

We will start the session at 14:05

DFS Deep Dives

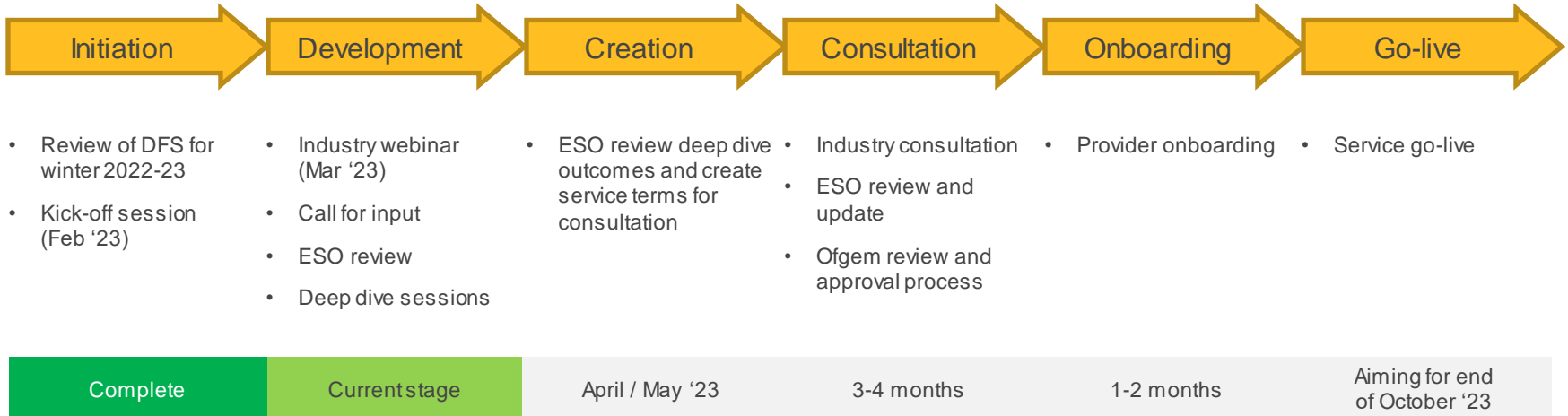
2) The Commercials of the DFS

Tue 25th April 2023 14:00 – 16:00

Introduction



Stages of service development



Deep-dive sessions

1) Call for input & role of DFS

Tue 09:00 to 11:00

This session will be focused on where we are in the process of service development, playing back the feedback we received in the call for input, how we will be positioning DFS for winter 2023-24, what we'll cover in the other sessions, and a Q&A session at the end.

2) Commercials

Tue 14:00 to 16:00

This will be an interactive session focused on the commercial elements of DFS, including: procurement process & timing; tests, including role, mechanisms, number and GAP, and; bid structure, price discovery & payment.

3) Process & operational delivery

Thu 10:00 to 12:00

This will be an interactive session focused on the process and operational elements of DFS, including: baselines, metering, MPANs, and automation.

Call for input



Call for input

About

The call for input was set up to help understand the industry views on the next steps for demand flexibility following the closure of the initial ESO Demand Flexibility Service Winter 22/23

The insights gained from this call for input have been used to develop the demand flexibility deep dive workshops.

A total of 48 responses were collated, mainly via an online form, as well as several offline submissions sent directly.

The main categories of respondents were suppliers, technology companies and aggregators.

Responses were also received from wider market influencers such as the regulator, government bodies, trade and consumer bodies, academia, network operators and generators.



Industry priorities

You rated the following topics most highly:


- Baseline methodology
- Driving consumer participation and exploring consumer incentives
- **Alignment with Balancing Mechanism & Ancillary Services**
- **Guaranteed Acceptance Price (GAP) & price discovery**
- Event opt-in
- **Bidding process & mechanism**
- **Closer to real-time procurement/dispatch**
- MPAN process/duplication resolution
- Process improvements & automation

Call for input summary:

<https://www.nationalgrideso.com/document/279191/download> ⁶

Tests {

Price discovery

A large, golden-colored curly brace is positioned to the right of the text "Price discovery". The brace is oriented vertically, with its opening facing left towards the text. It spans a significant portion of the vertical height of the text.

