

The webinar will start at 10.32am

If you have any issues please email us
directly at
demandflexibility@nationalgrideso.com

Demand Flexibility Service

Pre-consultation Webinar

9th June 2023

Introduction



Welcome & agenda

- Context of DFS and high level findings
- Collaboration with industry
- Overview of service design updates
- Detailed design updates
- Next steps
 - Consultation
 - Engagement
- Q&A
 - Slido.com #DFSUpdate

Q&A



Ask your questions at Slido.com

#DFSUpdate



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 22
- 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.



DFS key statistics

2 Live events

680 MWh delivered

Over 1.6 million reach

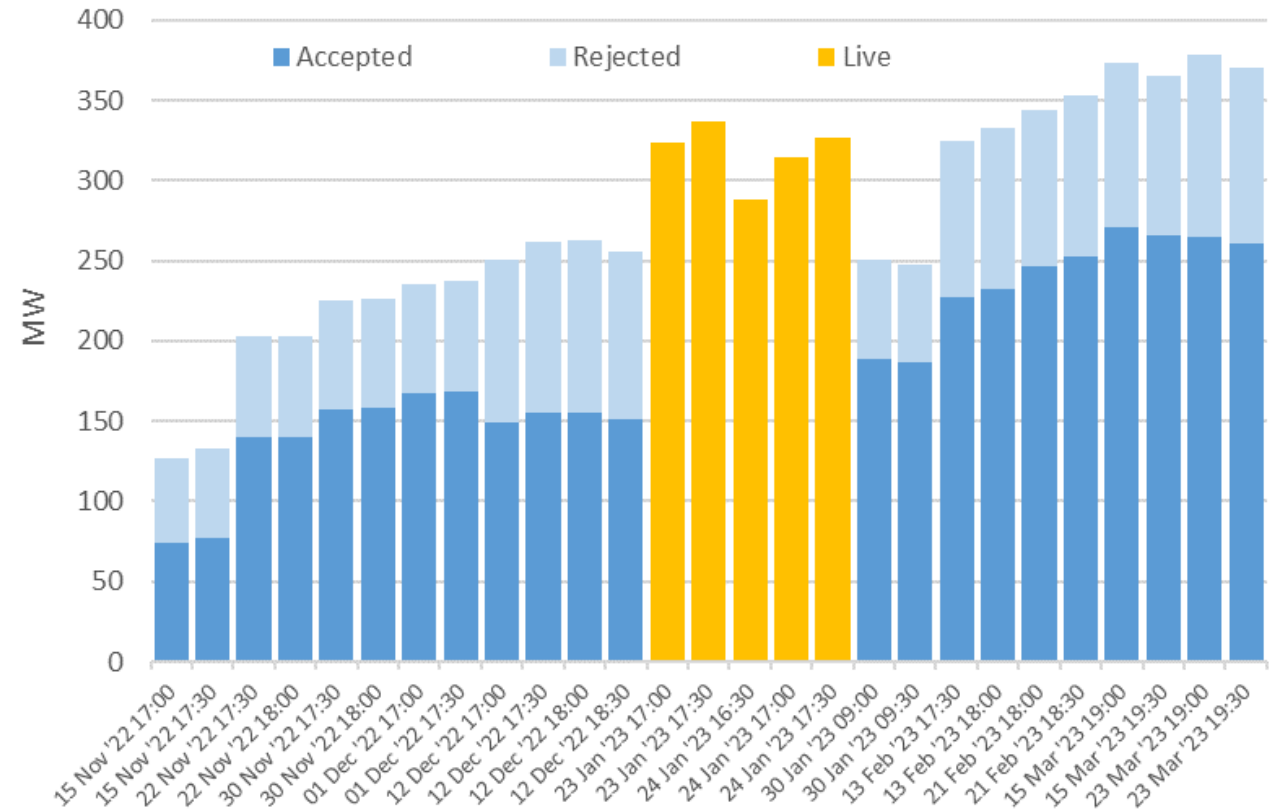
c. 350 MW contracted capacity

31 DFS approved providers

20 onboarding & regular Tests

>2.6 GWh delivered

DFS volumes over winter 2022-23



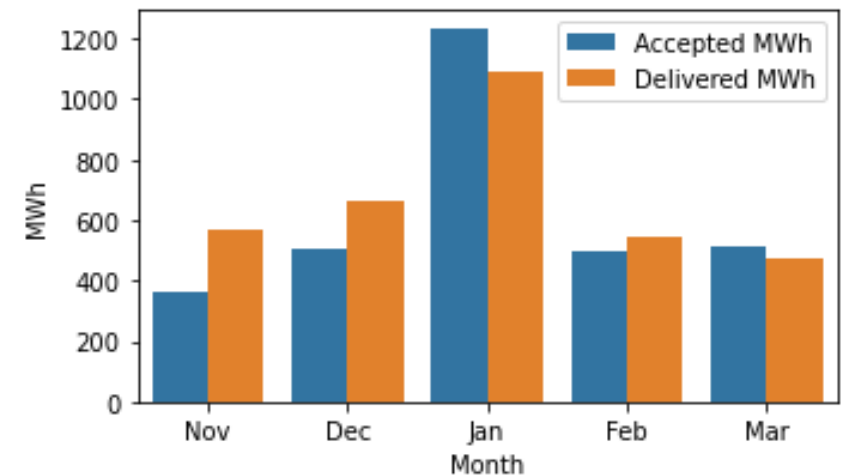
Review of DFS Winter 22/23

The **DFS Review of Winter 22/23 Report**, to be published in June, summarises the key results of the service.

High level results

- The combined spend was around £11.1M split up into £8.0M for tests events and £3.1M for live events.
- The average price paid for tests events was £3,000/MWh. The average price paid for live events was £4,559/MWh and the highest accepted bid during live events was £6,500/MWh.
- Around 20% higher demand reduction achieved during the 'live events'.

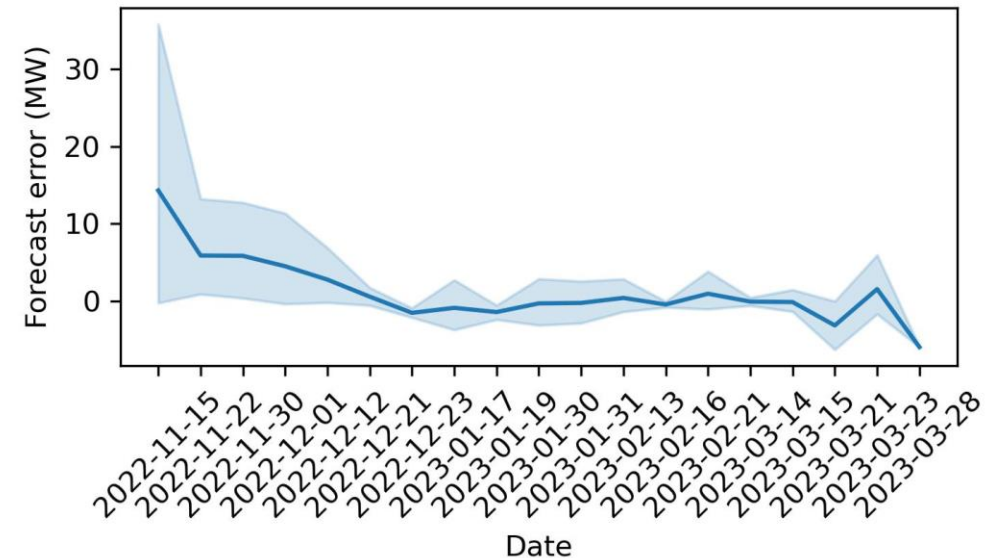
Accepted/Contracted and Delivered MWh



Review of DFS Winter 22/23

Delivery

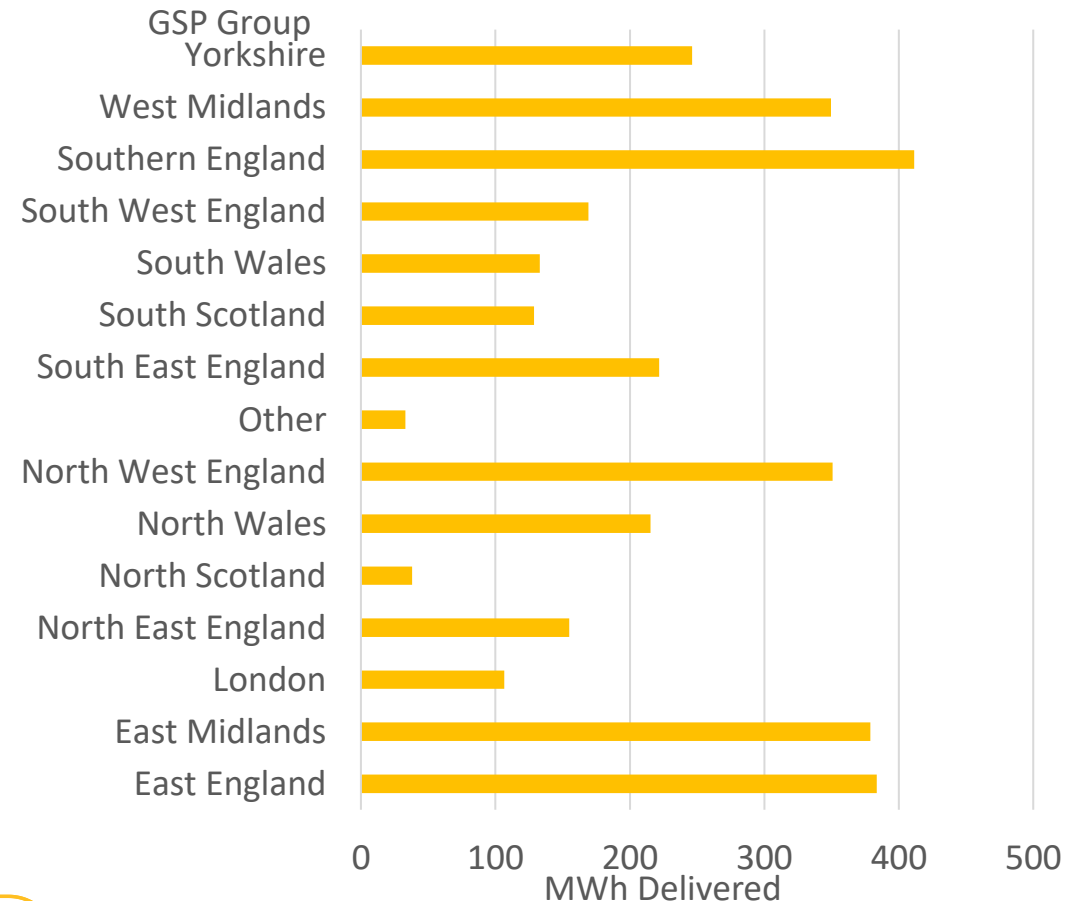
- Positive trend regarding the difference between forecast value and delivery. On average, the error decreased as the service progressed.
- It is reasonable to assume that providers improved their forecast processes as the service progressed, resulting in a decrease of forecasting error.



