ESO RIIO2 Business Plan 2 (2023-25)

Mid-Scheme 2023-24 Incentives Report

Annex: Cost Monitoring Framework

May 2024

ESO

Cost Monitoring Framework (Q3-Q4 2023-24 Summary)

Overview of the Cost Monitoring Framework (CMF)

Following our Business Plan 2 (BP2) submission, Ofgem outlined the requirement for a Cost Monitoring Framework (CMF). The objective of the CMF is to provide visibility of our BP2 Digital, Data and Technology (DD&T) delivery progress and cost management, and the value being delivered across the BP2 DD&T investment portfolio. It also provides transparency of DD&T key achievements, risks and strategic decisions.

The RIIO-2 incentives scheme is the framework Ofgem uses to assess our performance against our RIIO-2 business plan and associated BP2 delivery schedule milestones. Separately, the CMF reports against our BP2 DD&T Annex 4 delivery roadmaps with its own schedule of DD&T-specific milestones. The CMF is not used directly to assess our performance, but it may be used as evidence as part of our 'Value for Money' assessment.

Our DD&T investments are critical enablers for many of our RIIO-2 deliverables, and it is important to understand dependencies between them. Our published BP2 delivery schedule provides a high-level view of where DD&T investments and BP2 deliverables are related to one another.

As per the Electricity System Operator Reporting and Incentives Arrangements (ESORI), we are required to provide quarterly reports directly to Ofgem as part of the CMF. We feel it is important to share updates with our external stakeholders and industry as part of the framework. So, we are including a summary of the CMF update every six months alongside our incentives reporting.

This annex provides a summary of the second six months (Q3 and Q4 2023/24) of the CMF across our DD&T investment portfolio and includes:

- **Delivery performance** – covering main achievements during the last six months.

- **Governance outputs** – an overview of current main delivery risks/issues plus key strategic decisions taken in last six months.

- **Cost performance** – a comparison of BP2 submission vs latest approved spending profiles.

High-Level Portfolio Summary (Q3-Q4 2023-24)

Following confirmation of CMF requirements with Ofgem, we have developed our internal CMF reporting governance and processes to enable a regular quarterly reporting cadence. In line with Ofgem's requirements, we have also provided detail on our governance processes as part of this reporting exercise in order to showcase the due process that is being followed as part of our ongoing portfolio management processes (e.g. inclusion of strategic decision making within the quarter, reference to change request processes).

During these six months, we improved the way we report closed or deprioritised risks. The benefit of this is to give clarity and create visibility of closed or deprioritised risks by adding the reasoning for changing their status and an impact view of the same.

As per the latest approved spend figures, our latest sanctioned position is £17.7m above our BP2 submission overall. Please note that a few investments in some roles are yet to be sanctioned and as such have not been included in our latest approved spend position. Reported over/underspend in the Value for Money section of the incentives report will differ from this CMF report as it includes a latest forecast spend for projects, rather than a sanctioned value. The Value for Money report also includes a forecast spend for projects which have yet to be sanctioned.

Our actual spend for the BP1 period was £25.5m below that forecast in the BP2 plan for the period. This underspend can be largely attributed to the timing of spend on projects, so our latest approved spend position includes the re-phasing of spend across the final three years of the RIIO-2 period. Further detail on cost variance at a role level is detailed in next role sections.

In our latest CMF report, we have included a new investment report called 680 Local Constraints Market, which will still go through the whole life sanction for technology.

Following on from the proof of concepts in Critical National Infrastructure (CNI) into the Cloud space, our strategy definition work for CNI in the cloud has been finalised and we are currently in the process of prioritising the recommendations to take forward and produce implementation plans.

We have progressed our Ways of Working implementation plan by developing a blueprint for a Site Reliability Engineer (SRE) model for cloud Platforms and have successfully piloted SRE blueprint in 180 Enhanced Balancing Capabilities. We also launched Ways of Working connect sessions to develop internal capability through training and demos, provide updates and create an engagement channel.

On the back of our investigation of Technology Business Management (TBM) cost definition utilising Apptio tooling, the TBM council has sent out a public consultation on the utilities extension and we are starting a pilot of the Apptio tool for DD&T annex programmes based on that extension. We launched TBM within DD&T and have engaged with Ofgem on progress made on the specific taxonomy required in our industry.

In December 2023 we published our updated Digitalisation & Data Strategy and Action Plan (DSAP), detailing our digital ambitions. We began working on our ambitions as per the plan, finalising our architectural maturity assessment framework and starting to put it into practice. We have also completed our first two Digital Charters for Strategic Spatial Planning and Connections.

In addition, we have put in place a phased implementation plan of rebranding applications from NESO (National Energy System Operator) Day 1, derisking any Day 1 activities.

Role 1 (Control Centre and Operations)

Role 1 summary

Executive summary	We continue to progress all our investments, with three planning for whole life sanction.
	The role has operated well in a collaborative way, ensuring the delivery of the go live for the Viking Connection with significant benefits across the sector.
	The role has made significant inroads on the analytics platform service to the business, delivering a platform that is scalable and provides the key capabilities required across the business such that significant benefits can be achieved in new solution delivery and legacy solution migration to strategic platforms.

The table below shows the current Role 1 position. It shows our BP2 submission figures for FY24 and FY25, and the same years are shown for the approved values through our whole life sanctioning process in "Approved BP2 Spend".

