29/01/2025-22/04/2025

Balancing Programme: OBP Programme Increment (PI)15 Closure Report

NESO
National Energy System Operator

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Executive Summary:

Over the course of PI15, Open Balancing Platform (OBP) delivery focused primarily on the building of the new Non-BM Quick Reserve service, with an expected going live this summer. There has been a sizeable amount of foundational work needed to facilitate this, and our teams have made an excellent start. Coupled with the new service development, is the start of the development of a new NESO Secure Internet Gateway to support the new NESO rebranding and separation, and the implementation of a new modern integration architecture for industry to integrate with the Open Balancing Platform over the internet.

In addition, we have continued to progress with incremental changes to OBP over 7 releases. This has included work to build situational awareness for Constraint Management, enhancements to the integration with the Data Analytics Platform (DAP), and the delivery of the Minimum Viable Product (MVP) of the Real Time Predictor (RTP) – a key Ofgem milestone. We have also provided continuous delivery of patches, bug fixes, and incremental improvements to OBP.

With the programme's key focus in PI15 on the design and build of the upcoming Non-BM Quick Reserve service; during the PI15 planning session multiple teams were directed to prioritise this goal. Whilst over the PI, teams have made significant progress against the goal, the programme re-prioritised the development of the Non-BM Quick Reserve to a slower and longer delivery as it was recognised that the dependent critical Secure Internet Gateway would not be available in the required timeframe to be ready for Market Participant Testing.

This re-prioritisation also allowed for increased focus on extra work on the capability to dispatch Manual BOAs and Price Stack within OBP, which was required due to the changing needs of the Control Room for an improved user journey. With the refocus of effort, the improved journey, including the additional integration of the Price Stack and Manual BOAs within the Constraints Management user journey was delivered to the Control Room at at the end of April. The manual dispatch capability supports the Small and Battery zones, with an objective to enable further dispatch zones in PI16.

In line with the desire to support the changing make up of the industry, the addition of a new Solar zone had been implemented and bulk dispatch optimisation of the Solar Zone was enabled in this PI – further adding to the optimisation capabilities available to the Control Room.

In addition to these sizeable pieces of work, we have delivered other significant functionality. The most significant of which was the establishment of the RTP MVP, an Ofgem milestone and a foundational capability for future Control Room use. The MVP allows for Control Room to compare and analyse two predication algorithms, as well as delivering a 24 hour prediction model – greater than the 6 hour model that existing systems provided; allowing for improved decision-making with improved situational awareness.

One of the challenges we were able to meet in PI15 was the enablement of Manual BOAs and Price Stack. Whilst a simpler solution could have been delivered, it was decided that an improved user journey combined with Constraint Management would bring a greater long-term benefit. As such, this shift had greater complexity than initially planned, which directly impacted Constraint Management as a key dependency; leading to the Manual BOAs, Price Stack and Constraint Management to be delivered to the Control Room shortly after the end of PI15.

It should also be noted the power outage at Heathrow Airport on 20 March 2025 led to NESO implementing Gold and Silver command as part of major incident management. This included a lockdown on all non-production activities, including performing tests on testing environments within our Critical National Infrastructure networks. Whilst the lockdown was lifted in a matter of days, this contributed to the delivery of Manual BOAs, Price Stack and Constraint Management one week after the end of PI15.

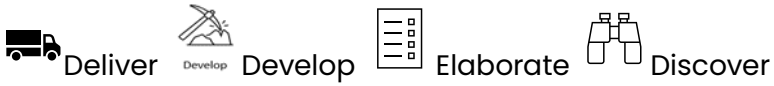
In total, we delivered 57 Features/Enablers against a committed scope of 100, for a predictability metric of 57%. Many of these incomplete features progressed far into their development and testing, and we have been working as a programme to improve our planning capability and press work to be fully completed.

Our Ways of Working changes continue to be embedded, and we expect to see their benefits in the coming PIs. Moving into the second quarter of 2025, we will be planning across a shortened timeframe, a Delivery Increment (DI) which is half the length of a PI. This is intended to further improve focus on the programme and act in a more agile fashion.

In the forthcoming DI, we are focusing on the progressing Non-BM Quick Reserve Market Participant testing – subject to the availability of the new Secure Internet Gateway, alongside the proving of ancillary service instructions via the Balancing Mechanism, through the sending of Emergency instructions. In addition, we are progressing with the building of OBP Strategic, aiming to complete another key environment on the path to production.