Review of DFS Winter 22/23

Regional variations

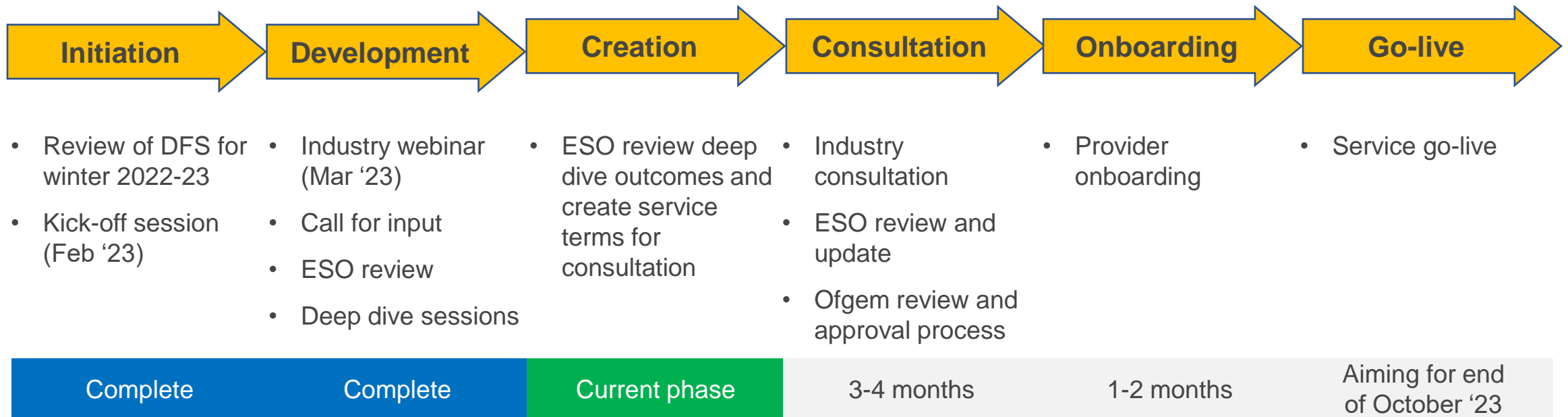
- All regions showed increased participation rates as the service progressed.
- ESO estimates that consumers in Southern England, East of England, and East Midlands reduced their demand the most during the events.
- Throughout the service duration, each region achieved an estimated electricity reduction of over 370 MWh which could power over 3 million homes across all three regions.



Timeline



Stages of service development

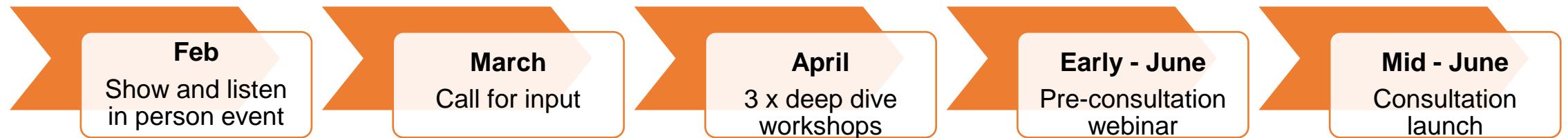


Collaboration with industry

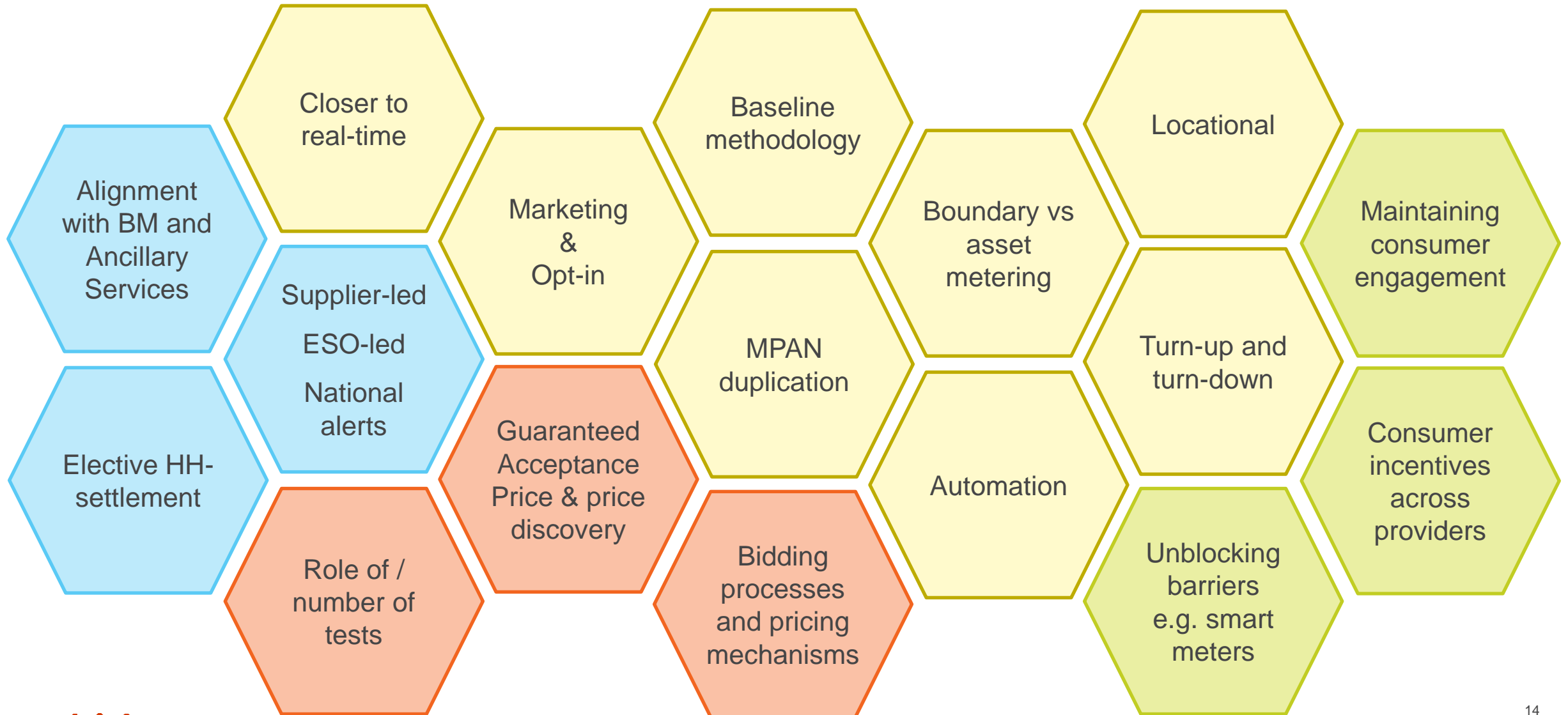


Collaboration to date

- We welcome the continued collaboration between industry participants and consumers to ensure the success of DFS
- The feedback has been invaluable in developing DFS
- All participants have played a pivotal role in delivering this step change in flexibility
- We continue to work with industry throughout the service development and look forward to your participation in our service



Feedback from Show & Listen + 1:1s



Call for input

- Aim for the CFI was to help understand the the next steps for demand flexibility
- 48 responses were received in total
- These insights were used to develop the demand flexibility deep dive workshops
- Wide range of stakeholders cross the industry

Industry priorities

Stakeholders rated the following topics most highly:

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

Call for input summary:

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



Deep dive feedback – Commercials

Procurement timeframes

- Good support for within-day procurement. Shorter lead times may improve volume & accuracy.
- 09:00 likely to provide optimal balance between certainty and volume.
- Clarity required that only one procurement window would be used per delivery period.
- An advanced notice would be valuable to continue to facilitate 1hr bid submission timeframe
- Continue to require transparency, service to be stood down if called & situation improves

Tests

- GAP – below £3000/MWh may reduce volumes and GAP of £100/MWh may not deliver value for end consumer.
- Agreement that removal of GAP will be necessary for long-term.
- Suggestion DFS should be benchmarked against winter contingency units/Capacity Market with worries about a variable GAP not providing certainty.
- Clarity and certainty on number of tests across the service duration
- Consumer fatigue was identified over the course of the winter with long durations between tests

Bids/penalties

- Agreement for keeping the same bidding rules (MPANs can be split across DFS Units)
- Clarity required on whether minimum 1MW will be enforced
- Clarity on whether GSP group aggregation be a requirement
- Agreement for not introducing penalties for winter 23/24, but cognisant that penalties may need to be introduced as the service becomes more mature

Deep dive feedback – Baseline

Within-day adjustment

- Most respondents favoured the removal of the within-day adjustment period to remove perverse incentives
- However, also noted potential longer-term down sides of having no adjustment

Other baseline options

- Some respondents stated that P376 was generally the most accurate methodology to use
- Others asked about using their own baseline methodologies, including nominated baselines.
- Broad call for more development of baseline methodologies and testing of their suitability

Deep dive feedback – Eligibility

Stacking

- A handful of respondents want to be able to participate in the CM/BM and DFS

Mandated

- Suggestion that all energy suppliers should be mandated to offer the DFS to eligible end consumers

ABSVD

- General agreement with the proposal
- Ideological desire for ABSVD to apply to all volume, whether HH-settled or not
- Some raised concern that data and complexity of applying ABSVD was a barrier to entry

Asset metering

- Exclusion of asset metering could limit volume
- Confusion why asset meters are allowed in other Ancillary Services, but not DFS
- Suggestion that asset metered providers also provide the boundary meter data

Export

- Mixed views
- Most supported domestic export

Deep dive feedback – MPAN

Duplication

- A wide call for automation of the MPAN duplication identification process
- Respondents felt an API was key for facilitating regular / daily / real-time checks

Opt-in vs opt-out

- Mixed views of opt-in vs opt-out
- Respondents citing data and behavioural impacts of a confirmation either way
- Some support for opt-out as this is seen to be less burdensome and would allow “passive participation” however it’s not clear the implication of including all delivery than only positive-delivery was understood
- Opt-in works well for domestic consumers

Ownership

- Mix of views on MPAN ownership
- Some supporting the proposal of the latest timestamp taking precedent
- Others say it should be less about a prescriptive process and more about consumer choice.
- Risk was raised around of stranded consumers



