Demand Flexibility Service

Update and Evolution Service Design Proposal

Tuesday 11th June 2024

ESO

Agenda

Sli.do code #2002184

- DFS Recap
- Winter 23/24 Headlines
- Evolution Feedback
- Early Winter Outlook
- Service Design Proposal
- DFS Roadmap
- Timeline & Engagement
- What’s Next

Demand Flexibility Service 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 22 as an Enhanced Action.
- 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, typically during Winter evening periods.
- Winter 2022/23, 1.6 million households and businesses supported the service by shifting demand, saving over 3.3GWh. For winter 2023/24 we saw this increase to over 2.6 million participants saving over 3.7GWh.

Winter 23/24 Headlines

Questionnaire Feedback

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Questionnaire Feedback

We ran a questionnaire to obtain feedback on ‘What does the future of The Demand Flexibility Service look like?’ – this closed at the end of April.

38 responses received to the DFS questionnaire – feedback calls have taken place

Review of the overall revenue proposal was the highest priority on average

Allow stacking with other services another key priority

Baseline was the lowest priority overall. General agreement with P376 without in-day adjustment

Asset Metering – requirement for HHS boundary meter was a blocker

Automation – people are generally in favour of introduction of API. Would like to see further developments

Generally in favour of the paying for delivered volume approach

Most support the idea and in the enabling of a demand turn up facet of the service.

Early Winter Outlook

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Early Winter Outlook

- On 6 June we published our early view of winter. Providing early visibility of our security of supply outlooks for winter 2024/25.

Margins:

- Our assessment shows that margins are expected to be adequate and within the Reliability Standard.
- The Base case margin of 5.6 GW / 9.4% is an improvement from the 4.4 GW / 7.4% published in the Winter Outlook Report for 2023/24. The associated loss of load expectation (LOLE) is below 0.1 hours.

Markets:

- Global energy markets show signs of finding a new equilibrium, but uncertainties remain.
- Rebalancing in European energy markets, and structural changes in supply, have increased the resilience of the whole energy system to further supply-side shocks.

Figure: Supply margin in relation to generation capacity and demand

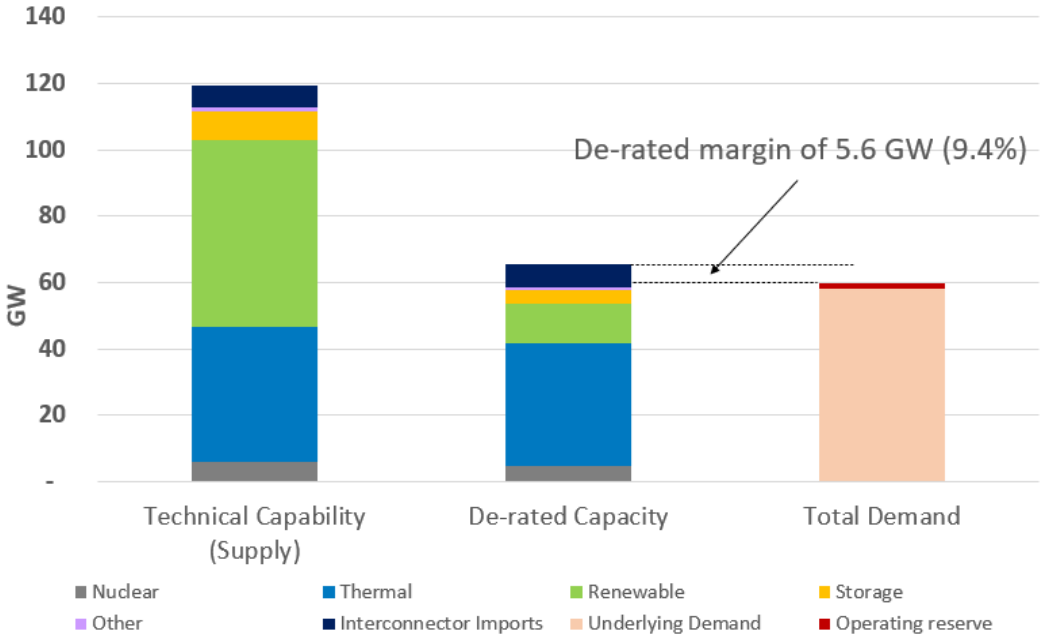

Table: Base case de-rated margin for recent winters

Winter	De-rated margin (Early View)	De-rated margin (Winter Outlook)
2022/23	4.0 GW (6.7%)	3.7GW (6.3%)
2023/24	4.8 GW (8%)	4.4GW (7.4%)
2024/25	5.6 GW (9.4%)	-

Service Design Proposal

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Flexibility is a critical part of the energy market as we move towards a zero-carbon power system

Aims

- Ensure that a route to market exists for volume participating in DFS
- Avoid incentivising a delay to transitioning into enduring markets
- Enduring routes to market must have effective competition

Service Design Proposal

Change from an **enhanced action** service to an **in-merit margin service** for peak demand

Seek regulatory approval for a multi-year service, to enable this to be:

- The transitional product for manual flexibility until Market-wide Half-Hourly Settlement
- A route to market for other flexibility while participation routes are increased in other ESO core services such as Response and Reserve.

