescales as determined by dynamic parameters (warming at 12-48hrs)	AUTOMATICALLY TRIGGERED: A Capacity Market Notice (CMN) is automatically triggered to alert CM participants	Driven by calculation of Market data at 4 hours ahead of real time
Emergency Actions (if enhanced actions are insufficient)	Order	Comments		
Emergency Instruction (EI) to other SO	#6	including MaxGen		
OC6 demand control instructions to DNOs	#7	This could be via voltage control or demand control (disconnecting customers)		
Recommend to BEIS to implement ESEC	#8	Ongoing conversations prior to this so all parties would be aware of risk		

Development of the service

Stages of service development



Changes and
improvements

Role of DFS

Winter 2023-24

- DFS will continue as an enhanced action for winter 2023-24
- This allows us to deliver both test events and, where necessary, live events, allowing us to:
 - focus on maximising volumes
 - continue to learn about demand flexibility
 - incentivise new demand flexibility
 - help to bridge the gap to Market-wide Half-Hourly Settlement and entry in to our Ancillary Services

Beyond winter 2023-24

- We have not put a defined end-date into the terms, to allow for future development of the service through further collaborations and consultations
- We will continue to support providers and end consumers to transition into other ancillary services and through innovation projects
- We will support bridging the gap to Market-wide Half-Hourly Settlement

Significant updates since last winter

Procurement

- Added within-day dispatch options, as an alternative to day ahead (14:30 DA, 09:00 ID & 12:00 ID), bringing DFS closer to real-time dispatch

Delivery & process

- Removed the domestic in-day baseline adjustment to mitigate perverse incentives
- Allowing opt-out (net reduction settled) as well as opt-in (only positive reduction settled)

Tests

- Replaced “onboarding” and “regular” tests with “DFS tests”, for all providers on the same day
- Role of tests, number of tests and GAP has been laid out in Market Information Report

Automation

- MPAN duplication
 - Introducing automation for daily checks
 - Introducing rule that latest sign-up “wins”
- Introducing automation option for bid submission

Participation

- Allowing asset metering in place of boundary metering, where certain criteria and conditions are met
- Requiring HH-settlement for all meters, except providers participating on a domestic boundary meter and Profile Class 3&4, to mitigate perverse incentives

Other changes since last winter

Minor updates

- Ability to update the Weekly Indicative Forecast
- Adding contractual obligation to evenly apportion individual MPAN over- and under-delivery between units
- Removing ABSVD from domestic non-supplier HH-settled volume, due to process and data issues
- ABSVD at MPAN level for Industrial and Commercial HH Settled volume (via P354)
- Using the relevant clauses to ensure providers are meeting contract terms (e.g. growing volumes to above the minimum unit size of 1MW)
- Adding contractual obligation to share consumer incentives

- Addition of clauses requiring providers to have policies or procedures in place to mitigate potential gaming behaviour at a portfolio level
- Removal of the updated volume forecast (within-day) submission

No change

- No stacking with other services (except ANMs)
- Allow increased export as well as reduced import
- HH metering, 30 minutes service windows, Pay-as-bid, national aggregation, no penalties, 100MW maximum unit size

Publications and next steps

What we have published

- Service terms
- Procurement rules
- Consultation change summaries – service terms *and* procurement rules
- Communication principles
- Participation Guidance
- Market Information Report – detailing number of tests and GAP
- Year 1 report

All documents can be found on the DFS pages of the website:

<https://www.nationalgrideso.com/industry-information/balancing-services/demand-flexibility-service-dfs>

Market Information Report update

- The ESO expects to run 12 test events between November 2023 and March 2024.
- The Guaranteed Acceptance Price (GAP) for the first 6 tests will remain at £3,000/MWh.
- Remaining tests from 1 Jan 24 will either continue to be underpinned by the GAP or be competitive, subject to the total volumes participating.
- ESO will communicate the total participating volume threshold following the Winter Outlook Report. Initial indication 2-3GW.
- Updated Market Information Reports will be published throughout the Winter 2023/24 period providing further information where necessary.

Guaranteed
Acceptance Price
(GAP)
£3,000/MWh
for at least 6 test
events

How to participate

Any business can participate as long as you can reduce or shift your electricity consumption at peak times. You will also need to be able to:

- Access **half hourly metering** for your sites/business
- Not be operating in any of our existing markets such as Short-Term Operating Reserve (STOR) or Frequency Response (excluding the Capacity Mechanism)
- Be able to respond for a **minimum of 30 minutes** following instruction at ~24, ~5 or ~2.5 hours' notice

Note: Our most likely delivery periods will be when demand is at its highest, typically weekdays 16:00-21:00.

You can participate through a number of different mechanisms:

- Directly with the ESO (subject to **1MW threshold** and ability to undertake data processes required)
 - Electricity suppliers
 - Aggregators and other third parties
-

Registered Providers Winter 22/23

British Gas	CarbonLaces	ev.energy	Flexitricity	Octopus Energy	OVO Energy	Zenobe Energy Limited
Chameleon Technology (UK) as ivie	Conrad Energy	Grid Beyond	Gridimp	Pearlstone Energy	Power Rewards App (via Orange Power)	
CUB (UK) Ltd	Drax	Hildebrand Technology Limited	Hugo Energy App (via SMS)	Shell Energy Retail (Via SMS)	SolarEdge Technologies (via SMS)	
EDF	ENGIE Power Limited	Labrador (via Perse Technology Ltd)	Loop.homes (via SMS)	SMS (aggregator)	Uswitch Limited (Via Hildebrand)	
E.ON Next	Equiwatt	myenergi (via Orange Power)	Oaktree Power	Utilita	VpowerU	

What's next

- APIs available for testing and onboarding - ongoing
- Provider / forum engagement and support

- Service go live **30th October 2023**
(subject to Ofgem approval)

Ongoing collaboration via
meetings and various
engagement channels

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Q&A



Keep in touch



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<https://www.nationalgrideso.com/industry-information/balancing-services/demand-flexibility-service-dfs>