Deep dive feedback – Process and wider considerations

API

- A wider call for API across all areas

Industry alignment

- The importance of alignment was raised, particularly between ESO and DSO, but also other actors in the energy system

Locational

- Some respondents asked whether there were thoughts or plans to make DFS regional or locational

Consumer evaluation findings so far

83% likely (or extremely likely) to take part again



- 23,500+ survey responses, 140+ diaries and 1,700 nationally representative opinion poll responses
- Over 45 year olds more likely to participate in DFS
- Higher female to male participation than GB population by 3%
- London was under represented by 9%
- Yorkshire and The Humber over represented by 4%
- What could we do better: **Provide an 'opt-in all' option**



Full details will be shared in DFS Consumer Evaluation which will be published in July



Overview of service design updates



Overview: Role of DFS

Winter 2023-24

- We propose that 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 built in flexibility to the DFS service terms to allow for future development of services.
 - For example, location procurement, or turn-up as well as turn-down
- We will not be putting a defined end-date in to the terms
- We will continue to support customers transition in to other ancillary services
- We will support bridging the gap to Market-wide Half-Hourly Settlement



Overview: significant changes

Procurement

- Add within-day dispatch option, as an alternative to day ahead (14:30 DA, 09:00 ID & 12:00 ID)

Delivery & process

- Remove the domestic in-day baseline adjustment
- Allow opt-out (net reduction settled) as well as opt-in (only positive reduction settled)

Automation

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

Tests

- Replace “onboarding” and “regular” tests with “DFS tests” for all providers simultaneously
- Role of tests, number of tests and GAP will all be laid out in Market Information Report alongside Winter Outlook Report

Participation

- Allow asset metering in place of boundary metering where certain criteria and conditions are met
- Require HH-settlement for all meters, except providers participating on a domestic boundary meter

Overview: other changes

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
- Removal of the within-day forecast 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

Detailed service design updates

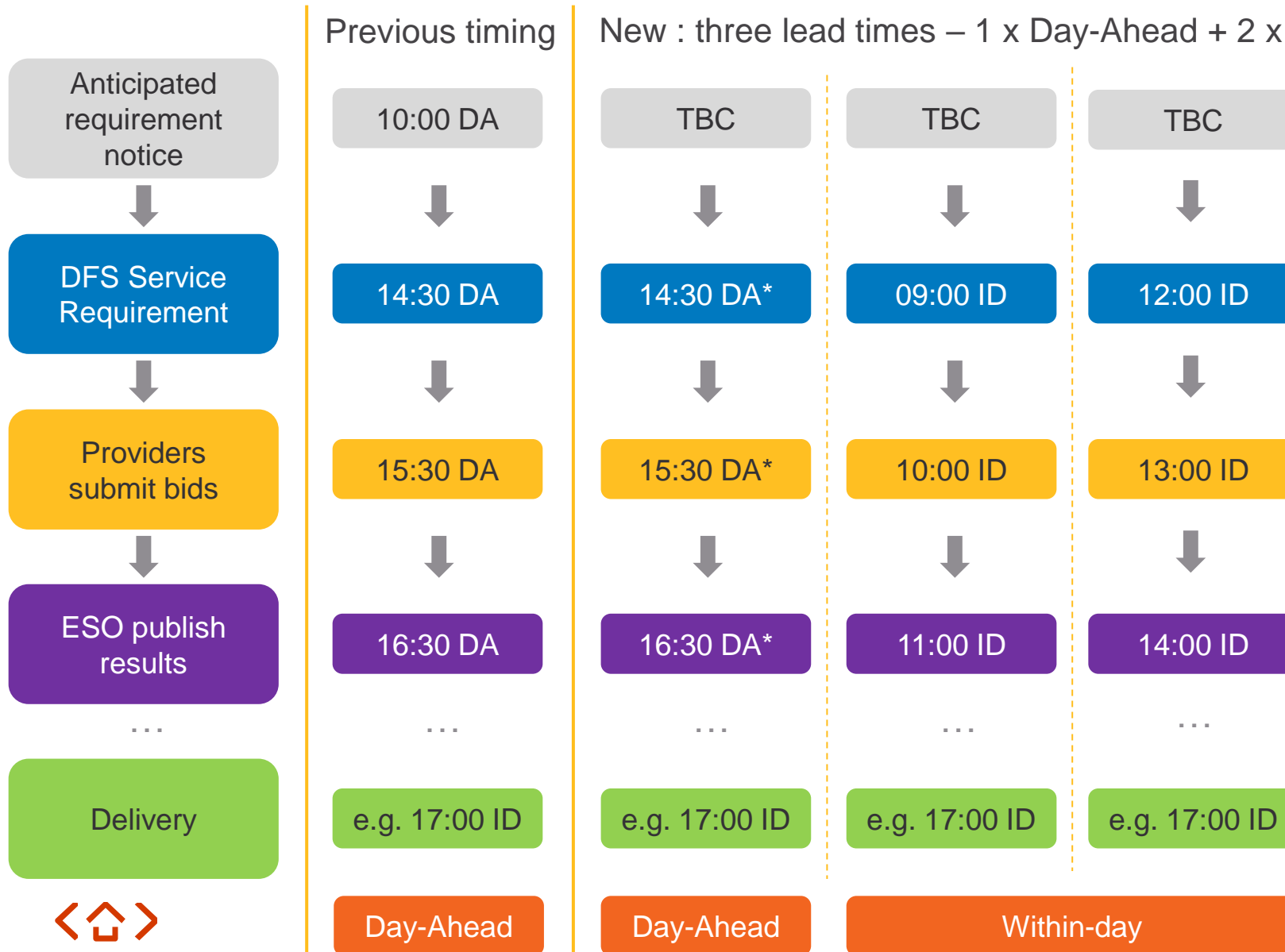


Detailed service design updates

Our proposed updates apply to the following areas:

- Dispatch timeframes
- Asset metering
- Baselines
- Event opt-in and opt-out
- Tests
- Automation
- MPAN duplication
- ABSVD

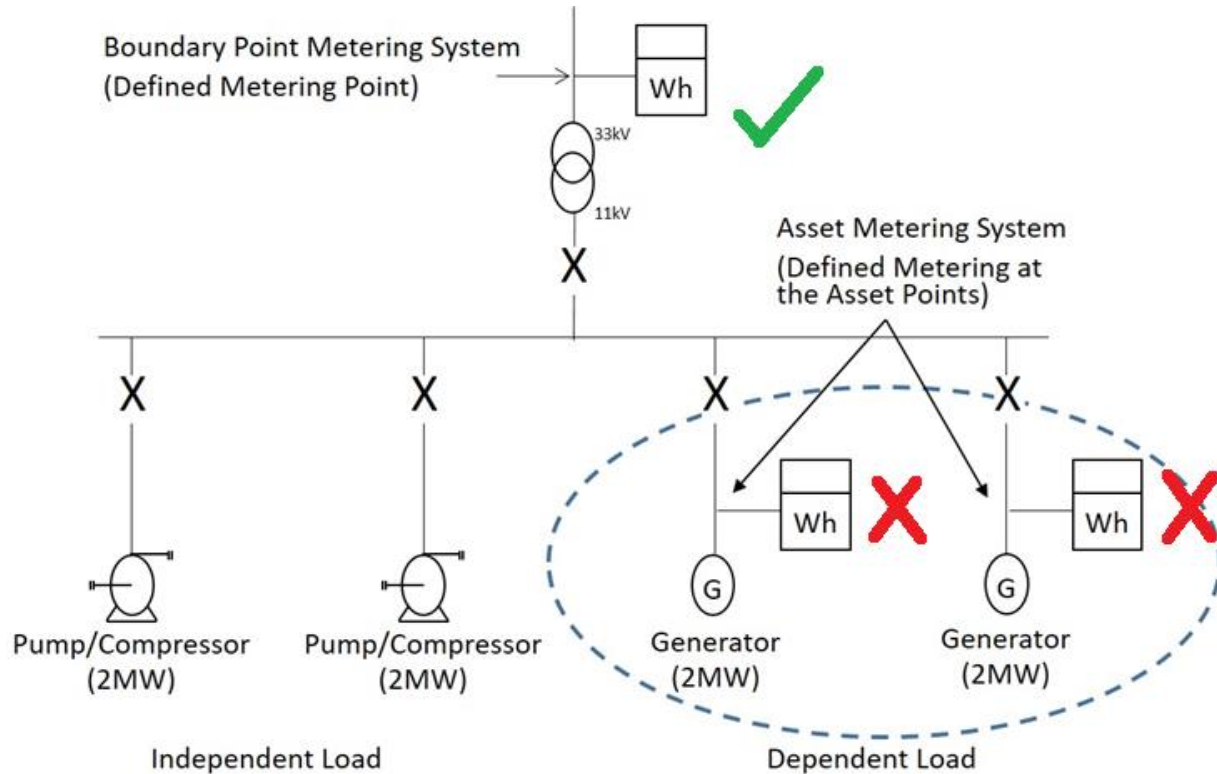
Dispatch timeframes



- We will use one of the three timescales for a procurement window
- This will allow us to understand the impact that different leadtimes have on the volume of flexibility available
- Closer-to-real time dispatch is important, as it brings demand flexibility towards gate closure and enacting other Ancillary Services, and allows the services to be dispatched when we have more certainty of our requirement, reducing the impact on other markets and signals
- We would like feedback on the desired leadtime for anticipated notices

Asset metering (sub-metering)

- The previous DFS rules said that meters must be a Boundary Point Metering System (“boundary meter”):

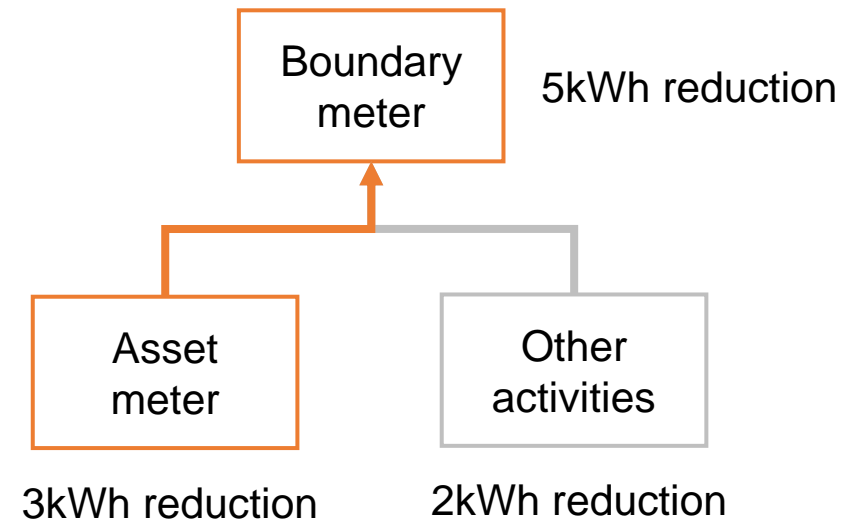


- There are three main risks that we have identified when it comes to enabling asset metering:
 1. Double counting
 2. Gaming
 3. Meter quality
- We will be allowing asset metering, subject to some key criteria to mitigate these risks