Continue to refine and evolve the service

Service Design Proposal Overview

Core Topics

- Change from an **enhanced action** service to an **in-merit margin service** for peak demand
- Unlock ability to stack with Capacity Market and DNO Flexibility Services.

Procurement

- Unit meter points can only be in one DFS Unit.
- Remove day-ahead dispatch option. Keep within-day only.

Tests

- No planned testing.
- Maintain the concept and retain the capability to utilise tests events and set a Guaranteed Acceptance Price.

Automation

- Enhance API capabilities for interacting with the service.

Participation

- Remove requirement for asset meters to be associated to HHS boundary meters.

Performance

- Payment for delivery in the range between 50% and 120%.
- Reduce payments for poor performance (<50%) and limit payments for over-delivery (>120%).

Service Design Proposal

We propose to enable stacking with other revenue streams to cover the fixed costs of providing the service and move to in-merit utilisation but retaining the Pay-as-Bid structure to cover the utilisation of the service.

We considered the options of:

- Guaranteed testing revenue (as per the first 2 service iterations)
- DFS availability payment
- Enabling Stacking with other revenue streams
- Moving to Pay-as-Clear for utilisation

However, without the need for an enhanced action service, we could not justify an additional capacity/availability payment to create a firm margin product. Instead, we plan to make use of the service optionally when it is in merit, focussing on the evening peak period.

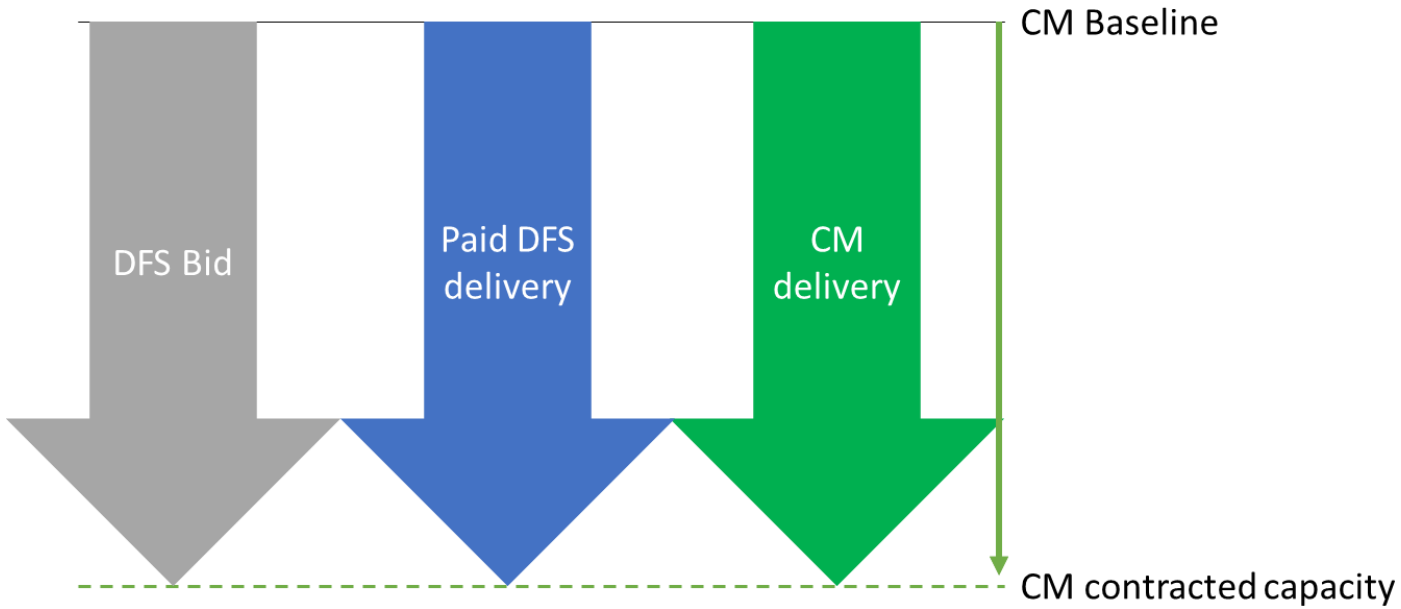
We do not have evidence yet to show that the market is sufficiently competitive for *Pay-as-Clear* to be the most effective market clearing option.

Service Design Proposal

Allow stacking with the Capacity Market

We understand not all parties will achieve Capacity Market payments for this winter, one of the reasons for seeking a multi-year service is to enable providers to have confidence to build and combine their revenue streams and to be able to participate in DFS as soon as they are able.

