Markets Roadmap

Cian McLeavey-Reville
Market Development Senior Manager

nationalgridESO

We have just published our latest version of the Markets Roadmap

1. Give our stakeholders confidence that we are making the right market reform and design decisions.

2. Share strategic questions we are currently tackling and signpost how industry can work with us to answer them.

3. Provide a clear and transparent view of what market reforms we are introducing, why we are introducing them, and when.

The full document can be found on our website.

New challenges for operability and across markets and products require unprecedented reform to our balancing services markets

Operability

- More variable and asynchronous generation
- Less dispatchable generation
- New connections further away from demand centres

Markets

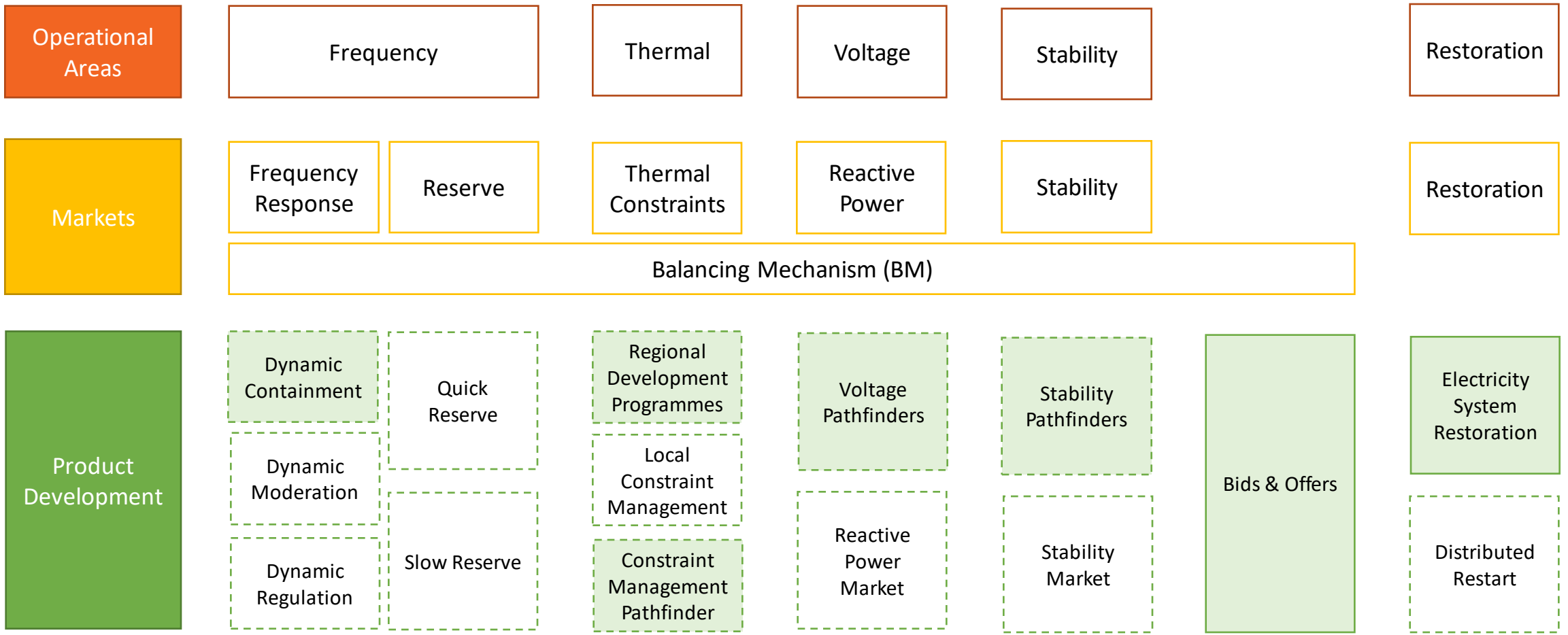
- New sources of flexibility needing routes to market
- Transitioning to a decarbonised electricity system with lowest balancing costs

Products

- Standardising and rationalising our product suites
- Opportunities to share more and higher quality data

We are adapting our products to operate the electricity system of the future.

Our new products will deliver: efficient dispatch; efficient investment and; value for money



Key

Service Procured in 2021

Product is under development

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We are trialling the use of a framework for Market Transformation to standardise and bring clarity to balancing services markets reform

Strategy

Development

Design

Delivery

Post Implementation

Figure out what success looks like for ESO balancing services markets.

Stability & Reactive Power

E.g.

Could introducing a market for stability and/or reactive power services deliver consumer value?

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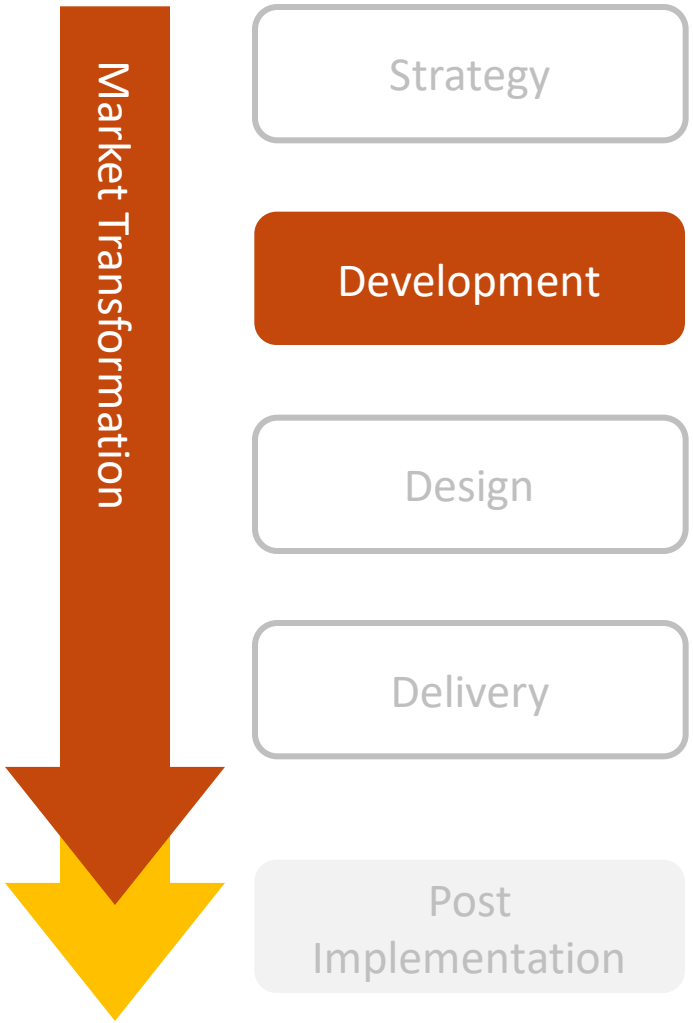

Assess all available options and select which most efficiently achieves our strategic objectives.

