# NESO1 Digital, Data, and Technology Annex

NESO
National Energy System Operator

# Contents

# Executive Summary

The National Energy System Operator (NESO) is leading the way in transforming Great Britain's whole energy system so that everyone has access to reliable, clean, and affordable energy.

Underpinning this transformation is Digital, Data, and Technology (DD&T). From the geospatial modelling platforms used to develop the Strategic Spatial Energy Plan, to the secure data infrastructure that manages vast volumes of energy system data. DD&T is the critical enabler for NESO delivering on its regulatory responsibilities and strategic ambition.

This Annex outlines the DD&T investments that NESO will make during the NESO1 period (FY27 and FY28). These investments are structured around our Roles (Part 3) and Enabling Functions (Part 4). This provides a clear line of sight from our corporate strategy to the DD&T investments underpinning our activities.

For details on investments related to our separation from National Grid, including the status of our Transitional Service Agreements (TSAs) and Operational Service Agreements (OSAs), please refer to the Enabling Functions Annex.

# Cost Summary

For the NESO1 period, we are forecasting a budget of £578m to deliver investments across our Roles, Enabling Functions, and the Enterprise.

Table 1: **Cost Summary**

| Spend by | FY27 Total | FY28 Total | Total |
|---|---|---|---|
| Role | £251m | £230m | £481m |
| Enabling Function | £15m | £12m | £27m |
| Enterprise | £41m | £28m | £69m |
| **Total** | **£307m** | **£271m** | **£578m** |

# Part 1 – Digital, Data, and Technology (DD&T) Overview

This section summarises NESO's DD&T portfolio, the structures governing it, and the stakeholder engagement which continues to refine it. We also provide commentary on how DD&T investments support the wider NESO strategy.

## 1.1 NESO's Wider Strategy and DD&T Investments

NESO's corporate goals reflect the components of the Energy Trilemma: balancing affordability, security, and sustainability. These goals form the foundation of NESO's culture, activities and corresponding investments.

Figure 1: **Exhibit 1.1 NESO corporate goals**

**Drive consumer value**

We will minimise supply and price risks, design competitive markets, and efficiently manage system costs through effective operational decisions, benefiting consumers positively.

**Deliver a secure, resilient and operable energy system**

We will ensure the whole energy system remains resilient, secure and operable during the energy transition by managing risks, seizing opportunities and developing the necessary capabilities to enable and facilitate.

**Pave the way to sustainable energy**

We will design, develop and deliver a clean power system, by driving innovation, attracting investment and advising decision-makers to help achieve a successful and fair transition to a Net Zero Energy System.

**Lead as a trusted expert**

We will foster strong partnerships nationally and globally, leveraging digitalisation and data across the whole energy system and facilitating growth.

NESO's goals are delivered through eight Roles across the organisation; each of which has a five-year strategic ambition and a two-year Performance Objective.

Figure 2: Exhibit 1.2: NESO roles and corresponding performance objectives

**Planning a Clean Energy Future**

NESO will shape the future of energy by defining the energy infrastructure requirements across Great Britain that reflect societal and community values, safeguard the environment, maintain system resilience and ensure consumer benefits are realised. This will guide the transition to a clean, affordable and secure energy for GB by delivering first-of-a-kind whole energy strategic planning.

**Operating an Intelligent, Real-Time Grid**

NESO will operate a flexible, and increasingly intelligent, electricity system, optimising transparent real-time decision-making and ensuring ongoing resilience of the energy system. Enhanced operational decision-making will be enabled through data, automation and future-ready digital tools. Operational capability will be transformed by maximising the benefit of digitalisation and ensuring the correct skillsets and processes are in place to manage increasing variability and complexity of the GB Power System.

**Enabling Smarter, Cleaner Markets**

NESO will evolve key market frameworks to enhance market signals and improve market access, and provide open access to systems and data. This will increase competition, reduce supply and price risks, support flexibility and innovation, and enable efficient market participation of new technologies and distributed resources.

**Driving Whole-System Resilience**

NESO will drive improvements in whole energy system security and resilience by being the catalyst for coordinated and prioritised action across the system to address risks. We will deliver clear insights and advice to our stakeholders through robust analysis, systematic, and topical assessments, reviews, emergency exercises, and plans -grounded in an evolving understanding of system risks and interdependencies. This cycle of continuous learning, assessment, and action will reinforce NESO's position as a trusted technical authority and enhance system resilience.

**Delivering a Decarbonised, Operable Grid**

NESO will enable efficient connections and coordinated system standards, delivering a resilient, operable and decarbonised energy system whilst reducing barriers to entry. Reordering the connections queue will ensure timely and efficient network connections that support system growth and delivery of CP30. This will be underpinned by a reimagined and transparent enduring connections process, whilst maintaining coordinated operability standards across an increasingly complex, decentralised energy system.

**Building a Digitally Connected Energy System**

NESO will enable a digitally connected energy system through open data, smart standards, AI and interoperable tools accelerating innovation, broadening participation, and driving system-wide efficiency. This will accelerate digitalisation across the energy sector by enabling data access, interoperability, innovation and driving collaboration across the sector.

Our DD&T investment portfolio supports NESO in delivering against these Roles and Performance Objectives, whilst also supporting us on our journey to becoming a Digital Leader, as outlined in our Digitalisation Strategy and Action Plan (DSAP). Part 3 of this Annex is organised by Role to clearly demonstrate the link between a DD&T investment and the objective it supports.

Beyond our core Roles, our Enabling Functions provide the essential foundations for effective delivery. Part 4 outlines the DD&T investments that support and strengthen these functions.

## 1.2 DD&T Portfolio Structure

The DD&T investment portfolio is structured around our Roles to provide a direct line of sight from our Corporate Strategy (informed by regulatory responsibilities), through to the DD&T investments. This enables a clear articulation of how a DD&T investment contributes to NESO achieving its primary goals.

## Technology Business Management (TBM)

During the RIIO-2 period, we adopted the Technology Business Management (TBM) taxonomy to monitor our portfolio expenditures. This internationally recognised standard, governed by the TBM Council, allows us to categorise costs by role, benchmark expenditures, and pinpoint areas for efficiency gains. In the NESO1 period, our DD&T spending will continue to adhere to TBM principles, promoting transparency and accountability in our financial oversight. Utilising the TBM framework enables us to make data-driven decisions, optimise cost, and clearly demonstrate the business value of our technology investments.

## Investment themes

Whilst grouping investments by our Roles creates a clear strategic link, it does not fully convey the nature of a DD&T investment. For this, NESO also applies a thematic approach to categorise investments to better understand their purpose and impact.

This includes a strong emphasis on Artificial Intelligence (AI) and data, where we are building advanced capabilities to improve forecasting, decision-making, and system operations. We are also investing in major platforms and new digital products that deliver scalable, user-centric solutions across the energy system. In parallel, we continue to strengthen our security and resilience, ensuring robustness and reliability of our digital infrastructure, whilst actively remediating technical debt to modernise and enable future innovation.

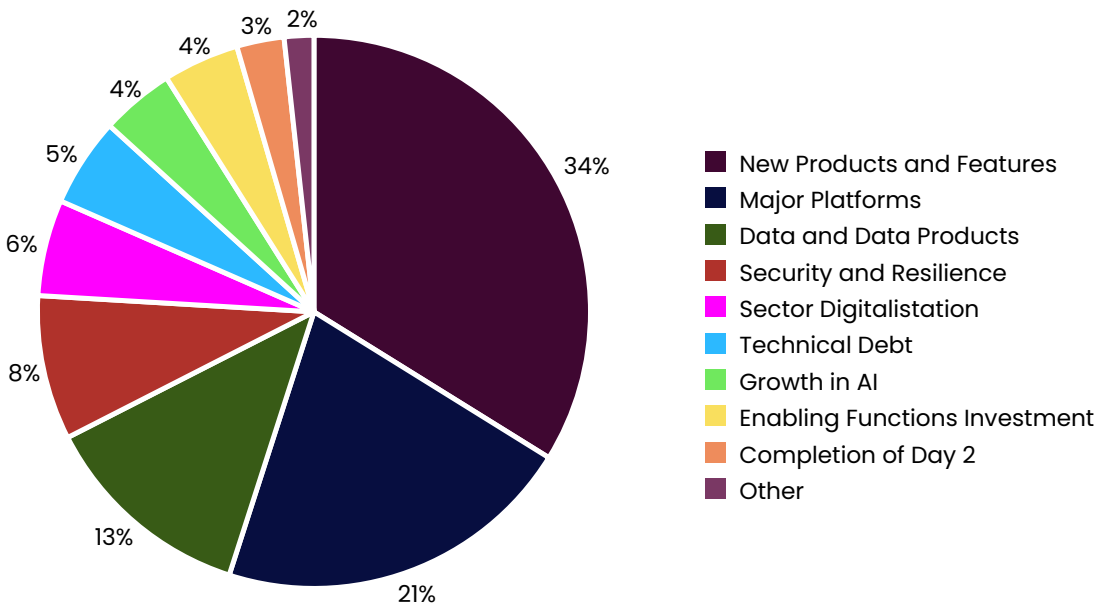



Figure 3: **Exhibit 1.3: DD&T portfolio spend by investment**

## 1.3 DD&T Governance Structure

Our NESO Technology leadership team is led by our Chief Information Officer (CIO). Our CIO sits on the NESO Executive Team, providing overarching leadership on the development and delivery of the organisation's DD&T strategy.

Reporting to the CIO is the DD&T Leadership Team, who using several management methods, govern the DD&T portfolio. These methods include:

- **Weekly or fortnightly project checkpoints:** to proactively manage key product artefacts, RAID logs, and progress against KPIs and management information.
- **Monthly Programme Management Board (PMB):** a monthly review of programme health, designed to guide and steer direction of the programme and constituent projects. This includes the reviews of budget, risks, issues, dependencies, and change impacts.
- **Wider business governance forums:** these include the Sanctioning Committee, the Executive Committee (ExCo) and the Operations Executive Committee (OpCo).
- **Technology Business Management (TBM):** TBM enables the provision of cost transparency and empowers our leaders with the insight required to optimise spend, create value, and deliver regulatory assurance. We continue to deliver on the TBM Roadmap that was co-developed with Ofgem to progress towards digital leadership in cost and value.

Our DD&T investments are delivered through a blended resource delivery model, comprising of NESO personnel who are supplemented by third party partners.

## 1.4 Stakeholder Engagement

### Ofgem

The Cost Monitoring Framework (CMF) is NESO's mechanism for reporting DD&T delivery performance to Ofgem. Its purpose is to increase transparency and support data sharing during business planning periods. The CMF provides visibility of our delivery plans, achievements, decisions, risks, dependencies, and associated costs. In BP3, the CMF was expanded to include TSA activities.

During the BP3 period, we further refined the CMF and received positive feedback on both its ongoing delivery and the strong, collaborative relationship built between NESO and Ofgem teams.

An independent delivery review, facilitated by Ofgem, was also undertaken during BP3. This review provided a clear assessment of our delivery performance and methodology. The feedback received has been useful for refining our internal processes. Together with the continued development of the CMF report, this has enhanced the granularity of our reporting and strengthened DD&T's working relationship with Ofgem.

We will continue to prioritise providing transparency throughout the NESO1 period.

### Industry

We undertake extensive engagement with the industry to deliver on our DD&T ambitions. Across the BP3 period, we have engaged with stakeholders through several NESO-wide and DD&T specific events. In NESO1 we will continue to engage with external stakeholders through publications available on the NESO website.

Table 2: **Exhibit 1.4: Table outlining specific DD&T mechanisms used to engage Ofgem and industry**

| Mechanism | Objective | Frequency |
|---|---|---|
| Cost Monitoring Framework (CMF) | NESO's CMF is a tool that tracks the progress and cost management of DD&T delivery, providing Ofgem with a transparent view of the value delivered by the DD&T investment portfolio, as well as the key achievements, risks and strategic decisions that have been made within the quarter. A summary of the CMF report is shared with the industry every 6 months via the Incentives report. | 3 months |
| Digitalisation Strategy and Action Plan (DSAP) | The DSAP shares our approach to digitalisation and how we deliver products and services to meet our customers' needs. This includes the roadmaps for cross-cutting efforts and deliverables in the NESO1 period, which are periodically refreshed. | 6 months |
| Technology Advisory Council (TAC) | The TAC advises NESO on its digital, data and technology related innovation and transformations, including cross-industry initiatives. TAC is made up of a diverse range of experts including participants from network companies, market participants, consumer groups, academia and technology companies. It ensures we work closely with the industry on the development of new systems and provides transparency and accountability for their development. | 3 months |
| Specific investment engagement | Individual investments each adopt an appropriate approach for engaging with external stakeholders, allowing clarification of stakeholder needs, collaboration sessions and updates on delivery plans that impact industry and/or market participants. | Cadence determined by each Investment |

## 1.5 Portfolio Risks

We have identified six portfolio level risks that apply to some or all our DD&T investment lines. Risks specific to individual investments are detailed in the relevant narratives in Parts 3 and 4 of this Annex.

Both portfolio and individual investments risks are evaluated using NESO's standard risk scoring methodology. Scores are applied before mitigation actions are considered. An overview of this methodology can be found in Part 5.4.

Table 3: **Exhibit 1.5: Table outlining DD&T portfolio-level risks with mitigations**

| Risk | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that relationships with third party providers are not aligned to NESO priorities leading to lower NESO service and capability provision. | • Maintain regular engagement cadence with third party providers.<br>• Provide early visibility of service and capability requirements.<br>• Seek alternative or appropriate contractual arrangements with third-party providers. | 2 | 4 |
| There is a risk that dynamic market conditions and regulatory changes introduce disruption to our investments which may prompt rework. | • Proactive stakeholder engagement.<br>• Portfolio level prioritisation through the NESO1 period.<br>• Monitor adjustments to government / regulatory targets. | 3 | 2 |
| There is a risk that benefits realisation is delayed if dependencies that exist across directorates and investments are not appropriately managed. | • Maintain robust dependency management with portfolio level RAID reviews.<br>• Clear alignment and engagement across dependent investments. | 4 | 2 |
| There is a risk that delivery could be delayed, or costs increased due to a lack of internal resources and capability onboarded in time to align to delivery plans. | • Continue to review and maintain resource capability requirements for DD&T investments, identifying skills gaps quickly.<br>• Continuation of current internal staff development in line with the DSAP to address key skill areas.<br>• Continue to utilise existing established partners and drive early engagement on resource support requirements. | 3 | 2 |
| There is a risk that NESO separation activities may lead to a delay or impact on NESO1 delivery plans. | • Impact assess NESO1 and separation delivery plans for areas of potential challenge.<br>• Identify delivery mitigations (if appropriate) and agree with Ofgem, maintain close engagement throughout. | 4 | 2 |

# Part 2 – DD&T Investments

## 2.1 Investment Narratives

The following sections provide a summary of NESO's new and continuing DD&T investments. Investments are grouped by Role to give a clear view of how each investment contributes to the outcomes NESO is working to achieve across Great Britain's whole energy system.

As agreed with Ofgem, the detail provided varies depending on whether the investment is new or continuing. For some continuing investments, supplementary sections have been included where appropriate to provide additional context and depth, particularly where it enhances understanding of the investment's nature and evolution.

See Exhibit 2.1 and Part 5.2 for a summary of continuing vs. new investments and Exhibit 2.2 for a description of each narrative section.