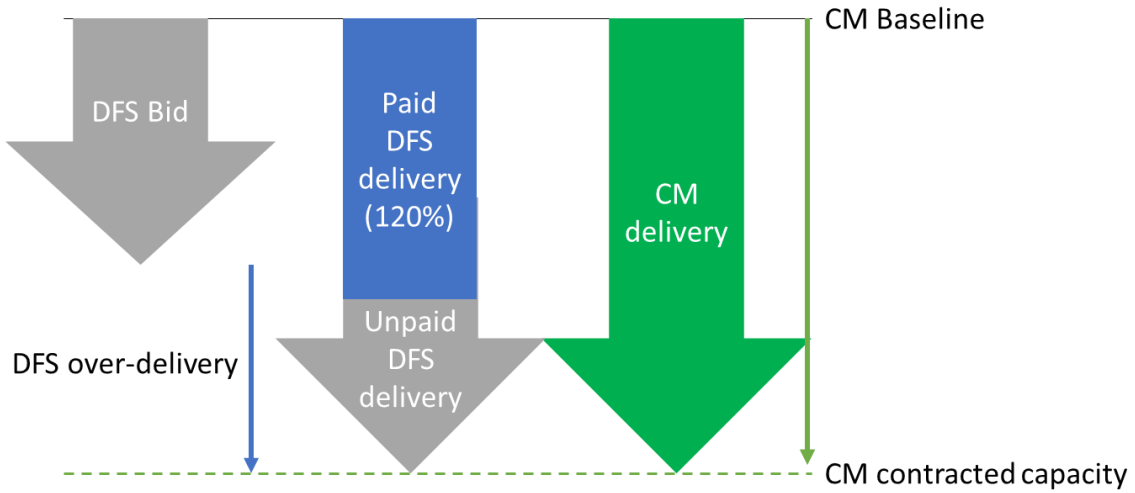
Not list as a Relevant Balancing Service (RBS) for Day 1. As shown in the diagram, DFS can co-deliver with the Capacity Market obligation without the need for an RBS exemption, further examples on the next slide.