Latest DD&T role spend	£m	FY24	FY25	Total
	BP2 Submission	80.9	81.6	162.5
	Approved BP2 Spend	85.3	75.5	160.8
Rationale	'Approved BP2 Spend' for Role 1 is currently in line with the BP2 submission, however as mentioned above, three investments are yet to be sanctioned and as such have not been included here. These can be found in the investment summary section below.			
	Reported over/underspend in Value for Money will differ as it is based on latest forecasted views and includes projects which have yet to be sanctioned.			

Investment summary
Investment summaries are organised in line with programme delivery groupings

110 Network Control						
Delivery update	The Network Control Management System (NCMS) programme has seen quarterly releases of both the Reliance and Wide Area Monitoring System (WAMS) products into Amazon Web Services (AWS) and GE environments. This has enabled the testing strategy to commence with feature specifications and test scripting activities. The handover of non-production data centre environments has given the NCMS team access to start deploying the GE applications.					
	We made a strategic decision to utilise GridOS Data Fabric delivered as part of the GridOS pivot. The Data Fabric will enable Network Control Management System (NCMS) integrations removing the requirement to deploy RedHat integration capability removing dependencies. The Data Fabric will also provide a "Data Lake" capability to satisfy the Data Historian replacement requirement. Enterprise DAP will still be used to host data for wider analytical needs.					
	Achievements over the last 6 months:					
	• Deployed 2 releases in-line with our quarterly release train of both Reliance and Wide Area Monitoring System (WAMS) to GE AWS environment and tested the features. • Handed over Data Centre core services with the project team. • Production Data Centre Network & Environment design and build commenced.					
Spend	**FY24 & FY25 Period**					
	BP2 Submission	£36.4m	**BP2 submission with BP1 under/overspend**	£36.1m	**Approved Spend**	£34.6m
	FY22 to FY26 Period					

	BP2 Submission	£58.1m	Approved Spend	£56.7m

120 Interconnectors

Delivery update	We delivered operability of VikingLink Interconnector in December 2023. This is initially operating at a capacity of 800MW before increasing up over time to a peak of 1.4GW. In the first year of operation, we expect to save approximately 600,000 tonnes of carbon emissions, relative to legacy solutions. **Achievements over the last 6 months:** • Viking Link technical go-live, enabling the commercial go-live

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£4.3m	BP2 submission with BP1 under/overspend	£5.5m	Approved Spend	£2.8m
	FY22 to FY26 Period					
	BP2 Submission	£10.9m			Approved Spend	£7.2m
	Since the BP2 submission, the programme has derived and implemented a cost effective and efficient delivery process, enabling us to deliver multiple capabilities on different interconnectors without incurring the increased costs. This has enabled the program to save close to £2m over the BP2 and BP3 period.					

170 Frequency Visibility

Delivery update	FATE-R (Frequency and Time Error - Replacement) has been deployed into non-production and testing has completed. Production deployment activities are underway and Go-Live date is secured. The Scottish & Southern Energy (SSE) Phasor Data feed has been deployed enabling consumption by current and future systems. Implementation of Oscillation Guard Pro as additional scope, this increases visibility of oscillations prior to WAMS being deployed under investment 110, in response to the recent oscillation events in Scotland. **Achievements over the last 6 months:** • Mobilisation of the Dynamic System Monitoring (DSM) project and requirements gathering exercises progressed • Non-production end-to-end testing of FATE-R system • Scottish & Southern Energy (SSE) data link into production

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£4.0m	BP2 submission with BP1 under/overspend	£4.8m	Approved Spend	£4.6m
	FY22 to FY26 Period					
	BP2 Submission	£6.8m			Approved Spend	£6.6m

180 Enhanced Balancing Capabilities

Delivery update	We successfully delivered the first release of Open Balancing Platform (OBP) in December 2023. This release provides enhanced dispatch capability within the control room for two zones - Batteries and Small Balancing Mechanism Units (BMUs) - and is the foundation for all future system developments. Improving this capability is a big step forwards on our journey to enabling a zero-carbon system. Since December 2023, we have delivered further improvements to Bulk Dispatch based on user feedback. We also established a fortnightly release cadence to deliver capabilities incrementally comprising of

planned scope, enhancements, and defect fixes. We remain on-track to deliver the OBP strategic Critical National infrastructure (CNI) Data Centre and associated benefits.

Achievements over the last 6 months:
1. Successful launch of OBP Release 1 with Bulk Dispatch capability
2. Completed Balancing Transformation Programme Increment (PI) 9 and 10.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£39.8m	**BP2 submission with BP1 under/overspend**	£47.2m	**Approved Spend**	£50.1m
	FY22 to FY26 Period					
	BP2 Submission	£102.8m		**Approved Spend**	£101.7m	
	Scope from BP1 (CNI DC Strategic Delivery) deferred to BP2, therefore associated underspend budget in BP1 period carried into BP2 to enable this delivery.					