Table 4: **Exhibit 2.1: Investment summary structure**

| New Investment | Continuing Investment |
|---|---|
| Overview | Overview |
| Current State | Current State |
| Future State | Future State |
| Roadmap | Roadmap |
| Costs | Costs |
| Approach | |
| Risks / Issues | |
| Assumptions | |
| Alternative Options | |

Table 5: **Exhibit 2.2: Investment narrative section descriptions**

| Section | Description |
|---|---|
| Overview | **A high-level summary of the investment** articulating why it is needed and the capability and/or outcomes it is looking to deliver. |
| Current State | **A description of the investment's current state**, at the start of the NESO1 period. |
| Future State | **A description of the ambition for the investment** across the NESO1 period and beyond, including the expected outputs and capability delivered. |

| Section | Description |
|---|---|
| Approach | **An outline of the intended solution approach** taken to deliver the investment. |
| Roadmap | **A summary of key milestones** that each investment will deliver against.<br>• The milestone dates presented reflect our current delivery visibility. These may evolve as we respond to shifting priorities, product roadmaps, or regulatory changes. Our agile delivery model and principles provide the flexibility needed to remain aligned with business needs, within a rapidly changing landscape.<br>• We have indicated whether each investment is expected to complete within the NESO1 period. For investments expected to deliver beyond NESO1, we have provided an estimated completion timeframe. Where this is not yet defined or understood, we will confirm the completion timelines during FY27 through the CMF process.<br>• Only milestones are included in the roadmap diagrams. |
| Costs | **A summary of expected investment costs** for FY27 and FY28, broken down by Capital Expenditure (CapEx), Operational Expenditure (OpEx), and Total Expenditure (Totex).<br>• Where an investment includes multiple sub-programmes, particularly those delivered by distinct teams, a breakdown of spend per component will be made available through the CMF process (where appropriate). |
| Risks / Issues | **A summary of the most significant risks and issues** for the investment. Please note this is not an exhaustive list.<br>• The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.<br>• Risks are actively monitored through regular project checkpoints and monthly PMBs, where mitigation activities are tracked and risk ratings are updated accordingly.<br>• Any material changes to risk ratings are escalated and reported via the CMF process. |
| Assumptions | **An outline of the assumptions and/or dependencies** underpinning the investment and the frequency at which this is reviewed. Assumption categories include Delivery, Cost, Timelines, Support, and Scope. |
| Alternative Options | **An outline of any alternative options considered** for the investment. Where no alternatives are presented, this is either because options analysis has not yet been undertaken, or because viable alternatives were previously explored and documented in earlier Business Plan submissions. |

## 2.2 Updates to Investments

The DSAP outlines our ambition to become a digital leader and drive the collaborative digitalisation of the whole energy system. The digitalisation journey we are undertaking is driving broader changes in business culture and operations, with a focus on embracing reinvention rather than incremental improvements to legacy processes or technology.

We aim for our investments in NESO1 to reflect this 'Digital First' approach. As part of this, some investments in our DD&T portfolio have been restructured or renamed to better articulate the capability or outcome being delivered. This is instead of referencing the tool or platform associated with the investment.

For example, the investment NESO1-400 Open Balancing Programme (OBP) aims to move NESO towards a unified system that co-optimises key balancing activities to improve operational efficiency, transparency, and cost-effectiveness. This will be achieved through the combined delivery of the BP3 investments: 180 Enhanced Balancing Capability and 480 Ancillary Services Dispatch, with legacy system functionality progressively integrated into OBP to enable the phased retirement of legacy platforms, while continuing to enhance balancing capabilities.

For a full mapping of changes to investments from BP3 to NESO1, please see Part 5.1.

## 2.3 Overall Cost Position

For the NESO1 period, we are forecasting a budget of £578m to deliver investments across our Roles, Enabling Functions, and the Enterprise.

Table 6: **Exhibit 2.3: Overall cost position**

| Spend by | FY27 Total | FY28 Total | Total |
|---|---|---|---|
| Role | £251m | £230m | £481m |
| Enabling Function | £15m | £12m | £27m |
| Enterprise | £41m | £28m | £69m |
| **Total** | **£307m** | **£271m** | **£578m** |

# Part 3 – Investments by Role

This section comprises of the DD&T investments which support NESO to deliver the Roles across the organisation.

## 3.1 Energy Markets

### Capacity Market and Contracts for Difference Regimes (NESO1-320)

**Overview**

The Capacity Market (CM) and Contracts for Difference (CfD) regimes were introduced under the Energy Act 2013 to help deliver a secure, reliable, and affordable electricity supply while supporting the transition to a low-carbon future. Appointed as the Electricity Market Reform Delivery Body (EMR DB), we are responsible for administering both these two core mechanisms designed to tackle the challenges of decarbonisation and energy security.

The CM & CfD investment aims to maximise operational efficiencies across technology function enabling the delivery body to meet its regulatory obligations to achieve the policy intent.

In the RIIO-2 period a new Capacity Market portal was implemented on the Salesforce software, as a service platform to provide a flexible system to manage policy change and continuous improvements. A review of the Contracts for Difference system was completed against the ongoing Review of Electricity Market Arrangements (REMA) led by DESNZ, which resulted in a decision to progress a series of enhancements to the current on-premises platform rather than to invest in a full technology replacement, ensuring continuity of service through to the end of BP3 and beyond.

This investment consolidates the following BP3 investments:

| Investment ID | BP3 Investment Name |
|---|---|
| 320 | EMR and CfD Improvements |
| 820 | Contracts for Difference (CfD) |

**Current state**

The CM programme provides a system to ensure that the delivery body can continue to meet obligations in:

- **Running the market:** we run competitive auctions to secure enough electricity capacity, both generation and demand-side response, to meet future needs. This includes Registering participants, managing the prequalification process and conducting the auctions.
- **Managing agreements:** we oversee capacity agreements awarded through the auctions, ensuring providers are prepared to deliver when needed.
- **Monitoring performance:** we track and enforce provider commitments, especially during system stress events, to ensure reliability.

The CfD programme provides a system to ensure that the Delivery Body can continue to meet obligations in:

- **Assessing Applications:** we review CfD applications to ensure they meet eligibility criteria and notify applicants of the outcome. We also manage any disputes that arise from qualification decisions.

- **Determining Auction Need:** if total demand from qualified applicants exceeds available capacity, we trigger a competitive auction to allocate CfD agreements.
- **Running the Auction:** we administer the CfD auction allocation process, ensuring it is fair, efficient, and awards contracts correctly.
- **Regulatory Reporting:** throughout the round, a series of reports need to be provided to DESNZ and the Low Carbon Contracts Company (LCCC) to support budget setting and CfD contract issuing as well as to ensure transparency of the process.

NESO is actively implementing reforms across several market domains. As part of this investment the areas considered as relevant to the CM & CfD are:

Market Design and Operations:

- NESO is progressing implementation of Reformed National Pricing, which may have an impact on CM and CfD regimes.

Regulatory Engagement and Planning:

- NESO, as EMR Delivery Body is playing an important role in supporting Ofgem and DESNZ on policy development for CM and CfD reform.
- The organisation is influencing frameworks across REMA, Connections, Cross-border, Flexibility, and DSO domains.

**Future state**

NESO's future vision for the CM and CfD regimes investment includes:

CM and CfD Portals Capability Enhancement

- To ensure that both applications continue to deliver against regulatory requirements and policy priorities.
- To be able to deliver continuous improvements based on feedback received and prioritised with Market participants on both platforms.
- Deliver targeted enhancements to the existing technology platform on both applications to improve operational efficiency, while also addressing key security and infrastructure recommendations.

Align to the NESO strategic auction platform

- Transition from the current third-party auction platform to NESO's enduring auction capability to support long-term scalability, security, and strategic control. This initiative will automate data integration processes post-Prequalification. As a result, the aim is to ensure alignment with regulatory compliance and audit recommendations. The end goal is to deliver an integrated, compliant, and automated Capacity Market T-1 and T-4 auctions subject to a successful Proof of Concept through NESO's native platform (EAC), establishing a future-proof foundation for market operations.

Strategic Outcomes

- Accelerate decarbonisation of the energy sector whilst keep the costs low to consumers and remain security of supply technologies and vectors, including hydrogen and CCUS to the CM and CfD regimes.
- Enhanced whole-system coordination to enable efficient participation by new technologies and vectors, including hydrogen and CCUS to the CM and CfD regimes.

Digital and Operational Transformation

- The organisation is transitioning from National Grid services under TSA agreements, aiming for full operational independence by September 2026. This includes the CM and CfD Portals and supporting services.

Stakeholder Engagement and Transparency

- NESO is enhancing stakeholder engagement through SME sessions, coalition governance, and transparent reporting mechanisms. The dedicated Capacity Markets User Group has been invaluable for the CM Portal development. We will continue with the User Group as the main vehicle for customer engagement and prioritisation of improvements to the CM Portal. We will also continue to leverage the NESO Data Portal for a more user-friendly and efficient data sharing with CM and CfD customers.

### Approach

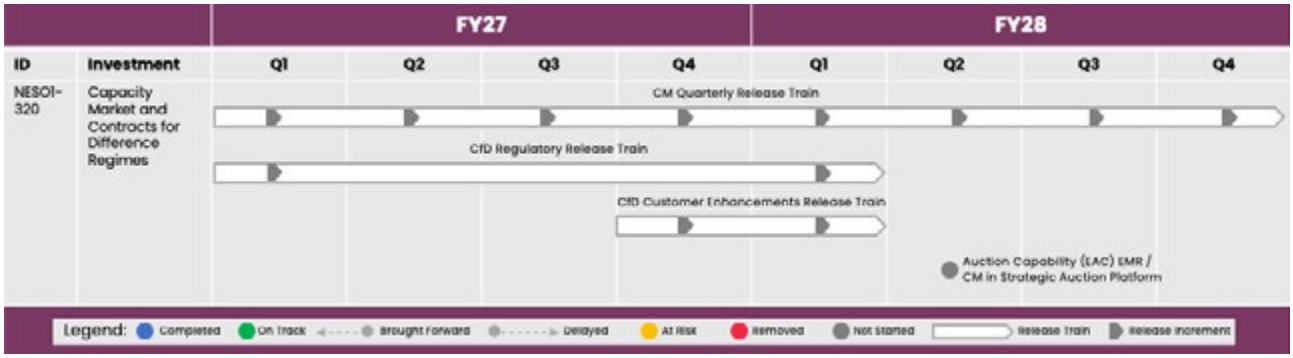
The delivery of the Capacity Management platform and the subsequent enhancements are run as an agile project that can re-prioritise its backlog on an ongoing basis to optimise delivery of regulatory changes, business value and react to user feedback.

The delivery of the ongoing enhancements for the CfD platform follows an Agile framework as well and will be bought closer to the model used to deliver the Capacity Management platform changes through the course of BP3 and beyond.

### Roadmap

Milestones for delivery are confirmed once a release scope has been mobilised, and it has proceeded through our start-up stage. Delivery of the requisite regulatory changes, customer / process enhancements and technical enhancements that form part of each of the below release trains will be communicated via the Cost Monitoring Framework reporting.

The roadmap below accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1 given the continuous enhancement requirements to Capacity Market and Contracts for Difference portals.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | CM Quarterly Release Train | Delivery of the requisite regulatory changes, continuous improvements and technical enhancements. | Every quarter |
| Milestone | CfD Regulatory Release Train | Delivery of the requisite regulatory changes, continuous improvements and technical enhancements. | Q1 FY27 & Q1 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Feature | CM Regulatory Changes FY27 | Deliver required regulatory change ensuring compliance to consultations conducted by Ofgem and/or DESNZ ensuring operational effectiveness and maintaining a mature level of technology health. | Q1 FY27 |
| Feature | Assessment Compatibility: Auction Capability EMR / CM in Strategic Auction Platform | Demonstrate EAC compatibility to the CM auction process. | Q2 FY27 |
| Milestone | CfD Customer Enhancements Release Train | Delivery of the requisite regulatory changes, continuous improvements and technical enhancements. | Q4 FY27 & Q1 FY28 |
| Feature | CM Regulatory Changes FY28 | Deliver required regulatory change ensuring compliance to consultations conducted by Ofgem and/or DESNZ ensuring operational effectiveness and maintaining a mature level of technology health. | Q1 FY28 |
| Milestone | Auction Capability (EAC) EMR / CM in Strategic Auction Platform | EMR / CM in Strategic Auction Platform: Technical and operational Readiness. | Q2 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £6.8m | £7.2m | £14.0m |
| OpEx | £0.4m | £0.5m | £0.9m |
| **TotEx** | **£7.2m** | **£7.7m** | **£14.9m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that currently no detailed understanding of government policy changes expected across the NESO1 period are understood, other than key focus areas, leading higher levels of change than expected. All forecasted costs are based on regulatory changes delivered in RIIO-2 period and should regulatory changes on CM and/or CfD be significantly larger, there is a risk of the allocated funds not being sufficient to deliver such changes. | Maintain active monitoring of policy and regulatory developments. | 5 | 5 |
| The transition to a decarbonised energy system requires current gas-based market participants to either retrofit their assets or exit the CM. In the short term, gas units remain essential for system stability, creating a dependency that may require alternative arrangements within or outside of the CM. These implications are not yet fully defined, introducing uncertainty on market design options. | Monitor decarbonisation policy developments and timelines and ensure suitable actions to mitigate issues / challenges. | 2 | 4 |
| During BP2, the CfD system wasn't replaced because the future market design was uncertain. Instead, improvements were made to the existing CfD portal during BP3, including software upgrades. According to the latest REMA updates, the government (DESNZ) won't consider major changes to CfD until at least Allocation Round 9 (2027). The extent of those changes is currently unknown. In the worst case, the CfD market could be completely redesigned, which would need major updates and investment. | Conduct scenario planning for potential CfD redesign. | 2 | 5 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost / Scope | Assume that EAC will host the T-1 and T-4 auctions for FY28. | Auction Capability | Quarterly |
| Cost / Scope | This investment assumes that the lift and shift migration from Rackspace to Azure will be completed in FY26. | Ability to execute allocation rounds in NESO1 will be impacted. | Quarterly |
| Cost / Scope | Assume that market changes required to CfD during FY27/ FY28 do not require the platform to be replaced or necessitate significant transformation. | A full replacement of CfD platform or a significant transformation would require significant investment not accounted for in this estimate. | Quarterly |
| Scope | Complexity, volume and size of policy changes required to be implemented will be consistent with the RIIO-2 period. | Changes that are more complex, require more effort or a significantly larger in number would require significant investment not accounted for in this estimate. | Quarterly |

### Alternative options

As this is an investment that has merged EMR and CfD Improvements (320) and Contracts for Difference (820), it has not explored alternative options as it is building upon the work of the previous investments – where alternative options had been explored during the inception of those investments, they have been recorded in previous business plans. If future regulatory changes require additional solutions to be considered, NESO will inform Ofgem of them through the existing regulatory processes.

## Flexibility Enablement (NESO1-350)

### Overview

Flexibility Enablement consolidates two strands of work into a single, outcome-driven programme:

1. Delivery of distributed energy data ingestion, standardisation, and sharing across NESO.
2. The productionisation of CrowdFlex models (AFM/EDM) so domestic flexibility insights move from innovation into supported business-as-usual services.

Together, these changes will allow NESO to see value and dispatch distributed flexibility at scale, improving forecasting, outage planning, real-time operations and restoration, while reducing balancing costs and enabling Clean Power 2030.

Distribution-connected assets are growing rapidly, yet NESO's visibility and access remain incomplete and fragmented—particularly for consumer energy resources, where today's signal into NESO systems is minimal. At the same time, domestic flexibility capabilities proven in trials (e.g., sizing auctions, assessing delivery certainty, understanding pre-/post-event demand impacts, and evaluating bid value for money) are not yet embedded in NESO platforms or processes. Without targeted investment to industrialise data ingestion and analytics, NESO will continue to face operability risks and forego consumer value from distributed flexibility.

Flexibility Enablement directly advances Clean Power 2030 by scaling access to distributed flexibility; enhances Consumer Value through better auction sizing, bid evaluation and delivery certainty; accelerates Digitalisation and Data Sharing via standardised ingestion, APIs and production analytics; and underpins Secure and Resilient Systems by improving visibility for constraint management and supporting restoration outcomes. It positions NESO as a digital leader in flexibility operations, with the capabilities to expand participation, coordinate effectively across the system, and deliver reliable, low-carbon operation at the lowest reasonable cost.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 650 | DER & CER Visibility |

### Current state

At the outset of NESO1, Flexibility Enablement is an early-stage delivery investment that consolidates two existing workstreams into an outcome focused programme. The scope is defined at a high level grounded in prior discovery and impact assessments from CrowdFlex. The investment is a follow-on and productionisation step:

- The first workstream is defining the roadmap and conceptual architecture for distributed energy data ingestion, standardisation and sharing (including an Operational Data Sharing MVP and alignment to a future dispatch API). This will progress NESO-wide ingestion and data sharing capability for DER/CER static, real-time, market and post-event data, while locking down dependencies and partner commitments for the longer-term roadmap.
- CrowdFlex is an innovation project, with NIA funding scheduled to finish in March 2026, with agreed BAU use cases and user groups identified across NESO. The focus for this business plan is to plan and mobilise productionisation — hardening the CrowdFlex AFM/EDM models on NESO platforms (AAE/DAP), establishing governed data pipelines to/from FSPs and internal systems, putting in place model ownership, develop support processes and training.