Delivery

1. Closer to real time

We wanted to investigate operationally if closer to real time was viable for providers

2. Procurement

We wanted to understand the appetite for a more flexible procurement process, for example choosing between Day Ahead and Intra-Day auctions

Closer to real time

- Overall volumes may be affected, and there may be a difference for I&C vs. domestic
- Effect of opt-in requirement & within-day baseline adjustment
- Possible for most providers
- Customer base adaptability – automated assets vs manual
- Automation required
- Lead time vs certainty

Minimum viable lead times

- 4 to 8 hours were suggested as minimum viable times
 - Day-ahead for the following morning
 - Within-day for the evening

Wider market

1. Ancillary markets

43% thought they would be able to move volume to new markets or were looking into it as a potential

Barriers to the Balancing Mechanism & other ESO ancillary services

- Risk vs. reward
- API integration
- Suitability of services
- Costs

2. Understanding ESO projects

Positive response to knowledge about ESO projects as well as potential partnerships emerging

Roadmap of services would be welcomed

Wider development of flexibility

- Single source of information and data
- Innovation
- Access to wholesales markets
- Increased competition
- Stackability
- Regional pricing
- Support MPAN registration information
- Consistent metering requirements

Commercial proposals



Interaction

Interactive element

We are using Mural for interactivity during today's Deep Dive session.

The Mural link can be found in the Meeting Information:

<https://app.mural.co/t/nationalgridgrp0642/m/nationalgridgrp0642/1681993202720/df8a9c348e26278507ef7cf33c5f07647b64ab99?sender=ub8a6c0fd028a2e51c5ed6527>

Please include your name and company name when you add a post-it note to the Mural board.



This section

- We will talk through the proposals for each section:
 - *Procurement events*
 - *Role and mechanisms of tests*
 - *GAP*
 - *Payment mechanism*
 - *Bid structure & price discovery*
 - *Performance incentives*
- There will be a few minutes to add any feedback or questions after each section
- We will look to answer any questions for the section before we move onto the next proposal

Aims for DFS for winter 2023-24

Potential aims

- Maximise the volume participating
- Make the service a viable proposition for providers
- Make the service a viable proposition for consumers
- Create confidence on volume that will be delivered
- Maintain confidence on volume that will be delivered
- Confidence in pricing assumptions and price discovery
- Incentivise early entry to market
- Incentivise continued participation in the market
- Test the end-to-end process
- Improve the end-to-end process
- Bridging the gap to Market-wide Half-Hourly Settlement

Relative importance of each aim

We are deliberately building in flexibility to the service terms and processes, so that we can use DFS to best meet these aims, particularly the balance between maximising volume and price discovery.

We will publish final details on how and when we expect to use DFS at the time of the Winter Outlook Report.

Procurement events

| DFS Requirement Notice Published | DFS results published | Difference from DFS winter 22/23 |
|----------------------------------|-----------------------|----------------------------------|
| Day ahead 14:30 | Day ahead 16:30 | No advanced notice |
| Within day 09:00 | Within day 11:00 | New within day procurement time |
| Within day 13:00 | Within day 15:00 | New within day procurement time |

Procurement events

ESO's ambition is to move the service closer to real time as it provides us with significantly greater operational certainty.

We are proposing to have 3 procurement periods that allow flexibility on when the service is called.

Only one time period will be used for any DFS procurement event.



The role of tests

Tests are used by:

- **ESO** to gain confidence that participants can deliver the service.
- **ESO** to get an accurate estimation of how much demand can be reduced on a live event.
- **ESO** price discovery for different dispatch lead times of day, days of the week, etc.
- **ESO** to understand impacts of dispatch lead time on volume level.

- **Participants** to gain confidence in delivery volumes (systems/processes/portfolios/comms etc).
- **Participants** to understand how viable it is for their business to participate in the service, now and into the future.

- **End consumers** to engage with flexibility first hand.

- **OFGEM** to get data to derive policy and other services.