210 Balancing Asset Health

Delivery update	We delivered improvements to BM performance through hardware upgrade and code optimisation improvements to control room functionality to enhance dispatch efficiency and reduce process inefficiencies, whilst also delivering benefits for other roles such as enhancements to Dynamic Response services. We are working to further improve system resilience via performance related developments. Our releases support our retirement plan for Enhanced Balancing System (EBS). We are on-track to complete all EBS process transitions as planned to progress activities for application decommissioning. We have also delivered foundational enabling work for interface from the Balancing Mechanism and Open Balancing Platform. **Achievements over the last 6 months:** 1. We have enabled control room improvements by improving situational awareness and automating manual activities 2. We have improved system performance through hardware upgrades and code optimisation 3. The migration of EBS functionality continued, with all EBS process dependencies now migrated, allowing the commencement of activities to deliver application decommissioning.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£10.1m	**BP2 submission with BP1 under/overspend**	£11.4m	**Approved Spend**	£9.8m
	FY22 to FY26 Period					
	BP2 Submission	£27.5m		**Approved Spend**	£27.5m	

480 Ancillary Services Dispatch

Delivery update	In addition to application user interface enhancements and asset health improvements, we have delivered the Regional Development Programme (RDP) MW Dispatch service for both NGED and UKPN, and further enhancements to the Dynamic Response services. We are planning Ancillary Services Dispatch Platform (ASDP) retirement activities, which will include the implementation of a change freeze for any development other than essential asset health, we are planning for this change freeze to be implemented later this year. **Achievements over the last 6 months:** • Successful delivery of RDP MW Dispatch service for NGED and UKPN

Spend	FY24 & FY25 Period					
	BP2 Submission	£2.4m	BP2 submission with BP1 under/overspend	£4.3m	Approved Spend	£3.2m
	FY22 to FY26 Period					
	BP2 Submission	£8.5m			Approved Spend	£8.3m
	Scope from BP1 (RDP and ASR) deferred to BP2 resulting in an underspend in BP1 carried into BP2 via whole life sanction process in Sep 2023.					

670 Real Time Predictions						
Delivery update	We have finalised the discovery activities for delivery plans and costings of this new investment as per the BP2 submission. A full review will be provided in the next quarter.					
Spend	FY24 & FY25 Period					
	BP2 Submission	£0m	BP2 submission with BP1 under/overspend	£0m	Approved Spend	£0m
	FY22 to FY26 Period					
	BP2 Submission	£0m			Approved Spend	£0m

260 Forecasting Enhancements						
Delivery update	We delivered Grid Supply Point (GSP) on Oracle Cloud Infrastructure, this is accelerating delivery of consumer benefits (£28m). We have delivered additional scope in support of Local Constraints Market (LCM). This was achieved via an additional release which has enabled forecasting features for the implementation of LCM within system operations. **Achievements over the last 6 months:** 1. GSP level forecasts, data, processes and tools 2. Forecasting features for LCM					
Spend	FY24 & FY25 Period					
	BP2 Submission	£6.1m	BP2 submission with BP1 under/overspend	£6.8m	Approved Spend	£6.0m
	FY22 to FY26 Period					
	BP2 Submission	£13.4m			Approved Spend	£13.1m

220 Data and Analytics Platform	
Delivery update	We have decided to deliver using a capability-driven approach, rather than dedicated individual use case delivery. The long-term impact is that the velocity for onboarding is significantly increased, meaning that the whole business will be able to benefit from the service at the time it is needed. The foundational capabilities have been delivered, enabling key use case delivery as we move into FY25 Q1. These capabilities provide key functionalities for data scientists, other advanced users, and business users with a significant improvement in data sources being added for regular ingest. **Achievements over the last 6 months:**

		DAP has delivered the key foundational capabilities and some integrations, including with the SMP and Inertia monitoring systems.					
Spend	**FY24 & FY25 Period**						
	BP2 Submission	£15.1m	**BP2 submission with BP1 under/overspend**	£15.8m	**Approved Spend**	£15.2m	
	FY22 to FY26 Period						
	BP2 Submission	£29.9m			**Approved Spend**	£30.0m	

510 Restoration & Restoration Decision Support Tool							
Delivery update	We have commenced delivery of the three scoped Inter-control Centre Communications Protocol (ICCP) links. The procurement activity for the decision support tool has been closed down following a decision to engage directly with a strategically aligned vendor. Further activity with stakeholders has matured and expanded our roadmap with updates expected in the new year. **Achievements over the last 6 months:** • Engagement with DNOs and Vodafone to agree and commence the technical design for ICCP links, leading to kick-off of delivery activity. • End-to-end process map for restoration, synchronising with restoration decision support tool and other associated tools and activities. • Refinement of integration requirements and optimisation logic.						
Spend	**FY24 & FY25 Period**						
	BP2 Submission	£17.5m	**BP2 submission with BP1 under/overspend**	£17.9m	**Approved Spend**	£14.6m	
	FY22 to FY26 Period						
	BP2 Submission	£24.9m			**Approved Spend**	£21.0m	
	Lower level of investment required to ensure new Restoration service providers have resilient communication and control infrastructure.						

130 Emerging Technology and System Management	
Delivery update	We decided to reuse capabilities within a previous BM (Balancing Mechanism) release to provide the ENCC with the ability to use the upcoming Voltage Pennines Pathfinder contract, which reduced costs as this was enabled without further development. We made the decision to extend the scope within the Stability Pathfinder to allow new Grid Forming units to be instructed for SCL independently of inertia, providing greater flexibility to the control room on how they use these units based on system conditions. This will be delivered in Q1 FY25. **Achievements over the last 6 months:** • Constraints Pathfinder - completed the interim solution delivery of the B6 (Scotland) boundary to enable better constraint management for the Control Room Engineers, and support the Settlements team with billing accuracy going forward and publication to the ESO external data portal • Constraints Pathfinder – subsequently delivered Phase 2 of reporting changes, including the calculation for metered outputs for the Settlements team • Constraints Pathfinder - delivered full solution for the B6 (Scotland) boundary to disconnect generation rapidly when a network fault occurs, rather than pre-emptively reducing (buying off) generation in case the network fault occurred

	• Stability Pathfinder - Phase 2 (Inertia) Reporting completed, this delivers improved information published on the data portal on a weekly basis, providing clearer evidence of the improvements delivered as part of the new stability inertia contracts to Ofgem and external markets • DAP integration and presentation of inertia data accepted in production • Further iterative enhancements have been made to the inertia monitoring tools.