Reserve

E.g.

What should our suite of new, standardised reserve products look like to be fit for the future electricity system?

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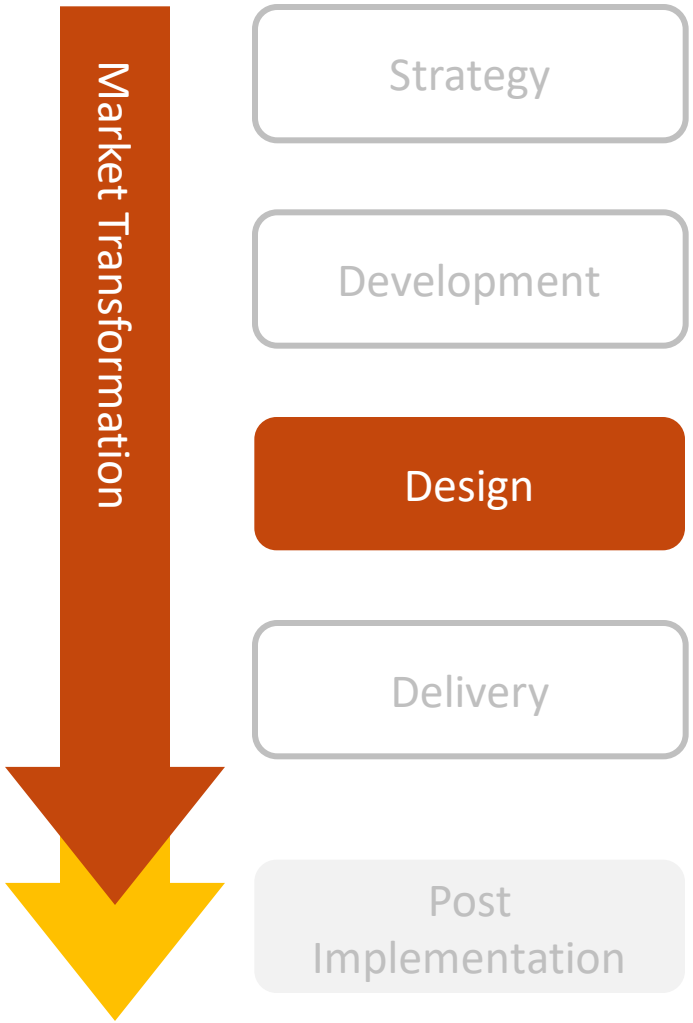


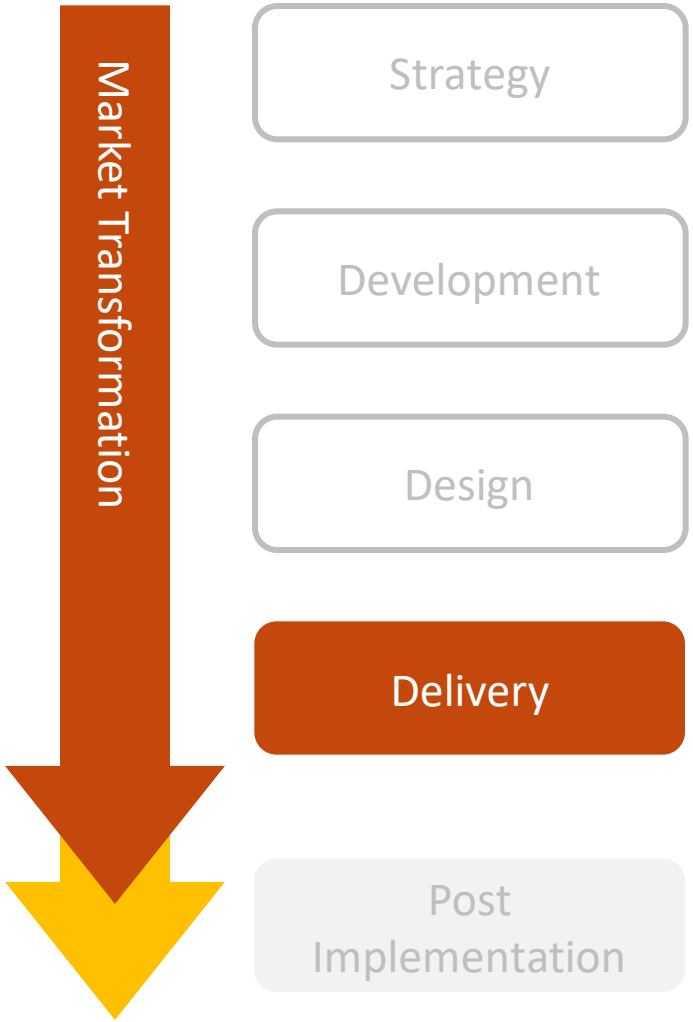
Design product and platform specifications and produce a detailed delivery plan.

Response & Reserve

E.g.

We are designing new enhanced auction capability to run our day-ahead auctions.