Test mechanisms, number of tests

Test mechanisms

Remove onboarding tests, tests are available to all providers onboarded. Mock events run during the onboarding stage.

Test vs Live events:

Live events – may be called at the different procurement times dependant on ESO's certainty of requirement.

ESO will use test events to:

1. Explore the impact of dispatch timeframes on provider volumes.
2. Investigate price discovery by procuring partial volume against full available volume.

Tests may be different durations and providers will be able to bid at 30 minute intervals.

Number of tests

Depending on whether the service leans towards **price discovery** or **volume maximisation**, the expected number of tests will vary.

It will be key to balance any live uses of the DFS alongside the number of tests.

Guaranteed Acceptance Price (GAP)

- Proposal is to continue to have a GAP for tests that trial the different dispatch timeframes – this would be published alongside a notice of a DFS test event and volume requirement.
- No GAP for those tests aimed at price discovery.

Proposals for how a GAP could be set:

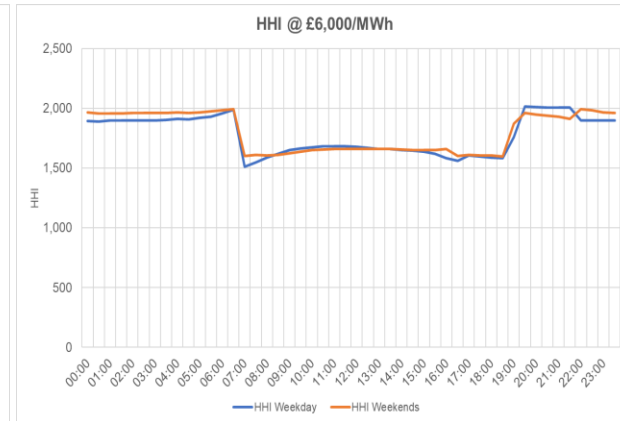
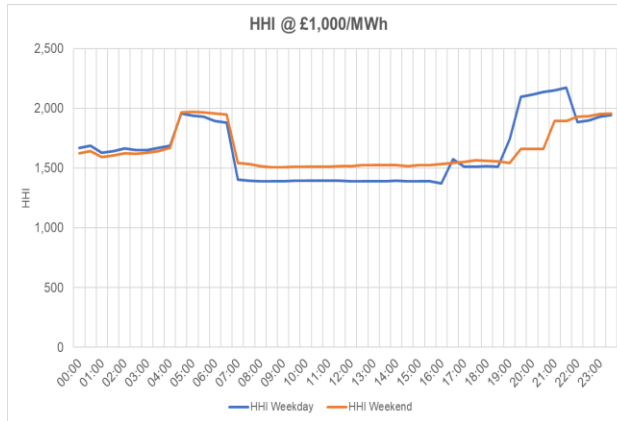
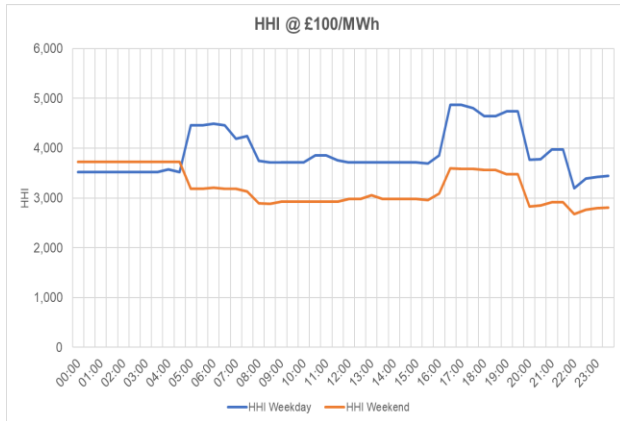
- The BM marginal price or the wholesale price, whichever is highest.
- Standalone GAP that takes learning from price discovery tests to remove variables when assessing impact of dispatch lead times.
- Or, depending on outputs from the Winter Outlook there may be a requirement to set a standalone GAP using similar principles to year 1

Stakeholder have also raised that near-term prices for demand flexibility need to avoid setting a false expectation for enduring prices.