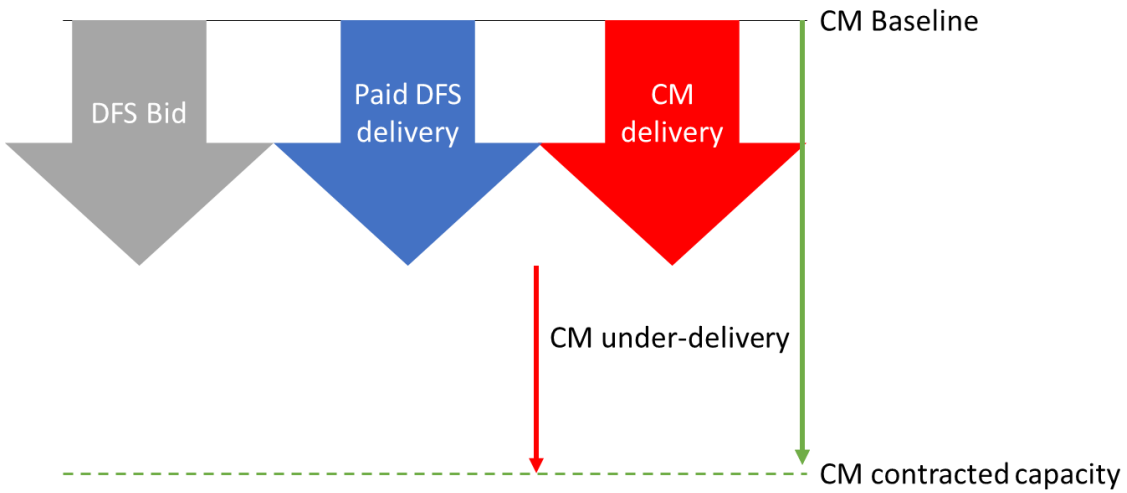


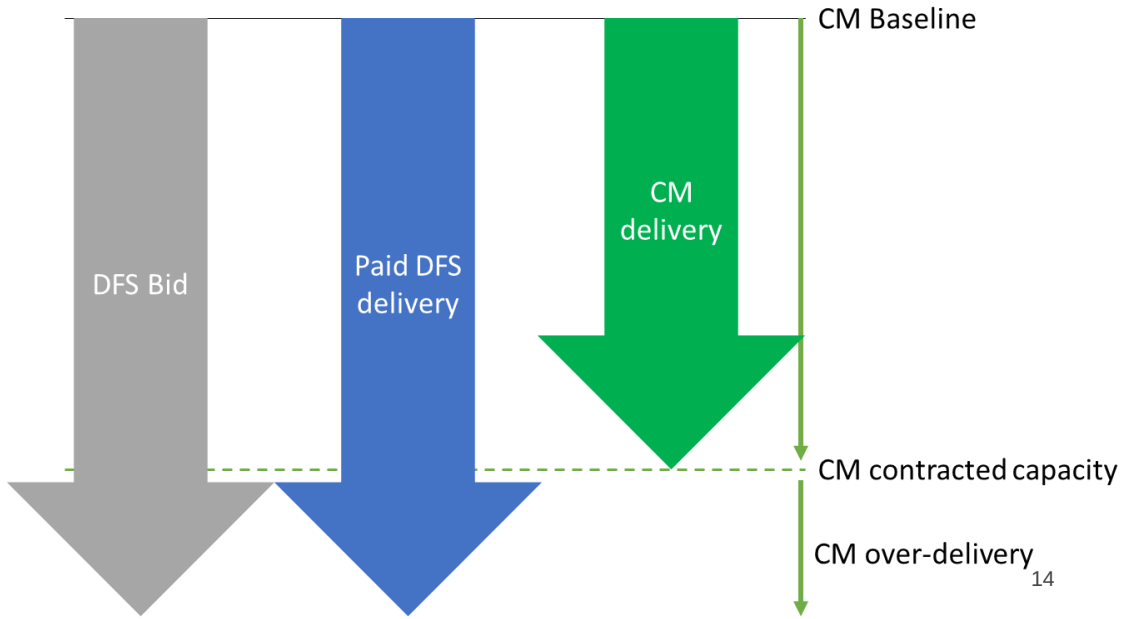
Service Design Proposal

On the right are example of how the CM obligation can be met with DFS bids above or below the CM requirement.

Below shows that only meeting a DFS delivery for less than the CM obligation will result in a CM penalty.





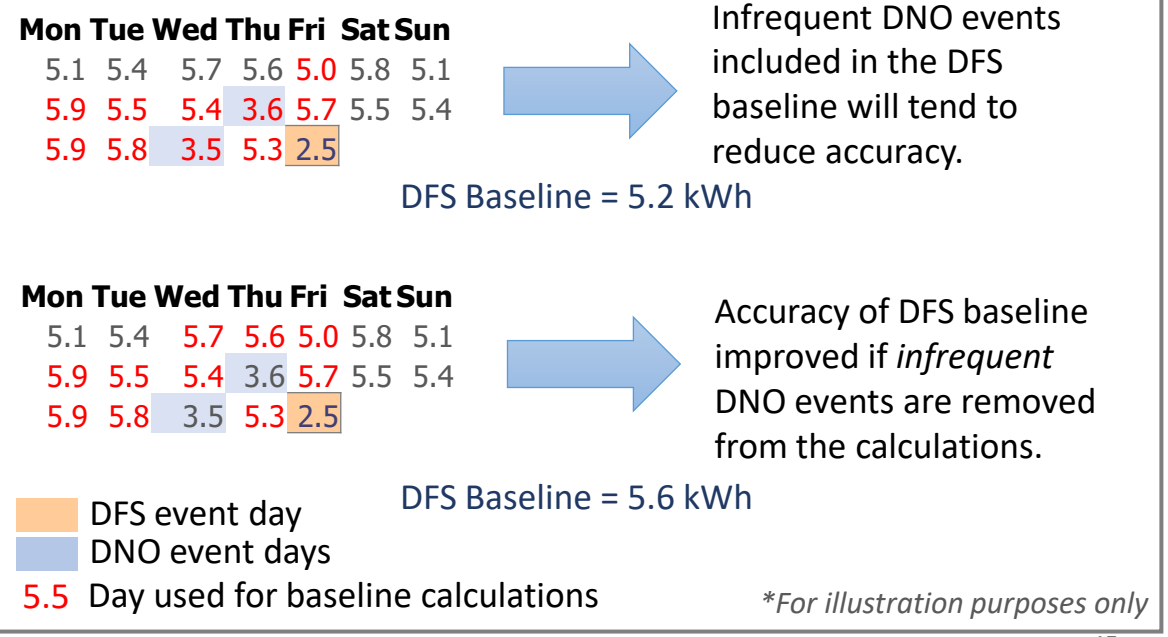


Service Design Proposal

- Unlock ability for **Revenue Stacking** with DNO services.
- Our proposal is to allow unit meter points participating in DNO flexibility services to also be part of **DFS Units**; either on different or the same time periods.
- The design expectation is that frequent DNO utilisations, or those where dispatch is scheduled well in advance of delivery (e.g. year-ahead), will become part of the unit meter point's baseline for DFS.
- As per P376 requirements, the supplier or aggregator must retain evidence for eligibility of *Event Days* where applicable.

Infrequent DNO utilisations can be treated as "*Event Days*" for baseline related calculations. As per P376, "*Event Days*" are removed from baseline calculations as they do not represent the typical consumption pattern of the meter point.

Example *



*For illustration purposes only

Service Design Proposal

We propose to revise the Service Terms so that **each unit meter point can only be in one DFS Unit**.

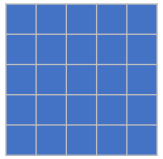
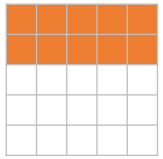
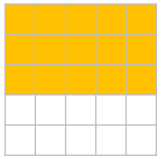
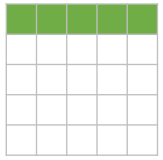
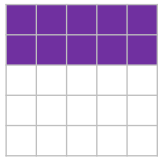
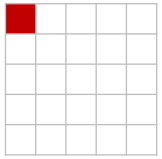
Participants can decide how to allocate their portfolio of meter points into **DFS Units**.

This change will simplify settlements process as over or under delivery from a unit meter point will only impact payment for one **DFS Unit**.

The next slides show a few examples of meter point allocation into **DFS Units**.

