BSC Panel

11 April 2024

ESO

Introduction to the Balancing Programme

The aim of the **Balancing Programme** is to maintain and bring change into our **current balancing capabilities** to support Control Room operations, whilst we **transform to new balancing capabilities** that the ESO needs to deliver reliable and secure system operation, facilitate competition for the benefit of consumers and meet our ambition for net-zero carbon operability.

The Balancing Programme strives to enable the ESO to deliver on its mission to drive the transformation to a fully decarbonised electricity system by 2035 which is reliable, affordable and fair for all, and realise its ambitions:

Ensuring the electricity system can operate carbon free by 2025

Driving competition for the benefit of consumers

Being the net zero employer of choice

Engaging as a trusted partner

Being innovative, digital and data driven

Why do we need to Transform?

1. Manage increased **number of market participants**

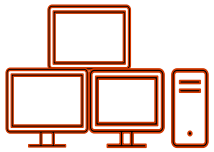
2. Quickly **adapt** to new requirements, innovation and services

3. Enable **level playing field** for new flexibility services

4. Optimise **balancing cost**

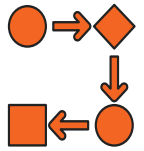
How are we delivering this transformation?

Current System Changes: Delivering changes and improvements to our current balancing systems, responding to identified need, ahead of OBP being fully implemented in 2027.



Development of New Systems: Developing and delivering two new platforms for balancing and forecasting which are reliable, resilient and secure, and modernise Control Room operations.

Process Improvement: Reviewing current processes to understand what changes and information are required to enhance operation in line with our objectives.



Trials & Innovation Projects: Collaborating on trials & innovation projects to build an understanding of requirements for future balancing capabilities through lessons learned.

Enabling Market reform: Through our system changes and development we enable market reform in response to evolving requirements & need.

Programme Vision

1. Manage increased **number of market participants**

2. Quickly **adapt** to new requirements, innovation and services

3. Enable **level playing field** for new flexibility services

4. Optimise **balancing cost**

Some key areas of current focus for the Balancing Programme

We will deliver a **2nd Data Centre providing enhanced resilience** to the Open Balancing Platform (OBP)

Build out **cross programme integration** – e.g., Integrated Energy Management System, Single Markets Platform and Data & Analytics Platform

Capability to send **all Balancing Mechanism (BM) instructions from OBP**

Transition of **Electronic Data Transfer /Electronic Dispatch Logging** to the OBP Strategic platform

Fast Dispatch & new **BM Quick Reserve service** will be implemented in OBP

Enablers to support **Non-BM in the Open Balancing Platform (OBP)** enabling Ancillary Services Dispatch Platform (ASDP) Decommission in 2025

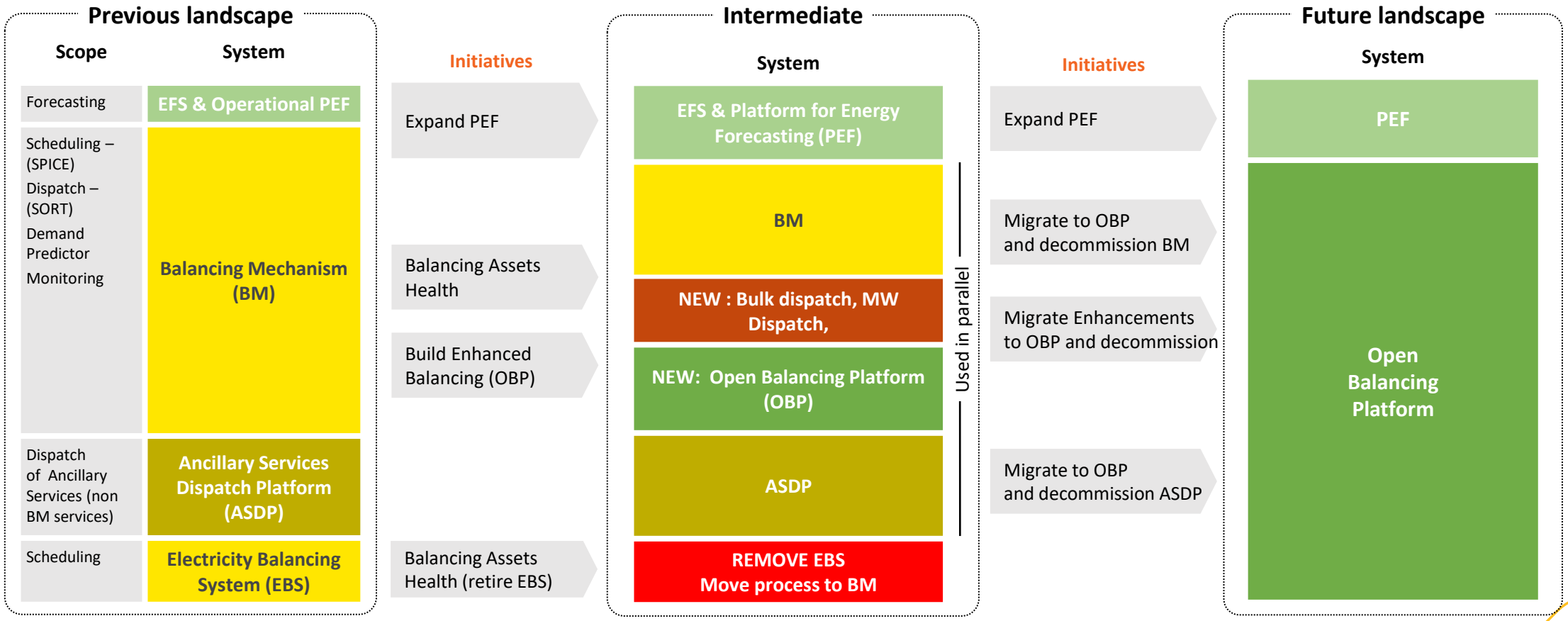
New **Platform for Energy Forecasting (PEF)** enable ESO to update forecasting models with ever evolving energy landscape and data