DFS Winter 22/24 - Payment mechanism

Pay As Bid (i.e. paid own submitted price)

- Based on the Herfindahl-Hirschman Index (HHI) analysis, the DFS market will be slightly too concentrated for Pay-as-clear mechanism
- Pay-as-bid allows providers to tailor their incentives based on their end consumers and overall strategy

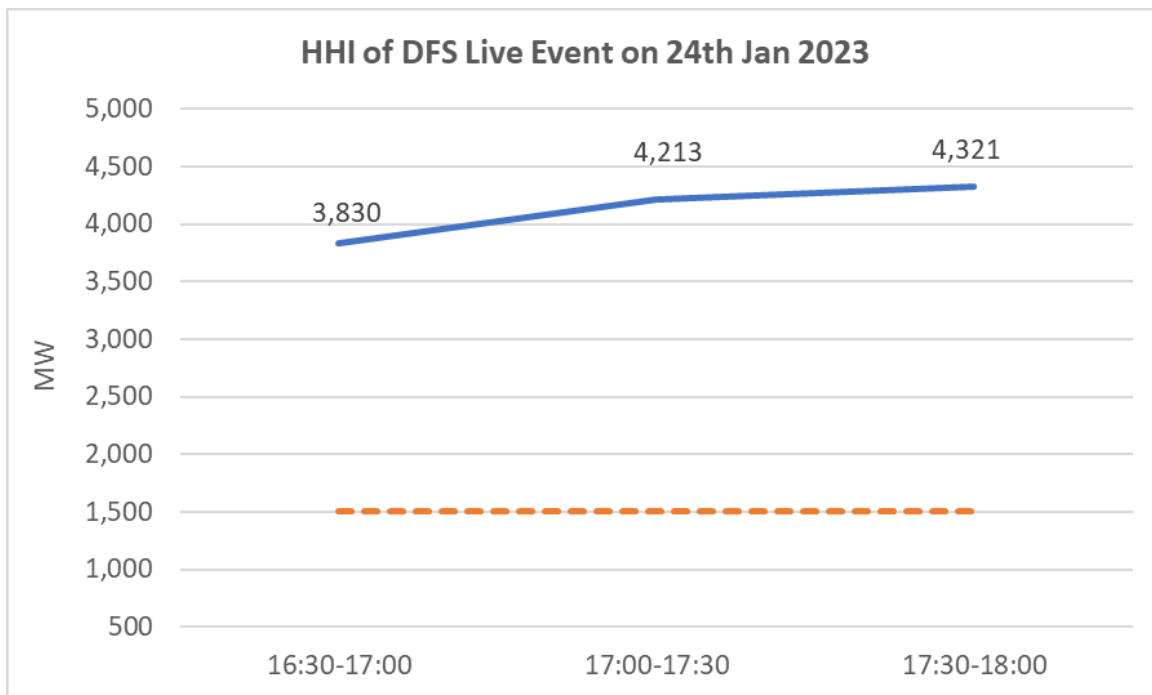


Payment mechanism

Payment mechanism

Analysis of the two live DFS events shows that the Herfindahl–Hirschman index (HHI) for DFS is very high, well over the 1,500 concentration level that would indicate the potential for anti-competitive behaviours and gaming.

Pay as bid is proposed to continue as the preferred payment mechanism given the relative concentration of the market participants.



Winter 22/23 – Submission of bids

- Bids should be submitted by 15:30
 - 1 hour after the actual service requirement is published
- Each individual bid will:
 - Be for a specific DFS unit
 - Be for a single settlement period
 - Have one volume (MW)
 - from 1MW to 100MW
 - which is expected to be deliverable if accepted
 - Have one price (£/MWh)
- Providers can:
 - Submit multiple bids for different DFS units for the same period
 - Submit multiple bids for the same DFS unit in different periods
- Providers cannot:
 - Submit multiple bids for a single DFS unit for the same period
 - Link bids between periods, or between DFS units

Provider A: SP34

| DFS Unit | MW | £/MWh |
|----------|-----|-------|
| A1 | 100 | 3 |
| A2 | 50 | 5 |
| A3 | 80 | 10 |
| A4 | 100 | 20 |