Without targeted investment, NESO risks continued operability challenges and missed consumer value opportunities as distributed assets scale up. The current capability gap includes:

- **Data visibility & interoperability:** fragmented DER/CER data, limited standard interfaces, and no NESO-grade ingestion route.

- **Analytics in BAU:** CrowdFlex models are not yet embedded or governed for repeatable use.
- **Ownership & skills:** no defined BAU ownership, process or training for domestic flexibility models.

### Future state

This investment aims to deliver the foundational capabilities for NESO to operate distributed flexibility at scale from the first year of NESO1 and beyond. Expected outputs include:

- Delivering NESO-grade ingestion, standardisation and sharing of distributed energy data (starting with Operational Data Sharing MVP and a conceptual architecture model that functions can build upon).
- Productionised CrowdFlex models on NESO platforms with secure APIs and governed lifecycle.
- Standard dispatch interfaces to co-ordinate instructions and feedback with DSOs and flexibility providers.

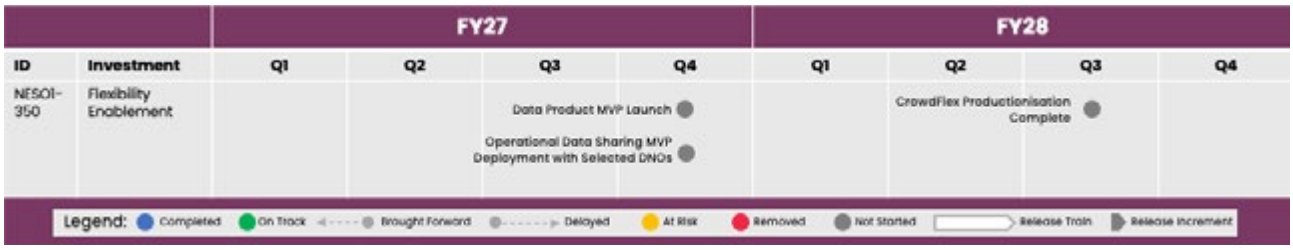
These outputs will enable NESO to integrate distributed flexibility into planning, trading and control, improve system resilience, reduce balancing costs, and support restoration and outage planning through enhanced visibility and coordination. It will establish enduring NESO capabilities to expand participation, co-ordinate effectively across the system, and deliver reliable, low-carbon operation at the lowest reasonable cost.

### Approach

This investment will be shaped through discovery and impact assessment from previous distributed energy data and CrowdFlex work. Stakeholder engagement will be conducted across DSOs, flexibility service providers, and internal NESO functions, and alignment with policy and market evolution, including flexibility market facilitation, asset registration, and market-wide half-hourly settlement.

The delivery approach will be Agile, enabling iterative development of data ingestion pipelines, model deployment, and dispatch interfaces. This ensures responsiveness to stakeholder needs and evolving system requirements, while embedding flexibility operations into NESO's digital estate with robust governance and support.

### Roadmap




This investment is likely to have delivery beyond NESO1 as the full scope of the programme is developed. The milestones are indicative of current plans, being finalised in December 2025.

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Data Product MVP Launch | Initial release addressing distributed energy data gaps and customer requirements | Q4 FY27 |
| Milestone | Operational Data Sharing MVP Deployment with Selected DNOs | Operational data sharing pilot and benefit assessment | Q4 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | CrowdFlex Productionisation Complete | BAU integration of AFM/EDM models with governed lifecycle and APIs | Q3 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £1.4m | £1.4m | £2.8m |
| OpEx | £0.5m | £0.5m | £1.0m |
| **TotEx** | **£1.9m** | **£1.9m** | **£3.8m** |

The programme is currently progressing through its definition phase, with ongoing work to clarify the full scope, delivery approach, and requirements for distributed energy data ingestion, standardisation, and sharing across NESO. As this foundational work continues, certain dependencies and partner commitments are still being established, and the conceptual architecture is yet to be finalised. Given these factors, NESO is not seeking full funding for this work at this stage. Instead, we will return to request investment once the programme's delivery roadmap and requirements are more fully understood and agreed with stakeholders. This approach ensures that future funding requests are robust, targeted, and aligned with the actual needs and opportunities identified through the definition process.

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| Misaligned expectations and uncoordinated delivery efforts | Define RACI; develop governance framework and detailed scope | 4 | 3 |
| Delays in CER discovery due to dependency on Ofgem consultations | Monitor consultation outcomes; replan CER discovery initiation accordingly | 3 | 4 |
| Scope changes from Ofgem flexibility consultations impacting Discovery value | Ongoing assessment of flexibility position; document assumptions; collaborate with NESO leads | 3 | 4 |
| Unclear delivery responsibilities between Registration/Forecasting | Create detailed scope documentation; implement accountability tracking | 4 | 3 |
| Lack of stakeholder confidence in DER/CER modelling outputs | Conduct UAT; publish results; engage stakeholders in tool development | 3 | 3 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| Security risks from hosting NIS apps on NG Azure estate | Accelerate NESO Azure migration; implement security tier model for NIS apps | 3 | 4 |
| Unclear delivery responsibilities between Flexibility programme & Registration/Forecasting | Create detailed scope documentation; implement progress and accountability tracking | 4 | 3 |
| Potential misalignment of external stakeholder expectations of when the CrowdFlex Models will be implemented in BAU | Business to confirm / validate project thinking of when models will be used in BAU | 3 | 3 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Programme Dependencies | Conceptual Architecture will be approved by Q4 FY26, enabling downstream technology planning. | Technology Architecture, Data Product Roadmap | Quarterly |
| Innovation Transition | Crowdflex AFM/EDM models will be ready for productionisation by Q4 FY26 – the last model development scheduled for Nov 25. | Model Integration, Platform Readiness | Quarterly |
| NESO Ownership | Models are assigned to business owners in NESO for productionisation with delivery of products driven through these owners. | Flexibility Enablement | Monthly |
| Stakeholder Engagement | DSOs and FSPs will commit to data sharing and dispatch interface standards. | Coordination, Data Ingestion | Quarterly |
| Policy & Regulatory | Ofgem consultations will not materially delay CER discovery or flexibility market facilitation. | Discovery Planning, Market Integration | Quarterly |
| Technical Readiness | NESO infrastructure will support secure APIs and data pipelines for CrowdFlex models | Security Compliance | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Market Evolution | Flexibility market mechanisms (e.g. auction sizing, bid evaluation) will remain aligned with CrowdFlex model capabilities as these market designs evolve. | Consumer Value, Forecasting Accuracy | Quarterly |
| Organisational Alignment | Clear RACI and governance will be established between programme, Registration, and Forecasting functions. | Delivery Accountability, Scope Management | Monthly |

### Alternative options

**Crowdflex Option 1 Do Nothing – Await Full Market Design for Consumer Flexibility:** This option would involve pausing further investment until consumer flexibility markets are fully designed and operational. While this approach avoids premature alignment with evolving market structures, it carries a significant drawback: NESO would not realise the benefits of its prior investment in CrowdFlex. Valuable insights and capabilities developed through innovation trials would remain unused, delaying NESO's ability to scale distributed flexibility and undermining its contribution to Clean Power 2030. Additionally, this approach risks NESO falling behind in readiness for future market facilitation and dispatch coordination.

**Crowdflex Option 2 DNO - Led Model Rollout:** An alternative path would be to allow Distribution Network Operators (DNOs) to independently roll out domestic flexibility models. While this decentralised approach may reduce NESO's immediate delivery burden, it risks fragmentation across the energy system and inconsistent standards for data ingestion, dispatch coordination, and model governance. NESO believes it should coordinate and lead the development of consumer-led flexibility to ensure models are interoperable, scalable, and usable across the entire energy system. This leadership role would not only enable NESO to deliver system-wide value, support restoration and outage planning, and reduce balancing costs through unified flexibility operations, but also aligns with NESO's emerging responsibilities under the Digital System Intelligence (DSI) function—ensuring data consistency, system-wide visibility, and strategic coherence in the digitalisation of flexibility.

## Market Access and Procurement (NESO1-340)

### Overview

The NESO Market Access & Procurement investment will focus on the design, operation, and governance of electricity markets and procurement mechanisms.

This strategic initiative supports NESO's statutory duties to deliver consumer value, enable decarbonisation, and ensure system operability and resilience. Our key objectives include creating competitive and accessible markets that minimise supply and price risks and embedding transparency and auditability in market design and procurement decisions.

We will continue to improve investments which include the development of the Single Market Platform (SMP), Ancillary Services Reform (ASR), and Demand Flexibility Service (DFS).

Key objectives include:

- Enhancing market capability, engage consumers in flexible energy, and improve system operations.
- Creating competitive and accessible markets that minimise supply and price risks.
- Embedding transparency and auditability in market design and procurement decisions.

Merging previous BP3 investments into the Market Access and Procurement investment enables NESO to streamline governance and deliver integrated market solutions that prioritise consumer value and system resilience, while optimising interfaces between strategic platforms such as Salesforce (SMP), N-Side (Auctions), and Oracle (STAR).

This investment consolidates the following BP3 investments:

| Investment ID | BP3 Investment Name |
|---|---|
| 400 | Single Markets Platform |
| 400 | Ancillary Services Reform |
| 420 | Auction Capability |
| 610 | Settlements and Revenue |
| 680 | Local Constraints Market |
| 710 | Primacy |

### Current state

The investment is currently in a phase of active transformation and implementation, with several foundational elements already in place:

- Procurement Policy & Process Design
- Technology Enablement
- Market Development
- Stakeholder Engagement

### Single Market Platform (SMP)

SMP is the primary asset and unit register for day-ahead balancing services (enduring Frequency Response and Reserve products). SMP also supports the Regional Development Programme (RDP)

onboarding processes and unit level onboarding for DFS. In BP2 and BP3, SMP took responsibility for all Balancing Mechanism registration processes within NESO. It manages and optimises the changes and integration required to the upstream and downstream systems to underpin the introduction of new reformed services into the market. In addition, SMP seeks to enable alignment and interaction with wider Distribution System Operator (DSO) and flexibility markets as they develop with greater levels of data exchange; as an example, this will see SMP data used within Risk of Conflict reporting to support Primacy.

### Ancillary Services Reform (ASR)

ASR is central to NESO's efforts to deliver a secure, flexible, and decarbonised electricity system. Since RIIO-2 began, ASR has modernised the procurement and delivery of essential balancing services, supporting increased system flexibility, transparency, and consumer value. ASR has already achieved significant consumer savings and fostered a more competitive market. In BP3, NESO's first year as an independent public corporation, ASR continues to advance the UK's clean energy goals with efficient, data-driven ancillary services.

Phase 1 of the co-optimised Quick Reserve (QR) auction ran in December 2024, delivering efficiencies in system balancing and potential consumer savings of £29–£32 million annually.

Phase 2 of Quick Reserve (QR), delivered in September 2025, enabled non-BM units to participate, with updates to SMP, EAC, OBP, and STAR improving processes for market participants.

Monitoring, reporting, and penalties for Dynamic Response went live in April 2025, allowing NESO to enforce key requirements and ensure effective use of consumer funds.

### Primacy

NESO is increasingly using Distributed Energy Resources (DERs) for system flexibility, but actions by Distribution Network Operators (DNOs) can sometimes counteract NESO instructions. The Primacy framework clarifies which party's requirements take precedence, aiming to improve forecasting, data sharing, and auction processes. Its delivery will result in more efficient flexibility procurement, clearer value signals for providers, and better coordination between NESO and DNOs. Completion is expected in Q4 FY26, enabling improved data sharing and visibility of conflicting requirements.

### Auction Capability (EAC)

Auction Capability (EAC) has advanced significantly, with Response, Balancing Reserve, and Quick Reserve (nBM) now fully operational. Notable enhancements include the technical deployment of Linked Service Windows for Quick Reserve (awaiting business activation) which improves coordination with risk periods and secures consistent MW contracting across windows.

### Digital Delivery for Settlements and Revenue (formerly STAR)

During BP2, migration of all revenue services to STAR was completed and legacy systems were decommissioned. During BP3, the programme continued to enhance the revenue services and eliminate End User Developed Applications (EUDA), to improve operational efficiency, reduce risk of errors and delays, and ensure regulatory compliance.

The programme is planning to complete the transition of the remaining settlements services to STAR in BP3 to enable the decommissioning of ASB. A new suite of Reserve services is also being added to the programme, these services have required new interfaces which enable suppliers to submit second by second metering data, which leverage STAR's high volume data processing capabilities.

### Demand Flexibility Service (DFS)

When National Demand (electrical energy used by consumers across GB) is at its highest, particularly during peak winter days, NESO would expect all available energy generation to be available and running, potentially with interconnectors imports and some demand-side response through price sensitivity and trade-avoidance. Our DFS incentivises demand reduction by enabling suppliers or aggregators to be rewarded for reducing consumption at peak time and

sharing these rewards with end consumers that participate. NESO sees the continued participation of flexibility as key to the development of a Clean Power system and transitioned the service to a within merit product used in conjunction with the other tools in our control room.

### Dynamic Reserve Setting (DRS)

DRS is a new real-time situational awareness capability which has been built as a part of the innovation sanctioned funding work. It gives the Control Centre operators a better understanding of changing system requirements leading to more efficient ENCC operation by improving the forecasts of regulating reserve that is required, by training a machine learning model on historic data. The DRS models will be productionised into the IT environment. This will enable the end users to view the DRS models.

### Future state

NESO's Market Access & Procurement programme aims to complete key capabilities and integrations for CP30, focusing on new market routes, enhanced response and reserve capabilities, and advanced procurement methods. The future vision includes:

- A unified platform for access, registration, and contract management, supporting ongoing reforms.
- Flexible, transparent market mechanisms for new services, promoting competition and rapid integration.
- Strengthened resilience and integrity through automation, controls, and real-time monitoring.
- Efficient network access and flexibility, with clear rules and decision-making to integrate distributed assets and manage conflicts.
- Whole-system optimisation and net zero support through seamless data sharing and process enhancement.

This investment also enables:

- Fully Independent Procurement Operations: NESO will exit Transitional Services Agreements with National Grid by September 2026, establishing standalone infrastructure and systems.
- Value for Money & Regulatory Compliance: NESO will embed value measurement frameworks (e.g. HMT Green Book, Theories of Change) into procurement evaluations to meet licence conditions and regulatory expectations.

### Single Market Platform (SMP)

SMP's ongoing priorities include responding to industry changes, enhancing user experience, and integrating with NESO and broader industry systems. SMP will continue with flexible capacity product teams which can be scaled accordingly to delivery expectations resulting in functionality to improve the user experience as well support the onboarding more services based on the customer expectations and needs.

### Ancillary Services Reform (ASR)

ASR will continue to enhance the necessary changes required to downstream systems and our control room processes to support the introduction of new services and development of existing services to the market. The delivery approach will continue allowing faster rates of development for frontend customer-facing processes, whilst working with downstream system teams to deliver market and regulatory changes in structured releases incremental enhancements to existing service line performance monitoring, data publications, and a range of other use cases.

### Primacy

The Primacy team will deliver an automated visibility solution, exchanging daily data with DNOs via APIs to identify procurement conflicts.

### Auction Capability (EAC)

The new Prevent Overbidding Mechanism for Response Services strengthens delivery accuracy, system reliability, and market integrity. Upcoming strategic upgrades include rescheduling the Balancing Reserve auction and unifying procurement windows, pending OFGEM approval, to boost efficiency and system resilience.

### Digital Delivery for Settlements and Revenue (formerly STAR)

Digital Delivery for Settlements and Revenue (formerly STAR) is evolving to support NESO's strategic objectives. Key priorities include regulatory compliance with Ofgem changes (CMP316, CMP440, CMP453), system upgrades for automated billing and settlements (integrating Ivalua and moving from SAP4 Hanna to Workday by Q1 FY27), and replacing email/SharePoint portals with customer portals for easier invoice access. Ongoing stakeholder engagement ensures smooth delivery, while architecture upgrades will improve performance, data processing, and capacity for more BMUs and new services.

### Demand Flexibility Service (DFS)

DFS will be incorporated into this programme. NESO will be able to access new flexibility that is not currently accessible through existing services and market incentives, if insufficient upwards flexibility is forecast at the day ahead stage as (DFS) has been in service to achieve electricity demand reduction.

### Approach

#### Single Market Platform (SMP)

SMP is focused on enhancing usability, integration, and delivery of new or reformed balancing services, while retaining flexibility for future requirements. Key areas include improved guidance and reporting for users; support for locational procurement, asset catalogues, and KPI dashboards; introduction of updated balancing services (such as instructible Distribution, DFS updates, and Reserve Day 2); and integration with NESO data, contracting systems, and Elexon processes. Scope and priorities will be confirmed as designs progress, supporting wider industry initiatives like FMAR, FDI, FMU, and Primacy.