Roadmap for BP3 - 2025 and beyond elaborated, underpinned and interlocked with other programmes

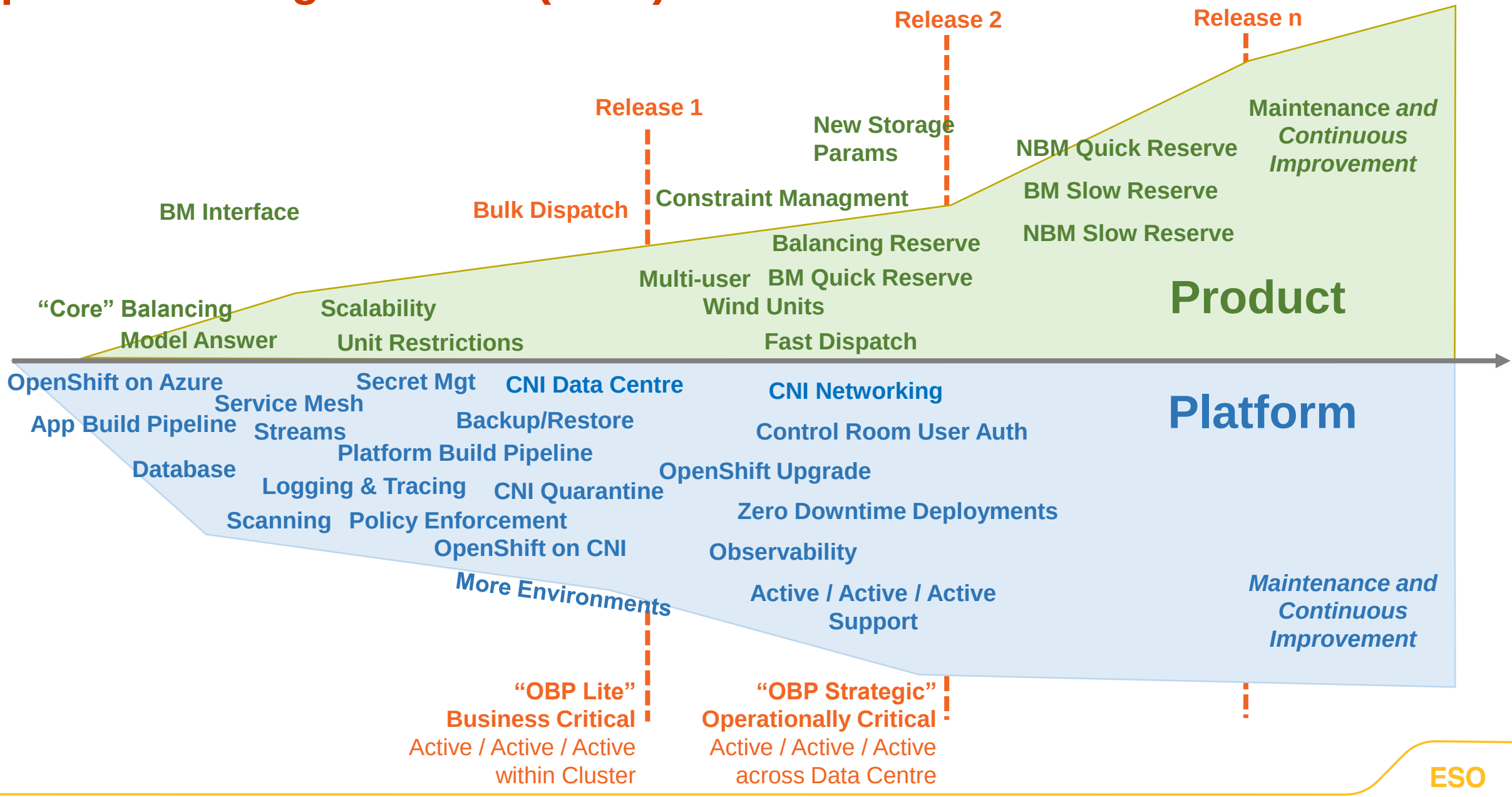
What is in Scope of the Balancing Transformation Programme?