Provider B: SP34

| DFS Unit | MW | £/MWh |
|----------|-----|-------|
| B1 | 75 | 4 |
| B2 | 100 | 12 |

** Numbers and data format are purely illustrative for purposes of sharing an example and not indicative*

Winter 22/23 – Allocate volume - example 1

MPANs

Initial reduction at £10

Extra reduction at £20

DFS units

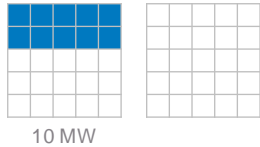
A
X MW



B
X MW



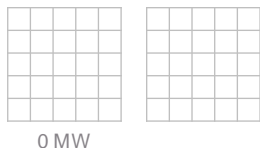
C
X MW



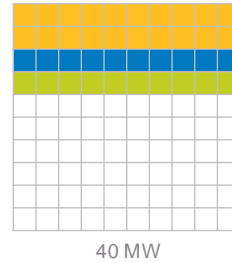
D
X MW



E
X MW

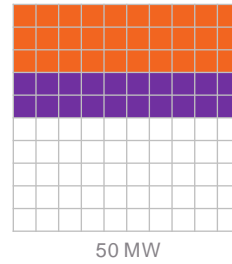


Unit-01



£ 10

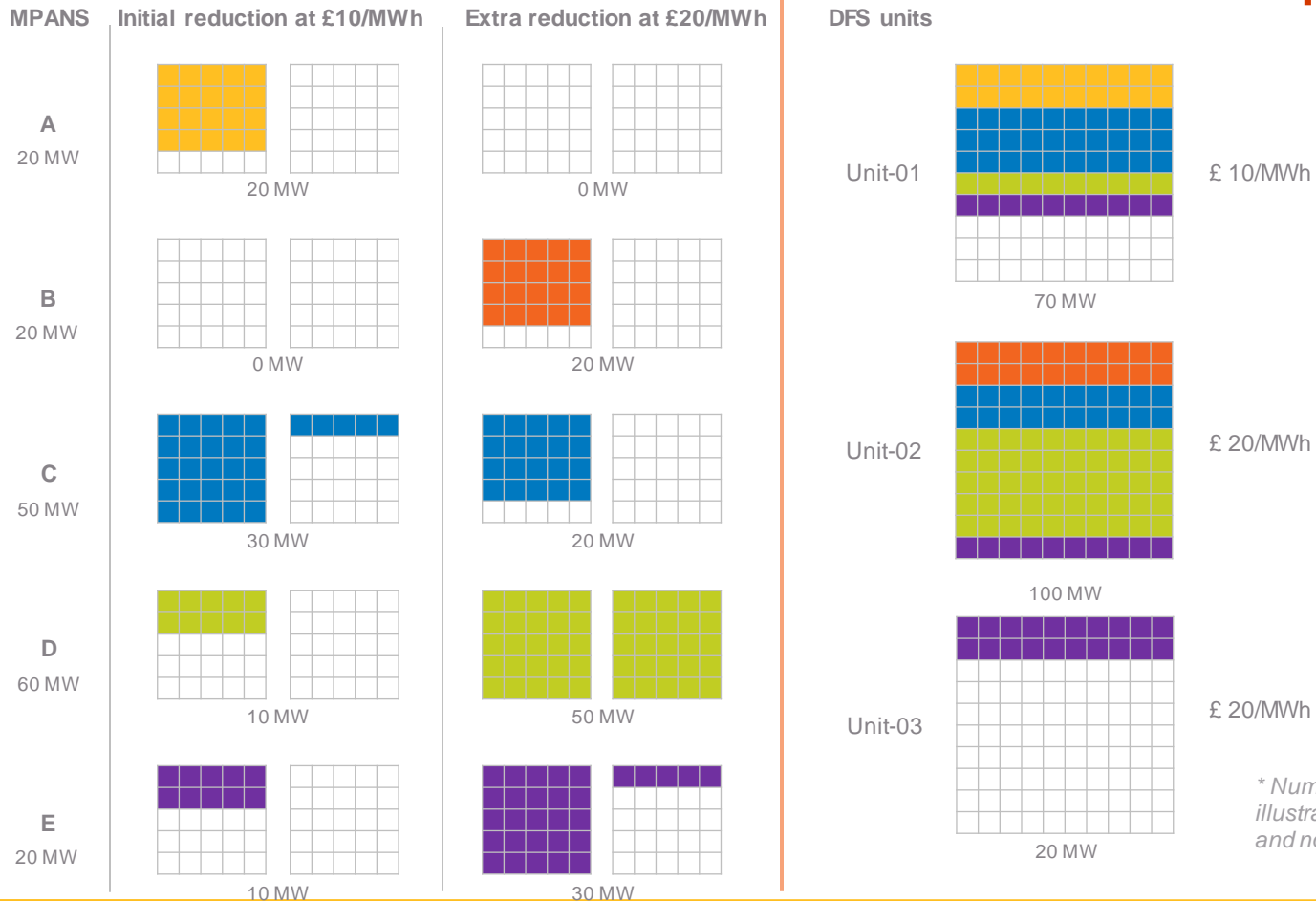
Unit-02



£ 20

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Winter 22/23 – Allocate volume - example 2



- Providers can decide how to allocate volumes from different MPANs into DFS units
- A DFS Unit can be aggregated across one or more MPANs
- To create multiple price bands, a MPAN can be allocated in multiple DFS Units

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Winter 22/23 – Assessment of bids

Assessment

- ESO receives bids from providers for each SP
- Bids are ranked in price and volume order
- Bids accepted in merit order until we meet our requirement
- The volume we accept may be different from our 14:30 requirement, due to:
 - changes in system conditions
 - bid prices being uneconomic

Results

- We will publish the results at 16:30
- Acceptance will be final and binding, and will indicate nomination of delivery
- Providers should confirm receipt of their accepted bids

| Provider A | | | Provider B | | |
|------------|-----|--------|------------|-----|--------|
| DFS Unit | MW | £/MW h | DFS Unit | MW | £/MW h |
| A1 | 100 | 3 | B1 | 75 | 4 |
| A2 | 50 | 5 | B2 | 100 | 12 |
| A3 | 80 | 10 | | | |
| A4 | 100 | 20 | | | |

| ESO | | |
|----------|-----|--------|
| DFS Unit | MW | £/MW h |
| A1 | 100 | 3 |
| B1 | 75 | 4 |
| A2 | 50 | 5 |
| A3 | 80 | 10 |
| B3 | 100 | 12 |
| A4 | 100 | 20 |

Accepted bids: A1, B1, A2