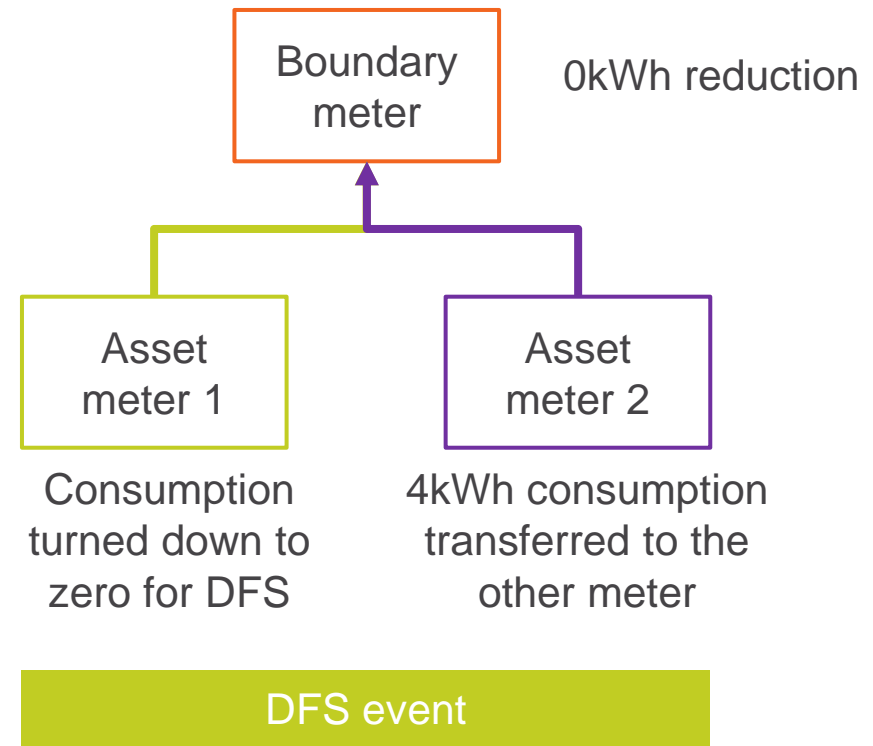
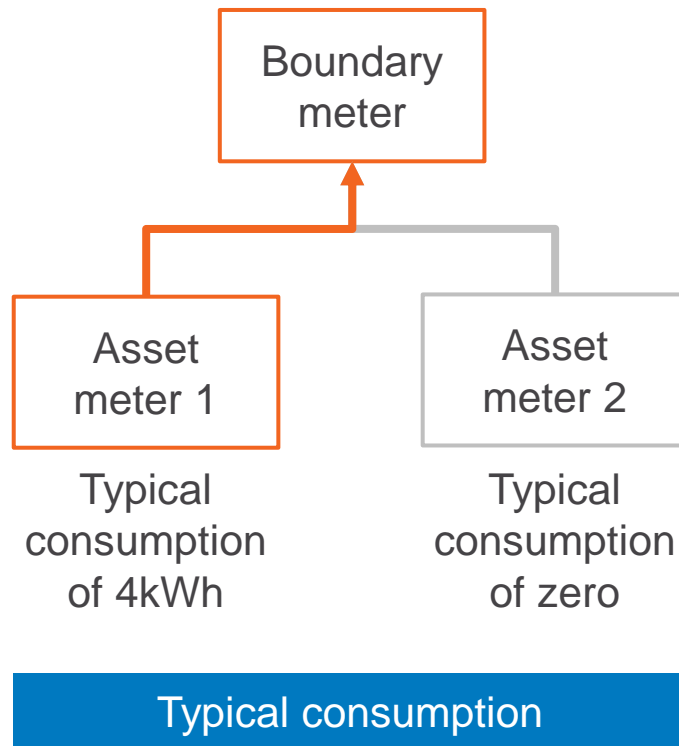
<https://bscdocs.elexon.co.uk/guidance-notes/asset-metering>

Asset metering: Double counting risk

- In the example shown to the right, there are two loads behind the boundary meter, one of which is one an asset meter
- If the asset meter participates in DFS and delivers a 3kWh reduction, then it should be paid for the 3kWh reduction
- However, if the boundary meter also participates at the same time, then the 5kWh reduction at the boundary will include the 3kWh that was delivered by and paid to the asset meter
- This represents double counting of delivery, and double payment from the ESO for the 3kWh

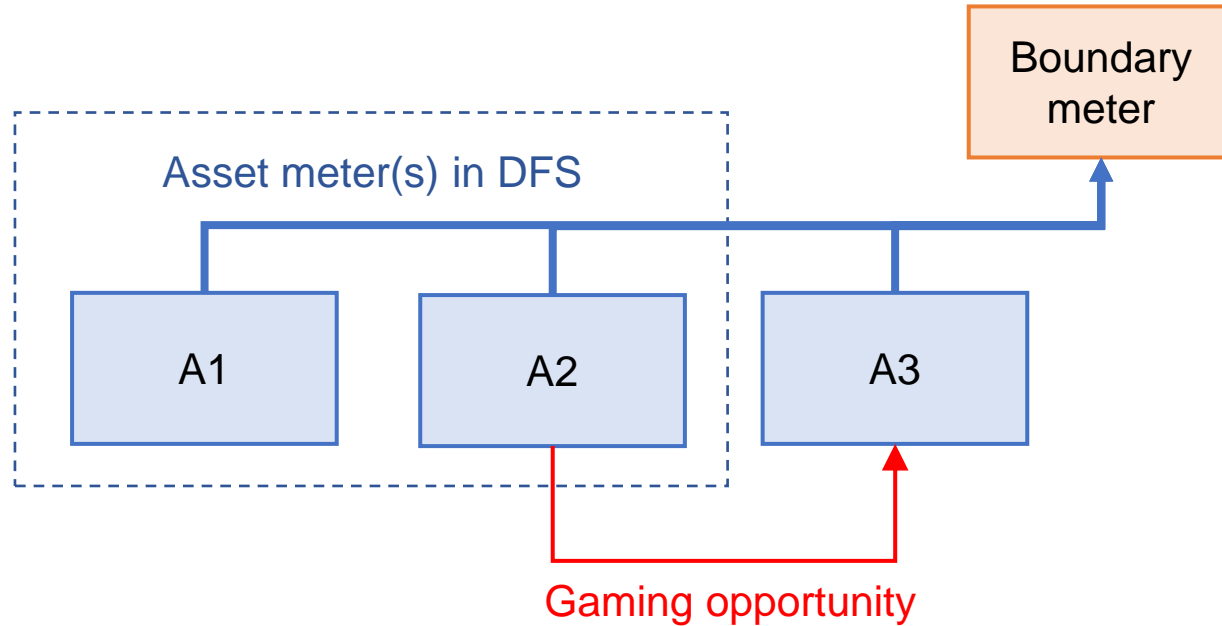


Asset metering: Gaming risk



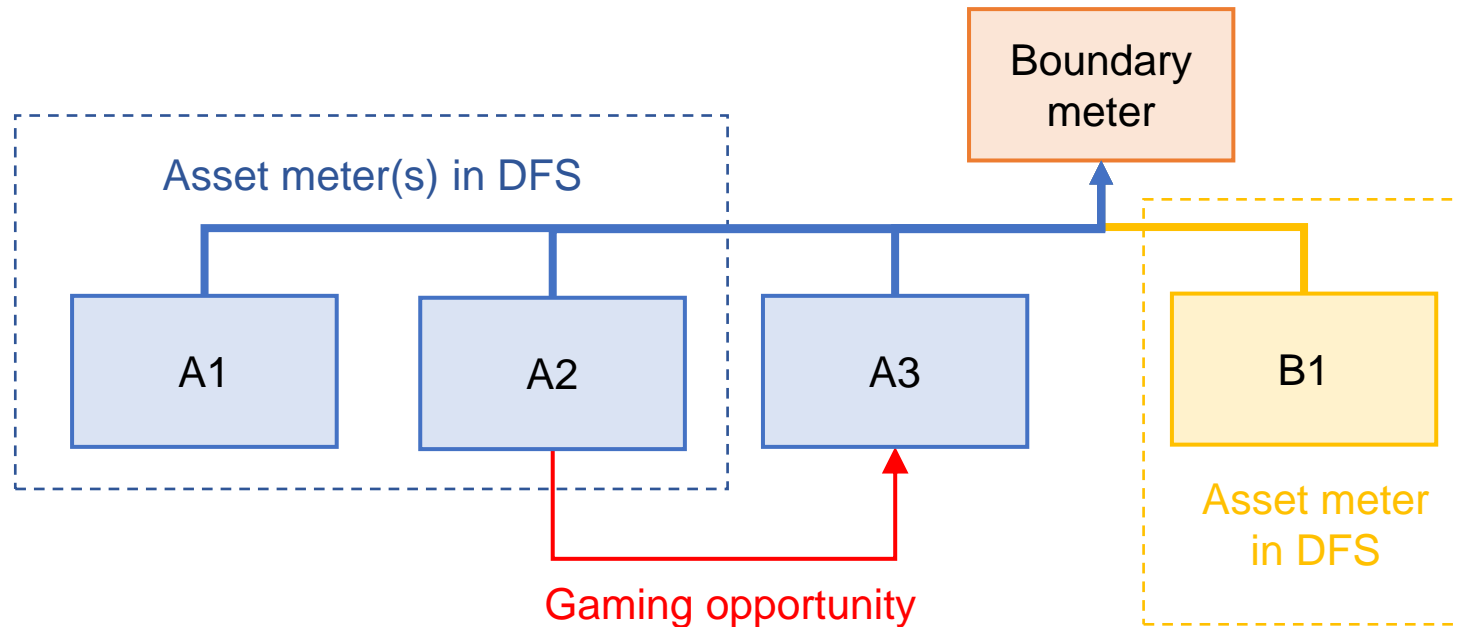
- In the example shown above, if only one of the two asset meters was entered into the service then there is the opportunity for load from one asset meter to be transferred to another asset
- The participating asset meter would look to have reduced by 4kWh and be paid as such, but there would be no actual reduction in load, and so no benefit to reducing overall demand in line with the purpose of the service