This investment delivers the Open Balancing Platform (OBP), a new real-time balancing capability to replace legacy ESO balancing systems (EBS, BM and ASDP) and processes and support zero carbon grid operations.

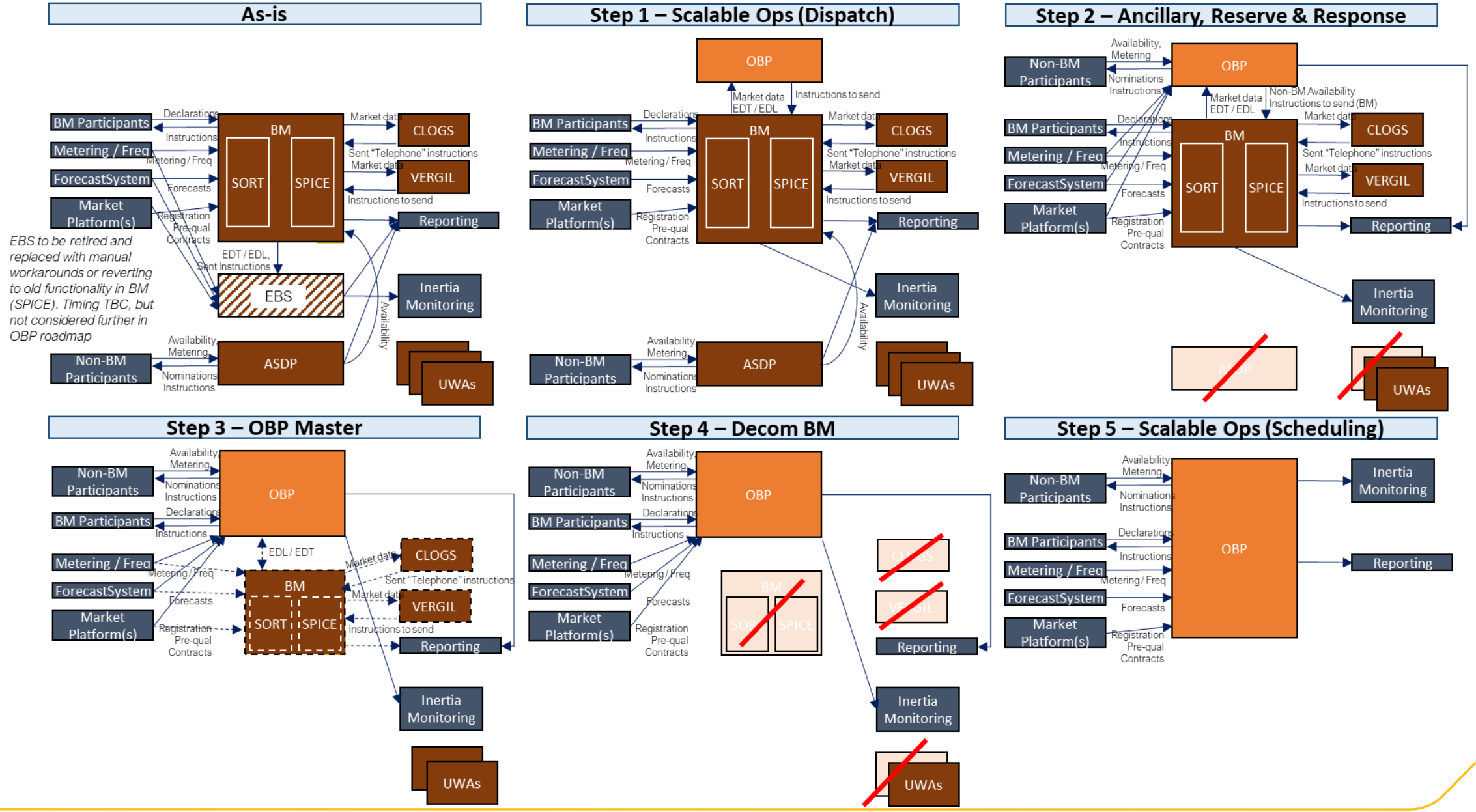
The programme will deliver value incrementally, with an intermediate mode of operation in which enhancements will be first implemented in the current systems, and then integrated in OBP.