ESO requirement: A2

Rejected bids: A3, B3, A4

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Bid structure and price discovery

Bid structure

The key element we want to get from the bid assessment is some price discovery. Each provider has their own incentive offering with their consumers, this impacts the ESO's ability to understand consumer price elasticity for demand flexibility.

As a way to further gather data and understand consumer willingness to participation dependant on the reward received for their demand flexibility, proposal is to require providers to share the information on what incentive/reward they give to their customers for each event. This would be treated as highly confidential and only for ESO, and potentially Ofgem.

| | Same MPAN can be in multiple units | Each MPAN can only be in one unit | Non-mutually exclusive bids | Mutually exclusive bids |
|---|------------------------------------|-----------------------------------|-----------------------------|-------------------------|
| Option 1 (existing) No change to bidding structure. (ESO preferred option) | ✓ | | ✓ | |
| Option 2 Continue to have non-mutuallyexclusive bids however, MPANs must only be part of one unit and cannot be across multiple units. | | ✓ | ✓ | |
| Option 3 Allow mutuallyexclusive bids, only one bid can be accepted from each individual provider, so there would be no requirement for MPAN allocation across units. Ability to have curtailable bids. | ✓ | | | ✓ |
| Option 4 Ability for the provider to decide how they bid (ability to have both mutuallyexclusive and non-mutuallyexclusive bids), however MPANs have to be allocated to specific units ahead of the bids. | | ✓ | ✓ | ✓ |



Performance incentives

Proposal for winter 23/24

No change from winter 22/23. Payment for delivered quantity. No penalties or performance incentives for under or over-delivery. Removal of MPANs from settlement that did not provide demand reduction.