Spend	FY24 & FY25 Period					
	BP2 Submission	£3.9m	BP2 submission with BP1 under/overspend	£4.2m	Approved Spend	£3.2m
	FY22 to FY26 Period					
	BP2 Submission	£8.7m			Approved Spend	£7.4m
	This investment reduced its spend due to savings of £640k within FY24, with no impact to business benefits.					

250 Digital Engagement Platform	

Delivery update	We have delivered a number of releases with features including; Demand Solutions for Maps, additional functionality for Hydrogen and Storage Items, merging Network Options Assessment (NOA) and Electricity Ten Year Statement (ETYS) filters and uploading relevant CSVs. It also included Publication list enhancements, preventing Constraint Management Service (CMS) Users accessing customer details, adding a Data Portal Admin role, Create Read Edit Delete (CRED) Taxonomy Terms and updating new social media icon for Twitter. For Data Portal, the requirement for sending subscribed batched emails and dictionary updates were delivered; along with Search and Filtering enhancements for Data Portal and CMS.
	
	DEP team have also delivered Digital Experience (DXP) release 4 which consisted of personalisation of My ESO account and Data Portal Subscription enhancements; giving the user a more personalised experience. This included allowing the user to select topics of interest and filter main events by type.
	
	Achievements over the last 6 months:
	• Demand Solutions for Maps,
	• Increased functionality across the DEP.
	• Digital Experience (DXP) release for enhancing the customer user experience with topic of interest selections.
	• Several implementations with Central Identity and Access Management (CIAM) have been made during Q3 & Q4 FY2024 including:
	   o CIAM Auctions integration successfully delivered which compromised Enduring Auction Capability (EAC) authentication API (application programming interface) for Auctions.
	   o CIAM Integration with Connection Portal to allow connections user for SSO Authentication.
	   o CIAM integration with Electricity Network Access Management System (ENAMS) and electricity Generation Availability and Margin Analysis (EGAMA) has been successfully delivered. DEP has enabled CIAM to external users of the Single Markets Platform, CIAM Auction Platform and Data Portal improving the user experience through use of one set of credentials across these platforms. Single Sign on approach to Connections was added and merged 49 duplicate records between SMP and connections. Connection portal login is now authenticated through CIAM, this also included security improvements for disabling non CIAM logging in.
	   o CIAM has enabled email-based MFA for this integration as PODE users could not utilise SMS based Multi Factor Authentication (MFA). Two options for MFA have been delivered to satisfy Connections and Single Markets Platform (SMP) users, plus satisfying requirements for PODE users for optional SMS MFA and adding email MFA.

Spend	FY24 & FY25 Period

BP2 Submission	£3.9m	BP2 submission with BP1 under/overspend	£4.9 m	Approved Spend	£7.1m
FY22 to FY26 Period					
BP2 Submission	£11.4m			Approved Spend	£11.9m
Tracking to deliver in line with current sanction values - there is a small overspend awaiting transfer in YTD financials (circa £200k) due to time sheeting for FSO rebranding and QM activities.					

190 Workforce Change Management Tools					
Delivery update	We delivered the first tranches of service improvements for end users and operational processes. These include improvements that provide greater access to shift information, streamlined processes and a new suite of training / user documentation. **Achievements over the last 6 months:** 1. Reduced effort in managing the basic shift pattern process 2. Service Improvement Release 2 - Notifications and other enhancements				
Spend	**FY24 & FY25 Period**				
	BP2 Submission	£2.0m	BP2 submission with BP1 under/overspend	£2.0m	Approved Spend	£0.4m
	FY22 to FY26 Period				
	BP2 Submission	£3.8m		Approved Spend	£0.9m

200 Future Training Simulator and Tools					
Delivery update	We have conducted internal workshops to validate and expand on the requirements previously identified at a high level in BP1, initial architectural discussions have been held in readiness for sanctioning the whole life of the project. Resourcing for the project team has commenced.				
Spend	**FY24 & FY25 Period**				
	BP2 Submission	£4.4m	BP2 submission with BP1 under/overspend	£4.4m	Approved Spend	£0m
	FY22 to FY26 Period				
	BP2 Submission	£7.3m		Approved Spend	£0m

240 ENCC Asset Health	
Delivery update	In Q3 and Q4 a significant number of implementations were delivered, providing significant benefits to the control room. A few examples of the work being completed in the control room are shown below. • Viking Link and SSE Burghmuir EDL connections • HR onboarding process automation • Control room & non-control room BM users migrated to Windows 10 • Multiple instances of system patching and upgrading • Demand Flexibility Service development • Hermes App replacement **Achievements in the last 6 months:**

	• 190 Control room desktops replaced without unplanned impacts • 6 Systems DB patches undertaken without unplanned impacts • 2 operational process improvements deployed • 5 market participant onboarding activities complete

Spend	FY24 & FY25 Period					
	BP2 Submission	£5.8m	BP2 submission with BP1 under/overspend	£6.7m	Approved Spend	£6.3m
	FY22 to FY26 Period					
	BP2 Submission	£14.2m			Approved Spend	£13.6m

450 Future Innovation Productionisation	
Delivery update	Dynamic Reserve Setting is in the DAP (Data Analytics Platform) delivery backlog for prioritisation and solution delivery. Discovery for the risk module of the Optimal Outage Planning system was completed in Q4.