Asset metering: Gaming risk



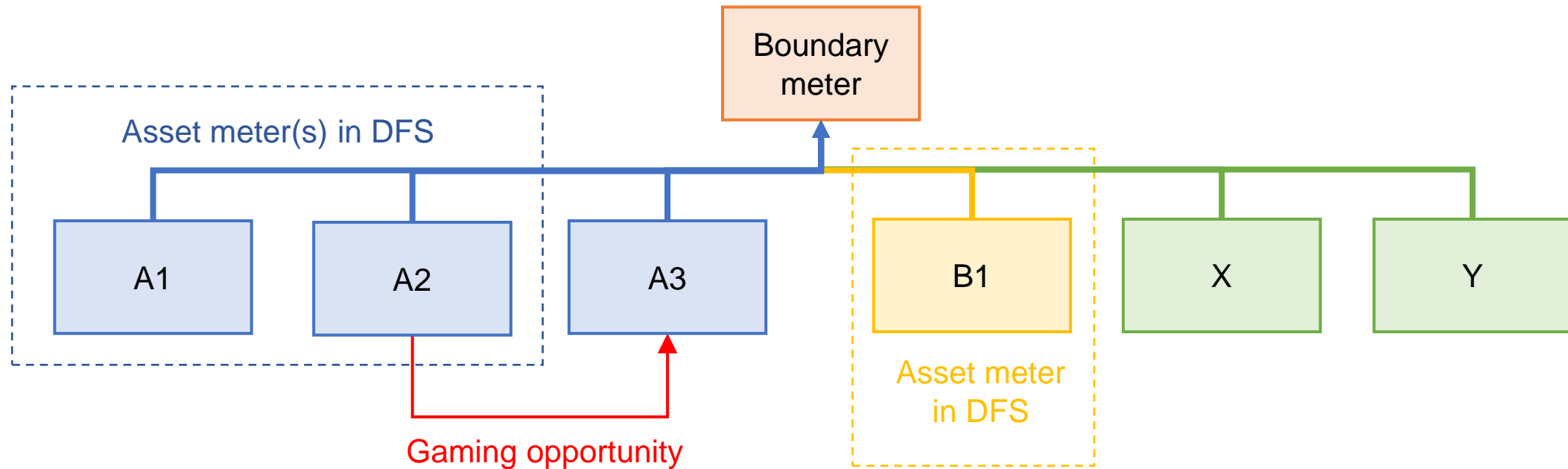
- Provider A controls all three asset meters behind the boundary meter
- But, they only enter some of them in to the service
- This still leaves an opportunity for gaming

Asset metering: Gaming risk



- **Provider B** only controls one asset meter behind the boundary meter, and so does not have the opportunity for gaming
- However, if we allow **Provider B** in to the service with one asset meter, and not **Provider A** with one of their asset meters (because of their opportunity to game delivery), then we would lose access to demand flexibility volume

Asset metering: Gaming risk



- Some sites may have yet more complicated load structures behind the boundary meter, including load that is not on asset meters (X and Y)
- We are looking to find the right balance between allowing providers to participate with asset meters while mitigating the risk of sterilising volume and the risk of gaming

Asset metering: proposal

We will allow asset meters to participate if the following conditions are all met:

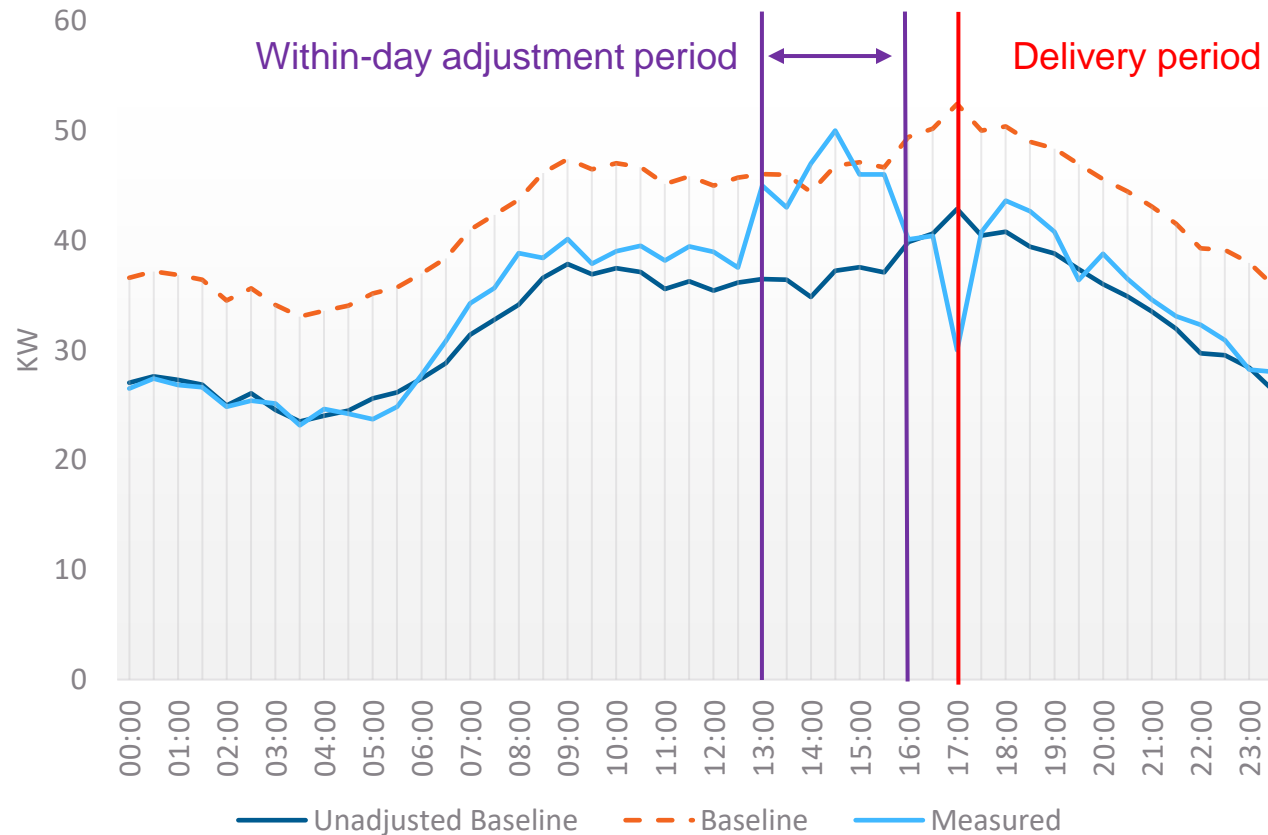
- the asset meters are of the same or better standard than a boundary meter
(e.g. adheres to Elexon's Code of Practice 11 for meter standards)
- the asset meter(s) and associated boundary meter are not participating at the same time
(covered by the MPAN duplication rules)
- providers must enter all asset meters they have control of behind a boundary meter into the service
 - collective opt-in or opt-out per event for those asset meters
(i.e. all or nothing participation)
 - settled on the net delivery of those meters
(covering the overall impact of any increases and reductions across all of the assets)
- providers must be able to give us the boundary meter data on request for ad-hoc audit purposes, as well as the asset meter data

NB: Providers can still choose to participate at the boundary meter if they prefer, or don't meet these criteria

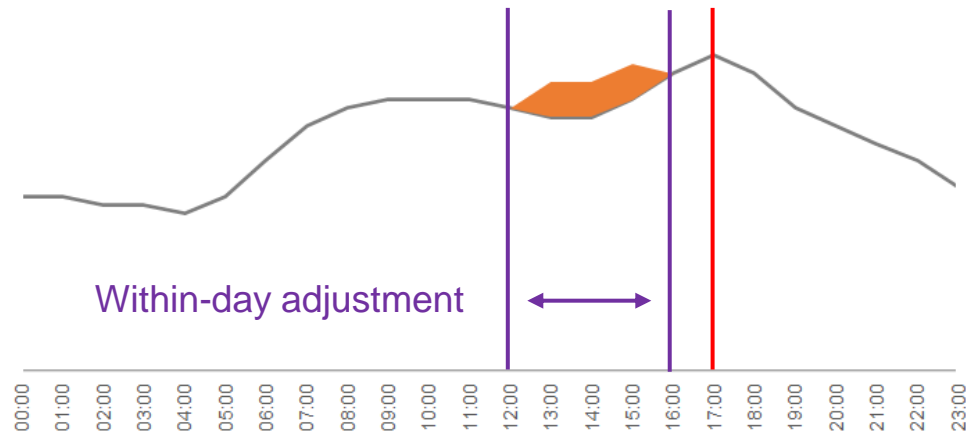
Baseline

Current DFS design

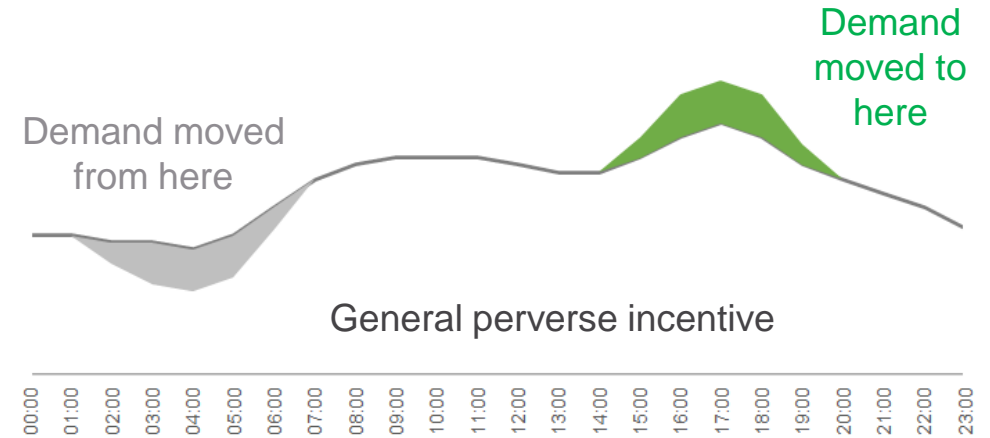
- Use of P376 baselining methodology, which is an industry approved methodology
- This includes a within-day adjustment period for domestic meters, mostly to account for weather impacts