PI Completion Report – Success Against Commitments

Committed Goals



Intent	Objective	Status	Description	Delivered Value
	I can use OBP for an Improved E2E Instruction Journey		OBP can be used to manually create Instructions for both Energy and System Instructions – and automatically tag based on a Constraint. OBP now has a Price Stack that can be used filtered and is a launchpad for Manual Instructions	This capability was built and tested fully over PI15 and went live in the control room on April 28th, along with an improved consolidated Constraints Management journey. The post PI15 implementation was also in part due to the Heathrow power outage incident management lockdown

	I can operate OBP, hands on, over Clock Change		During previous Clock Changes, OBP was operational for situational awareness only. This goal will allow Control Room to directly use OBP to issue instructions	Control Room were able to utilise OBP to monitor and manage the network during the Spring clock change, including optimisation and issuing of instructions
	I can manually resolve a group constraint		Currently control room users cannot use OBP to resolve Constraints. This goal aims to deliver this functionality to the control room via a price stack and manual BOA process **[STRETCH]** OBP will intelligently restrict affected units for Energy balancing optimisation, allowing use of constrained units without breaching constraints	This capability was built and tested fully over PI15 and went live in the control room on April 28th, along with an improved consolidated Constraints Management journey. The post PI15 implementation was also in part due to the Heathrow power outage incident management lockdown
Develop	I can instruct wind via rule-based method		Compared to other units, there is more complexity to automatically instructing wind units in the Control Room due their nature of not having a consistent baseline and the need to operate with forecasted data. Whilst an optimisation and process model are to be developed to support forecasted units, an alternative	The development of the rule based wind methodology is dependent on the price stack and manual BOA capabilities. The prioritisation of an improved integrated

			system supported process is required to support bulk dispatch of such units.	constraint management led to the delay of this objective
 Develop	I can perform market participant testing for NBM Quick Reserve		This goal is part of the delivery of Non-BM Quick Reserve in June. We need the ability to interface with Market Participants and it is a critical part of the onboarding and Prequalification process for NBM Quick Reserve providers.	Continued development of Non-BM enablers including the creation of the Non-BM Web Service Adapter and core Service Harmonisation enablers form the foundation of the OBP Non-BM architecture
 Develop	I can manage Pumped Storage units		Pumped storage units are more complex than traditional units as they can operate under different states, and the rules of operations and characteristics of the unit are different depending on the operating states. Transitioning between states require management, as well as instructions may need to be sent in tandem	Continued development of state logic and transition times. Instruction logic has been elaborated ready for future development planning
 Develop	I can bulk instruct for non-BM Quick Reserve		The new non-BM Quick Reserve is introduced to the market and will replace the non-BM Fast Reserve ancillary service. OBP will introduce new non-BM capability as well as support new integrations with providers via a new gateway.	Development of the Non-BM instruction creation logic, along with “service cross-overs” progressed via a manual instruction process

			Bulk dispatch capability will be available to Control Room to dispatch non-BM Quick Reserve to support frequency events	The bulk dispatch capability deveopment has been delayed to later PI delivery due to dependencies on the Price Stack and Manual BOA capabilities with Non-BM Open instruction leveraging the same UI screen to engender familiarity and improved usability
	Ready for Future Development		This goal covers elaboration and discovery for key future items of the roadmap. This includes Role Based Access Control, National Dispatch Optimiser, and non-BM and BM Slow Reserve.	Elaboration and discovery progressed in readiness for development in future DI/PIs. Slow Reserve elaboration supported preparation for industry consultation, as well as maintaing architectural guardrails set from Quick Reserve implementation

PI Delivery Summary

At the start of PI planning, 100 features/enablers were committed to be delivered to the definition of complete. Taking all scoping and de-scoping decisions in consideration, the revised commitment stood at 90 Features.

Out of the 100 committed features / enablers, our Release Train delivered 57 committed features. This resulted in a total of 57 features/enablers being delivered to the definition of done across committed and stretch. This equates to 63% completion of features/enablers post deferrals, and 57% completion against the baseline count which is 23% below the predictability target of 80%.