Spend	FY24 & FY25 Period					
	BP2 Submission	£4.0m	BP2 submission with BP1 under/overspend	£4.0m	Approved Spend	£0m
	FY22 to FY26 Period					
	BP2 Submission	£6.6m			Approved Spend	£0m

140 ENCC Operator Console	
Delivery update	EPRI (Electric Power Research Institute) completed requirements review and developed conceptual mock-up diagrams for the control desk visualisation. A Proof-of-concept has been completed, which will enable the validation of the functional and non-functional architectural requirements.

Spend	FY24 & FY25 Period					
	BP2 Submission	£2.8m	BP2 submission with BP1 under/overspend	£3.1m	Approved Spend	£2.9m
	FY22 to FY26 Period					
	BP2 Submission	£5.5m			Approved Spend	£5.2m

Role 2 (Market development and transactions)

Role 2 summary

Executive summary	Role 2 continued with key deliveries over the past 6 months, in which Electricity Market Reform (EMR) continued to deploy features in line with the new aligned BP2 roadmap. On 400 SMP The Central Identity and Access Management (CIAM) system was successfully implemented (Phase 1) to oversee user authentication and management on the platform and enable Enduring Auction Capability (EAC) go live. Digital Code Management moved forward after concluding the RFP (Request for Proposal), which resulted in revised requirements and conceptual design. Investment 420 Auction Capability- Enduring Auction Capability (EAC) Project has now been initiated and preliminary discovery sessions completed to scope, with a review of all the ESO auction capability being undertaken. On 610 Settlements, Charging and Billing a decision was made to postpone delivery of "BSUoS (Balancing Services Use of System charge) Migration & Reform" from Q4 FY23 to Q2 FY25 and" Decommission CAB" from Q4 FY24 to Q3 FY25 680 Local Constraints Markets (LCM) investment is going through Digital, Data and Technology (DD&T) whole life sanction to enable continued development.

The table below shows the current Role 2 position. It shows our BP2 submission figures for FY24 and FY25, and the same years are shown for the approved values through our whole life sanctioning process in "Approved BP2 Spend".

Latest DD&T role spend	£m	FY24	FY25	Total
	BP2 Submission	27.6	28.8	56.4
	Approved BP2 Spend	39.8	34.4	74.1
Rationale	"Approved BP2 Spend" for Role 2 is currently £12.2m higher than the BP2 submission, however, this variance includes £5.5m of underspend from BP1. This underspend would have been mainly attributed to the timing of spend on projects. As reported previously, the remaining £6.7m of increased spend is driven in the main by EMR and Settlements, Charging and Billing investments. We expect the approved BP2 spend to be reprofiled in the next quarters given EU and GB regulatory changes have been pushed to later years, Digitalised Code Management also suffered some delays due to an unsuccessful RFP, delaying bulk of spend. Slow and fast reserve in Ancillary Services Reform were also moved to FY25.			

Investment summary

320 EMR and CfD improvements	
Delivery update	Following the realignment of the BP2 roadmap and milestones Electricity Market Reform (EMR) agreed the high-level implementation plan with business go lives agreed to support the phased approach. Team have deployed Increment 6 features into UAT for business review and signoff also completed Increment 7 and Minimum Viable Product (MVP) development High Level Implementation plan has been completed for CM MVP release, Detailed plan and runbook and Dress Rehearsals planning in progress. Successfully completed Model Office Test (MoT) followed by Customer Familiarisation end to end testing **Achievements over the last 6 months:** - Deployed "R1.5 (Q3FY24) – Agreement Management & Prequalification submission" release successfully into Production. (11 Features developed as part of Increment, this is 5 more than original roadmap commitment) - Deployed "R2.0 (Q3FY24) – Agreement Management, Disputes, Pre-Auction functions" released successfully into production (9 Features deployed, this is 2 more than original roadmap commitment)

	• Deployed "R2.1 (Q4FY24) – Agreement Management, Disputes, Pre-Auction functions" released successfully into production Q4FY24 (13 Features deployed).

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£7.4m	**BP2 submission with BP1 under/overspend**	£6.4m	**Approved Spend**	£14.3m
	FY22 to FY26 Period					
	BP2 Submission	£21.3m			**Approved Spend**	£30.0m
	Tracking within approved sanction without utilising risk budget. Plan to ramp down resources to a single delivery squad for ongoing enhancements in FY25 post-delivery of business go live of new Capacity Market Portal in Q1FY25.					

400 Single Markets Platform

Delivery update	**Single Markets Platform**
	The Central Identity and Access Management (CIAM) system was successfully implemented (Phase 1) to oversee user authentication and management on the platform and enable Enduring Auction Capability (EAC) go live. Single Markets Platform has introduced one new feature, namely Related Entity, while concurrently enhancing two existing features—API and Account Manager Screens. Furthermore, the capability to create a checklist for onboarding new entrants to the market has also been introduced. Also delivered enhanced functionality to allow multiple assets to be transferred to up to a number of different agents and two new API functionalities: API user can now update properties of a Unit in Draft Status and update alignment of Assets to a Unit in Draft Status. Three releases (2.12, 2.13 and 2.14) delivered.
	Ancillary Services Reform:
	Release 1c Enhancements to Operational metering Graphs is delivered in Q4FY24.Response Release 1b Arming and Disarming requirements are approved and are planned to be delivered in Q1 FY25.
	Achievements over the last 6 months:
	Balancing Reserve service (new) was deployed, accompanied by improvements to the API features. Technical Go-Live and Business Go-Live achieved Q4FY24. First Auction on target for Q4FY24.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£14.5m	**BP2 submission with BP1 under/overspend**	£15.9m	**Approved Spend**	£15.8m
	FY22 to FY26 Period					
	BP2 Submission	£34.9m			**Approved Spend**	£35.1m