#### Ancillary Services Reform (ASR)

ASR will enable instructible Dynamic Frequency Response services, integrating battery storage and new technologies to reduce costs, boost compliance, and enhance system resilience. Assets will be able to participate in multiple markets and split capacity, improving utilisation and competition. Targeted locational procurement will help manage transmission constraints and maximise system value. ASR will also support key changes in the Demand Side Flexibility Roadmap and enable network service procurement for constraint management.

### Primacy

Future phases will build on this platform:

- **Phase 1 – Visibility:** establish data connectivity with DNOs and review data quality, potentially integrating DFS data.
- **Phase 2 – Asset Exclusion:** use conflict reports to exclude affected assets from auctions or dispatch, possibly allowing partial acceptance.
- **Phase 3 – Capacity Allocation:** enable procurement up to forecast DNO headroom for more efficient use of assets.
- **Phase 4 – Co-Optimised Procurement:** develop options for single auctions optimising across NESO and DSO services.

Business process and contractual changes will be required throughout, with further direction pending from the Market Facilitator.

### Auction Capability (EAC)

Locational Procurement is currently in the Discovery stage. Phase 1, which involved a qualitative assessment, has been completed. Phase 2, focusing on quantitative simulations, is ongoing, with the final completion anticipated in the third quarter of the financial year 2026.

Regarding Electricity Market Reform and the Capacity Market (CM), there is a transition underway from a third-party auction platform to NESO's auction platform, which is aimed at improving scalability and control. Contracts for Difference (CfD) auctions remain outside the scope of this transition, as the auction process is already fully integrated within the CfD application.

Looking ahead, there are possible future requirements, including Static FFR Day Ahead and Reactive/Stability services, though these would be limited to Day Ahead operations only.

### Digital Delivery for Settlements and Revenue (formerly STAR)

The current Product Team uses an Agile DevSecOps approach, and this will continue to operate in an iterative way. As services have become operational, there has been an increased load on the Ops Support team, and we plan to leverage Site Reliability Engineering practices along with Agile DevSecOps to make the Ops Support and Delivery pipelines as efficient as possible.

### Demand Flexibility Service (DFS)

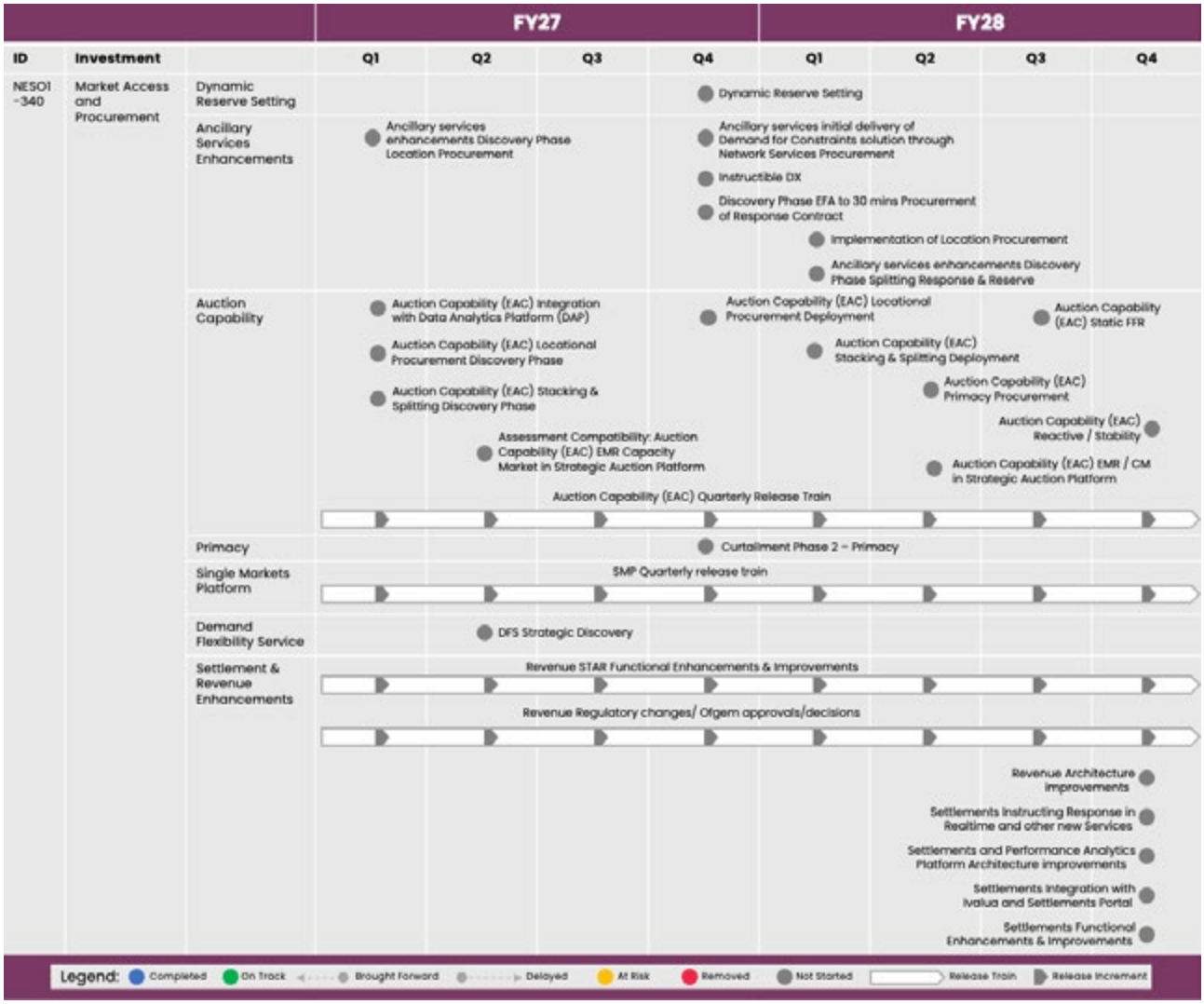
The enduring solution will provide an automated service for the Demand Flexibility Service to be enabled. The current DFS development was delivered as a tactical solution to support the service. IT delivery teams will need to establish an enduring baseline solution. Strategic options and implementation will be considered to utilise existing/new core systems.

### Dynamic Reserve Setting (DRS)

The long-term strategy for delivering Dynamic Reserve Setting (DRS) involves embedding DRS models across the broader IT architecture landscape. The DRS service will be incorporated into forecasting and predictions investment models, ensuring that the development and implementation of DRS are achieved through the forecasting investment programme.

The DRS project will deliver an innovation funded machine learning model into a production environment allowing the control room to save 400 MW of reserve capacity equalling an average saving of £2.5M in balancing cost per month.

## Roadmap




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| **Dynamic Reserve Setting** | | | |
| Milestone | Dynamic Reserve Setting | To productionise and integrate the DRS models to provide an enduring solution and embed DRS into wider architecture landscape | Q4 FY27 |
| **Ancillary Services Enhancements** | | | |
| Milestone | Ancillary services enhancements Discovery Phase Location Procurement | This is to enable the implementation of Locational Procurement and start off the Consultation process | Q1 FY27 |
| Milestone | Ancillary services initial delivery of Demand for Constraints solution through Network Services Procurement | Setup of constraints management market for flexible demand turn up, where NESO can ask a demand source to increase consumption at times of constraints | Q4 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Instructible DX | Linked to a regulatory requirement to move away from using MFR and enable more Response volume to be available in real time. | Q4 FY27 |
| Milestone | Discovery Phase EFA to 30 mins Procurement of Response Contract | This is to align Response and Reserve services to standardise the Settlement Process | Q4 FY27 |
| Milestone | Implementation of Location Procurement | Management of constraints can be done effectively, and services can be utilised in a cost-effective way. | Q1 FY28 |
| Milestone | Ancillary services enhancements Discovery Phase Splitting Response & Reserve | This will enable flexibility among Response and Reserve services | Q1 FY28 |
| Feature | Ancillary services enhancements E.g., Future changes to Reactive Power Market & Stability and Changes to Existing Reserve services I.e., Quick Reserve, Balancing Reserve and Slow Reserve | Enable Day Ahead market for Reactive and Stability services depending upon identified business need and continue to progress enhancements to other services as required. This Feature enables any enhancements to existing services which will be coming from changes to Service terms/feedback from market/ process improvement from Control Room | Q4 FY28 |
| **Auction Capability** | | | |
| Milestone | Auction Capability (EAC) Integration with Data Analytics Platform (DAP) | Integration with Data Analytics Platform (DAP) which will replace auction results publication on Data Portal | Q1 FY27 |
| Milestone | Auction Capability (EAC) Locational Procurement Discovery Phase | Location Procurement Discovery Phase with Market Design & Vendor Consultation teams to complete Qualitative, Quantitative & Technical Assessment | Q1 FY27 |
| Milestone | Auction Capability (EAC) Stacking & Splitting Discovery Phase | Completion of Stacking & Splitting Discovery Phase based on initial Market Design Requirements & Vendor Consultation team | Q1 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Assessment Compatibility: Auction Capability (EAC) EMR Capacity Market in Strategic Auction Platform | Demonstrate Strategic Auction compatibility to Capacity Market Auction Process | Q2 FY27 |
| Milestone | Auction Capability (EAC) Locational Procurement Deployment | Deployment of Locational Procurement based on Market Design, Consultation & upon OFGEM approval | Q4 FY27 |
| Milestone | Auction Capability (EAC) Stacking & Splitting Deployment | Deployment of Stacking & Splitting functionality based on Market Design | Q1 FY28 |
| Milestone | Auction Capability (EAC) Primacy Procurement | Leverage & Deploy Primacy data post-Locational Procurement implementation | Q2 FY28 |
| Milestone | Auction Capability (EAC) EMR / CM in Strategic Auction Platform | EMR / CM in Strategic Auction Platform: Technical & Operational Readiness | Q2 FY28 |
| Milestone | Auction Capability (EAC) Static FFR | *Subject to regulatory approval and business need | Q3 FY28 |
| Milestone | Auction Capability (EAC) Reactive / Stability | *Subject to business need | Q4 FY28 |
| Milestone | Auction Capability (EAC) Quarterly Release Train | Quarterly from Q1 FY27 to Q4 FY28 | Every quarter |
| | | **Primacy** | |
| Milestone | Curtailment Phase 2 – Primacy | Deploy, integrate and use the Risk of Conflict reports to exclude identified assets from auction, clearing and/or dispatch as part of ENCC's operation. | Q4 FY27 |
| | | **Single Markets Platform** | |
| Milestone | SMP Quarterly release Train | Delivery of the requisite continuous improvements and technical enhancements | Every quarter |
| Feature | Performance KPI dashboard | Monitoring for Non-Balancing Mechanism Unit (NBMU) 24x7 data | Q2 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Feature | Improve reporting capability (internal and external) | Enhancements to reporting capabilities in SMP | Q3 FY27 |
| Feature | Integration with external data sources (within NESO) | Integration with NESO internal platforms | Q4 FY27 |
| **Demand Flexibility Service** | | | |
| Milestone | DFS Strategic Discovery | Complete discovery on strategic solution for Demand Flexibility Service | Q2 FY27 |
| **Settlement & Revenue Enhancements** | | | |
| Feature | Enhance internal user experience by streamlining user interface | User Interface enhancements for better user experience | Q1 FY28 |
| Milestone | Revenue STAR Functional Enhancements & Improvements | Continual delivery | Every quarter |
| Milestone | Revenue Regulatory changes/ Ofgem approvals/decisions | Continual delivery | Every quarter |
| Milestone | Revenue Billing Portal | Enable customers to ingress and egress billing data and documents | Q4 FY28 |
| Milestone | Revenue Architecture improvements | Architecture improvements for Revenue | Q4 FY28 |
| Milestone | Settlements Instructible DX - (the introduction of a variant of the dynamic response services that is instructible in real-time.) | Required but funding/dependencies on ASR/OBP and delivery dates to be agreed | TBC |
| Milestone | Settlements Instructing Response in Realtime and other new Services | STAR to fund Discovery and sponsoring area to fund delivery | Q4 FY28 |
| Milestone | Settlements and Performance Analytics Platform Architecture improvements | Architecture improvements for Settlements | Q4 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Settlements Integration with Ivalua and Settlements Portal | Proposals to align to HR/Procurement/ Finance systems seamlessly | Q4 FY28 |
| Milestone | Settlements Functional Enhancements & Improvements | Ongoing improvements to existing services | Q4 FY28 |

*Note: A quarterly release train consists of anything between one and three scheduled releases per quarter. SMP expects to deliver between two and three releases a quarter dependent on allocated budget and there not being extenuating circumstances.*

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £21.8m | £24.1m | £45.9m |
| OpEx | £0.6m | £0.8m | £1.4m |
| **TotEx** | **£22.4m** | **£24.9m** | **£47.3m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk of double effort on delivery as the Primacy project has several dependencies on other programmes (e.g., DAP, SMP, OBP) resulting in additional unnecessary costs for NESO. | Risk is mitigated and reduced with an active governance in place to map out and identify the dependencies and once identified will engage and communicate on a regular basis to avoid the risk. | 3 | 4 |
| Ofgem has designated Elexon as the Market Facilitator, with powers to set rules for BM and ancillary service markets and digital infrastructure. There is a risk that Elexon prescribes new market rules, which may require new system requirements (affecting SMP, ASR, Primacy). | NESO is currently advocating for a narrow and clear scope for the Market Facilitator; constraining extent MF can create rules for our market. We will engage early with Elexon so that we can anticipate incoming MF rules, and we will share existing plans and outline deliverability considerations so that the rules are feasible and aligned with existing plans. | 3 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that FMAR expands beyond its original asset register scope to include unit forming, product service qualification and grid interaction, which could lead to NESO relinquishing critical functions and control, leading to uncertainty on the scope of SMP's integration with FMAR. | To mitigate the risk of FMAR scope creep, NESO will need active governance measures to identify and map dependencies early. This will drive proactive engagement and, help to maintain clarity around FMAR's original asset register scope. | 2 | 4 |
| The Capacity Market Auction parameters are governed by the Capacity Market Rules and Electricity Capacity Regulations. The CM is subject to annual review and consultations from DESNZ, which may result in a change in Auction system requirements, impacting delivery of the operational readiness. | To mitigate the risk of development delays due to scope/requirements change, EAC team will align with EMR on requirement changes to ensure target release is developed, tested & deployed as per expectations & build in commercial contingencies to cover the cost of scope change. | 3 | 4 |
| There is a risk that non availability of business SMEs could impact the delivery timelines and budget of ASR. | To mitigate this risk work closely with Business teams and align on the UAT dates with Business SMEs. | 3 | 4 |
| There is a risk that no single vendor will meet all Strategic Auction Platform RFP requirements, particularly for functionalities like the EMR Capacity Market. If EMR requirements are unmet, a new RFP may be needed, introducing additional procurement and development costs with potential budget impact in FY27–FY28. | Maintain the ability to select more than one vendor to fulfil distinct feature requirements. This approach avoids the need to initiate a new RFP process for unmet requirements, which could delay delivery timelines by up to 12 months.<br>If no vendor can develop and delivering the EMR Capacity Market Auction functionality, the EAC team will initiate a targeted RFP to select, develop, and deploy a dedicated EMR Capacity Market Auction solution by Q2 FY28. | 2 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that the required deliverables for the enabling demand side flexibility are not yet fully scoped and therefore may require additional funding to deliver. | Consider delivery of these activities in the round with other ASR deliverables to maximise efficiencies. | 3 | 3 |
| There is a risk that the scope and deliverables from SMP for future workstreams are not fully known yet (e.g., FMAR/FDI/ FMU, Primacy, Locational Procurement, CER/DER visibility, European market integration etc.) which could impact deliverability and timelines. | High Level Designs and Impact Assessments to feed into sanctioning and Backlog prioritisation to ensure milestones with the highest business benefit are delivered first. | 2 | 3 |
| There is a risk that data volumes increasing may impact system performance and/ or architecture enhancements may not be able to keep up with data volumes. | Determine programme of architectural enhancements. | 3 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Scope | It is assumed that the SMP operating model will remain unaffected by broader external or industry developments— such as FMAR, locational procurement, and CER/DER visibility. Should material changes arise from these directives, it is expected that SMP will be allocated additional resources and funding to ensure continued delivery against its commitments. | SMP | Quarterly |
| Scope | It is assumed that should Market Facilitator create rules that we are by licence required to deliver, additional resources will be made available. | SMP | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost / Delivery | Unforeseen or large regulatory changes could impact STAR along with other programmes of work, which will require further funding. | Revenue and Settlements | Monthly |
| Cost / Delivery | Delivery of new Settlement services or major changes to existing services will be funded by ASR or Market Change programmes. | ASR | Quarterly |

### Alternative options

As this is an investment that has merged several pre-existing investments, it has not explored alternative options as it is building upon the work of the previous investments. Where alternative options had been explored during the inception of those investments, they have been recorded in previous business plans. If future changes require additional solutions to be considered, NESO will inform Ofgem and other stakeholders of them through the existing processes.