We are trialling the use of a framework for Market Transformation to standardise and bring clarity to balancing services market reform



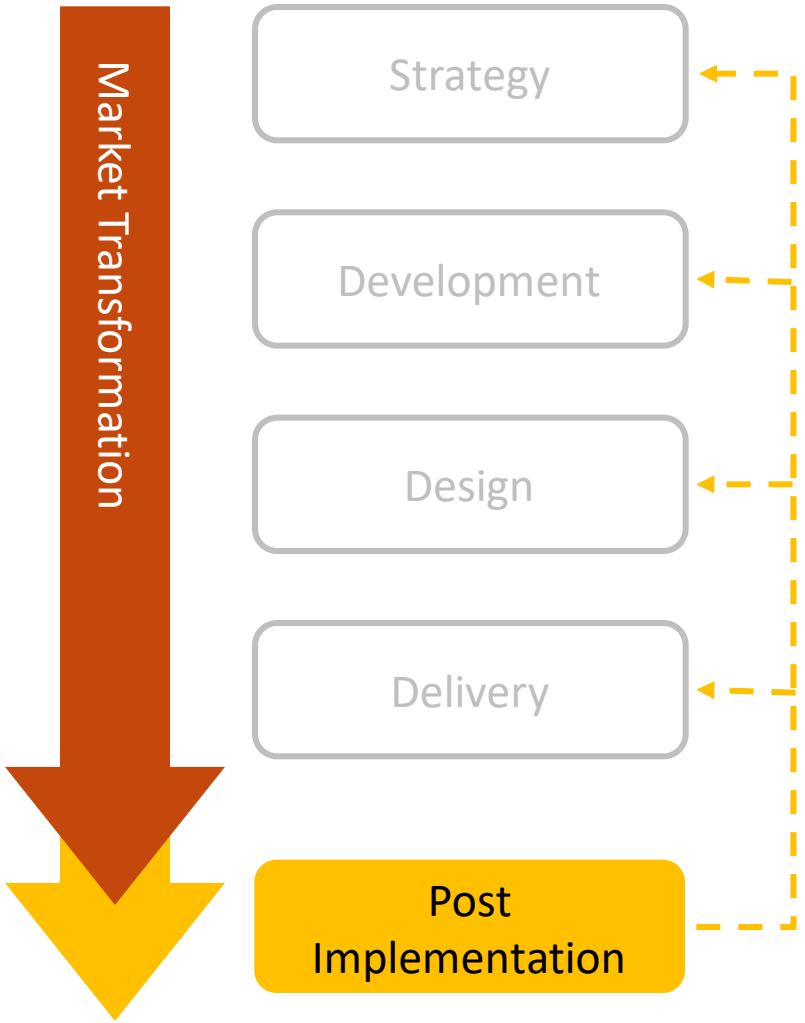
Execute our delivery plan and embed the new product into our BAU processes.

Thermal Constraints

E.g.

We are delivering Regional Development Programmes to manage thermal network constraints in partnership with DNOs.

We are trialling the use of a framework for Market Transformation to standardise and bring clarity to balancing services market reform



Response

E.g.

We are delivering new systems and processes to enable aggregation at GSP Group to remove barriers to entry to our DC market.

Monitor our balancing services markets and identify potential improvements.

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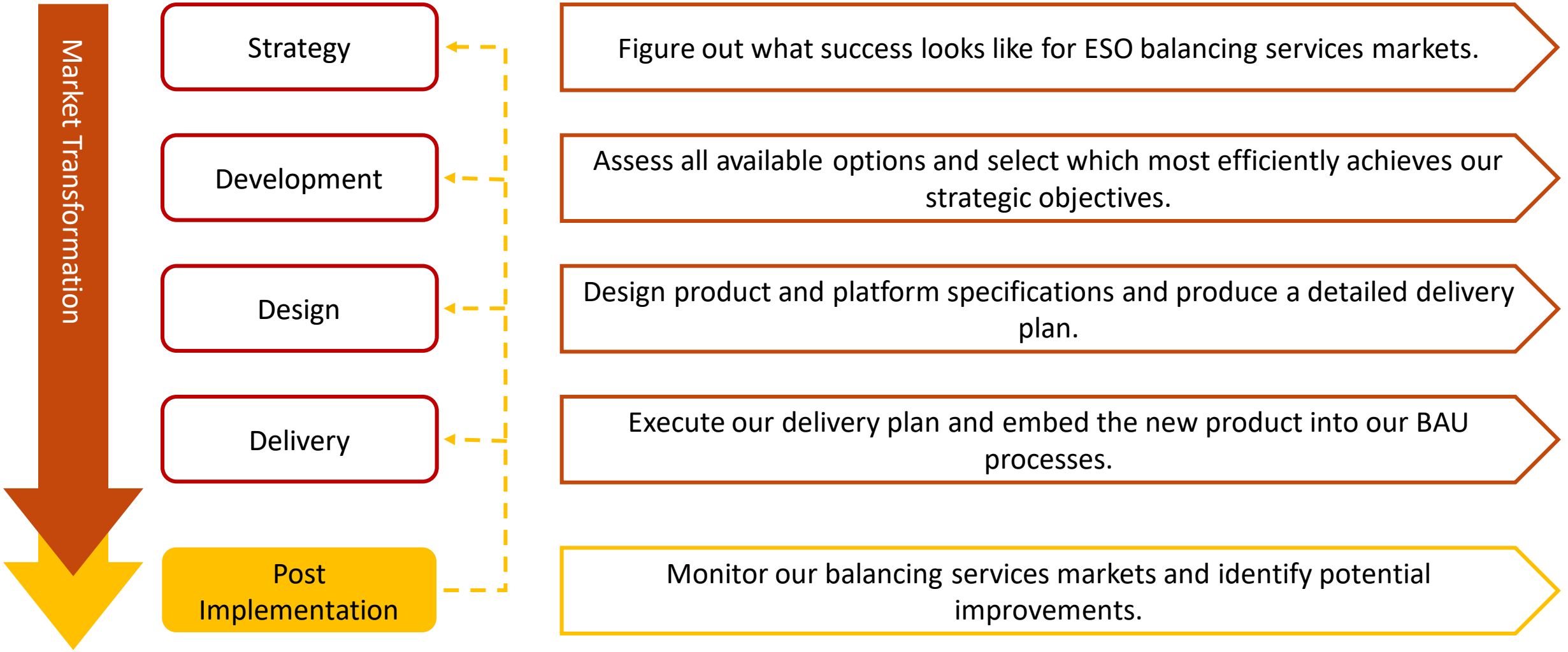


We have revised our market design objectives and principles to ensure we are designing markets in a robust, comprehensive and transparent way

Market Design Objectives

Efficient Dispatch

Meets balancing service needs in real time using the optimal combination of supply and/or demand-side resources.