DI16 Plan – Our Commitments

DI Programme Plan

Moving forward, the programme will be aligning with wider NESO Ways of Working changes. As part of these changes, we are moving to a Delivery Increment (DI) model, rather than a Programme Increment (PI). The key difference between these is the timeframe. A DI will be 3 or 4 sprints (6-8 weeks), whilst a PI was 6-7 sprints (12-14 weeks). This change will allow us to have more focused objectives, deliver value more quickly, and respond to change in a shorter timeframe.

In the PI Programme Plan the squads committed to delivering 66 features & enablers. Stretch features will be worked on if the squads have available capacity during the PI. This enables a clear focus on the next level of priority.

DI Objectives

Below is an extract of the DI Objectives for both DI16 and DI17. For the Commitment (Committed/Stretch), any items with an asterisk (*) are required to achieve the Definition of Done (to be in production and in use). Items without the asterisk are to be delivered to the Definition of Complete - completion of system test and may be foundational change for future releases.

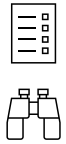
DI	Objective	Description	Expected Value
	I can send Manual BOAs from OBP*	Currently OBP can only generate instructions from an optimisation and present instruction status aligned to an optimisation. This will enhance OBP will allow for Control Room to create Manual BOAs.	Enables Control Room to selective instruct units based on need. This may be to fine tune instruction sets generated from an optimisation, or to manage Constraints – which is not currently supported by the bulk dispatch optimiser
	I can perform market participant testing for Non-BM Quick Reserve*	NBM Quick Reserve is a new service implemented in NESO and OBP. This goal is to support the market participant testing as part of the enduring onboarding process for the new Non-BM Quick Reserve service.	The start of market participant testing for Non-BM will provide a key milestone in the wider journey to bringing Non-BM Quick Reserve to the market
	I have more units available for Energy Balancing as OBP applies Margin Based Exclusions*	Creation of an enhanced process with decision support tools with the purpose of ensuring that units within a constraint can still be utilised for energy balancing without breaching any of the	Currently OBP's capability to system tag units is dependent on BM. This goal will begin to build OBP's internal capability to assess constraints and allow for the use of units which can be

DI	Objective	Description	Expected Value
		group constraint limits. OBP will no longer rely on manual System tagging in BM.	instructed inside a constraint, without causing breaches of transfer limits. This will provide more units for energy balancing and allow units within a constraint to be optimised safely
	I can send Emergency Instructions from OBP*	Emergency instructions are one of the set of ancilliary service instructions available to the Control Room to balance the network. With emergency instructions, units are requested to take an action that cannot be instructed any other way given the available declared parameters or contracts, and are used by the Control Room when it is necessary to preserve the integrity of the National Electricity Transmission System or in response to safety issues	Emergency Instructions are seldom utilised, and this being the first implementation of ancillary service instructions in OBP may seem of little business value; it serves as a 'straightforward' ancillary instruction to develop and test. With its implementation, the emergency instructions capability will prove the ancillary service instruction architecture and will lay the foundation for all remaining ancillary service instructions in OBP; and thus is a key proving enabler for all Instruction creation mastered from OBP, and the eventual decommissioning of BM
	Non-BM Quick Reserve is Live in the Control Room*	NBM Quick Reserve is a new service implemented in NESO and OBP. With Quick Reserve enabled for auctions, and registered and prequalified units loaded into OBP, Control Room will have access to	This will deliver phase 2 of the Quick Reserve service implementation allowing for both BM and

DI	Objective	Description	Expected Value
		NBM Quick Reserve units that have declared availability and able to utilise them via a bulk instruction process.	Non-BM market participants to operate in a single Quick Reserve market. Within OBP, this would be the first implementation of operating both BM and Non-BM in a "service harmonised" manner, allowing for improved situational awareness and dispatch efficiency; as well as an increased capacity for the Control Room to manage frequency events
	I can view Pumped Storage units*	OBP will determine Pumped Storage Unit states and present them to the Control Room for situational awareness and management [Stretch – the creation of instructions for Pumped Storage units, including the linked pair of ancillary service instructions and BOAs]	The ability to view Pumped Storage transition states will serve to provide situational awareness from within OBP. This will be the foundation of creating and issuing instructions for Pumped Storage units, as well as "positioning" such units in readiness for key periods of the operational day
	I can confidently dispatch optimised units from the Small Zone*	An improvement to the optimisation methodology with variable-timesteps approach (simplified modelling over time) to target optimisation speed, and enabling longer optimisations to better handle MZT/MNZT. This is expected to lead to a	Continued enhancements to the optimisation methodology will lead to improved proposed instruction sets – both in terms of "fit" (reduction of partial loading) as well as speed. This change allows for a wider set of requirements to be