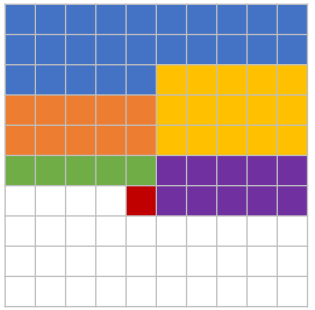
Service Design Proposal

Example 1

MPANS	Reduction at £10/MWh	MPANS	Reduction at £10/MWh
A 25 MW		**B** 10 MW	
C 15 MW		**D** 5 MW	
E 10 MW		**F** 1 MW	

DFS Units

Unit-01



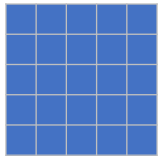
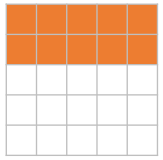
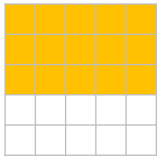
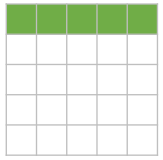
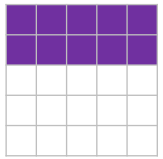
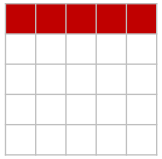
66 MW

£ 10/MWh

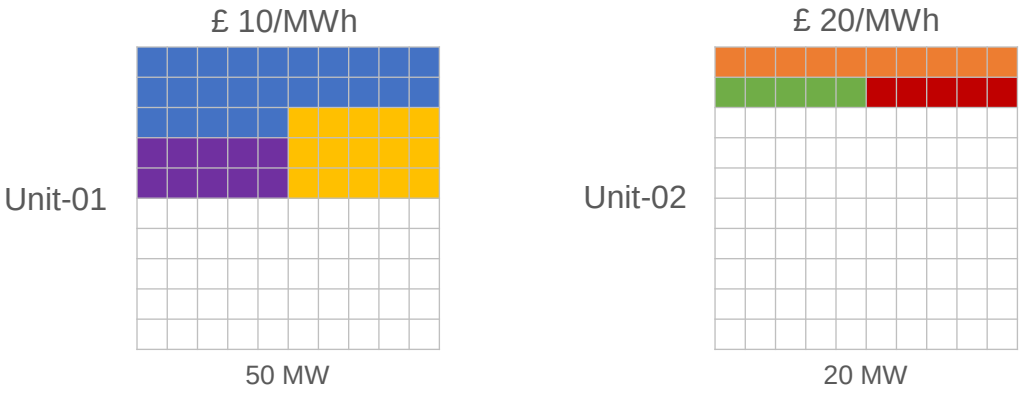
As all volume is available at the same price, and as the total is less than 100MW, it can all go in to one **DFS Unit**

Service Design Proposal

Example 2

MPANS	Reduction at £10/MWh	MPANS	Reduction at £20/MWh
A 25 MW		**B** 10 MW	
C 15 MW		**D** 5 MW	
E 10 MW		**F** 5 MW	

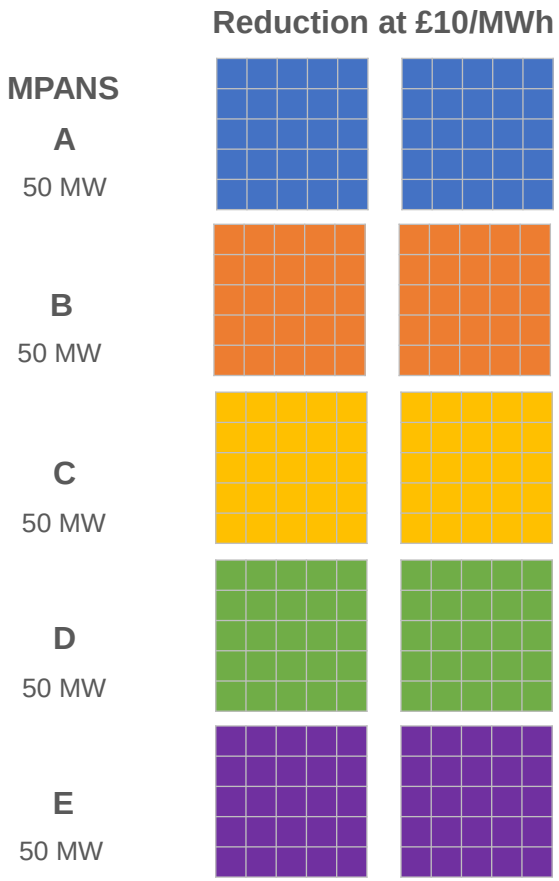
DFS Units



Volume available at different prices is grouped into different DFS Units.