Efficient Investment

Gives investors sufficient certainty over revenues to obtain financing, ensuring future system requirements are met by the right technology mix in the right locations, at lowest cost to society.

Value for Money

Selects outcomes that are in the best interest of current and future consumers.

We have revised our market design objectives and principles to ensure we are designing markets in a robust, comprehensive and transparent way

Market Design Objectives

Efficient Dispatch

Efficient Investment

Value for Money

Market Design Principles

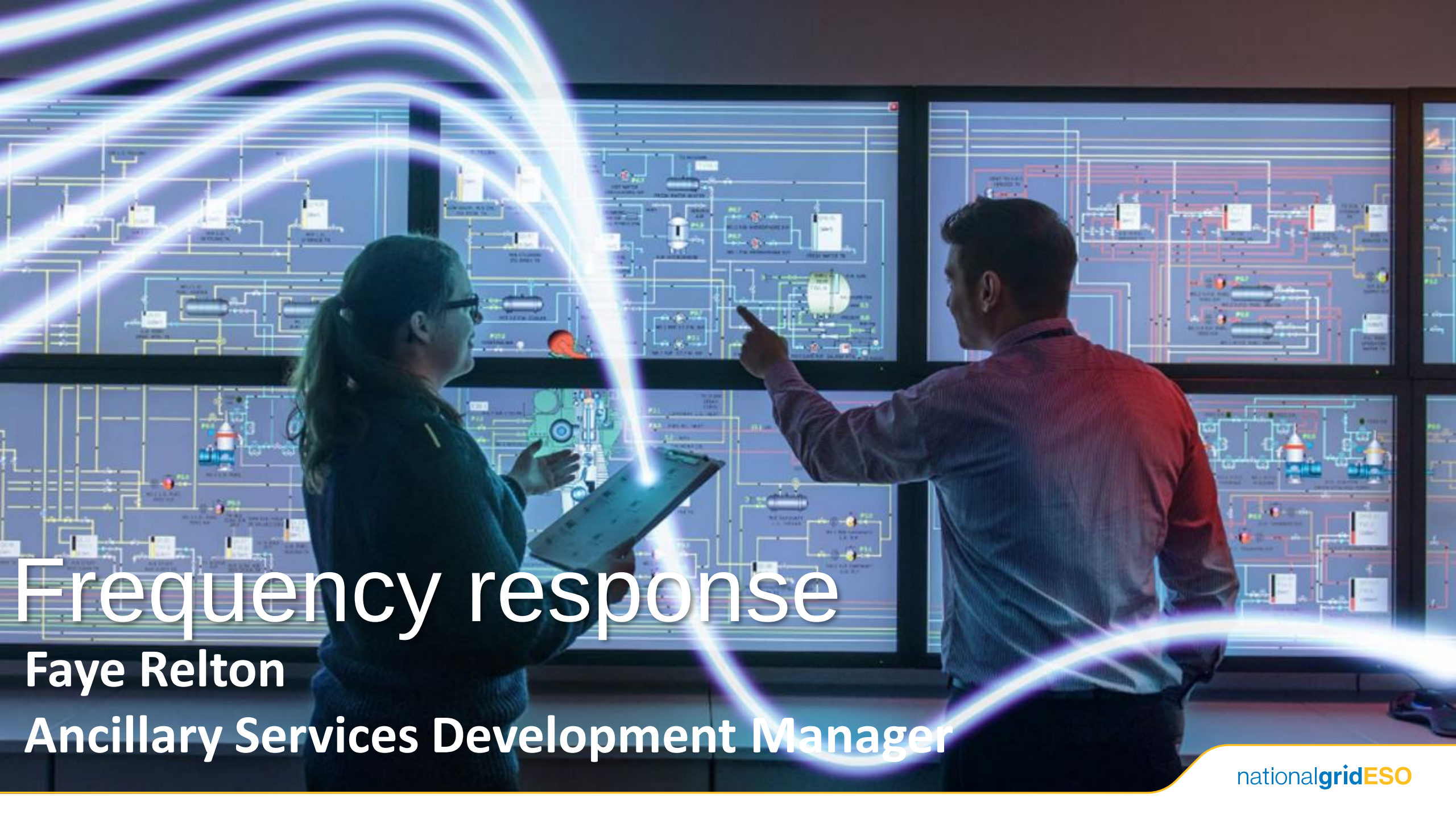
- Competition (Short-Run)
- Competition (Long-Run)
- Locational Signals in Dispatch
- Locational Signals in Investment
- Coherency
- Transparency
- Investability