420 Auction Capability

Delivery update	Enduring Auction Capability (EAC) Project has now been initiated and preliminary discovery sessions completed to scope. Development of the auction platform and the integration services is delivered, we achieved technical Go live on 12/10 with business going live on 19/10. This then enabled the first auction for Day ahead response on 02/11.
	Achievements over the last 6 months:
	• Completed all Testing including System Integration, UAT, Performance & Penetration Testing, Regression testing
	• Successfully completed Mock Auctions & Market Trials

	- Electricity balancing regulations (EBR) Consultation successfully concluded - Achieved Governance & Stakeholder approvals / signoffs for EAC Go-Live - Enduring Auction Capability (EAC) with Release Extended Life Support (ELS) completed Q4FY24. - Auction Capability Quarterly Release to support Balancing Reserve (BR) on the Auction Capability Platform completed Q4FY24. - Delivered Quarterly Release Train: Q4FY24 Capability enhancements to support new products and integration with other platforms - Initiated NESO branding on Auction Platform project - Initiated Quick Reserve on Auction Platform project

Spend	FY24 & FY25 Period					
	BP2 Submission	£4.2m	BP2 submission with BP1 under/overspend	£5.1m	Approved Spend	£4.1m
	FY22 to FY26 Period					
	BP2 Submission	£8.9m			Approved Spend	£7.9m

610 Settlements, Charging and Billing	
Delivery update	It was decided to delay the delivery of "BSUoS (Balancing Services Use of System charge) Migration & Reform" from Q4 FY23 to Q2 FY25 to allow reconciliation to conclude on old methodology in CAB and transition new methodology to STAR. Subsequently," Decommission CAB" has been postponed from Q4 FY24 to Q3 FY25, after the migration of BSUoS onto STAR. CAB legacy system will operate and need to be supported until then. Reconciliation functions have been reprioritised from FY24 to FY25 to align with annual business cycles, thus not impacting benefit realisation. We have also deferred the delivery of ''Frequency Response'' to Q1 FY25 after reviewing our estimates and plans to deliver Mandatory Frequency Response (MFR) feature, which has led to continued compliance risk exposure from manual workarounds and processes. **Achievements over the last 6 months:** - Within Revenue, we have successfully delivered the majority of our BP2 commitments, including Connections annual charge setting and the Transmission Network Use of System (TNUoS) Generation implementation, as well as customer enhancements. - Within Settlements we have completed the technical deployment of the Firm Frequency response dynamic suite of services.

Spend	FY24 & FY25 Period					
	BP2 Submission	£9.8m	BP2 submission with BP1 under/overspend	£9.7m	Approved Spend	£19.2m
	FY22 to FY26 Period					
	BP2 Submission	£33.5m			Approved Spend	£42.5m
	FY24 actuals are within sanction. Note that £3m was funded by 220 DAP and 280 GB regs, to remove EUDAs and implement regulatory work respectively.					

330 Digitalised Code Management	
Delivery update	Evaluation of RFP - Deeper evaluation of down-selected parties responses identified that neither vendor fully met our requirements. Subsequently a full review of target solution and approach was conducted which resulted in revised requirements and scope. The MVP scope was then defined as delivery of the Digitalised version of the Grid Code, plus searchability. Scope for subsequent releases has also been outlined and roadmap created for the entirety of the project.

	Achievements over the last 6 months:
	1. Successful demo of POC for Workflow was positively received and approach agreed by Product Owner.
	2. Early feedback/UAT from Key stakeholders provided positive feedback.
	3. R1 – MVP
	4. Digitalisation of Grid Code on MS Azure platform
	5. Demos of AI/ML capability using the Grid Code, showing the "art of the possible".

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£2.5m	**BP2 submission with BP1 under/overspend**	£2.6m	**Approved Spend**	£2.7m
	FY22 to FY26 Period					
	BP2 Submission	£2.7m		**Approved Spend**	£2.8m	
	DCM is tracking to deliver in line with sanction values - Project was delayed starting due to late identification of resources but Templatised approach of lift and shift of Grid Code has brought project back in line with agreed spend and timescales					

280 GB regulation	
Delivery update	We have successfully completed the SAA I014 v12 upgrade (P376), deployed Issue 95 and will continue with the ongoing analysis support for any regulatory modifications.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£8.7m	**BP2 submission with BP1 under/overspend**	£10.0m	**Approved Spend**	£8.6m
	FY22 to FY26 Period					
	BP2 Submission	£19.4m		**Approved Spend**	£17.7m	

270 Role in Europe	
Delivery update	We have successfully deployed RSC Services – OPDE Release 7.0, the connection of the PCN (South/ West Datacentres) routers to the ENTSO-E router and will continue with the ongoing analysis support for any regulatory modifications.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£9.4m	**BP2 submission with BP1 under/overspend**	£12.1m	**Approved Spend**	£9.5m
	FY22 to FY26 Period					
	BP2 Submission	£22.3m		**Approved Spend**	£19.4m	