## Regulations (NESO1-330)

### Overview

This investment enables us to deliver regulatory change arising from our GB regulatory and Trade and Cooperation Agreement (TCA) obligations. It exists to keep NESO compliant, enable market reform, support the UK's decarbonisation pathway, and seeks to balance our forecast with the risk of locking into premature scope or spend. It spans discovery, impact assessment and, where required, time bound delivery, coordinated closely with adjacent DD&T investments to avoid duplication and manage portfolio dependencies.

Recognising the inherent uncertainty of externally driven change (i.e., from Ofgem, Industry decisions, UK–EU arrangements), our approach is dependent on policy decisions, flexible, covers planning and discovery only, and at this stage we have not included any cost estimates for delivery.

We will return with updated cost estimates for further items once specific changes are confirmed and following detailed impact assessments. Where urgent or unforeseen changes are mandated to fixed timelines in the NESO1 period, we will use the cost pass through mechanism to fund the required changes.

The investment is designed to work seamlessly with other parts of the portfolio to manage cross-system impacts (data flows, platform touchpoints, and operational processes). This means we can shape options early, mobilise efficiently once decisions land, and demonstrably reduce risk to compliance, delivery, and consumer value.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 280 | GB Regulations and Role in Europe (RiE) |

### Current state

NESO continues to proactively manage a rolling backlog of regulatory change, ensuring ongoing compliance and the timely implementation of new requirements in line with evolving regulation. Recent and ongoing areas include Market Half Hourly Settlement (MHHS), code modifications across Grid Code (GC), Balancing and Settlement Code (BSC) and Connection and Use of System Code (CUSC), support for the Review of Electricity Market Arrangements (REMA) whilst a specific programme in NESO mobilises and targeted work that supports future integration with European Transmission System Operators (TSO)/ Regional Coordination Centre (RCC) processes (including coordination via ENTSOE/Coreso).

We have also progressed the Physical Communications Network (PCN) to secure data exchange with TSO/RCC partners and maintained Regional Security Coordination services; these activities anchor our readiness for evolving TCA related requirements and any subsequent UK–EU market discussions.

### Future state

During the NESO1 period, NESO will remain responsive to Ofgem's and the Government's strategic and tactical requirements. Delivery will focus on greater EU alignment and market frameworks, ensuring timely, compliant change that supports wider reform.

**Greater EU alignment:**

- Deliver TCA-driven changes that shape GB–EU energy trading, including the continuation and enhancement of Regional Coordination Centre (RCC) services via Coreso and ENTSOE to support security and adequacy processes.

- Continue implementing the PCN for secure data exchange with TSO and RCC partners, including a satellite-based out-of-band capability to improve resilience.
- Meeting further obligations under the TCA, MoU and Multilateral Agreements, including compliance for coordinated capacity calculation when agreed and any further TCA driven agreements.
- Following the May 2025 UK–EU agreement to explore GB access to the Integrated Energy Market (IEM), conduct targeted discovery to support those discussions and mobilise delivery if subsequent agreements are reached.

**Market frameworks:**

- Continue engagement with Ofgem on regulatory change (e.g., MHHS); mobilise resources as direction clarifies, with an expected increase in code implementations (as set out in the Assumptions).
- We will continue to support our Market Frameworks team with discovery and impact assessment as required, thereby supporting decision making and industry consultations.

### Approach

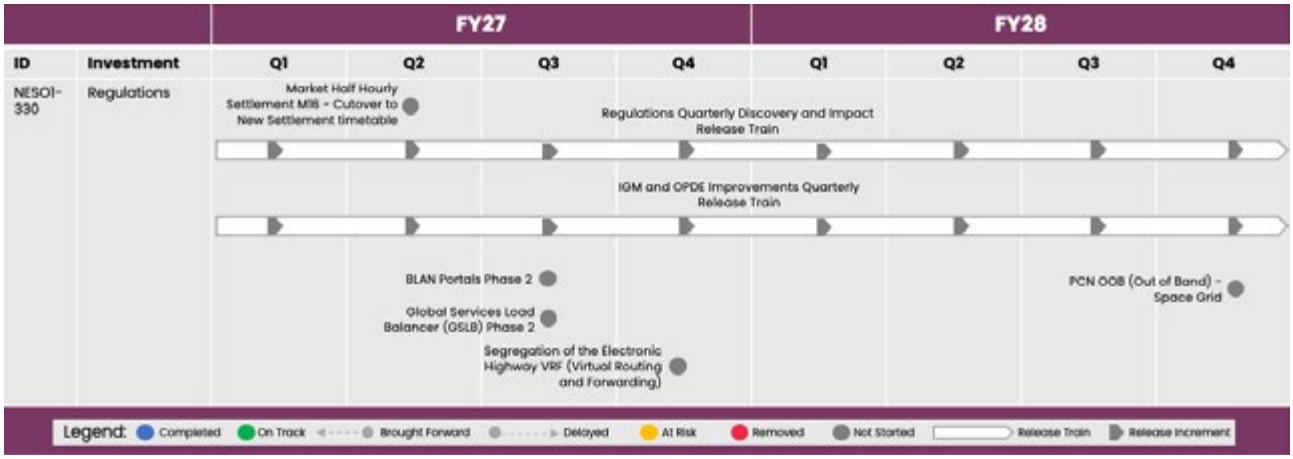
Our proven approach combines early discovery with targeted impact assessments to inform regulatory decisions and shape feasible delivery. Impact assessments provide high-level solution options and indicative costs, improving policy choices and accelerating mobilisation once proposals are approved. This is delivered in partnership with the Market Frameworks team, ensuring changes are well understood across their lifecycle and positioned to support reform.

Once a proposal is approved, we confirm the delivery route:

1. **Single-system change:** delivered by the relevant product team.
2. **Multi-system or multi-party change:** initiated as a regulatory project.
3. **Delivery method:** agile, waterfall or hybrid, selected to best manage risk, complexity and time-to-value.

### Roadmap

Please note that Ofgem milestones for delivery are confirmed (via a change request process) once a project has been formally approved and it has proceeded through NESO's start-up stage. This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.



| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Regulations Quarterly Discovery and Impact Release Train | Discovery and Impact assessment activity for regulatory changes prioritised by industry workgroups and Ofgem | Every quarter |
| Milestone | IGM and OPDE Improvements Quarterly Release Train | Upgrade Operational Planning Data Environment (OPDE) with two mandated ENTSO-E initiated releases per year. Deliver regular improvements to the Individual Grid Models (IGMs) to comply with new quality standards and suggestions from RCCs | Every quarter |
| Milestone | Market Half Hourly Settlement M16 - Cutover to New Settlement timetable | The new settlement timetable goes live, ideally within two months of the end of migration | Q2 FY27 |
| Milestone | BLAN Portals Phase 2 | SSLO (Secure Sockets Layer Orchestrator) functionality for BLAN services | Q3 FY27 |
| Milestone | Global Services Load Balancer (GSLB) Phase 2 | Migration of PCN services on to GSLB | Q3 FY27 |
| Milestone | Segregation of the Electronic Highway VRF (Virtual Routing and Forwarding) | Segregation of the Electronic Highway traffic on PCN into 3 separate VRF's to improve security | Q4 FY27 |
| Milestone | PCN OOB (Out of Band) - Space Grid | Implementation of Out of Band functionality in PCN including satellite comms installation in new DCs, to improve resilience | Q4 FY28 |

**Costs**

Funding for planning and discovery activities will be managed through business as usual (BAU) costs.

At this stage, we are seeking approval to deliver the activity however, as we are unable to predict regulatory changes, and thus the activities required to deliver on any regulatory changes, we have not provided a quantification. Where regulatory changes are mandated or arise unexpectedly, NESO will use the pass-through mechanism to secure funding for required implementation. Updated cost estimates will be provided once the scope and timing of specific changes are confirmed based on the impact assessments.

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £- | £- | £- |
| OpEx | £- | £- | £- |
| **TotEx** | **£-** | **£-** | **£-** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that regulatory plans and forecasts might require significant adjustment during this planning period. This is because regulatory changes are inherently unpredictable and depend upon external decisions and plans. | Pass-through will be used to fund anything that is unplanned or unexpected.<br>Detailed Impact assessments will result in accurate project forecasts.<br>Plans and milestones will be assessed and refined during project start-up.<br>Regular demand planning will continue. Resources supporting a variety of investments – including REMA - will be shared to maintain efficiencies. | 5 | 2 |
| There is a risk to NESO of fines, reputational damage and possible licence breaches because regulatory changes are missed or not implemented on time and to the correct standard. | Close coordination between Market Frameworks and the Regulatory Team helps ensure changes are not missed.<br>Discovery activity helps NESO avoid undesirable change, inefficient delivery and unachievable deadlines by ensuring technical constraints are considered during consultation.<br>Rigorous impact assessments also pave the way for successful delivery by detailing requirements, risks, timescales, impacted systems and by making product owners aware of future change.<br>Adhering to project controls and governance reduces risk and helps achieve successful implementation. | 1 | 5 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Discovery and Impact assessment resource to support current throughput of 30-40 assessments will be covered through BAU costs. | Cost | Monthly |
| Cost and scope | In addition to discovery and impact assessment activity, 'EU Reset' activity will significantly increase during this period. Additional funding will be required for assessments, design and implementation start-up costs. | Pass through cost sanction likely required | Monthly |
| Cost and scope | Scope of change related to RSC Services & PCN continues in-line with current plans. | Pass through cost sanction likely required | Monthly |
| Cost and scope | NESO will be instructed to implement minor projects / walk-ins (such as changes to settlement files). | Pass through cost sanction likely required | Monthly |
| Cost, scope and time | Implementation of GC0117 will commence in Sept '26 and take ~3 years to complete with total costs estimated to be £11-17mn. | Pass through cost sanction likely required | Monthly |
| Cost and scope | Changes associated with the support of the MHHS programme are expected to be minimal. Medium-long term consequential/opportunity costs arising from MHHS are expected to be funded by the investment associated with the change. | Pass through cost sanction likely required | Monthly |
| Cost and scope | We assume that c13 small code change projects will be initiated during the planning period. | Pass through cost sanction likely required | Monthly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost and scope | We believe there is a high probability that the following changes will be mobilised during FY27 and FY28. Start-up and implementation costs have been included. Notification of Demand change (via suppliers / DNO), Ramping, Grid Forming, Additional Inertia Parameters, Space weather consequential STC Mod Holistic Network Design - Offshore assets into OHA work. Design not consolidated yet. | Pass through cost sanction likely required | Monthly |
| Cost and scope | There will be no DD&T impact because of ECR, Data Best Practice and Reactive Power PPMs. | A forecast has not been included | N/A |
| Cost and scope | The following changes will be funded by separate investments; Skip rate related future Mods (post-GC0166), Restoration follow on, System Access Reform (multiple Codes). | A forecast has not been included | N/A |
| Cost | All regulatory changes affecting the Open Balancing Platform (OBP) will be funded by NESO1-400 (except for GC0117. | A forecast has not been included | N/A |

### Alternative options

Regulations, as a continuation of the GB Regulations and Role in Europe (RiE) investment, does not make architecture or solution decisions. These types of decisions are proposed by the relevant product teams during the assessment or project start-up stages.

Therefore, NESO have not explored alternative options for this investment as they do not apply – this investment simply supports product teams in developing the changes that are necessary due to regulatory changes.

# 3.2 Energy System Resilience

## Electricity Market Reform Discovery (NESO1-380)

### Overview

Within our Resilience and Emergency Management team we have our Electricity Market Reform (EMR) analytical team. The team are responsible for a variety of duties including production of the Electricity Capacity Report, mapping and maintaining EMR modelling, and their supporting processes and Strategic Planning. To enable this work, we currently use an energy market simulation tool. This discovery investment will review the capabilities of the tool vs what the team need as currently several manual coding processes must be developed to deliver this analysis.

### Current state

The current tool used and problems the team are trying to solve have a variety of complexities. The basic problem is mathematically challenging with high dimensionality optimisation problems with rare event statistical characteristics. Process overall runtime with our current tooling is slow, as it is not developed directly for the specific EMR application in mind but ported over from another use case to extend to the work. Product development to build new features and capabilities in the current tool to solve this type of underlying problem in a more bespoke manner is also slow and may take several years to fulfil at present pace of progress desired.

### Future state

We will have delivered the discovery that has investigated the various tools in the market that can be used to deliver our needs and address our current challenges. We will have identified the viable products for our use case and have provided the outputs of our discovery via the current regulatory reporting mechanisms. If a viable, value for money tool has been identified, we will conduct the appropriate next steps to understand how the tool can be introduced into the NESO ecosystem, our architecture and operations.

### Approach

Our approach for this investment is to understand the full capabilities of our current provider vs what is needed throughout the team. We will then assess alternative options across the market and develop and options framework to conclude the discovery with a recommended option to take forward and the required timescales.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period; however, we envisage this investment to proceed past the NESO1 period, subject to discovery phase findings.


| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Discovery Conclusion | Decision on if there is a tool that can deliver against our current set of challenges | Q4 FY27 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £0.3m | £0.0m | £0.3m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£0.3m** | **£0.0m** | **£0.3m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that there is not a better alternative on the market. | Work with our current provider and aim to accelerate their roadmap to deliver features on the products. | 1 | 4 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery | Current provider will not accelerate their product roadmap to address key EMR challenges. | EMR Discovery | Monthly |

### Alternative options

The purpose of this investment is to conduct a discovery of the various solution options available to us; following the completion of the discovery, we will produce the outputs of our investigation using the existing regulatory reporting mechanisms.

## Resilience and Risk (NESO1-370)

### Overview

NESO has a role to deliver Energy System Resilience (ESR). We must therefore continue to develop capabilities that allow us to fulfil our roles, aligned with our digital strategy and support the delivery of the following NESO Electricity System Operator Licence conditions:

- C7 Part A Dynamic Risk reporting (ad hoc risk reporting) which will be completed all year round
- C7 Part C Resilience Risk Assessments (annual). Year-round process to assess culminating in an annual report
- C7 Part D Emergency Processes Assessment (NGSE as required)

To support the delivery of these licence requirements, the Resilience and Risk investment will continue the work being developed with the Whole Energy Modelling (840) which will later inform the scope of works for our Cascading Impact Model for Extreme Events (CIMEE). We will also integrate two wider areas of scope into one comprehensive model. One of these components will be the integration of the virtual energy system and understanding how a CIMEE model can interact with a virtual energy system when modelling high risk low likelihood events. The CIMEE project will also if applicable integrate the findings of the innovation project Space Weather Impact for Future Electricity System Resilience (SWIFTER) with an assessment to be made on the innovation projects conclusion.

We will also create a central knowledge hub for the REM team that allows for the appropriate management of secure information below Secret level. We will create a risk management tool which will allow NESO to manage, mitigate and report on whole energy industry risks.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 840 | Whole Energy Modelling |

### Current state

Within our current BP3 portfolio we have our 840 Whole Energy Modelling investment. We expect this discovery investment to close with the recommendation of a modelling investment that will improve our understanding of cascading impact of high-risk low likelihood events. This investment will then take those recommendations forward as CIMEE. We will however be considering the wider findings of Space Weather Impact for Future Electricity System Resilience (SWIFTER) innovation project which has recently concluded as well as understanding opportunities within the virtual energy system within this investment.

Currently we do not have a consolidated whole industry risk register that we can use to manage risks across the energy system. Furthermore, we can manage secret information using ROSA but moving forward we need to be able to manage access to tools, models and reports with a variety of different levels of security allocated against them. The central knowledge hub would be created utilising Azure, our strategic tool of choice throughout NESO.

