National Grid ESO
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nationalgridESO

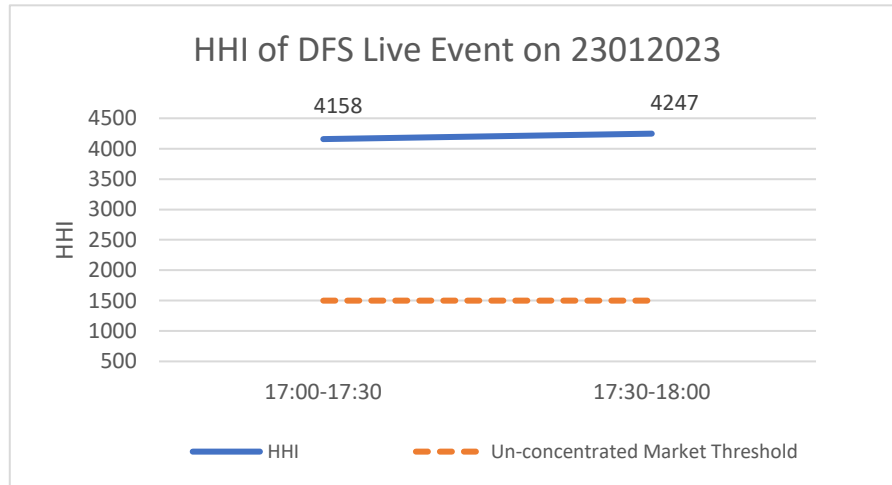**Please provide your assessment of each criterion in the below pro-forma:**

Product Name	Demand Flexibility Service (DFS)
Product Description	This ancillary service is a demand reduction service. Through this service, businesses and individuals are encouraged to shift or reduce their electricity consumption in real time, resulting in a reduction in the net use of energy
ESO Business Lead	Amy Weltevreden
RAPID Complete	Yes
RACI Complete	Yes
Planned Go-Live Date	October 2023

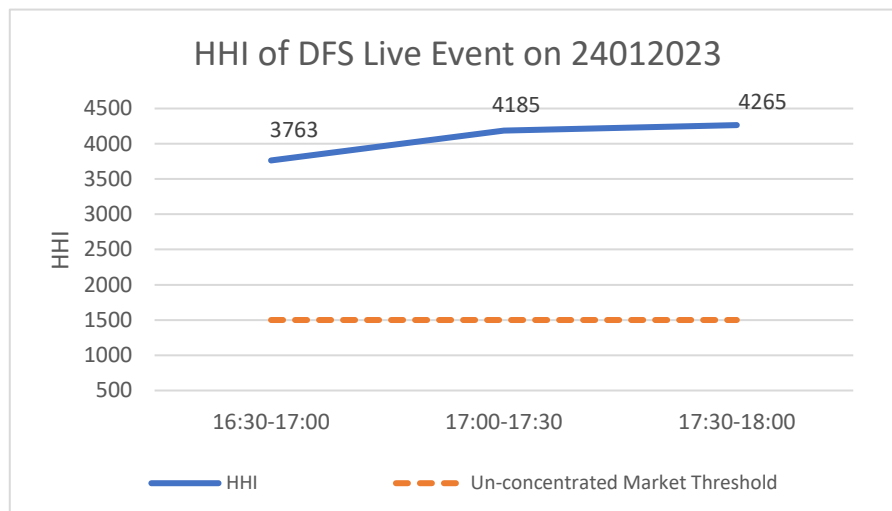| Criteria	Assessment
Homogeneity	The Demand Flexibility Service is a homogenous product. This service is open to suppliers and aggregators (individuals will participate via supplier/ aggregators not directly). The product from different providers won't be distinguished on technical parameters as they are standardised: • Speed of Delivery No restriction on ramp rate as it is assumed ESO would shape the requirement so that overall step changes in demand are manageable. • Duration of Service Minimum delivery period is 30 minutes. • Recovery Period Not applicable for this service. • Dispatch All participants will be dispatched together, with notifications expected to be at 14:30 day-ahead, 09:00 within-day or 12:00 within-day as set out in the participation guidance • Location Procurement will be at a national level • Metering and Baseline All providers must give the ESO their total half-hour estimated baseline demand/total half-hour readings for the outturn demand of their participating consumers. As long as a provider can satisfy the technical parameters ESO set, the service will be homogenous to ESO, regardless of whether it is provided by supplier or aggregators.
Full Information	Last year, DFS was procured via a day ahead auction with an anticipated requirement notice sent at or around 10:00. Final service requirement was shared at 14:30, bid submission closed by 15:30 and results published at 16:30. This year, DFS will continue to be used as an enhanced action for winter 2023-24. The advanced anticipated requirement will still be sent ahead of time. To enable a more accurate requirement, the ESO is proposing to add two additional within-day dispatch options (within day morning and within day afternoon) on top of the existing day-ahead dispatch. Only one procurement period can be used for any DFS event. After the service requirement is published, providers have one hour to submit their bids. ESO will notify providers of the results one hour after submission. The full tender results, which include both accepted and rejected bids together with their volume and price, will be shared on the ESO Data Portal as soon as providers have been notified. Considering the nature and maturity of this service, there will be discrepancies between forecasted volume, contracted volumes and delivered volumes as industry gain confidence. Our learnings from year one of DFS indicated these improved quickly as providers responded to our tests. In line with our other ancillary services ESO will seek to share as much information as appropriate to ensure industry have maximum transparency.