- Net Consumer Benefits
- Practicality
- Adaptability

Moving to breakout sessions

Great Room: Frequency Response & Reserve

Auditorium: Stability and Reactive Power Market Design Projects



Frequency response

Faye Relton
Ancillary Services Development Manager

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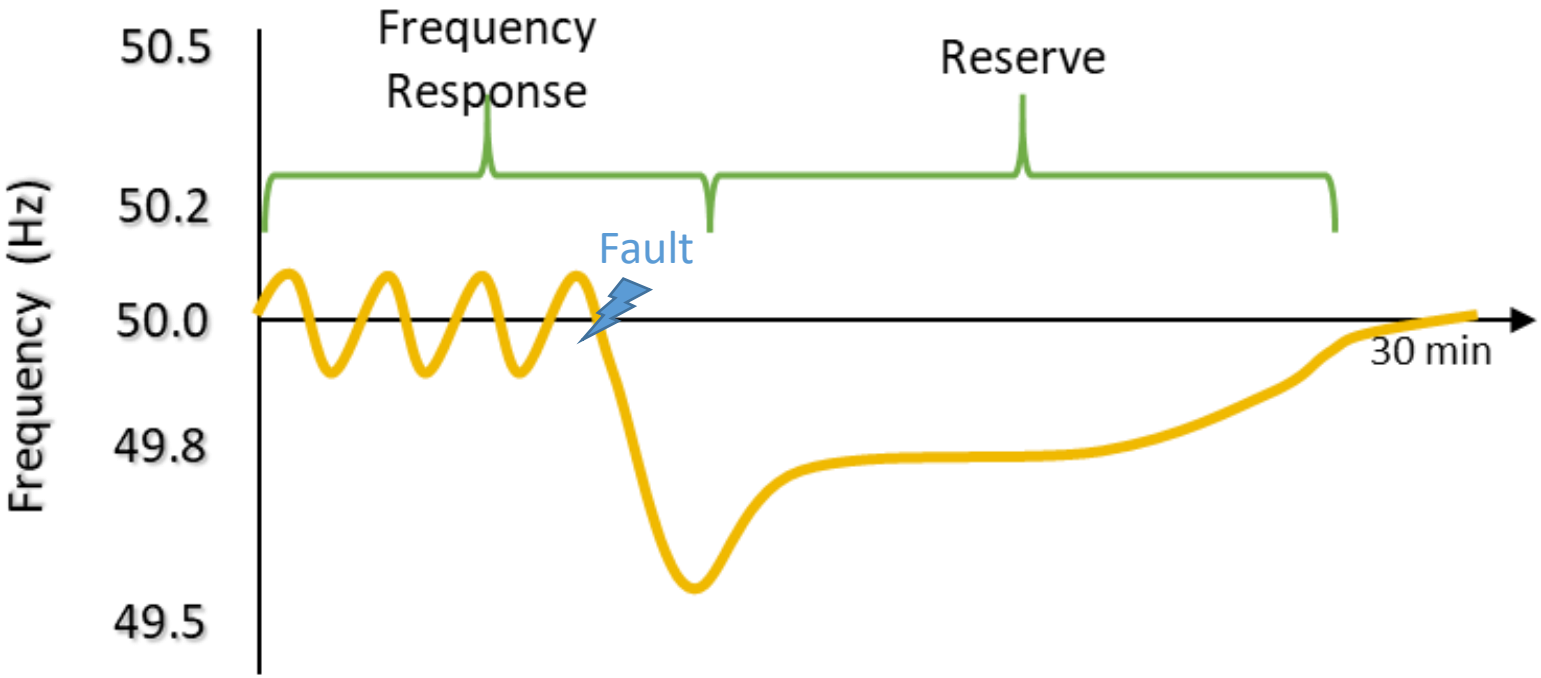
Frequency

It is our job at the ESO to manage frequency in our control room, balancing supply and demand every second of every day to make sure that the frequency stays where it should be.



Frequency response reform

- **Increase** market liquidity
- **Enable** competition
- **Drive down** prices
- **Deliver value** to consumers