Baseline – perverse incentives for DFS

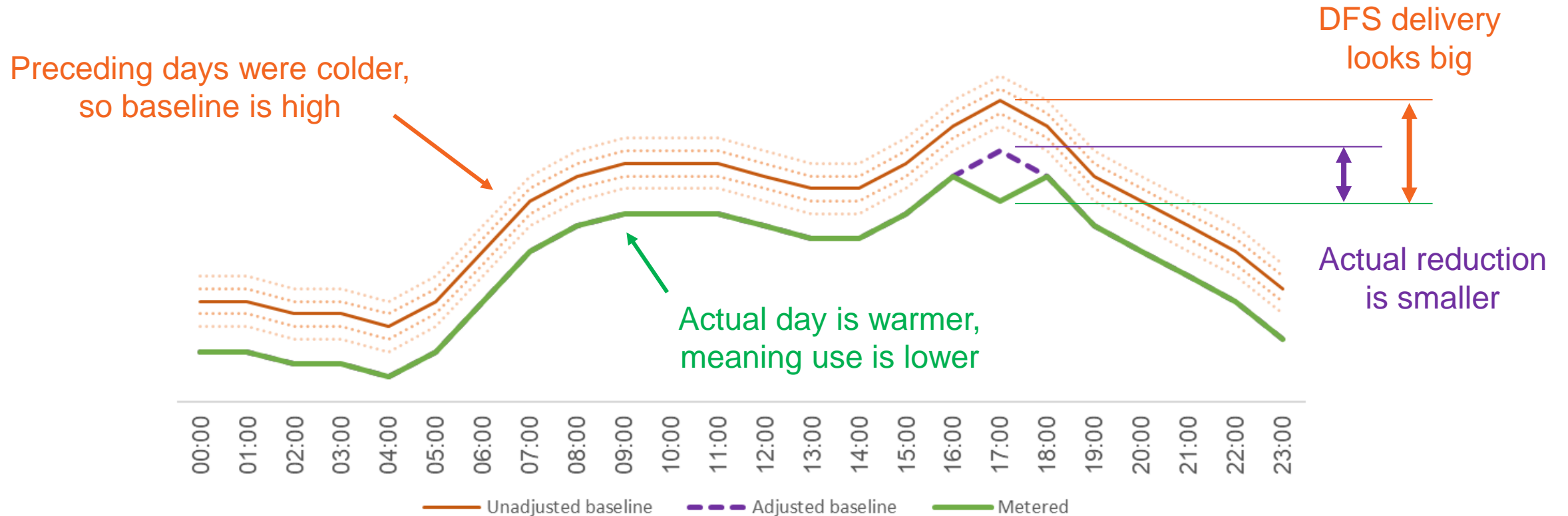


- Extra demand used during within-day adjustment period solely in order to boost the baseline
- This gaming does not change the actual level of metered demand in the delivery period, only the perceived reduction
- This increases the cost of DFS without delivering extra demand reduction
- This is possible due to the difference in the cost of additional electricity to boost the baseline vs. the revenue earned in the delivery period

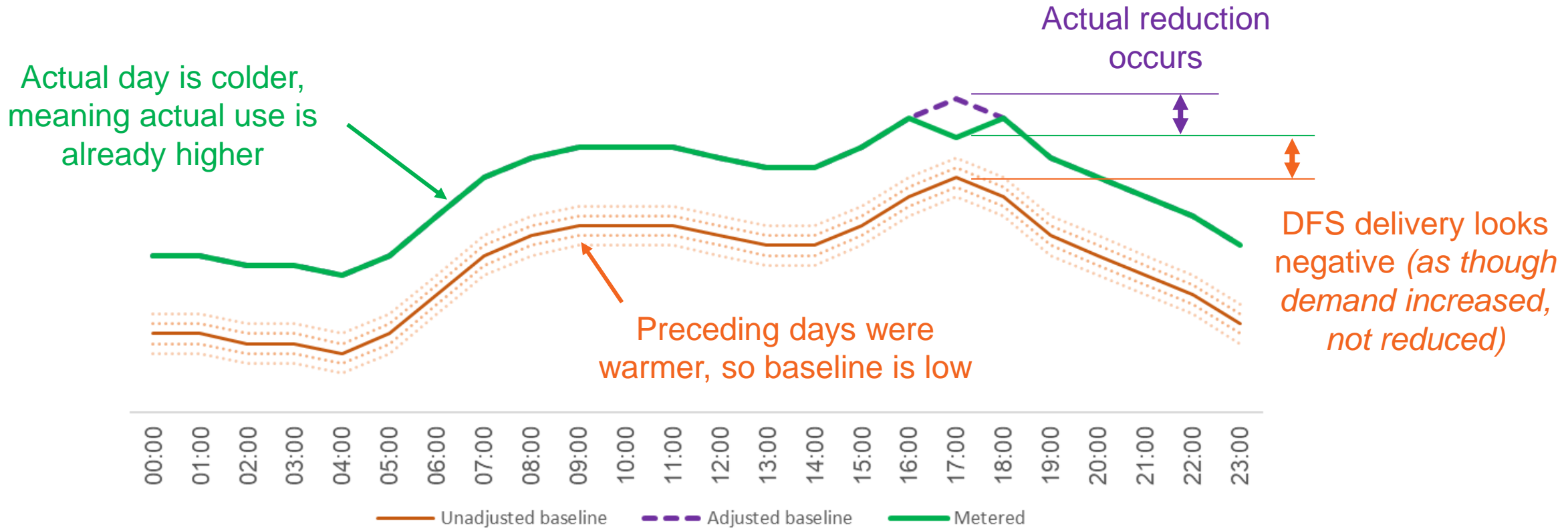


- Demand moved to peak on “normal” days by end consumers not exposed to HH-prices, in order to boost their baseline
- This is possible as the time of DFS use is very predictable, unlike other Ancillary Services
- Increases the peak demand on non-event days:
 - increasing general wholesale & balancing costs
 - increasing DFS costs as we have to buy through “false” reductions that would not exist without the perverse incentive

Baseline – removing in-day adjustment



Baseline – removing in-day adjustment



Baseline - proposal

Mitigating the perverse incentives created by the baseline methodology:

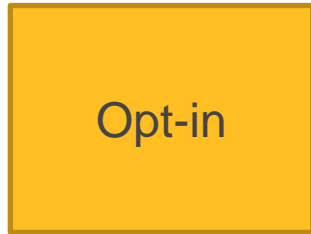
- Remove the within-day adjustment for domestic meters
 - This removes the perverse incentive completely, and was most favoured in the feedback
- Mandate all meters to be (or be associated with) a half-hourly settled boundary meter, unless you are providing the service on a domestic boundary meter
 - This aims to mitigate the risk as much as possible, while recognising the that scale of change needed for domestic boundary meters is significant (one of the reasons for the MHHS programme) and so trying to avoid sterilising access for domestic participants

Other options considered for within-day adjustment

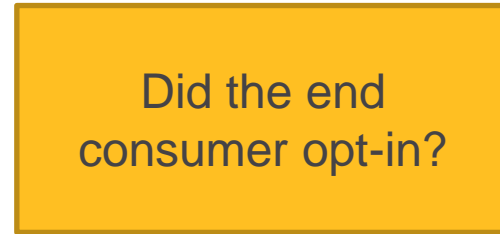
- Longer adjustment period (e.g. 10hrs, 12 hrs, the whole day except for the DFS delivery period) to remove or reduce the economic incentive for gaming – this will be asked as part of the consultation.
- Adjustment period before event notification – providers fed back that this would require the notice to be too close to delivery, meaning we would not get volumes

Event opt-in & opt-out: previous

Previous design



End consumer decision, per event



Yes

Demand reductions included in settlement, but demand increases removed

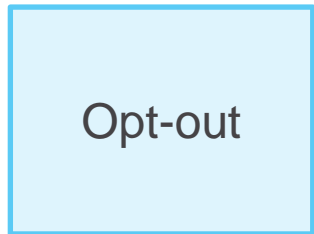
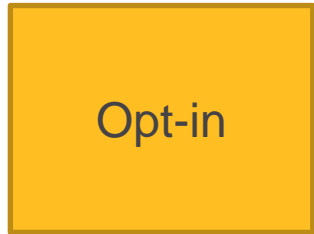
No

Excluded from settlement

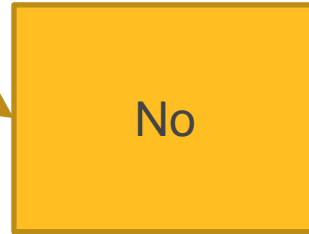
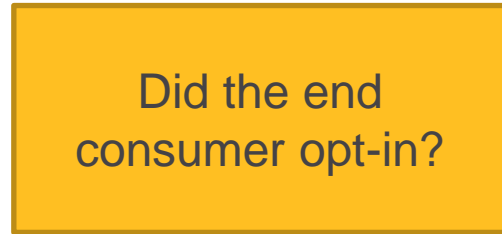
- Each consumer had to opt-in to each DFS event (as well as opt-in to service as a whole with their provider)
- This was to:
 - to ensure that providers were submitting volume from people who were actively participating (*not just anyone who naturally used less*)
 - provide an update via the Updated Forecast, and
- Providers could remove those who had opted-in to an event but did not reduce their demand from settlement calculations, to reduce their exposure to financial risk in a new service.

Event opt-in & opt-out: new

Two options:
Up-front decision

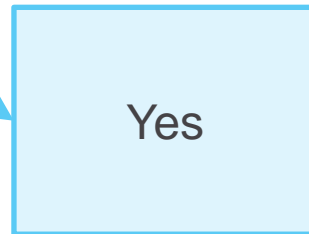
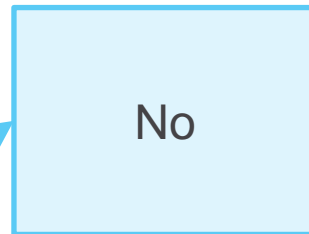
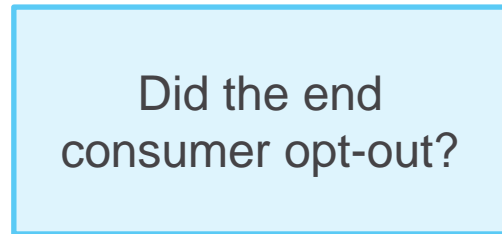


End consumer
decision, per event



Demand reductions included in settlement, but demand increases removed

Excluded from settlement



All delivery must be included, whether a reduction or an increase

Excluded from settlement



NB: collective opt-in or opt-out applies to asset meters

DFS Tests

- 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 GAP will all be laid out in Market Information Report alongside Winter Outlook Report
- Tests may be different durations, and providers will be able to bid at 30 minute granularity
- It will be key to balance any live uses of the DFS alongside the number of tests, to manage consumer fatigue and expectations

Expected test events outcomes

- Demonstrate and grow the volumes available
- Explore the impact of dispatch timeframes on provider volumes
- Investigate price discovery by procuring partial volume against full available volume
(e.g. the GAP for those tests aimed at price discovery would be zero)

NB: Live events may be called at the different procurement times, dependant on ESO's certainty of requirement



ABSVD



Applicable Balancing Services Volume Data

ABSVD



Industrial and Commercial

Apply ABSVD process to HH Settled volume via P354 ABSVD process at MPAN level.