Role 3 (System insight, planning and network development)

Role 3 summary

Executive summary	Investment 340 RDP Implementation and Extension- We decided to change the design of MW Dispatch RDP 2 with UK Power Networks (UKPN) as UKPN were unable to use the baseline solution already deployed, which moved the technical go live from Q3 FY24 to Q4 FY24. A decision was reached with Scottish Power Transmission (SPT) and ESO to close the Generation Export Management system (GEMS) project and, use an alternative solution within the Open Balancing Platform (OBP) instead which requires no further DD&T involvement. This means we will not be delivering the GEMS Go Live and GEMS Enhancements milestones and associated features.
	360 Offline Network Modelling We reached an agreement with National Grid Electricity Transmission (NGET) to create a separate NGET instance of OLTA on the ESO platform.
	A new roadmap for Connections platform has been developed with the customers.

The table below shows the current Role 3 position. It shows our BP2 submission figures for FY24 and FY25, and the same years are shown for the approved values through our whole life sanctioning process in "Approved BP2 Spend".

Latest DD&T role spend	£m	FY24	FY25	Total
	BP2 Submission	12.2	11.6	23.8
	Approved BP2 Spend	13.6	11.9	25.5
Rationale	"Approved BP2 Spend" for Role 3 is currently £1.7m higher than the BP2 submission, however this variance includes £3.5m of underspend from BP1. This underspend would have been mainly attributed to the timing of spend on projects.			

Investment summary

340 RDP Implementation and Extension	
Delivery update	We decided to change the design of MW Dispatch RDP 2 with UK Power Networks (UKPN) as UKPN were unable to use the baseline solution already deployed, which moved the technical go live from Q3 FY24 to Q4 FY24.
	We also deprioritised two of the eight Features within the RDP 2 project which were unnecessary for achieving the business benefits at this stage. These were:
	• Integrating the DNO Database with SMP, as DERs are able to enter information directly to SMP
	• Operational Parameters for MWD Service, as this was too complex for this delivery of the MW Dispatch service.
	A decision was reached with Scottish Power Transmission (SPT) to close the Generation Export Management System (GEMS) project and use an alternative solution within the Open Balancing Platform (OBP) instead which requires no further DD&T involvement. The needs case for securing this part of the network now aligns with the roadmap and timescales of the OBP delivery schedule given the current rate of new generation connections, OBP has already delivered bulk dispatch functionality and would provide a more standard and scalable solution without the need to migrate the functionality from a legacy platform.
	Achievement over the last 6 months:
	• Business go live of the MW Dispatch RDP1 project with National Grid Electricity Distribution (NGED), on the outcome of six DER's connected due to the MW Dispatch solution. The full service will be live by end of 2023 with more DERs to be connected, which will maintain security of supply by giving the control room the option to curtail these DER's
	• Technical go live completed of the MW Dispatch RDP 2 project with UKPN. We provided the enabling functionality within our core systems to allow ESO to operationally set up, register participants and run this new service

- Business go lives completed of the N-3 Intertripping project with NGED and Southern Electricity Networks (SSEN). This enables the connection of 194 DERs over all connection's timescales with NGED, and the connection of 58 DERs over all connection's timescales with SSEN

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£7.7m	**BP2 submission with BP1 under/overspend**	£9.3m	**Approved Spend**	£7.5
	FY22 to FY26 Period					
	BP2 Submission	**£17.1**			**Approved Spend**	£13.7
	There was an underspend in FY24 due to the true up of cost for RDP GEMS in line with the project closure decision, this cost was then reforecast for RDP 5 and 6.					

350 Planning and outage data exchange	
Delivery update	We decided to implement quarterly releases moving from one release in FY24, for our Electricity Network Access Management System (ENAMS) workflow and user interface enhancements release train to further address customer needs.
	A replanning exercise for Deeper DNO/DSO Access is ongoing, to realign the plan with committed deliverables. Discovery and scoping exercise has been completed. Our work on External Data Exchange (EDE) Replacement has progressed, however, there is a delay with external progress of GC0139 with ongoing work to finalise requirements.
	Achievements over the last 6 months:
	• Implemented three releases driving value to the industry across network outage planning, constraint management and external reporting processes.
	• We have provided CIAM integration (SSO) Single sign on with multi factor (MFA)) experience for approx 1,500 users across the industry.

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£3.3m	**BP2 submission with BP1 under/overspend**	£3.2m	**Approved Spend**	£2.9m
	FY22 to FY26 Period					
	BP2 Submission	£8.4m			**Approved Spend**	£7.9m

360 Offline network modelling	
Delivery update	We decided to bring forward our major refresh of models within the Offline Transmission Analysis (OLTA) system from Q1 FY25 to Q3 FY24 and implemented the delivery of enhanced High Voltage Direct Current (HVDC) modelling capability for offshore connections earlier than previously planned.
	We also decided to delay the start of the Co-Simulation project from Q3 FY24 to Q4 FY24 due to dependencies for inputs on several Network Innovation Allowance (NIA) projects and our Electro-Magnetic Transience (EMT) modelling project. This enabled a better understanding of the design of the EMT aspects of co-simulation and enabled progress on the conceptual design of how the OLTA system can co-simulate.
	We reached and implemented a contractual agreement with National Grid Electricity Transmission (NGET) and Digsilent (PowerFactory vendor), which enabled our subsequent full separation of NGET out of OLTA.
	Achievements over the last 6 months:

	• Go Live of OLTA with PowerFactory V2023 SP5, provided additional fixes, G74-2 modelling and enabled the capability to support the enhanced offshore HVDC modelling in OLTA • OLTA Database Optimisation with SQL Direct Connection completed, improved performance by 30% • Separated NGET off the ESO OLTA platform and completed decommissioning, resulting in improved OLTA performance and reduced license costs.					