Designing new services

Develop

- operational need
- industry feedback

Launch

- safe and controlled
- review performance

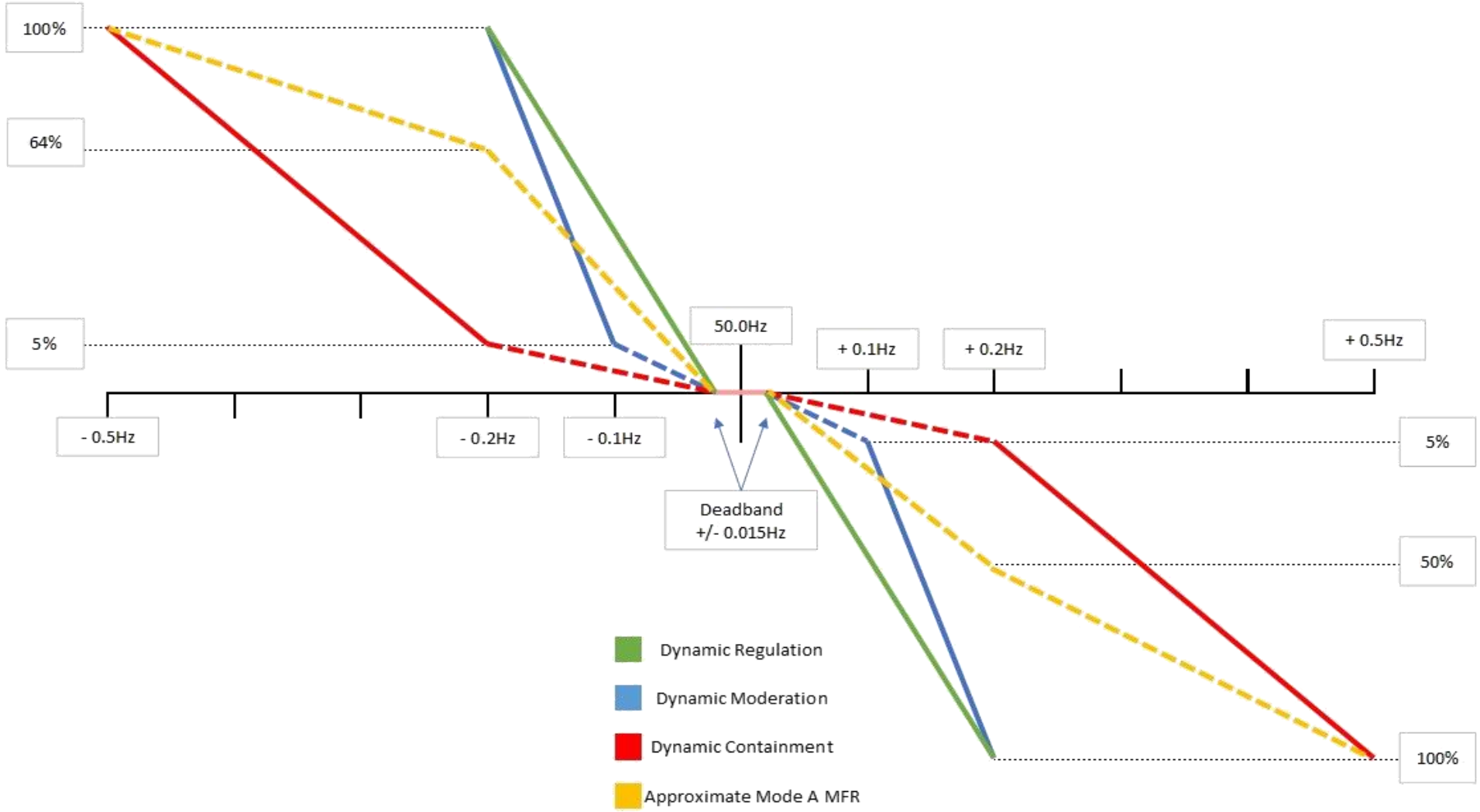
Test and refine

- ESO & industry feedback

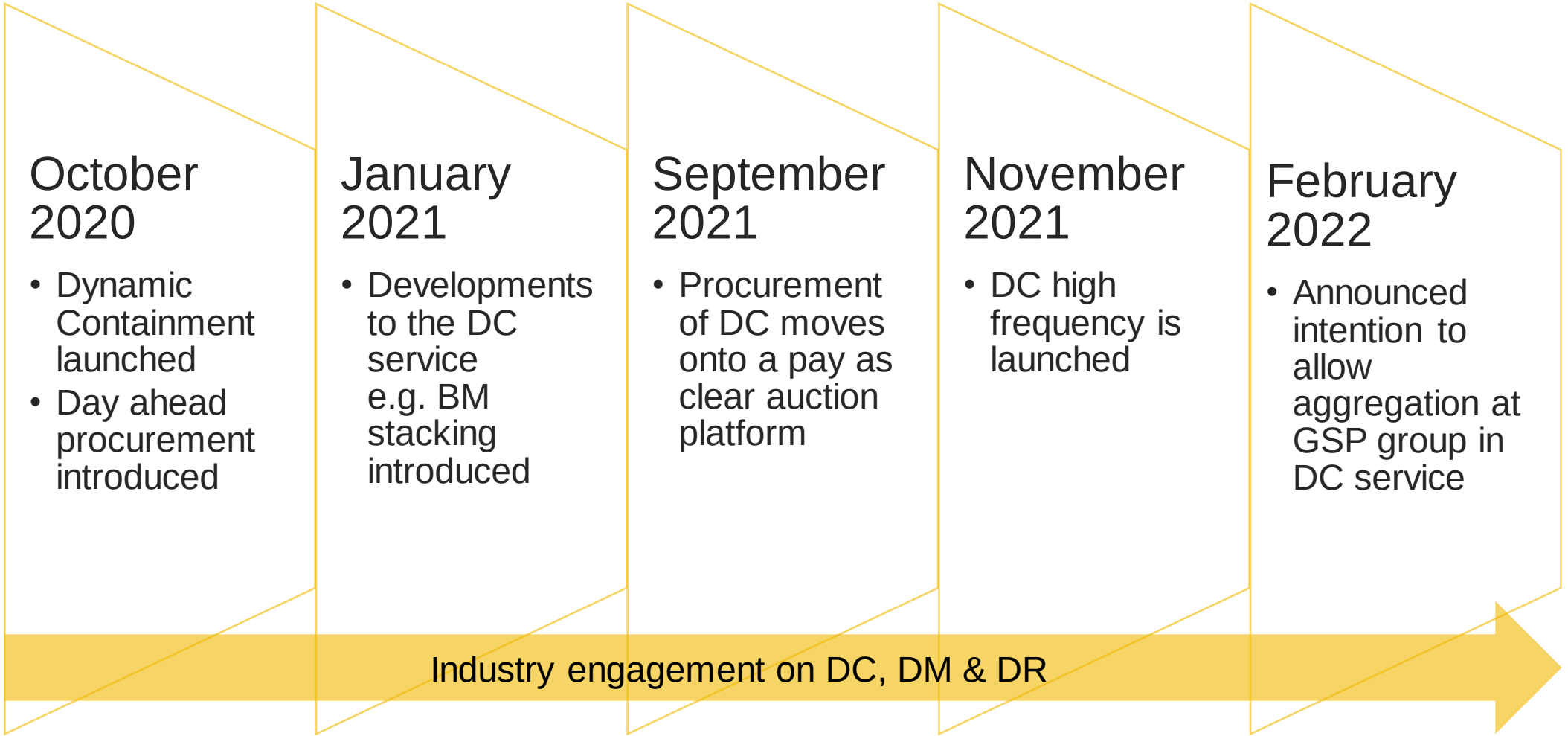
Establish

- phase out legacy services (dynamic FFR)