Service Design Proposal

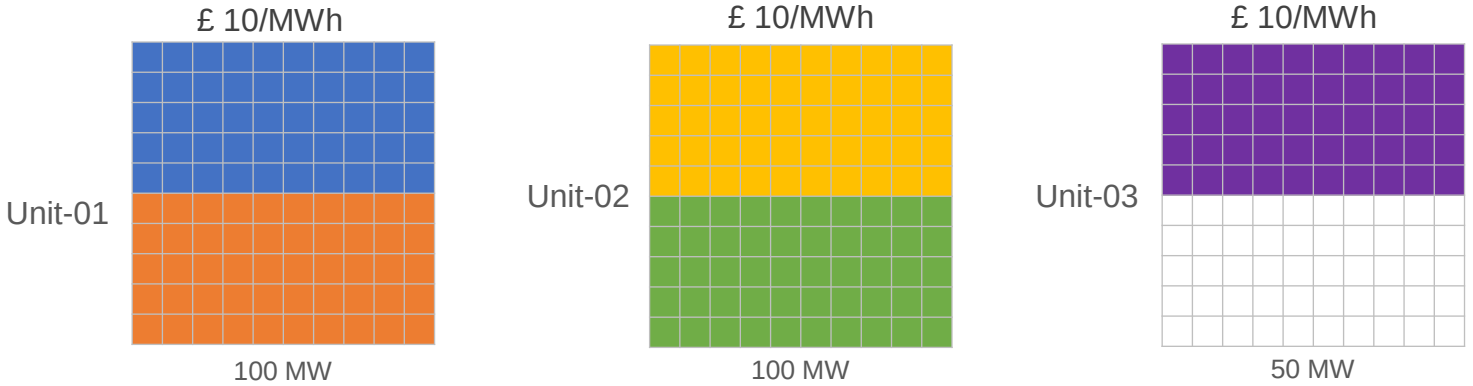
Example 3



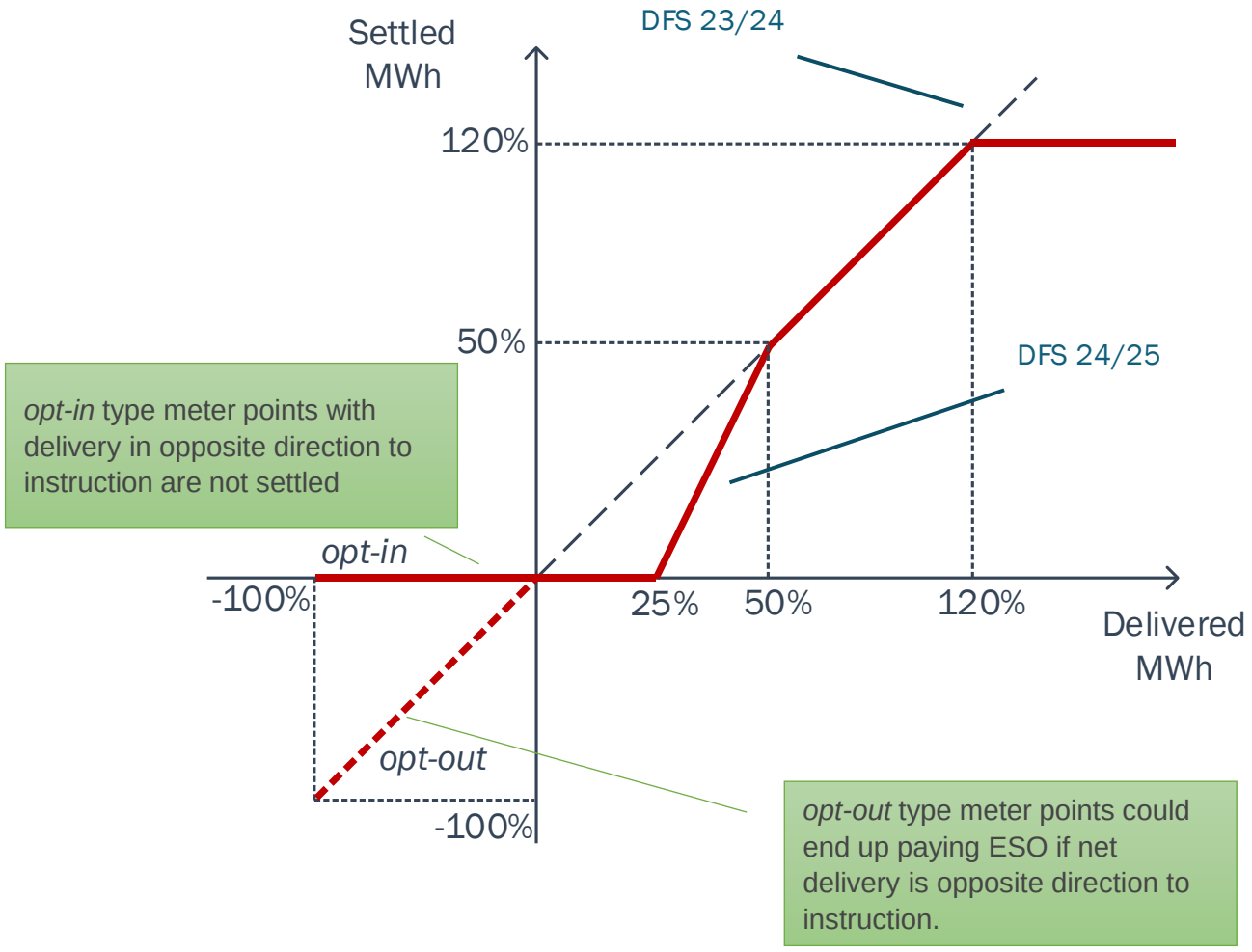
DFS units

As the volume exceed 100MW, multiple DFS units are required

Each meter point can only be in one DFS Unit



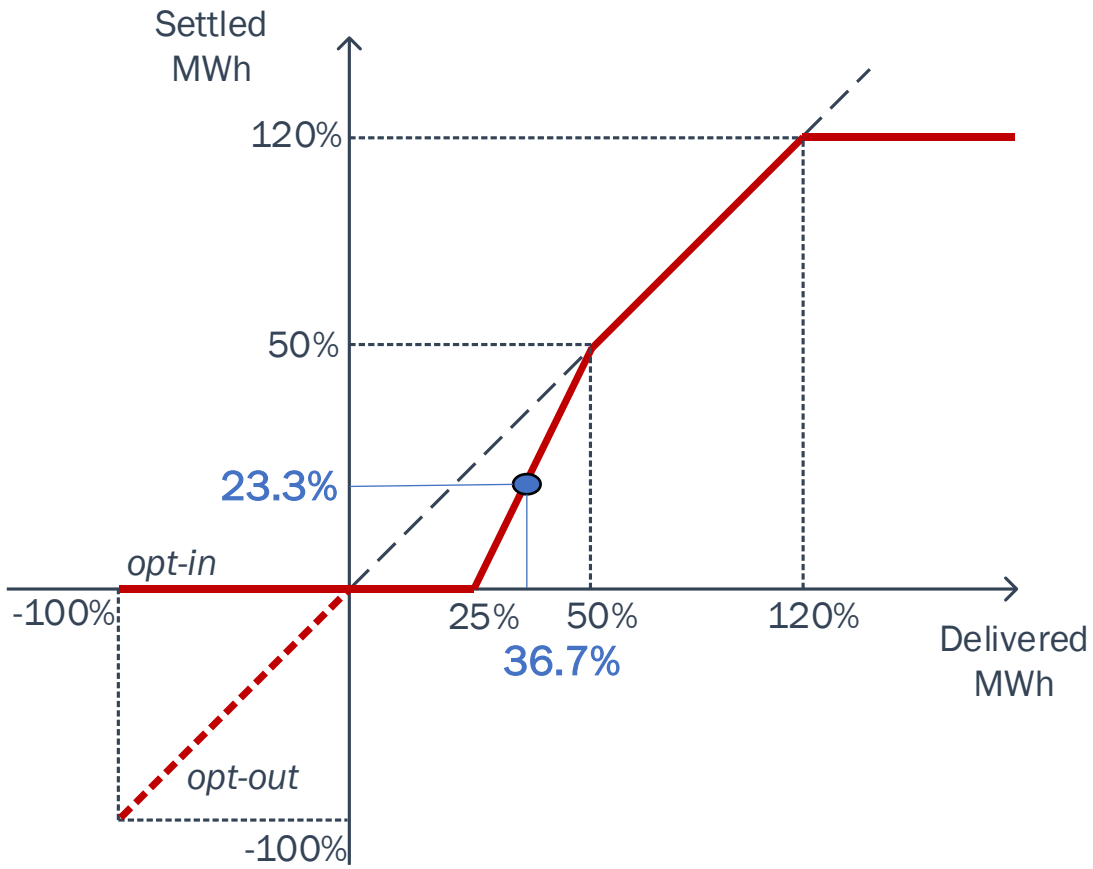
Service Design Proposal



- The proposal is to introduce penalties for under-delivery and limit payments for over-delivery, as shown in the figure.
  - Payments for delivered energy between 50% to 120% of procured values.
  - Delivery above 120% of procured values is not settled.
  - Reduced payments for delivery below 50% but above 25% of procured values.
  - No payments for delivery below 25% of procured values.

Service Design Proposal

Example 1



A DFS Unit contracted to deliver 15 MWh of demand reduction (30 MW for 0.5 h), at a price of £300/MWh, could be structured as follows:

MPAN	Type	Delivered MWh
A	Opt-in	3.5
B	Opt-in	~~-1~~ (0)
C	Opt-in	0
D	Opt-out	3
E	Opt-out	-1
	Total	5.5 MWh (36.7%)

Payment = 0.233 * £300/MWh * 15 MWh
Payment = **£1,048.5**

Service Design Proposal

Automation

- Feedback from industry expressed a strong desire for more automation, particularly around the submission and analysis of delivery data
- We are exploring the following
  - Improving the capabilities of the API to include areas such as assessment of results, submission of delivery data, MPAN portfolio checks.
  - Improve reporting capabilities e.g. a participant can execute a predefined report which summarises delivery and total payments to date.
  - Reviewing and simplifying error messages across all automations.
- Before consultation launch we will have a more concrete view of the planned improvements to the automation side.