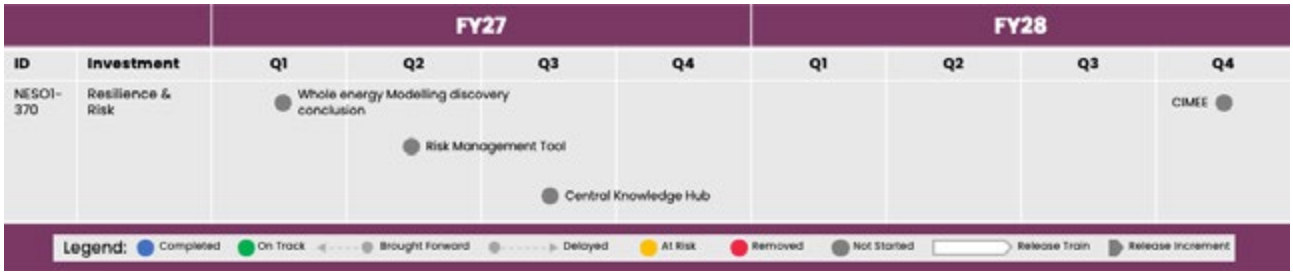
### Future state

We will have built a modelling tool able to understand the potential impact of high-risk, low likelihood events across the virtual energy system whilst also enabling whole sector understanding of potential impacts of space weather across out CNI. We will have a risk management tool and processes allowing for management, mitigation and reporting across industry risks and a central knowledge hub to store information at the appropriate classification below secret. Our target capabilities include:

- Whole energy system modelling that will enable us to continuously build upon and evolve with the changing nature of the GB energy system. The new capability will enable us to apply a whole energy system lens to consider and take input from other sectors and aspects beyond the GB electricity system. This will allow us to provide a holistic view, further providing us with insights and data on which to base future recommendations on planning activity.
- A whole energy risk register that allows us to capture, manage and mitigate identified risk.
- A central knowledge hub for all REM suite of tools and reports at an appropriate secure level.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Whole energy Modelling discovery conclusion | Understanding of scope to be delivered through the CIMEE project | Q1 FY27 |
| Milestone | Risk Management Tool | Completion of the Risk management tool for the REM directorate | Q2 FY27 |
| Milestone | Central Knowledge Hub | Completion of a secure collaborative network | Q3 FY27 |
| Milestone | CIMEE | Implementation of Beta for the CIMEE tool | Q4 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £3.0m | £3.3m | £6.3m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£3.0m** | **£3.3m** | **£6.3m** |

## Restoration (NESO1-360)

### Overview

Restoration is a strategic investment designed to meet the Electricity System Restoration Standard (ESRS), which mandates restoring 60% of regional demand within 24 hours and 100% of national demand within 5 days by 31 December 2026. This investment will build upon the core principles of the BP3 investment 510 Restoration and Restoration Decision Support Tool but with a specific focus on delivering against the new standard.

This capability is critical for national resilience in the event of a major blackout and is a regulatory requirement under Special Condition 2.2 of the ESO Transmission Licence.

The Restoration Decision Support Tool (RDST) work is intended to:

- Provide real-time situational awareness and decision support to Control Room Engineers
- Recommend optimal restoration routes based on live network configurations
- Reduce cognitive load and manual errors during restoration events

Further components of this investment will aim to:

- Deliver the POC implementation plan following the conclusion of the National Power Outage (NPO) Digsilent discovery investment
- Delivery of DNO links to generators including establishing data flows and data visualisation enhancements and comms with 3rd parties during an NPO even
- Deliver the solution to communicate efficiently and effectively between NESO and Secondary generators in the event of NPO either total/ partial

The project is closely aligned with NESO's broader resilience strategy, including Distributed Restoration Zones (DRZs), enhanced DNO communications, and integration with the Electricity System Restoration Assurance Framework.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 510 | Restoration & Restoration Decision Support Tool |

### Current state

As part of a wider whole system operation strategy, the RDST will leverage the platform being delivered as part of the Network Control Management System (NCMS). Over recent months we have worked closely with the NCMS vendor to develop a roadmap and product feature set that meet the needs of users and supports the targets set out in ESRS.

We have a joint delivery team that has culminated with the product vendor delivering the first phase of the RDST capability. We are in the process of deploying the initial version into our NESO estate in preparation for testing and wider stakeholder engagement.

Our Restoration ICCP links work is nearing conclusion. This work facilitates participation for our contracted restoration DNOs in a restoration scenario providing resilient communication links.

As part of the Restoration investment, we are implementing findings from the NPO modelling discovery. This will improve the ability of our teams to model restoration events/scenarios.

Finally, we are currently reviewing our ability to communicate with secondary generators within an NPO event.

### Future state

We will have built, commissioned, and enhanced resilient communication infrastructure to DNOs to facilitate participation of new distribution-connected generators contracted for Restoration services. We will have implemented RDST and have delivered most of the product and feature roadmap. We will have enhanced probabilistic modelling capability and concluded our work to have resilient communications in place with restoration DNO contractors. Finally, we will have either partial or full resilient communication with Secondary Generator.

Our target capabilities include:

- Automated restoration route recommendations using dynamic decision trees.
- Live integration with network configurations to adapt restoration strategies in real time.
- Enhanced situational awareness for Control Room Engineers, reducing restoration time and improving auditability.
- Secondary Generator: Delivery of solution(s) to communicate efficiently and effectively between NESO and Secondary generators in the event of NPO either total/ partial and the aim is to improve the time spend in communication currently as this is all via phone and manually.

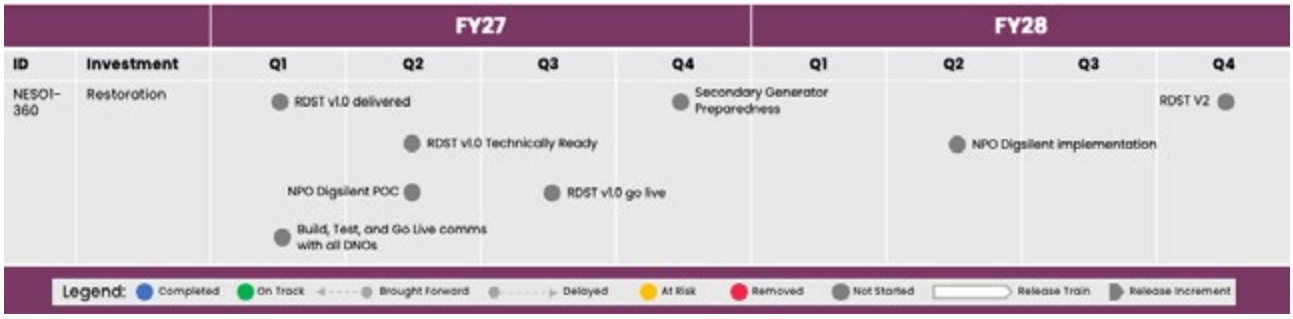
### Approach

We have opted to leverage the GridOS platform being delivered as part of the Network Control Management System. This approach drives a wider strategy that provides a cohesive integrated suite of situational awareness tools, maximises our investments and reducing technical debt by omitting the deployment of multiple technologies and platforms.

Delivery of the RDST tool will be achieved through a phased approach. Phase 1 will focus on the core capabilities required to support control room engineers to assess the state of the network and overlay restoration plans to determine the most optimal routes to restore. This phase is scoped to focus on capabilities that best support the achievement of the ESRS restoration targets. Subsequent phases of delivery will target enhanced capabilities that make recommendations on routes.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Build, Test, and Go Live comms with all DNOs | Establish communication link between NGESO and DNOs, namely Scottish Power Energy Networks, Electricity North West and Northern Power Grid | Q1 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | RDST v1.0 delivered | Phase 1 (version 1.0) of the RDST tool has been delivered to NESO in preparation for deployment and testing | Q1 FY27 |
| Milestone | NPO Digsilent POC | Conclusion of the NPO Digslient Discovery | Q2 FY27 |
| Milestone | RDST v1.0 Technically Ready | Phase 1 (version 1.0) of the RDST tool has been integrated, tested and verified by end-users | Q2 FY27 |
| Milestone | RDST v1.0 go live | Recommends quick and efficient Restoration routes to Control Engineers, supporting NESO's capability of meeting the ESRS standard | Q3 FY27 |
| Milestone | Secondary Generator Preparedness | Delivery of resilient communication links to secondary Generators | Q4 FY27 |
| Milestone | NPO Digsilent implementation | Implementation of the suggested NPO modelling solution following the POC | Q2 FY28 |
| Milestone | RDST V2 | Quicker system Restoration with limited impact on the society following a partial or total shutdown | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.4m | £1.5m | £3.9m |
| OpEx | £0.4m | £0.1m | £0.5m |
| **TotEx** | **£2.8m** | **£1.6m** | **£4.4m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that delays to NCMS delivery will not provide the underlying GridOS platform on time to deploy RDST app and therefore pushing the RDST Go-Live beyond Regulatory dates. | Collaborate with NCMS team to align delivery plans.<br>Decouple NCMS full scope and go-live with focus on GridOS platform.<br>Leverage GE PRE and NCMS Non-Prod environments to deploy RDST app and validate functionality. | 1 | 4 |
| There is a risk that the strategic supplier cannot augment their GridOS roadmap to align with NESO's delivery timeline resulting in RDST app delivery delays. | Develop Situational Awareness visualisation displays directly in Reliance rather that GridOS UI. | 2 | 4 |
| There is a risk that the PoC is unable to come to a clear outcome due to limitations in the data and process able to be shared, resulting in delays in commissioning the implementation phase of this investment. | Ensure that data and process information provided to Digsilent is sufficiently representative of scenarios within the UK power network to enable system capabilities to be fully assessed. | 2 | 4 |
| There is a risk that continued poor performance from Networking supplier caused the delivery plan to be further delayed such that business outcomes are put in jeopardy. | Daily progress calls to trap and resolve issues as they arise.<br>Executive escalation to ensure focus on ICCP delivery versus lower priority initiatives. | 3 | 3 |
| There is a risk that inability of DNO's to deliver infrastructure in a timely fashion negatively impacts the dates for delivery of the ICCP links. | Engagement meetings with DNO's to raise profile of this requirement. | 3 | 3 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that a practical means of providing NPO-resilient connectivity to secondary generators is not possible without significant investment resulting in increased costs. | Investigate whether existing OPTEL-based communications such as EDL may be utilised for communications during an NPO. | 2 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery | NCMS delivered on plan allowing for development of RDST through Grid OS platform. | RDST | Quarterly |

**Alternative options**

The reasons for RDST to be delivered by our Strategic Partner who are implementing NCMS have been communicated through Change Requests and the benefits on utilising the GridOS platforms for both.

The purpose of the NPO Digsilent Discovery is to consider various opportunities as to how this could be implemented and the benefits that can be realised which works are ongoing.

The decision has previously been made within past business plan submissions that ICCP links offer NESO and DNOs the most resilient opportunity to continue comms in a restoration event.

We are currently reviewing options within our Secondary Generator works and will publish our findings through the current regulatory reporting mechanism.

## 3.3 Facilitating Sector Digitalisation

### Data Sharing Infrastructure (NESO1-120)

#### Overview

The Data Sharing Infrastructure (DSI) once developed will provide the energy sector with the digital standards and tools that will enable the trusted, secure, resilient, and scalable sharing of data across organisational boundaries of all sector participants.

The DSI addresses a critical infrastructure gap in the energy sector. The current approach to energy sector data sharing is fragmented and inefficient, where organisations must establish bilateral agreements and bespoke technical solutions for each data exchange. This creates barriers to the rapid data sharing required for Clean Power 2030 and net zero transition. The DSI will enable any energy organisation to share data with any other participant through common technical interfaces and governance frameworks, reducing time, cost, and complexity.

The development of the DSI is central to the realisation of the strategic roadmap of the Virtual Energy System (VirtualES) programme. The VirtualES programme, initiated and led by NESO, is an industry-wide mission to digitalise our energy system in an architecturally coherent way to provide the enabling services for the transition to net zero. The objective is to establish the foundation of digital interoperability and build on it to facilitate the creation of an ecosystem of connected digital twins which over time will include representations of electricity and gas assets and link up to other sectors. This network of connected digital twins will provide the basis for more complex multi-party scenario modelling for optimal whole-system decision making. These whole-system decisions will result in better outcomes for society, the economy, and environment by balancing the needs of users, electricity and gas systems, and other sectors.

This investment, delivered by NESO on behalf of and for the sector, responds to a long series of publications and policies asking for improved data sharing: from the 2017 National Infrastructure Commission (NIC) Report "Data for the Public Good", through to the more recent "Government response to the energy system Digital Spine Feasibility Study" (August 2024) and Ofgem "Governance of the Data Sharing Infrastructure (Decision)" (April 2025) which assigned NESO the mandate to implement a pilot and Minimum Viable Product (MVP) of the DSI and act as the role of Interim DSI Coordinator for the period until 2028.

The investment encompasses two programmes of work:

- **WP1 – Deliver the DSI:** includes activities to launch the new Interim DSI Coordinator function, to deliver and operate the various DSI MVPs, and eventually launch as a Public Beta service.
- **WP2 – Enable sector digitalisation:** includes activities to iterate on the first version of the Sector Digitalisation Plan (published in FY26), to sponsor initiatives to start and accelerate progress on the Plan, and to explore with stakeholders how to define the future role of a digitalisation orchestrator.

Both programmes supplement other investments in our portfolio as well as wider sector digitalisation initiatives. The MVP functionalities will initially aim to enable foundational use cases in Strategic Planning and Electricity Flexibility, with a view to expand over time in response to prioritised requirements and needs across the sector.

#### Current state

##### WP1 – Deliver the DSI:

This follows a lifecycle approach broadly aligned to the Government Digital Service (GDS) Manual, going through the Discovery > Alpha > Private Beta (part 1 – Pilot, part 2 – MVP) > Public Beta > Live series of phases.

Discovery and Alpha were delivered through Network Innovation Allowance (NIA) projects NIA2_NGESO0014, NIA2_NGESO028, and NIA2_NGESO065 and Strategic Innovation Fund Discovery project 10026595.

Private Beta part 1 was completed during FY25 in conjunction with the National Digital Twin Programme (NDTP). It delivered a pilot instance of the DSI which was used to proof-test the solution, demonstrate the concept and gain feedback for future development through a series of trials with SSEN (Scottish & Southern Energy Networks) Transmission, SSEN Distribution, Scottish Power Energy Networks, and National Grid Electricity Transmission.

Following successful DSI pilot completion, investment 830 was established in BP3 and progressed the enabling works for the MVP implementation. Based on the learning from the pilot and continuing stakeholder engagement, the requirements and specification for the DSI were refined and updated and key aspects of the delivery method were set out.

The programme is currently engaging with the market to procure specialist services to support the implementation of the DSI MVP and is on track to launch the Interim DSI Coordinator function by January 2026.

### WP2 – Enable sector digitalisation:

Work on wider sector digitalisation has resulted in the publication of a Sector Digitalisation Plan, with future commitments included to update the plan annually, and to support wider initiatives in defining governance requirements for the energy system from a digitalisation perspective.

**Future State**

### WP1 – Deliver the DSI:

While BP3 will deliver the technical MVP, this plan covers the transition from development to live operational service with sector adoption. By April 2028, the DSI will operate as a Public Beta service with a defined service level agreement enabling secure and scalable data sharing across the GB energy sector.

The future state comprises two core components: the Data Sharing Mechanism (DSM) providing centralised coordination and control services such as authorisation and authentication, and the Data Preparation Nodes (DPNs) provided as open-source software to be deployed at organisational boundaries using modular architectures enabling "Bring Your Own" options. These functional components will operate in tandem with a trust framework governing legal and commercial arrangements between participants. Data will be shared peer-to-peer between organisations based on permissions, with no data stored centrally in the DSM.

Target adoption includes the regulated networks (in line with RIIO3 commitments), with broader energy sector participation from early adopters and innovators. Primarily focusing on Open and Shared data (as defined in the https://theodi.org/insights/tools/the-data-spectrum/) and set to support multiple integration pathways (streaming, query, file transfer), the DSI will enable a range of use cases to be realised by the sector, from real-time operational data to strategic planning models.

Post-MVP, the DSI transitions from project delivery to service operation under a dedicated DSI Operator role, overseen by the Interim DSI Coordinator until at least 2028. There will be a continuing function that will gather DSI requirements, test validity and integrate potential new functionality into the DSI to enable additional use cases. This establishes the foundation for sector-wide adoption supporting Clean Power 2030 objectives and the broader net zero transition through enhanced cross-sector data connectivity and digital twin capabilities.