Spend	**FY24 & FY25 Period**					
	BP2 Submission	£3.5m	**BP2 submission with BP1 under/overspend**	£4.9m	**Approved Spend**	£5.3m
	FY22 to FY26 Period					
	BP2 Submission	£8.1m		**Approved Spend**	£8.5m	

380 Connections platform						
Delivery update	A new multi-year roadmap was required to better suit business requirements post Minimal Viable Product (MVP) release. Roadmap developed with customers for FY24-FY26, reprioritising features in line with business needs. **Achievements over the last 6 months:** • The connections portal number of external active users has increased by 80% • Queue Management has been delivered successfully • We have successfully delivered CIAM Platform Integration • Letters of Authority interim solution to support the regulatory modification. • Portal Feedback successfully deployed					
Spend	**FY24 & FY25 Period**					
	BP2 Submission	£3.0m	**BP2 submission with BP1 under/overspend**	£3.2m	**Approved Spend**	£3.6m
	FY22 to FY26 Period					
	BP2 Submission	£7.0m		**Approved Spend**	£7.4m	
	Additional development resources required to deliver updated roadmap following initial MVP.					

390 NOA enhancements	
Delivery update	We changed our approach for enhancements to our Economic Assessment tool, to prioritise efforts to deliver the Strategic Spatial Energy Plan (SSEP). Three of the four work packages (Generation Investment, Nodal Modelling and Hydrogen) under the enhancement's milestone and their funding within NOA have been reallocated to the SSEP, with the final work package (Ancillary Services) to be delivered by NOA in Q1 FY25 instead of Q4 FY24. Probabilistic Modelling tool integration with Digital Engagement Platform (DEP) has been delivered and there is now a plan to deliver the remaining integrations in Q4FY25. **Achievements over the last 6 months:** 1. Probabilistic Modelling (POUYA) tool Web UI Wrapper Enhancement delivered. This provides an enhanced user experience and unlocks the potential for data analysis and visualisation 2. Economic Assessment Tool (PLEXOS) business go live beyond the EMR process to the FES and the NOA Redespatch processes. The tool reflects the latest modelling approach and technologies, and enables quicker evaluation and issue identification 3. Voltage Optimisation MVP delivery live for the Electricity Ten Year Statement (ETYS) service. This enables the System Capability Team to model against multiple snapshots of data, perform network

modelling more effectively by automating processes and provides a user interface for better interpretation of the Voltage Violations and MVAR requirement results through visualisations
4. Probabilistic Modelling tool integrated with the DEP. This delivered externally facing modelling data and visualisations.

Spend	FY24 & FY25 Period					
	BP2 Submission	£6.0m	BP2 submission with BP1 under/overspend	£6.3m	Approved Spend	£5.9m
	FY22 to FY26 Period					
	BP2 Submission	£9.3m			Approved Spend	£8.7m

500 Enhanced Frequency Control	
Delivery update	Following signing of the Network Innovation Allowance (NIA) project contracts between GE (vendor) and ESO, we replanned the delivery of the prototype and start of the non-operational demonstration to Q1 FY25 and completion of the demonstration in Q2 FY25. We have since completed the design and started the build of the prototype.

Spend	FY24 & FY25 Period					
	BP2 Submission	£0.2m	BP2 submission with BP1 under/overspend	£0.3m	Approved Spend	£0.2m
	FY22 to FY26 Period					
	BP2 Submission	£1.2m			Approved Spend	£1.3m

640 Network Planning Review (NPR)	
Delivery update	High level scoping of the NPR DD&T Discovery stage was completed.
	A decision was made to create a digital charter to develop DD&T's strategy for overlapping needs and solutions emerging within the Strategic Energy Planning area, which includes the Centralised Strategic Network Plan (CSNP) developed by the NPR project. The NPR identified scope will be included in the mobilisation of wider DD&T Discovery stage to fulfil the strategy.

Spend	FY24 & FY25 Period					
	BP2 Submission	£0m	BP2 submission with BP1 under/overspend	£0m	Approved Spend	£0m
	FY22 to FY26 Period					
	BP2 Submission	£0m			Approved Spend	£0m

650 Accelerating Whole Electricity Flexibility	
Delivery update	Pre-project support has continued for Primacy on the definition of internal and external business impacts of increased ESO – DSO coordination. Once there is more certainty on scope, we will mobilise a DD&T Discovery stage.
	We made a decision to extend the scope of the DER Visibility project to include improving the network operators' access to DERs, following the outcomes of the business led DER Visibility vision and roadmap. Subsequently we scoped, mobilised and initiated a DD&T Discovery stage for this project.

		Also following the outcomes DER Visibility vision and roadmap we made the decision to extend the scope of the AWEF investment to include a further DD&T Discovery stage for Consumer Energy Resource (CER) Visibility and Access. This will be scoped once the ESO distributed flexibility strategy definition and Ofgem consultations on distributed flexibility have completed.				
Spend	**FY24 & FY25 Period**						
	BP2 Submission	£0.1m	**BP2 submission with BP1 under/overspend**	£0m	**Approved Spend**	£0m	
	FY22 to FY26 Period						
	BP2 Submission	£0.1m		**Approved Spend**	£0m		