Competition	To understand the competition level in the Demand Flexibility Service market, we calculated the Herfindahl-Hirschman Index (HHI) based on two live DFS events which were held in January 2023.

23rd January 2023

HHI of DFS Live Event on 23012023

4158   4247

17:00-17:30   17:30-18:00

—— HHI   ----- Un-concentrated Market Threshold

24th January 2023

HHI of DFS Live Event on 24012023

3763   4185   4265

16:30-17:00   17:00-17:30   17:30-18:00

—— HHI   ----- Un-concentrated Market Threshold

As can be seen from the above graphs, the HHI values of each settlement period during those two live events exceeded the unconcentrated market threshold of 1500 significantly. We also observed that a single provider took more than 60% of the total DFS market share. This indicates that the Demand Flexibility Service market is highly concentrated. The "Competition" criteria (HHI <1500) haven't been met.

Conclusion	The DFS market is still too concentrated for a Pay as Clear (PAC) mechanism. There is potential for market power risk (in the imperfect competitive market, there is the risk that one company may have strong market power to manipulate the market price easily by changing its supply) or distortive behaviour. Pay as Bid (PAB) therefore continues to be the chosen payment mechanism as it is more efficient for this market.

If Pay as Cleared is not the outcome, further detail is required.

Overall Assessment	Pay-as-bid
Description of measure proposed to minimise the use of the Specific product subject to economic efficiency	Our intention is to keep DFS as an enhanced action which is to be used only when we anticipate everyday actions (e.g., BM actions) to be exhausted. In other words, ESO will only publish the requirement when the demand and reserve requirement cannot be met after all everyday actions have been used or have been planned to be used.
A demonstration that the Specific balancing product does not create significant inefficiencies and distortions in the balancing market inside the scheduling area	This service will send signals to the market when there is not enough surplus on the system. This market signal enables and encourages market participants to take actions to solve the problem ahead real-time. The design of the service, as outlined below, ensures that it does not create significant inefficiencies and distortions in the balancing market inside the GB scheduling area. We are replacing "onboarding" and "regular" tests with "DFS tests", for all providers simultaneously. Tests will be available to all providers onboarded, with mock events run during the onboarding stage. The role of tests, number of tests and Guaranteed Acceptance Price (GAP) will all be laid out in a Market Information Report. There will be a minimum number of tests required to build confidence in the service, but we have moved away from a set number of tests this year to allow for more flexibility. Overall, we feel that this regime makes the service viable for providers and end consumer participants and gives sufficient confidence in the service to enable us to rely on it to improve Security of Supply, whilst managing the overall cost and impact of tests on the market.