Considerations for future iterations

Over-delivery:

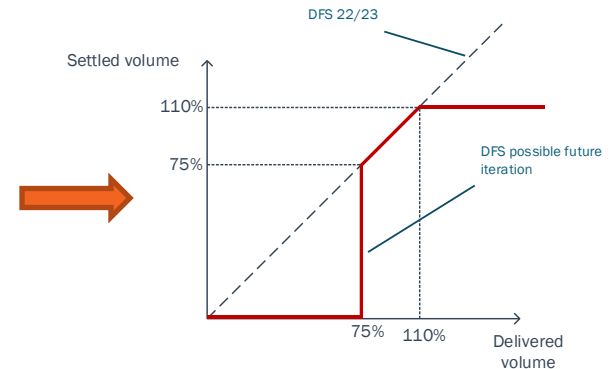
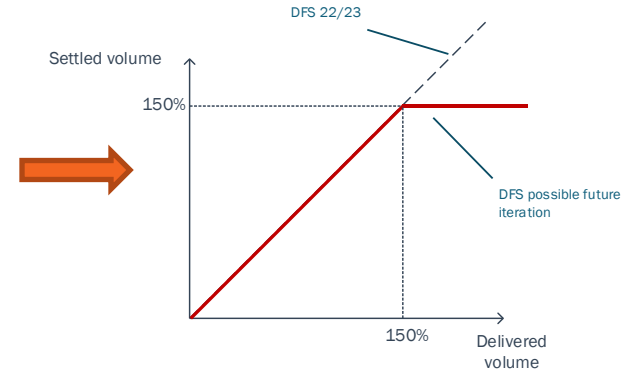
If a provider has under delivered, they are still paid for their delivery as they receive a lower revenue anyway. However, if they have over delivered, it is capped at a certain level, for example, 150%.

Include all MPANs, regardless of delivery:

Pay for actual delivery. However, all MPANs that have either opted-in to the event or not opted-out must be included within the settlement file, including those that increased consumption. This will then account for those MPANs that net out the impact of the required demand reduction.

Under- and over-delivery:

Floor for large under-deliveries and ceiling for over-delivery as shown in the figure to the right. For example, any delivery less than 75% will not be settled and delivery above 110% will be capped at 110%.



Deep-dive sessions



Summary of this session

Priorities for developing DFS

You rated the following topics most highly:

- Baseline methodology
- Driving consumer participation and exploring consumer incentives
- **Alignment with Balancing Mechanism & Ancillary Services**
- **Guaranteed Acceptance Price (GAP) & price discovery**
- Event opt-in
- **Bidding process & mechanism**
- **Closer to real-time procurement/dispatch**
- MPAN process/duplication resolution
- Process improvements & automation



Procurement process & role of tests

- We propose to have both day-ahead and within-day fixed dispatch times
- We propose continuing to have tests to both maximise volume and access price discovery
- We propose to have a GAP for tests that maximise volume

Bid structure, payment mechanism & performance incentives

- We propose not to change the bid structure
- We propose to keep the payment mechanism as pay-as-bid
- We propose not to change current penalty structure but keep under review for the future

Next deep-dive session

1) Call for input & role of DFS

Tue 09:00 to 11:00

This session will be focused on where we are in the process of service development, playing back the feedback we received in the call for input, how we will be positioning DFS for winter 2023-24, what we'll cover in the other sessions, and a Q&A session at the end.

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3) Process & operational delivery

Thu 10:00 to 12:00

This will be an interactive session focused on the process and operational elements of DFS, including: baselines, metering, MPANs, and automation.

Q&A



Q&A

This sli.do will be open for the remainder of this week, please add any questions.

Please use the QR code to the left or go to <https://app.sli.do/> and use code: **DFSDeepDives**



Contact us

demandflexibility@nationalgrideso.com

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