Domestic

Apply ABSVD if MPAN is signed up to provide DFS with **Supplier**, via BMU ABSVD process (volume aggregated at BMU ID level)



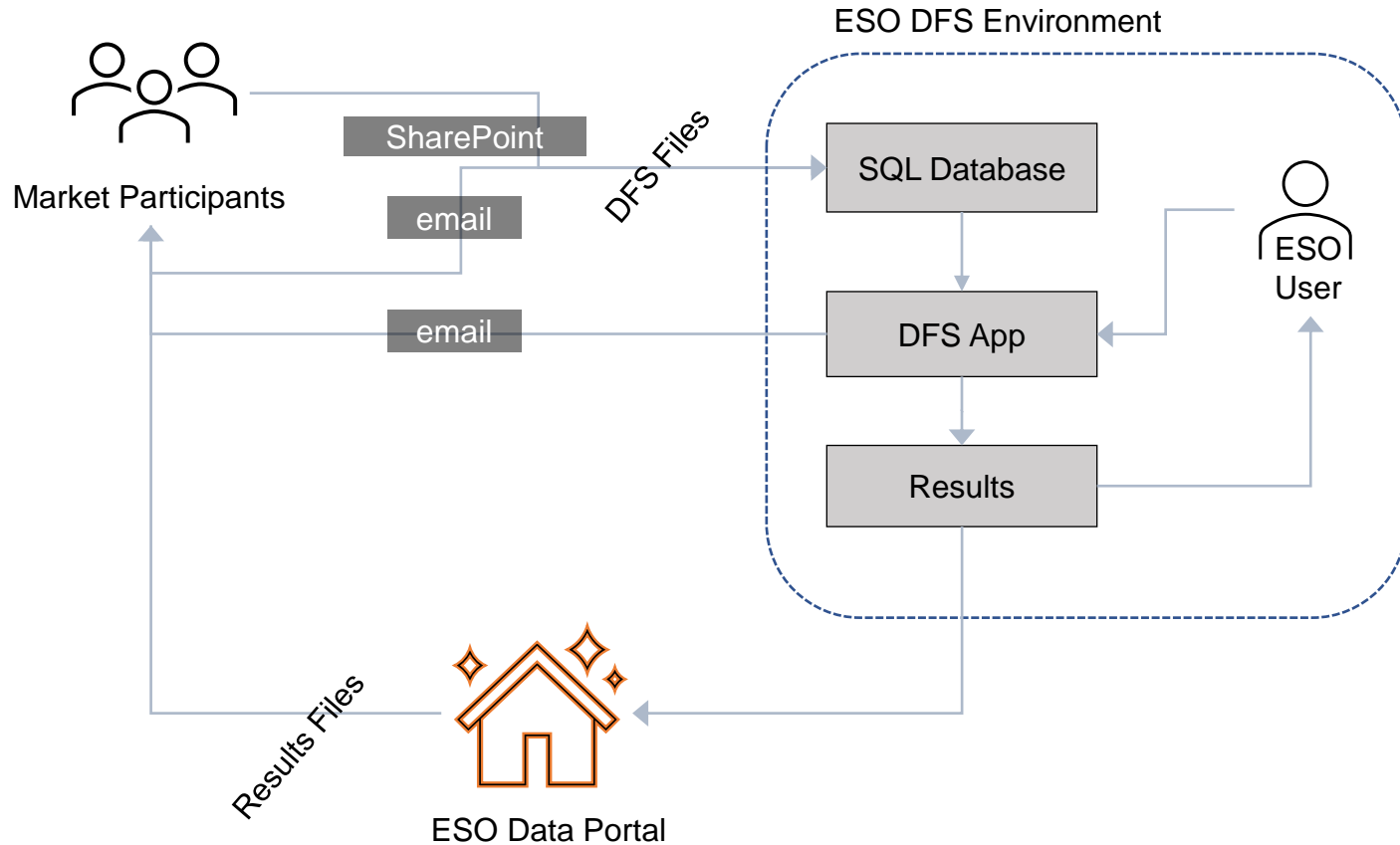
Minimise or overcome market data availability limitations:

- Lack of BMU ID vs MPAN data availability for aggregators
- Lack of Domestic HH Settled status data availability for aggregator

Process



Process - Winter 22/23

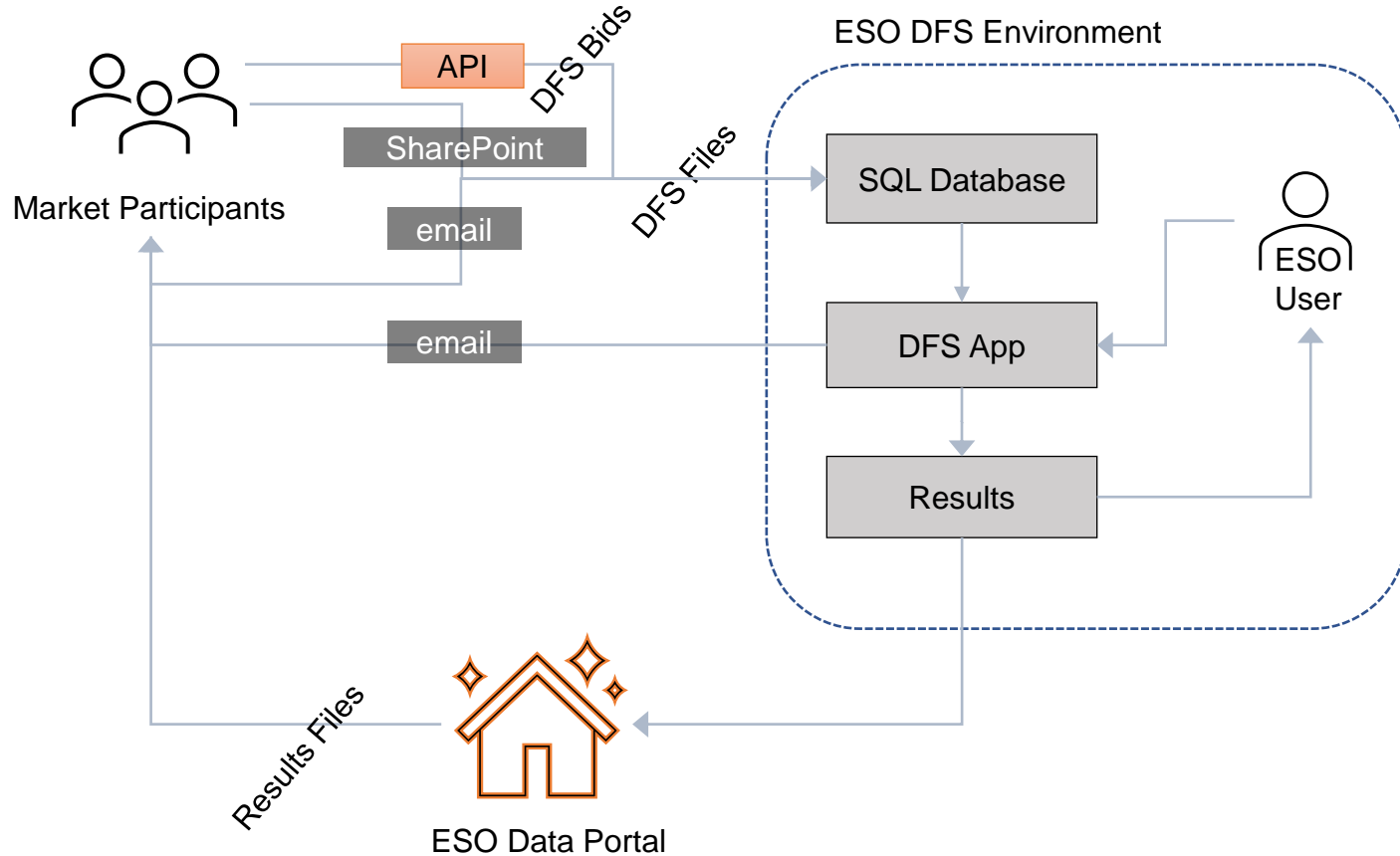


Winter 22/23

- Participants had the option of saving their files to their dedicated SharePoint site or sending them by email to our DFS Environment.
- The DFS Files included:
 - Weekly forecasts
 - In-day forecasts
 - Bids
 - MPANs
- The Results Files included:
 - Service Notifications
 - DFS Requirements
 - Utilisation Report



Process - Winter 23/24



Winter 23/24

- In addition to the existing routes for file submission, we are developing the capabilities to enable API submission for Bids data.
- We are removing the requirement to submit an in-day forecast.
- The weekly forecasts:
 - must include expected volume and prices for the three lead times (1 DA and 2 ID), and
 - can be updated throughout the week.
- File templates will be shared accordingly.



Automation updates

Bid submission

Current DFS design

- Bids were saved in a tabular format by participants and then submitted to the ESO's DFS SharePoint site.

Proposed change

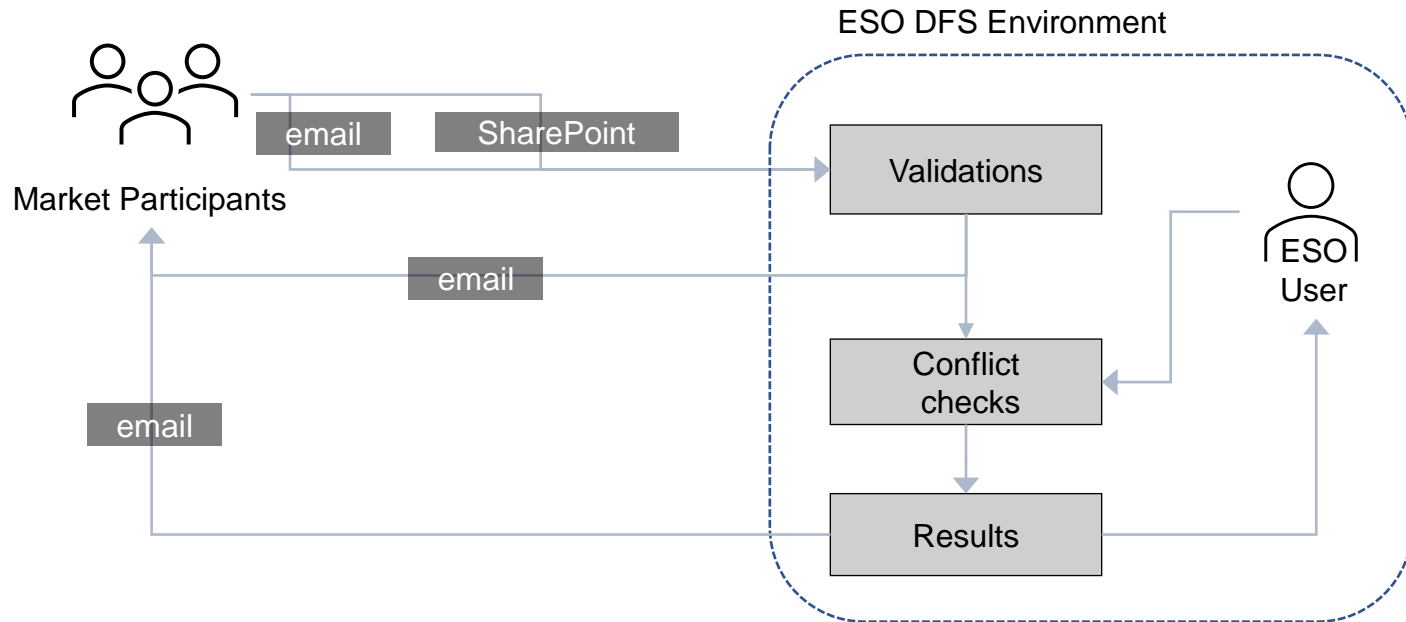
- Introduction of an API for bid submissions.
- ESO will aim to publish API documentation with sufficient time to allow market participants to develop on their end.
- ESO will further provide onboarding support to participants to the same high standards as last year. Yet, it is responsibility of participant to develop their own scripts to interact with the DFS API.
- Participants unable to set up the API will still be able to use existing routes for file transmission.