ESO are looking for additional capacity, so providers won't be allowed to stack the service with other services, e.g., with the BM. This means that there is no risk that DFS providers may withdraw their contracted DFS position to participate in the BM or vice versa, as these parties cannot currently participate in this market. As an enhanced action, we will only use DFS for a live event if we have or expect to have exhausted all of our normal balancing actions. As such, all of these normal processes and mechanisms will continue as normal.

When ESO publishes the requirement for DFS, the market may read this as a signal of scarcity, so we are expecting to see the price in the Balancing Mechanism (BM) reflect this scarcity signal as a consequence. This is an observed and typical market reaction when margin is tight. Similar behaviours have been seen when system warnings are issued e.g., Electricity Market Notice (EMN), Capacity Market Notice (CMN) etc. and would already be likely to be happening as a live DFS event would only occur during such times of scarcity.

The baseline methodology used by DFS is based on the P376 baseline methodology. It calculates the end consumer's average usage over the previous 10 working days (or 4 weekend days, as applicable). The timeframe for when DFS is likely to be needed is highly predictable, and the rate that non-Half Hourly settled end consumers |

| | pay for electricity usage does not vary based on the time of day. This baseline methodology may indirectly incentivise end consumers to move their demand to every other darkness peak. As a result, typical peak demand may increase, which in turn could potentially lead to higher prices and tighter or eroded margins for non-event days. To mitigate this risk this winter, ESO propose that all providers, except for those participating via domestic boundary meters, should be HH settled. This exposes as much volume as possible to the higher prices typically seen over the peak of most days, providing a financial disincentive to move their demand to the peak, while ensuring that there is limited impact on domestic boundary meters that cannot move to HH-settlement in time for this winter. It also mitigates the impact on the total quantity of DFS volume available and ensures that any I&C provider (who is already likely to be HH-settled) or asset-meter domestic provider is subject to exposure of HH price signals to mitigate the baseline gaming risk. In the long-term, this concern will be eliminated by the market-wide half-hourly settlement (MHHS) project rolling out.

To minimise or overcome market data availability limitations we observed with DFS last year, ESO plans to apply Applicable Balancing Services Volume Data (ABSVD) process to HH-settled volumes covering 1) the Industrial and Commercial (I&C) consumers via P354 ABSVD process and 2) Domestic consumers whose MPAN is signed up to provide DFS with supplier, via BMU ABSVD process. Due to the complexity of the data and the proportional impact on load-profiled demand, ABSVD will not be applied to non-HH settled volume. The impact of not applying ABSVD to non-HH settled volume is minimised by the fact that the net change in the supplier's imbalance position is small, as the overall imbalance is shared across multiple Settlement Periods and across all suppliers in each GSP group, due to the way the Elexon load profiles work (i.e., average load profiles and Group Correction Factors).

To sum up, this service aims to give ESO an additional tool to balance supply and demand and will not create significant inefficiencies or distortions to existing mechanisms. |
|---|---|
| A demonstration that the Specific balancing product do not create significant inefficiencies and distortions in the balancing market outside the scheduling area | Following EU-exit, GB can no longer participate in balancing markets outside the GB scheduling area.

The ESO requirement and market results will be published so no inefficiencies and distortions in the balancing market outside the scheduling area are expected to be created by the introduction of this service. |

Where applicable, the rules and information for the process for converting the balancing energy bids from Specific balancing product into balancing energy bids from standard balancing products. EU Regulation 2019/943	Not applicable to this Demand Flexibility Service as there are no standard products currently in operation in GB.

Date of scheduled review (Insert date 2 years from Go-Live date, to be followed by periodic review every 3 years)	Review date: October 2025