New frequency response products



Progress to date



Coming up this year

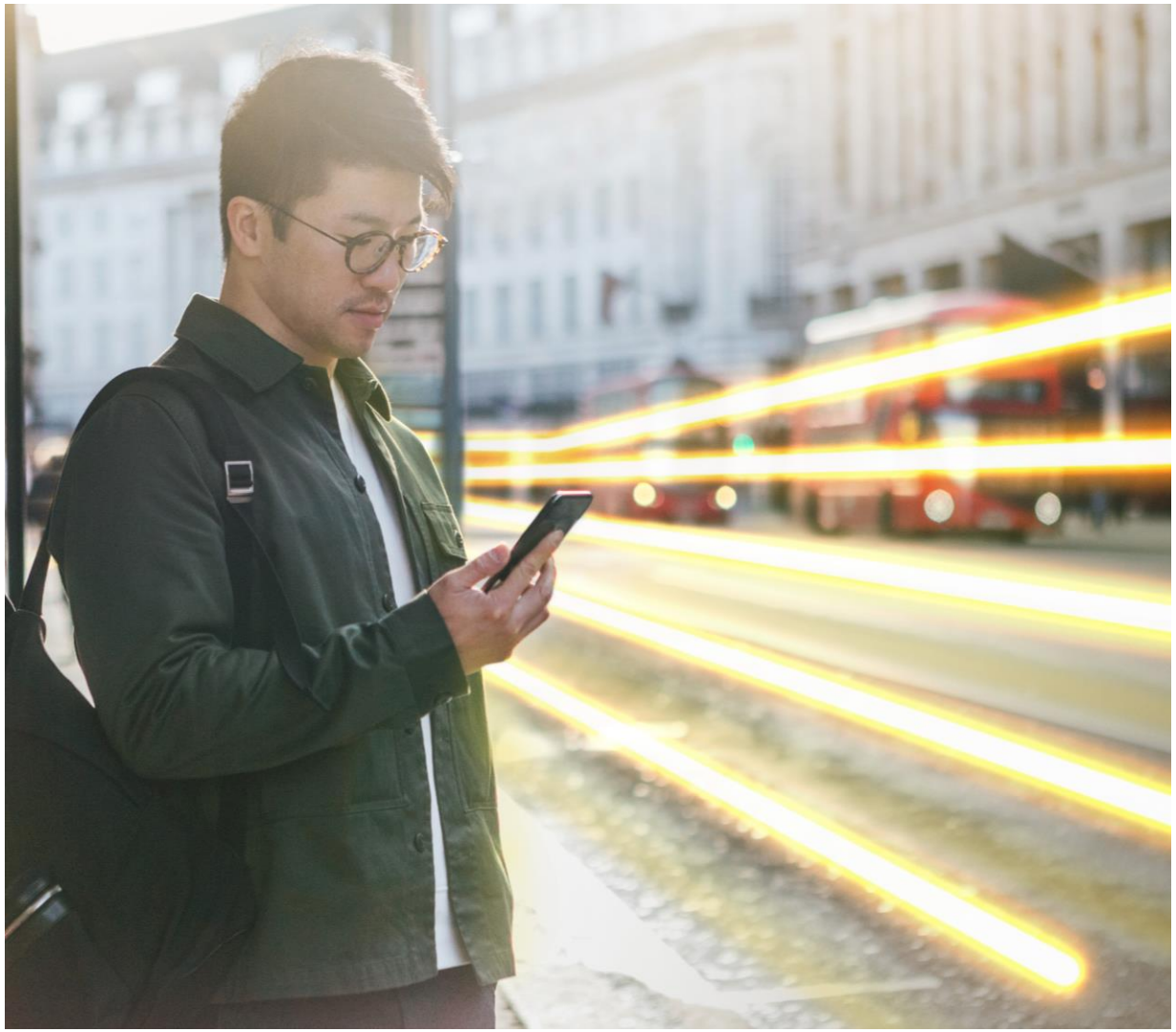
Spring	DR and DM launch 'War gaming' frequency response procurement
Summer	Plan for "day two" service design changes to DM and DR Industry engagement
Autumn	Service development and industry consultation
Winter	Implement changes to DC, DM and DR Introduce GSP group aggregation and lift volume cap on DM and DR

Reserve

Adam Sims
Power Responsive Manager

What is reserve?

- At certain times of the day we need **access to additional energy** in the form of **either increased generation or demand reduction**. These additional energy sources available are called **'reserve'**
- Reserve products are **instructed within gate closure** and have **different response and activation times** depending on the product in question.
- They are broadly split into **'pre-fault'** and **'post-fault'** products, depending on whether they are intended to be used **before or after a frequency deviation**



Why do we need reserves?

Uncertainty in forecast generation profile and forecast demand profile at differing lead times

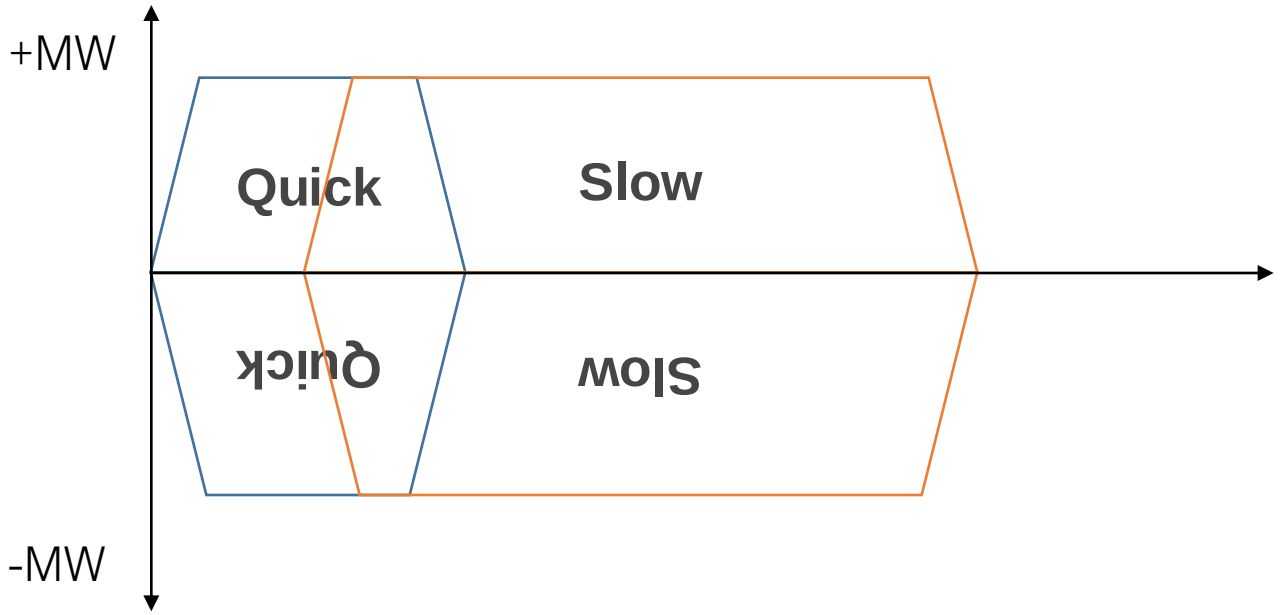
Example scenarios

- Wind forecast error (long and short term)
- Demand forecast error (long and short term)
- PV forecast error (long and short term), seen as demand suppression
- Short notice of interconnector profile changes
    - Interconnector ramping (especially compounding with multiple ICs)
- System planning data does not match actual conditions

Why are we changing?

- To reach **net zero**, we need **competitive markets** which unlock **new flexibility** and **secure the future operation of the electricity system**
- **Existing reserve products** are **not standardised**, making **auction-based procurement difficult**
- **Existing products** have been **designed around available technologies** rather than to meet statutory obligations
- **New operability challenges** require products that are **faster and also access to downward flexibility**

Proposed new reserve products



Quick Reserve*

- Full output within 30s of instruction
- 2-minute minimum activation time
- 20-minute maximum activation time

Slow Reserve

- Full output within 15 minutes
- Up to 30-minute minimum activation time
- 120-minute maximum activation time

* Further work is required to finalise product design

What has happened so far?