Subject to demand, it is likely that a further iteration will occur during FY29 to further scale the DSI functionality prior to a live release and transition into steady state operation. During steady state, it is envisioned that participants will be able to curate and implement their own use cases utilising existing DSI functionality.

### WP2 – Enable sector digitalisation:

Work on sector digitalisation seeks to develop whole industry understanding of the requirements and approaches that will enable the sector to realise the benefits of digitalisation to 2030 and beyond. As this is a wide-reaching objective, the outputs will align with driving adoption of the

actions set out in the yearly sector digitalisation plans. Holistically, these actions will be driving towards enabling the operability of a clean power system by 2030, and ambition of the work is to support the sector making that digitalisation journey.

### Approach

#### WP1 – Deliver the DSI:

Delivery of the DSI MVP is structured around four parallel work streams managed by the Interim DSI Coordinator:

- **Technical Implementation:** developing the open-source DSI codebase and services.
- **Service Design:** establishing user experience, onboarding processes and support models.
- **Trust Framework:** implementing legal and governance arrangements for secure data sharing.
- **Security Assurance:** ensuring alignment to best practices from NCSC and sector-appropriate cyber security standards.

The approach prioritises industry collaboration through use case-driven development. Selected use cases (foreseen to be in the areas of strategic planning, electricity flexibility, and regulatory reporting) will drive technical requirements while providing real-world validation of priority DSI capabilities. Industry workshops and rolling engagement sessions will ensure continuous feedback incorporation, with all development following open-source principles via GitHub repositories to enable sector contribution and transparency.

Technical delivery is based on a modular "Bring Your Own" architecture allowing organisations to integrate existing systems (data catalogues, ETL tools, security platforms) rather than mandating wholesale technology replacement. This addresses adoption risks identified during the pilot while maintaining interoperability through standardised APIs and governance frameworks.

The MVP adopts a staged approach blending in agile delivery principles:

- Iterative development towards an MVP release candidate by October 2026
- User acceptance testing and operational acceptance testing leading to MVP release for trials under an initial SLA by April 2027
- Followed by a period of trials and onboarding of use cases under early life support arrangements leading up to public beta launch by the end of FY28.

Industry participation in the MVP ramps up during summer 2026, allowing organisations into testing to plan resource allocation effectively.

#### WP2 – Enable sector digitalisation:

Delivery will be driven by continued stakeholder engagement and feedback through iterative delivery of annual Sector Digitalisation Plans, which will inform the specific actions that will help drive sector digitalisation in the future.

This investment is expected to continue beyond the NESO1 period.

### Roadmap

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Feature (WP1) | DSI delivery governance | Interim DSI Coordinator function established, providing oversight and managing the delivery of DSI MVP in collaboration with the sector. | Q1 FY27 |
| Milestone (WP1) | MVP release candidate | DSI product development complete for prioritised MVP requirements and pre-requisites are in place to commence acceptance testing (user acceptance and operational acceptance). | Q3 FY27 |
| Milestone (WP1) | MVP release for trials | DSI acceptance testing completed, and MVP released in private beta mode under early life support arrangements to facilitate trials by networks and early adopters. Functionality available fulfils more than 80% of requirements prioritised for the MVP in the DSI requirements catalogue. | Q1 FY28 |
| Feature (WP1) | DSI utilisation and trial participation | More than 10 users have deployed a DPN and are involved in trials. | Q3 FY28 |
| Milestone (WP1) | Public beta launch | DSI operational as public beta service with defined SLA, fully accessible to the sector according to security provisions. | Q4 FY28 |
| Feature (WP2) | Data standards | Priority data standards onboarded to DSI and sector knowledge base in line with review with the industry of whole energy system data standards, ontologies, and taxonomies. | Q4 FY28 |
| Milestone (WP2) | Governance Transition Complete | Permanent DSI Operator role established with full handover from Interim DSI Coordinator and long-term funding arrangements confirmed.<br>Direction will depend on several factors including DSI uptake, stakeholder views and experiences, regulatory considerations, long term funding mechanisms available. Ofgem's Governance of the DSI decision document noted that Ofgem is expected to assess options for enduring DSI governance during the period until end-2028. | Q2 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £10.7m | £15.0m | £25.7m |
| OpEx | £0.0m | £3.0m | £3.0m |
| **TotEx** | **£10.7m** | **£18.0m** | **£28.7m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| MVP development cannot be progressed due to lack of stakeholder engagement and clarity on data requirements and availability, leading to delivery delays and potential rework to deliver the MVP to support industry use cases in a way that meets stakeholder needs. | Establish closer engagement with use case teams; conduct requirement clarification workshops; create parallel workstreams; set defined decision points with clear deadlines. | 4 | 4 |
| Energy sector organisations cannot deploy DPN infrastructure within planned timelines due to varying technical capabilities and governance requirements. | Develop standardised deployment blueprints; establish tiered support approach; create security working groups; implement phased deployment starting with organisations who experienced the pilot. | 3 | 4 |
| There is an increasingly complex landscape of change within the energy sector that may hamper the capacity and/or willingness of users to engage in the development of the DSI and adopt the solution. | Monitor the energy digitalisation and data sharing landscape to understand the prevalence and implications of other digitalisation initiatives, whilst ensuring clear communication with stakeholders. Work with DESNZ, Ofgem and parallel initiatives programme teams to explore and coordinate interfaces. | 4 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| Complications and/or delays in developing the legal framework to support partnership with networks for the delivery and trialling of the MVP could hinder timely implementation of the DSI. | Early and close engagement with legal experts through the dedicated trust framework workstream. | 2 | 3 |
| Lower adoption could undermine the intended outcomes of the DSI, such as improved data access, operational efficiency and market innovation, thereby reducing return on investment and sponsor confidence. | Early and ongoing stakeholder engagement, such as through Stakeholder Advisory Group designed into the Interim DSI Coordinator target operating model. Clear communication of benefits of use cases. DSI onboarding support. | 3 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery | Industry participants will engage actively in MVP with sufficient resource allocation during peak participation period (from summer 2026). | Timeline / Support | Quarterly |
| Support | Network operators can obtain internal approvals for DPN deployment within organisational security and governance frameworks. | DD&T, VirtualES | Quarterly |
| Support | NCSC security assurance pathway provides timely feedback for DSI components and deployment models. | DD&T, VirtualES | Monthly |
| Scope | Modular "Bring Your Own" architecture adequately addresses industry adoption barriers identified in pilot without compromising interoperability. | DD&T, VirtualES | Monthly |
| Scope | Selected use cases (in the areas of strategic planning, electricity flexibility, regulatory reporting) provide sufficient complexity to validate DSI capabilities for broader sector adoption. | DD&T, VirtualES | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Industry participants can fund their participation through existing mechanisms (digitalisation re-opener for DNOs, separate arrangements for others). | DD&T, VirtualES | Quarterly |
| Support | Open-source development model attracts meaningful industry contribution to DSI codebase and standards development. | DD&T, VirtualES | Quarterly |

### Alternative options

We explored several alternative options but have decided to proceed with the approach and outcomes outlined above, as we believe this offers the best value for money and most effectively supports NESO in achieving its Performance Objectives. The options considered were:

- **Bilateral data sharing agreements** - continue the current approach of organisations establishing individual agreements for each data exchange, however this would not scale for Clean Power 2030 requirements.
- **Centralised data lake solution approach** - single repository for all energy data however this was rejected due to data sovereignty concerns and security risks.
- **Proprietary vendor solutio**n - commercial off-the-shelf data sharing platform, however this option was incompatible with open-source principles and sector independence requirements.
- **Sector-specific point solutions** - separate data sharing infrastructure for each energy vector (electricity, gas, hydrogen) however this would create silos and limit cross-vector optimisation.
- **Delay until post-2030** - defer investment until after Clean Power 2030 however this would fail to support critical decarbonisation timelines and miss innovation funding opportunities.

# 3.4 Network Operability & Connections

## Clean Power 2030 Enablement (NESO1-240)

### Overview

The Clean Power 2030 (CP30) Enablement investment enables NESO to digitally support the UK Government's commitment to a decarbonised electricity system by 2030, encompassing strategic planning, market reform, infrastructure development, and stakeholder engagement.

Key objectives focus on:

- Supporting the tracking of the Clean Power Action Plan (CPAP) through strategic technology solutions, anticipating risks to the CPAP by leveraging data insights.
- Ensuring that NESO is acting as a trusted advisor to DESNZ and Ofgem, offering modelling, scenario analysis, and implementation guidance.
- Ability to flex and respond tactically to changing business and regulatory requirements to achieve the CP30 objective.

Without this investment, CP30-related data collection, analysis, and reporting will be cumbersome, siloed, and inefficient. Insights and associated decision-making will be slow or based on incomplete information.

### Current state

#### Clean Power 2030 report

The original CP30 report has documented the required data inputs and outputs, however a streamlined solution for rapid and easy information sharing has yet to be developed. Presently, internal data access requests and monitoring of its re-usage is reliant on key individuals. It is not automated and lacks a standard process. Several use cases for querying CP30 data have been identified, and the process of centralising and managing these specific datasets has begun.

A web map illustrating all projects required for CP30 has been published externally, leveraging our geospatial capabilities to enable improved reporting, can be found here.

#### CP30 tracking

Progress has also been made in network and connection project tracking, with the introduction of the CP30 delivery tracker portal. This portal, used by NESO, Ofgem, DESNZ, and Transmission Operators, facilitates the submission of data by Transmission Operators and subsequent monitoring of network projects progress associated with CP30. We have integrated this dataset with the Connections Reform data, facilitating unified visualisation within a single portal.

A solution for addressing analytics and dashboards requirements has been identified and is in the process of implementation.

All the portal and analytics work were delivered under investment NESO1-250 Strategic Energy Planning to enable progress at pace.

#### Clean Power 2030 refresh

Looking at the lessons learnt from producing the CP30 report, we gained a clearer understanding of its development process and how a digital-first approach for replicating and enhancing this work could improve it. These improvements are being prioritised and planned for delivery.

### Future state

#### Clean Power 2030 report

All CP30 original report inputs and outputs data will be accessible through the data catalogue in the Data and Analytics Platform, with the ability to generate insights using natural language AI solutions, enabled via solutions from NESO1-110 NESO AI Energy Core Delivery. While current use

cases are addressed, the framework remains adaptable for expansion as new requirements emerge. Provisions will be made to compare NESO's original CP30 analysis with the Government's CP30 published action plan as well as forthcoming plans from SEP. Therefore, not only does this investment set out a roadmap that will support NESO in achieving the CP30 objective, but it will also enable NESO to be able to tactically adapt where new use cases or solutions are identified.

### CP30 tracking

The CP30 delivery tracker portal will continue to be enhanced, potentially decommissioning other overlapping Transmission Operators data submission processes and systems.

Current dashboards and web map visualisations will continue to be updated to support stakeholders such as Ofgem, DESNZ, NESO, and Transmission Operators. New visualisations will also be developed and further insights surface via AI solutions for internal and external analytical needs. We will continue to refine the web map detailing all projects required for CP30.

### Clean Power 2030 refresh

As part of implementing a digital-first approach, user developed models will be productionised and centralised to avoid fragmentation across teams, ensuring all data inputs and outputs are securely and automatically shared from authoritative sources. This will include the enablement of a Centre of Excellence dedicated to scenario, sensitivity, and forecast development. An AI modelling scenario generator will be trialled in conjunction with NESO1-110 NESO AI Energy Core Delivery and scaled to various NESO areas if successful.

## Approach

### Clean Power 2030 report

To support the CP30 original report, all relevant data will be methodically mapped with clear lineage and ingested into the Data & Analytics Platform (DAP). Associated metadata will enable comparison and justification against new reports or external queries. Artificial intelligence solutions will align with the established AI strategy, ensuring scalability.

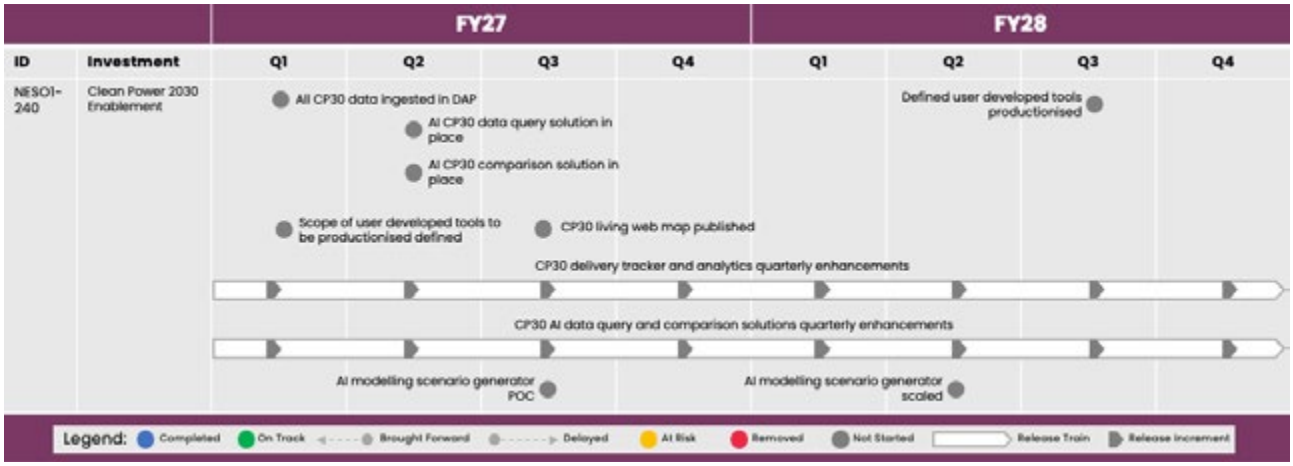
### CP30 tracking

Connections reform data will be integrated with project data via our current Salesforce solutions. Web map visualisations will be developed using our geospatial platform, presenting data drawn from both Salesforce and DAP sources. Analytics and dashboards are anticipated to leverage DAP capabilities, such as PowerBI. Further insights from AI solutions will align with the established AI strategy, ensuring scalability. The underlying data supporting these analytics, dashboards, and visualisations will be made accessible to stakeholders through machine readable downloadable options, interfaces like APIs, or the Data Sharing Infrastructure (DSI) from NESO1-120.

### Clean Power 2030 refresh

In the CP30 refresh, analytics models will be developed and fully integrated using DAP capabilities. AI solutions will align with the established AI strategy, ensuring scalability. It is envisaged that the Clean Power 2030 Enablement investment will continue post the NESO1 period.

## Roadmap




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone / Feature | All CP30 data ingested in DAP | All CP30 data accessible for querying and analysis from authoritative sources | Q1 FY27 |
| Milestone | Scope of user developed tools to be productionised defined | Set of tools to be productionised across FY27 and FY28 defined with associated delivery plans | Q1 FY27 |
| Milestone | AI CP30 data query solution in place | Internal AI solution enabling querying of CP30 data | Q2 FY27 |
| Milestone | AI CP30 comparison solution in place | Internal and external solutions enabling comparison of CP30 report to other NESO reports and government's clean power action plan | Q2 FY27 |
| Milestone | CP30 living web map published | A comprehensive and living web map detailing all projects required for CP30 and their latest status | Q3 FY27 |
| Milestone | AI modelling scenario generator POC | AI modelling scenario generator proven to be accurate and drive analysis efficiencies | Q3 FY27 |
| Milestone | CP30 delivery tracker and analytics quarterly enhancements | To improve usability of portal and deliver on new analytics | Every Quarter |
| Milestone | CP30 AI data query and comparison solutions quarterly enhancements | To improve usability of tools and scaling of same to other use cases | Every Quarter |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | AI modelling scenario generator scaled | AI modelling scenario generator in use for new modelling activities | Q2 FY28 |
| Milestone | Defined user developed tools productionised | All defined user developed tools productionised | Q3 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.4m | £1.5m | £3.9m |
| OpEx | £0.2m | £0.1m | £0.4m |
| **TotEx** | **£2.6m** | **£1.6m** | **£4.2m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that AI Proof of Concepts (PoC) do not deliver all expected benefits | Develop all critical functionality in parallel to AI POCs with conventional methods | 3 | 3 |
| There is a risk that stakeholders will not adopt digital first approaches leading to delays or incorrect usage of tools and processes | Keep stakeholders engaged, addressing any usability issues and escalating if not following agreed approach | 4 | 4 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Dependency | DAP to ingest and host most if not all required data | Data and Analytics | Monthly |
| Dependency | AI investment to support with required resources to complete work | Data and AI | Monthly |
| Dependency | Geospatial team to support with required resources to complete work | Geospatial and Locational Intelligence | Monthly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Assumption | Analytics and dashboards assumed to happen in PowerBI and most data already available in DAP from Salesforce | Data and Analytics | Quarterly |
| Assumption | Keeping same level of enhancements to CP30 delivery tracker as happened this year | CP30 | Quarterly |

**Alternative options**

A review was conducted of all portal-related capabilities both within and outside NESO. Salesforce was identified as the strongest solution, in part because the Connections Portal had already been developed using this technology. This choice supports technological alignment and facilitates sharing and relating datasets between Connections and CP30.