Open Balancing Platform (OBP)

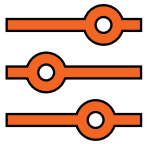


Additive Roadmap Long-Term View



OBP Release Philosophy

Until existing systems are fully decommissioned we have two types of release

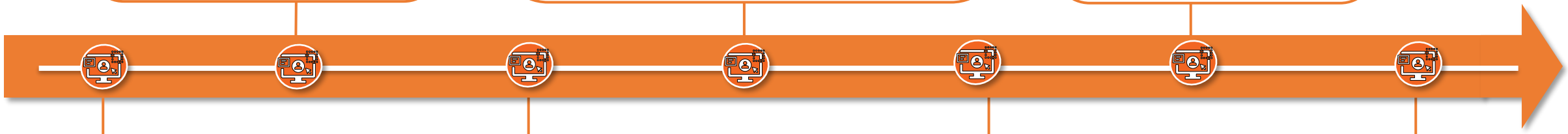


- If an OBP release has a dependency on an existing systems then OBP must align with the other system's release schedule
- If the release is fully managed within OBP we adopt the philosophy of "release on demand"
- OBP will adopt continuous delivery – use feature "toggles" to promote regular deployment and "release on demand"

When evaluating what to implement and when, we must take into account the level of resilience the services requires

- Initially we go live with "OBP Lite" – this provides a resilient platform support within one Data Centre
- Later we implement "OBP Strategic" – automatic resilience across two geographically separate Data Centres
- While in OBP Lite the fail over if we lose an OBP Data Centre is to revert to existing systems and so some new services may be lost

Open Balancing Platform Release Plan Timeline



Spring 2024

Capabilities:
1. Fast Dispatch
2. Balancing Reserve

Enablers
1. Support for Clock Change
2. Interface from SCADA for metering

Summer 2024

Capabilities:
1. BM Quick Reserve

Enablers
1. Interface from Single Market Platform

Autumn 2024

Capabilities:
1. Manual instructions

Enablers
1. Interface to Data Analytics Platform

Winter 2024

Capabilities:
1. New storage parameters
2. Bulk Dispatch Wind BMUs (rule based)
3. Constraint Management
4. Pumped Storage BOAs

Enablers
1. OBP Strategic – second Data Centre
2. Interface to Ancillary Settlement for NBM

Spring 2025

Capabilities:
1. NBM Instruction Types

Enablers
1. NBM APIs
2. EDT/EDL mastered from OBP

Summer 2025

Capabilities:
1. NBM Quick Reserve
2. BM Slow Reserve
3. NBM Slow Reserve

Autumn 2025

Capabilities:
1. Move MW Dispatch
2. Move Response (DC/DM/DR)

Enablers
1. Ready to decommission ASDP

Abbreviations

EDT: Electronic Data Transfer **DC:** Dynamic Containment **DM:** Dynamic Moderation **DR:** Dynamic Regulation **ASDP:** Ancillary Services Dispatch Platform **BOA:** Bid Offer Acceptance

About Fast Dispatch

Key function:

- Provide capability to the control room to dispatch fast
- To be used in cases where immediate corrections to frequency are required

Compared to BDO:

- BDO is designed to produce a solution within about 60sec
- FD is expected to produce a solution in <10sec
- FD runs close to real-time as possible
- FD currently ramps units within a minute
- FD requirement duration is limited to <10min

Spring 2024

Capabilities:

1. **Fast Dispatch**
2. Balancing Reserve

Enablers

1. Support for Clock Change
2. Interface from SCADA for metering

Points of interest

- Long NTO/Bs may not be dispatched at all (NTO/NTB > 1 minute)
- Units may be dispatched to their ramp-rate rather than their full capacity.
- Long MZT/MNZTs might not be dispatched unless units already on, or their sync/desync can be delayed or be brought forward.

Abbreviations

BDO: Bulk dispatch Optimiser **MZT:** Minimum Zero Time **FD:** Fast Dispatch **NTO:** Notice to Offer **NTB:** Notice to Bid

OBP – Key Emerging Point

Do we migrate everything from new to old?

- Quiescent Physical Notification (QPN) – does anyone use this?
- We have given a commitment to honour existing interfaces – is this the correct way forward?

New issues with different BMUs

- How do we handle Limited Duration Assets – Grid Code change GC0166
- Smaller BMUs with fast ramp rates leads to more “rounding” for Breakpoints (BPs) and Zero points (ZP) – how does this interact with Settlements