Roadmap Areas

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Roadmap Areas

Our aim is to get the next iteration of the service live for early winter

There are areas that we believe we can evolve the service to gain further value, that are not achievable in that timeline, but we want to give an indication of future evolutions:

- **Bi-directional design capability (Demand turn up).** This will allow the product to be used for negative margin as well as positive margin.
- **Locational dispatch.** This includes not dispatching the turn down service within a constraint, and actively dispatching the turn-up service within a constraint. This is to support reducing the forecasted increase in constraint spend.
- More flexible, **call off style dispatch mechanism**. This may be a way to increase use of the service that we would like to explore.

We will continue to collaborate with industry on proposals for these areas as we move forward and will publish timelines when available.

Timeline

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Indicative Go-live Timeline

Next Steps

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Industry Engagement

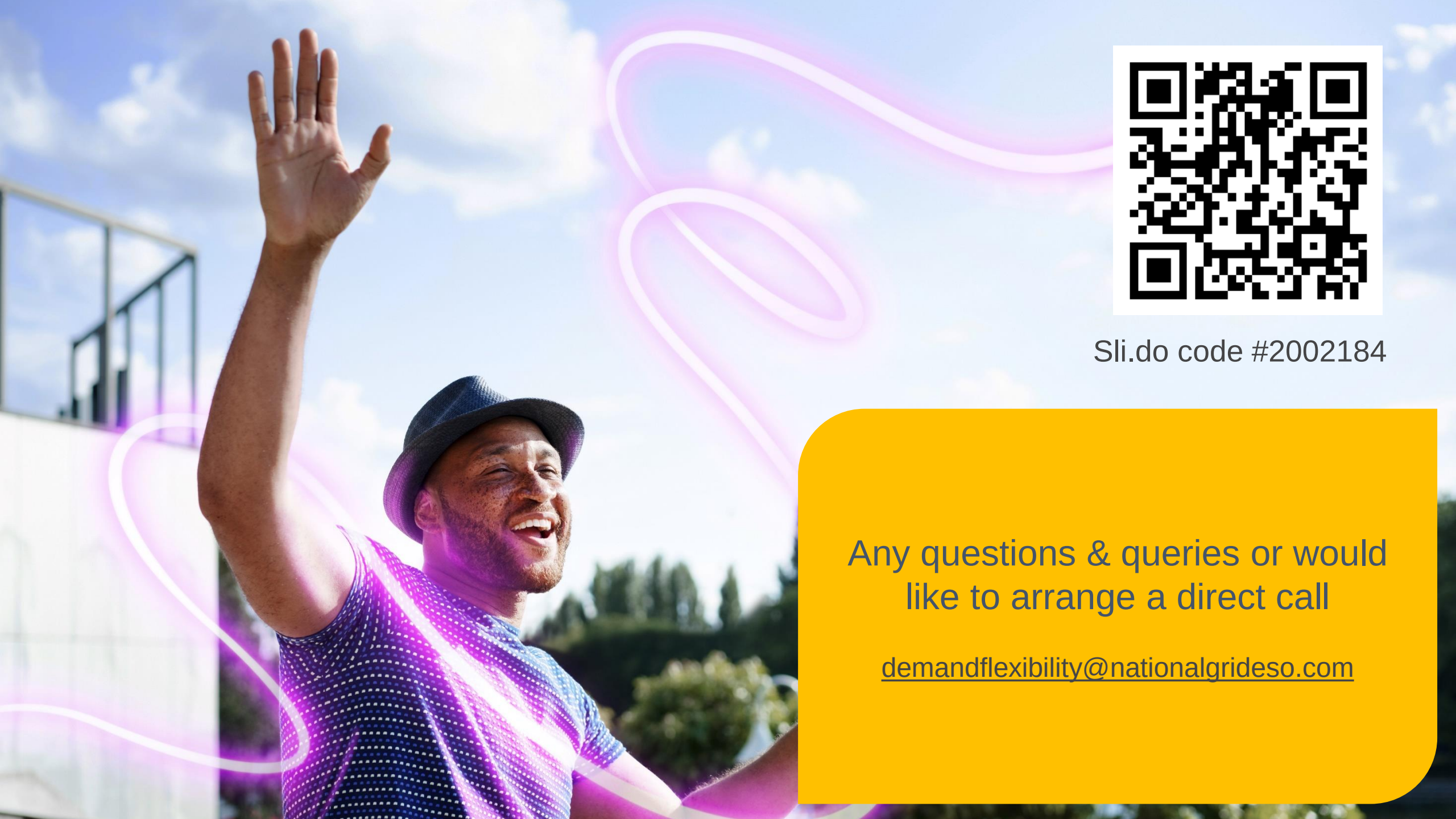
We will be hosting 3 virtual sessions w/c 17th June – it is advised that you only sign up and attend **one** session

Tuesday 18 June	Wednesday 19 June	Thursday 20 June
1:00pm – 3:00pm	9:00am – 11:00am	1:00pm – 3:00pm
Register Here	Register Here	Register Here

During these meetings, our team will answer any questions submitted via the open Slido QR code along with obtaining feedback on our initial DFS service design proposal.

Please sign up using the links above.

If you would prefer a direct call, please reach out via email to arrange – demandflexibility@nationalgrideso.com



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Any questions & queries or would like to arrange a direct call

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