December 2020

The project was initiated with a virtual kick-off workshop in December 2020.

Throughout 2021

Throughout 2021 we worked with the industry on two draft product options: Quick Reserve and Slow Reserve. This involved a consultation and a series of co-creation webinars to explore views and comments on the draft service design for these new products.

Autumn 2021

In the autumn, we announced that our first release would be Negative Slow Reserve, followed by other products and a firm market through later releases.

February 2022

In February, we announced that we would not launch Negative Slow Reserve in Summer 2022 and would instead review our launch strategy to identify the optimum approach to deliver the new reserve product suite.

Why have our plans changed?

The new plan will deliver better value to consumers and a better experience for providers

- **Alignment with other strategic deliverables.** The plan for negative slow reserve involved regret spend on a number of legacy systems. There is greater value in aligning with strategic, enduring solutions such as the Enduring Auction Capability (EAC) project, the Balancing Transformation project and the Settlements replacement system.
- **Timelines for engagement and onboarding.** Feedback on recent ESO deliverables has been that we left little time for regulatory engagement and provider onboarding.
- **Cost of system upgrades.** The necessary spend on IT changes was significantly above what was planned. Looking holistically at the roll-out of all reserve products, we have identified opportunities to reduce development cost.

What progress has been made?

Four products have been worked up with industry to replace STOR and Fast Reserve (elements of the product designs are still to be finalised):

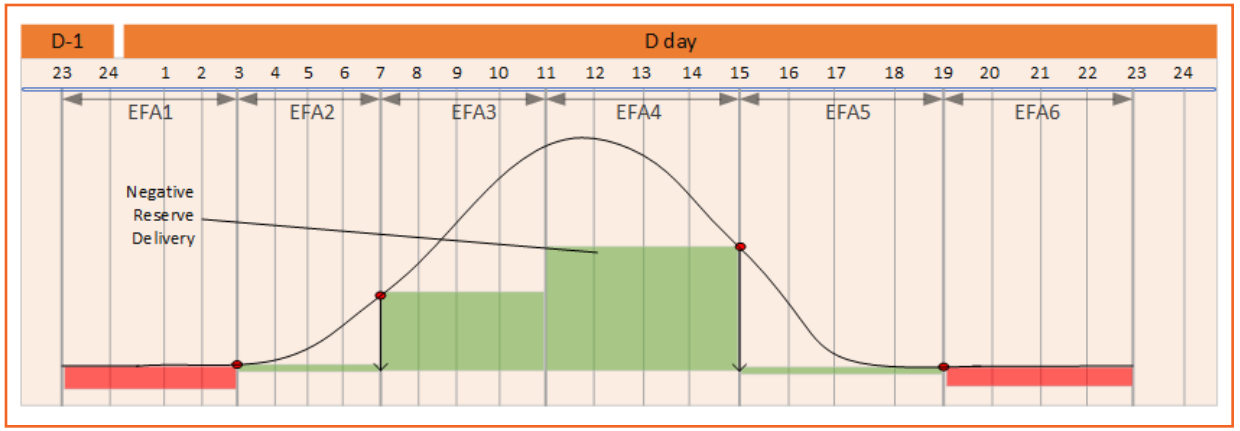
- Quick Reserve (Positive & Negative)
- Slow Reserve (Positive & Negative)

- Mapped out future processes and undertaken impact assessments on affected IT systems
- Detailed modelling on ramping restrictions, over-delivery, window cross-over periods
- Drafted contract terms and supporting documentation for Negative Slow Reserve consultation
- Engaged with trade bodies on metering requirements and baselining approaches

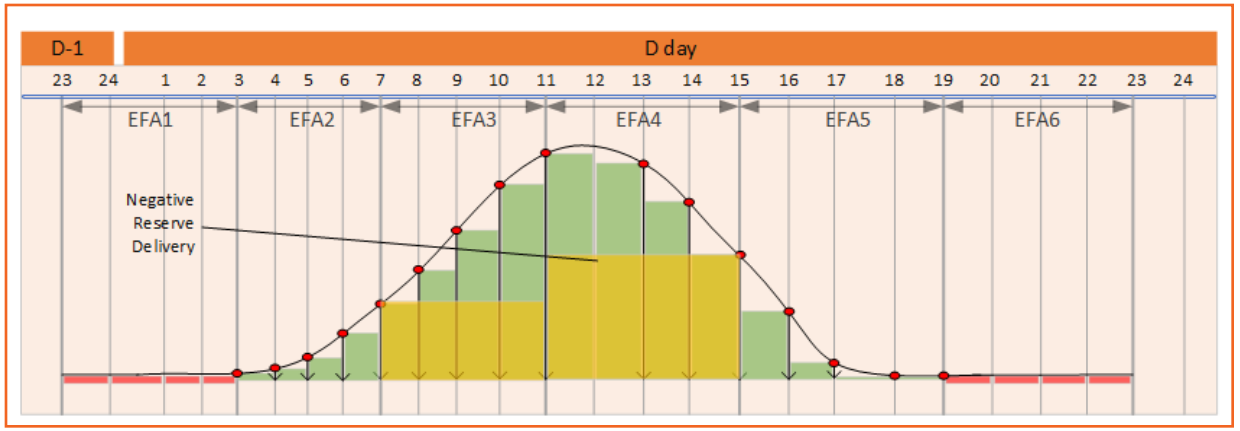
Example of further work: window options

- **Length of windows** will determine the capacity which some market participants can offer throughout the day
- Our aim is to **attract new market entrants** to enhance market depth, increase competition and reduce costs
- **Shorter windows** are a better match to requirement, but create more handovers

4-hour service window



1-hour service window



Next steps

- We are **reviewing the suite of products** to align them with our other strategic deliverables.
- We are working **to better understand the handover between response and reserve** – this will inform the design of Quick Reserve.
- We will be holding **monthly 'look & listen' sessions** with the reserve project team to show the progress being made.
- We will be **working with the industry** on areas such as metering and baselining to come to a common solution.

Q&A session

Until 12:10

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