Reasons

- We received strong feedback from providers on enabling further automation to streamline their DFS interactions with ESO.
- The DFS events requirements are published in the Data Portal, which already has API capabilities and thus can support automation.
- Enabling API access for Bid submission would allow participants to program certain tasks, e.g. setting up of a system to read requirements and submit bids automatically.



MPAN duplication



Winter 22/23

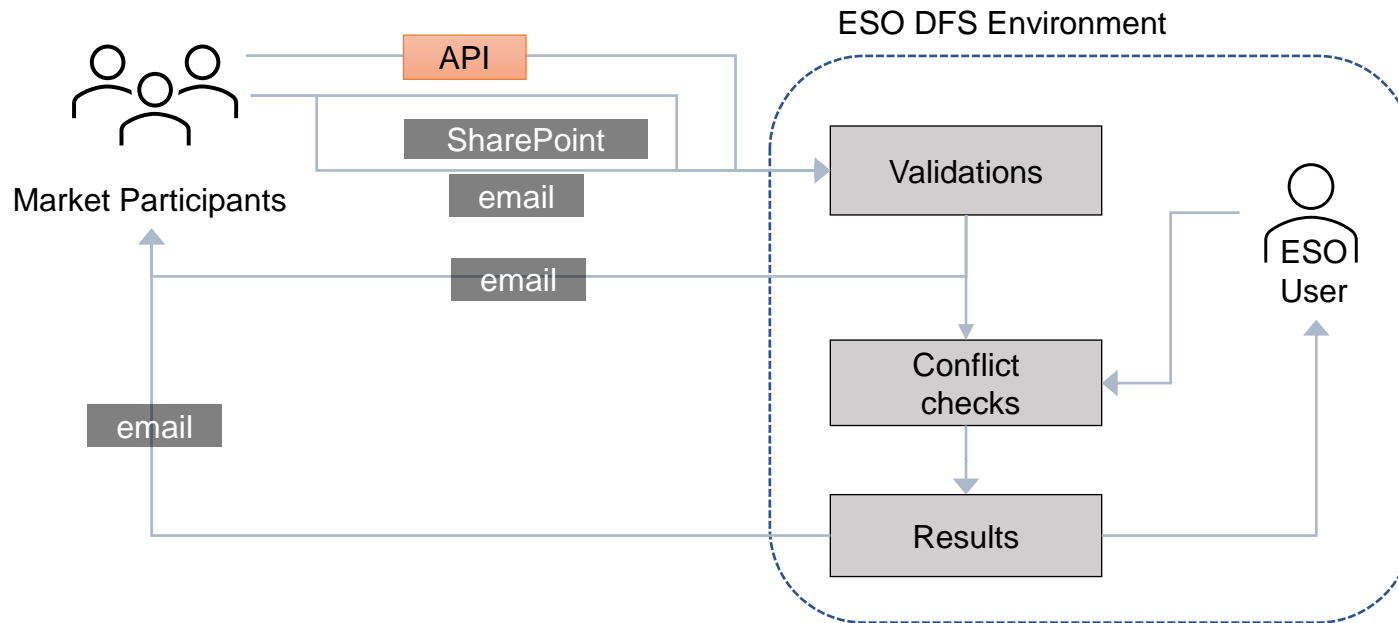
Participants submitted their subscribed MPANs on a weekly basis, every Friday. These formed the participant's portfolio for the week ahead.

ESO validated the files (correct dates, formats, etc) and then carried out checks to find instances where the same MPAN appeared on the portfolios of multiple providers.

Each provider then received a list of their "duplicate" MPANs – those which appeared on two or more providers' submissions.

Affected providers resolved the duplication between themselves.

MPAN duplication



Winter 23/24

In addition to the existing routes for file submission, we are developing the capabilities to enable API submission for MPAN data.

Besides the MPAN data, we also require the timestamp of when an MPAN was signed up by a provider.

Consequently, this will enable ESO to resolve most of the conflicts and the owner of any duplicated MPAN(s) will be the latest provider to have signed that MPAN up to the DFS.

The daily MPAN data submission will be incremental i.e. the provider does not need to submit all its portfolio every day; only those MPANs they wish to include or remove.

MPAN checks – summary of changes

MPAN Checks

Current DFS design

- Manual processes via spreadsheet submission to a DFS sharepoint site.
- Weekly submission with manual duplication resolution process between providers.
- No clear ownership standardisation.

Proposed change

- Introduction of an API for MPAN checks.
- Ability to update MPANs on a daily basis to check for duplications.
- Standardised ownership rules: latest timestamp for sign-up with the provider owns the MPAN. Duplications must continue to be removed from the providers portfolio and cannot be submitted for settlement.
- Providers must to have clear de-registration processes and be clear that customers can only sign up with 1 provider for DFS.

Reasons

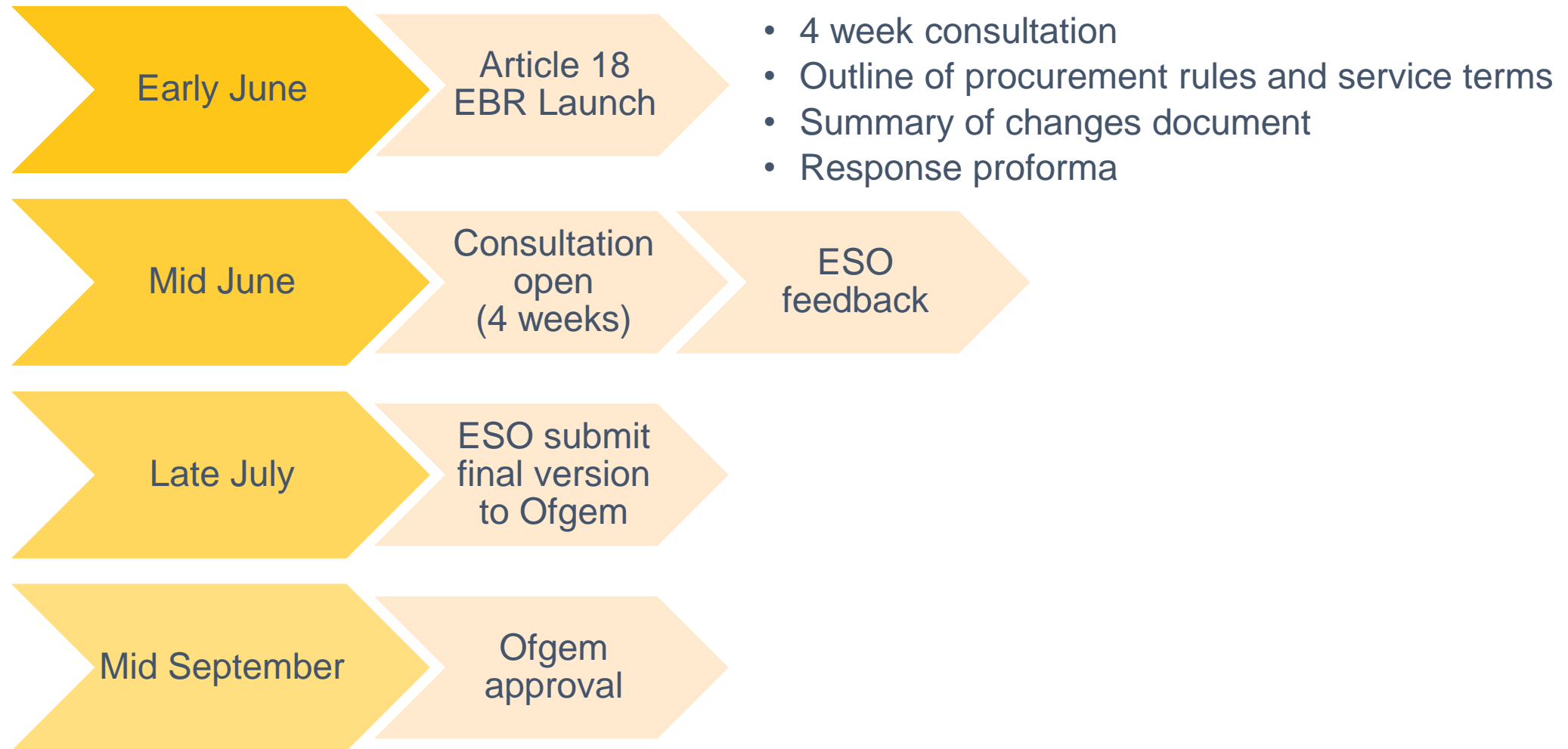
- Differing views on ownership rules, feedback from providers for ESO to make a decision.
- Requests for daily checks to ensure consumers are not stranded.
- The incremental submission is to guarantee good API performance and considering participants will have large number of MPANs subscribed.



Next steps



Consultation overview



DFS engagement

- Review of DFS Winter 22/23 summary report – June
- Ongoing industry engagement on DFS – Summer
- Publication of DFS Consumer Evaluation – Early July
- Publish API details and technical info – TBC
- DFS Market Information Report (Follows the early Winter Outlook)
- Provider onboarding
- APIs available for testing end July/August
- Service go live late October 2023

Ongoing collaboration via meetings and various engagement channels

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Q&A



Join our Q&A at Slido.com

#DFSUpdate



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