DI	Objective	Description	Expected Value
		reduction of partial loading issues, though further refinements may be required.	processed by the bulk dispatch optimiser, as well as being part of the foundation for the National Dispatch Optimiser
	Simple Runs will be enabled from the National Dispatch Optimiser*	This will be the first implementation sets the foundation of the National Dispatch Optimiser, which will lead to the ability to perform scheduling within OBP.	The ability to perform simple runs of the National Dispatch Optimiser will allow Control Room and OBP to analyse performance and methodologies with live production data against dispatch advice from existing systems. This will allow for continued improvement feedback as we progress through the National Dispatch Optimiser roadmap
	I can issue Sync Comp and Frequency Response (MFR) instructions from OBP in ST	The development of OBP capability for Control Room to manage the inertia levels through the instruction of synchronous compensation. The development of OBP capability for Control Room to maintain statutory & operational limits for frequency through the instruction of Mandatory Frequency Response.	The continued development of ancillary service instructions (Sync Comp and MFR) builds up the instruction capability within OBP and contributes to goal for OBP to be able to send all instruction types which is a key enabler for OBP to takeover EDT/EDL

DI	Objective	Description	Expected Value
 Develop	I can analyse predicted demand over multiple dates	The development delivers the ability for users to a pick & choose calendar dates so that multiple predicted demands can be analysed	The continued development of Demand Predictor (RTP tool) enhances on the MVP in a continous and iterative manner, with the expansion of situational awareness and predication comparison cappability
 Develop	OBP will have the EDL adapter ready for basic tests	The EDL Adapter is the key integration with industry parties for instructing BM units. The objective is to have the EDL adapter developed to the point at which basic tests can be run to prove technical implementation	The EDL adapter is a key enabler for OBP to takeover EDT/EDL, and the basic technical test is a key milestone on the delivery plan for EDT/EDL mastership on OBP
 Develop	I can use OBP without being prevented due to performance issues	With increased functionality and load on OBP – due to increasing data sets and volume; the system will need to be managed to ensure that OBP will operate to Non-Functional Requirements and Service Level Agreements	Control Room wlll continue to be able to utilise OBP for optimisation, situational awareness, as well as improved business and operational processes; without being impacted due to increased functionality available in OBP
 Develop	OBP Strategic Development and Readiness progressed through non-CNI and CNI environments	Continued build of OBP's Strategic roadmap including the OBP Strategic Performance Test Capability stood up & executable in CNI ORT, and the Application & Platform successfully proven in the non-CNI Azure platforms covering	The continued delivery of the OBP Strategic platform roadmap will prove the platform that OBP 2.0 will be delivered upon – enabling high resilience, availabilty and stability to allow OBP to

DI	Objective	Description	Expected Value
		Functionality, Management Failovers, Platform Failures & Recoveries and Backup & Restore	take over managing the GB electricity network as part of the Balancing Transformation roadmap
	Ready for Future Development	This goal covers elaboration and discovery for key future items of the roadmap. This includes new and continued analysis of Constraints & Stability Pathfinders, non-BM and BM Slow Reserve, Optimisation within a Constraint and Wind Optimisation, and work to migration NBM MW Dispatch from ASDP to OBP	Elaboration and discovery progressed in readiness for development in future DI/PIs

Appendix

Abbreviations:

- **BM:** Balancing Mechanism
- **BMU:** Balancing Mechanism Unit
- **BP2:** Business Plan 2
- **CHT:** CNI Health Team
- **CNI:** Critical National Infrastructure
- **EDL:** Electronic Dispatch Logger
- **EDT:** Electronic Data Transfer
- **IEMS:** Integrated Energy Management System
- **MDA:** Modern Dispatch Advisor
- **MPLS:** Multiprotocol Label Switching
- **OBP:** Open Balancing Platform
- **ORT:** Operational Readiness Testing
- **PEF:** Platform for Energy Forecasting
- **PI:** Programme Increment
- **RTP:** Real-Time Predictor
- **SMP:** Single Markets Platform
- **DAP:** Data Analytics Platform
- **SRE:** Site Reliability Engineer