## Connections Enduring Capabilities Ecosystem (NESO1-230)

### Overview

The Connections Enduring Capabilities Ecosystem is a strategic digital initiative designed to transform how networks, NESO, and customers manage end-to-end connections to the transmission system. This investment will continue to leverage and enhance the existing Connections digital ecosystem, which offers a self-service portal with an intuitive user experience – enabling users to register, apply for connections, and manage their project portfolios, all supported by embedded query management functionality.

The current ecosystem facilitates enduring contract management during the delivery phase of the project and serves as an information source for customers exploring connection opportunities. It is being developed in response to the increasing volume of connection applications, which grew from 545 in 2021, to over 1700 in 2024. The focus has also been on evolving the delivery of the Connections process aligned with the Connections Reform programme, aiming to streamline contract management, improve data integrity, and enhance process efficiency.

The future state and enduring capabilities ecosystem will transform how the industry collaboratively manages the end-to-end connections process, optimising registration, data flow, and interoperability within a single, digitalised ecosystem. It will provide an open and transparent, user experience for both industry stakeholders and customers.

Through this investment, we will also be introducing the use of AI as part of the NESO Excellence programme. NESO will be investing in several facets of AI with the ambition of becoming an early adopter across its core roles, ensuring safe, ethical, and efficient operations. This investment has been identified as a key area where AI can realise significant benefits to operations and productivity through four key areas: delivering value through AI products, data enablement and knowledge bases, people and skills, and assessing AI's impact on our ways of working.

### Current state

Key components currently in operation for the Connections platform include:

- **Digital Signature of Agreements (Offers e-signing):** enables customers to digitally sign agreements via the portal.
- **Contracts Provision:** automated email notification of offer and contract documents being available in the portal.
- **Query Management & Complaints:** enables alignment and focus on query management and complaints.
- **Transmission Operator (TO) Platform Integration POC:** to support data exchange with TOs.
- **Compliance checklist, milestones, UDFS submission:** digitising this process provides increased efficiency for the Compliance team and customers to be able to manage the process across one shared platform (DRC Portal).
- **Connections 360:** a geospatial interface allowing developers to view public connections data.
- **Securities Payments Data Automation:** enhances visibility of securities payments from Salesforce, enabling automated statement generation.
- **Construction Planning Assumptions Tool:** uses data-driven automation to assess project viability.
- **Connections Reform:** introduces a more transparent, efficient queueing system of how projects enter and progress through the connections process. Each project's readiness and strategic alignment is assessed to ensure a timely way for projects to connect to the grid and to achieve the CP30 goal. This is through customer data submission in a Salesforce Portal with queue formation through Palantir's Foundry system, a data integration and analysis platform.
- **Connections AI Proof of Value:** we are currently mobilising a team to deliver an AI-assisted assessment of the Connections applications against Gate 2 criteria and supporting contract drafting.

### Future state

GB's existing connections process is being reformed due to the increase in applications, resulting from the country's progress in decarbonisation. The current process, which was designed 20 years ago, was meant for a time when connections were made by a small number of large fossil fuel generators. Our investment into the Connections eco-system will address the current disjointed challenges and ensure that customers can connect to the energy network in a timely manner. There is a strong demand from the industry and government for transparency in the connections queue and the identification of bottlenecks in the GB network infrastructure. NESO's investment will expedite connections and address these challenges, mitigating the risk of delays in the decarbonisation of the energy system.

The roadmap through NESO1 is primarily focused on:

- **Optimisation:** customer driven ongoing enhancements to optimise the Connections Journey and support Gate 2 Application Windows ahead of the new Future Applications process.
- **Application windows:** windows for applicants to apply for connection agreements. There are windows pre the Enduring process and post the design, build and implementation of the Enduring process within the FY27 and FY28 timeframe.
- **Mobilisation and discovery:** mobilisation of a programme team focussed on the Future Applications process with discovery activities completed. This includes an indicative operating model, high-level processes, roadmap for the design and implementation of the Future Applications process for Connections. This includes Customer Journey maps and a high-level service design.
- **Future Applications process capabilities:** capabilities designed, built, tested, and deployed to support the new Future Applications process (Enduring)
- **Future Applications process enhancements:** customer driven enhancements to optimise the Future Applications process ahead of second Enduring window
- **Regulatory led enhancements:** impact assessment, design and delivery of changes because of regulatory modifications
- **Data:** data quality, governance and applicability, will be at the forefront to ensure efficiencies, efficacy, transparency and auditability.
- **AI-assisted assessments:** AI by design will be considered across the whole new transformational eco-system. Some potential early indicative applications against Gate 2 criteria; proactively assess TO engineering plans, orchestrate the end-to-end connections process, with additional benefits of increased trust and improved reputation. We are working on producing a benefits quantification to evaluate the benefits AI will produce for this investment.

The eco -system is expected to be a cross-collaborative NESO, Industry, Stakeholder and Customer capability playing a pivotal role in managing increasing connection volumes and supporting NESO's digital transformation goals. It remains under active development, with ongoing assessments and stakeholder engagement ensuring alignment with regulatory expectations and industry needs.

### Approach

The expectation is that we will consider all options including re-use or extend existing capabilities wherever possible. Agile DevSecOps is the preferred delivery approach across NESO and is being used as the delivery approach for this investment.

As we look to transform the Connections (and NESO) Customer journey, a design thinking mindset will ensure that customer and stakeholder expectations are met through the development of user and customer personas and journeys. This will be done through extensive engagement with customers and considering end to end customer journeys across NESO, Customer, Industry and Stakeholders. Following Agile methodologies, we will create alpha and beta testing trails and Proof of Concepts to refine solutions.

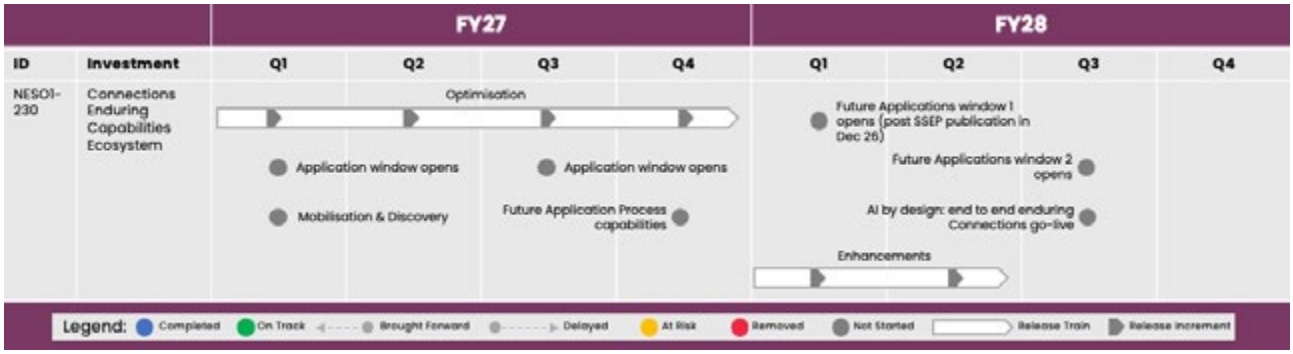
We are cognisant that the Future Applications process is transformational across the Connections spectrum and will require industry and customer, collaboration and consultation. Our approach will be flexible to accommodate new or emerging requirements. In parallel we will progress no regrets capability build at pace to meet key milestones.

We will leverage our digital orchestrator role and Data Sharing Infrastructure (DSI) capabilities to facilitate data sharing across industry in a controlled and standardised manner, facilitating collaboration. AI capabilities for specific use cases will be deployed to improve decision-making and enhance overall operational efficiency.

### Roadmap

The roadmap is centred around key milestones relating to the various Strategic Energy Plans, with the first being the Strategic Spatial Energy Plan (SSEP). The SSEP will work out the best places, amounts, and kinds of energy infrastructure we need to meet our future energy needs. The Centralised Strategic Network Plan (CSNP) and Regional Energy Strategic Plan (RESP) will also provide wider strategic energy planning activities, ensuring a joined-up approach between national, regional, and local levels. As such it is anticipated that the publications of the plans will trigger Connection requests.

It is expected that this programme will continue past the NESO1 period.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Feature | Optimisation | Customer driven ongoing enhancements to optimise the Connections Journey and support Gate 2 Application Windows ahead of the new Future Applications process. | FY27 |
| Milestone | Application window opens | Window for applicants to apply for a Connection Agreement. | Q1 FY27 |
| Milestone | Mobilisation & Discovery | Programme team fully mobilised. Also, an indicative operating model, high-level processes, roadmap for the design and implementation of the Future Applications process for Connections. This includes Customer Journey maps and a high-level service design. | Q1 FY27 |
| Milestone | Application window opens | Window for applicants to apply for a Connection Agreement. | Q3 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Future Applications process capabilities | Capabilities designed, built, tested, and deployed to support the new Future Applications process (Enduring). | Q4 FY27 |
| Milestone | Future Applications window 1 opens (post SSEP publication in Dec 26) | Window for applicants to apply for a Connection Agreement under the Enduring process. | Q1 FY28 |
| Feature | Enhancements | Customer driven ongoing enhancements to optimise the Connections Journey ahead of second ahead of second Enduring window. | Q1/Q2 FY28 |
| Milestone | Future Applications window 2 opens | Window for applicants to apply for a Connection Agreement under the Enduring process. | Q3 FY28 |
| Milestone | AI by design: end to end enduring Connections go-live | Deliver machine learning models to automatically assess TO engineering plans and AI planning advisor to be capable of assessing and processing connections. | Q3 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £13.5m | £11.0m | £24.5m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£13.5m** | **£11.0m** | **£24.5m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| The Future Applications process is not yet fully defined in detail. The Policy and requirements must be stable and baselined before design, build and testing, which puts pressure on the plan | Establish policy freeze milestones<br>Conduct early engagement with Policy Owners<br>Design readiness criteria | 2 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| Customer engagement may be limited during Gate 2 To Whole Queue (G2TWQ) and offers to support the design thinking approach and customer journey mapping | Develop engagement plan<br>Reach out to stakeholders early to build flexible methods of engagement | 2 | 3 |
| Availability of SMEs to support Connections Reform processes and the Future Applications process | Resource/skill management profiles and matrix working, cross flexing of resources, early identification of resource pinch points, and succession planning | 2 | 5 |
| There is risk that any delays in the G2TWQ phase have a consequential impact on the Future Applications process windows | Predefine possible delay reasons and mitigate, and define ownership for dependencies to track and manage | 2 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Assumption | Consultations relating to the Future Applications window will be concluded in a timely manner and not impact the overall window application timescale | Connections and Regulations | Quarterly |
| Assumption | Funding for the impact assessment and delivery of any regulatory code modifications will be treated as pass-through | Regulations | Quarterly |
| Dependency | SSEP published in Q3 FY27 | SEP | Quarterly |
| Dependency | Resources to support AI use cases will be made available | Data and AI | Quarterly |

# 3.5 Strategic Energy Planning

## Strategic Energy Planning (NESO1-250)

### Overview

This investment will enable the Strategic Energy Planning (SEP) directorate by providing modelling, data, and stakeholder engagement capabilities. We are adopting a delivery model to cater for all SEP outcomes in one investment to achieve their digital vision. This is due to the overlapping nature of processes, data, and technology requirements across the directorate. Creating discrete investments for each of the planning roles may lead to more complex dependency management, cost and resource inefficiencies and a disjointed customer experience. Where SEP capabilities can be delivered through existing or planned initiatives these will be utilised as appropriate. Several NESO-wide capabilities have already been identified which will support the delivery of SEP outcomes and are outlined further in the Solution Options section.

This investment will deliver capabilities to be utilised by internal users across the SEP directorate, along with external customers interacting with each of the plans including Ofgem, DESNZ, local governments, GDN's, DNO's, local authorities, investors and consumers. At the same time, we will enable:

- Integration of electricity, hydrogen, and storage modelling across zonal geographies
- Scenario-based planning to test plausible futures and sensitivities
- Alignment with Clean Power 2030 and other national policy targets

### Current state

During FY26, immediate needs in SEP (most specifically Strategic Spatial Energy Planning (SSEP)) were addressed and foundational capabilities in the short term were delivered whilst full enduring capabilities started being designed. Targeted workshops with directorate teams have been conducted to identify cross directorate synergies and specific needs. We created a roadmap to deliver on both new systems and capabilities but also to replace legacy processes and user developed tools. We enabled a digital delivery of the Transitional Regional Energy Strategic Plan (tRESP) initiative, with advanced AI features and interactive publication capabilities prepared for scaling across additional areas, all with very tight timelines.

By end of FY26, RESP will see most of its data and modelling requirements either implemented or mobilised, with a SEP stakeholder portal and document management system's design finalised and its development underway.

The Strategic Spatial Energy Plan (SSEP) models use DESNZ and other data, combining modelling and geospatial tools to support Secretary of State pathway selection and related environmental assessments.

We developed a minimum viable product for stakeholder consultation AI and insight dashboards, with plans to expand use across NESO after implementing two additional use cases.

In CSNP, the first iteration of its methodology will be established, with enhancements provided through transitional Centralised Strategic Network Plan 2 (tCSNP2) refresh improvements. Certain legacy tools and processes have been identified, with select tools, such as the BOA tool, now productionised. Finally, modelling tool development, including the enhancement of PoUYA, AVAT, ARSA, and SCT tools, will continue throughout this period to support the whole of NESO.

This investment team also delivered the CP30 delivery tracker, detailed in NESO1-240.

### Future state

All areas of the directorate, including GWEND and ZCO will be comprehensively addressed through employing standard tools, data-sharing protocols, and interactive reporting capabilities.

Adopting a digital-first approach, the area will leverage supported tools and ensure integration with other business units, while also publishing interactive outcomes in accordance with SEP standards. This strategy aims to enhance collaboration, streamline processes, and deliver accessible, high-quality outputs that align with broader organisational objectives.

The tRESP programme, will be closed and its deliverables proven and scaled for RESP. RESP will see the completion of its first iteration of whole-system model delivery, alongside the rollout of the SEP stakeholder portal. The portal will be developed with two clear streams: one dedicated to robust data sharing, management, and improved visibility, and the other streamlining our internal governance arrangements to ensure data is prepared for external release with absolute confidence. On the consultation side, with the introduction of interactive publication capability, it is easier than ever for stakeholders to engage, review, and shape outcomes—supported by AI-driven casework for tailored consultation support. Examples of such AI use cases include geospatial modelling, technical network assessment, energy and market modelling and stakeholder engagement. NESO aims to use AI to reduce system cost through AI whole-system scenario creation, optimisation of generation and network siting and enhanced decision-making.

Turning to SSEP, NESO will be enabling spatial publication of selected pathway and delivering SEA/HRA pathway assessments. We will then work on ensuring next iteration of SSEP is able to implement modelling and data management standards improvements. The approach to scenario modelling and sensitivity analysis will be reviewed, with new tools developed as needed and AI enabled where possible.

CSNP will be equipped with the latest tranche of tool enhancements and improvements to the interactive publication experience through both the CSNP and tCSNP2 refresh cycles.

Regarding legacy systems, further new tools have now been productionised to support business continuity and future flexibility. Ongoing modelling tool development continues as planned, with further enhancements delivered for POUYA, AVAT, ARSA, and SCT, and a full reassessment of Plexos now completed.

AI Stakeholder tools are now used across NESO and other AI tools developed for SEP are used with confidence, allowing for simple and effective comparisons between CP30, SSEP, CSNP and RESP.

### Approach

At SEP level all data will be integrated within DAP, ensuring input data can be reused by RESP and CSNP from SSEP, accommodating both public and confidential information, with appropriate access controls implemented. The further integration of Plexos and DAP will deliver additional operational and commercial benefits. Common document management system will also drive further alignment between all areas and support transparency.

RESP leverages DAP modelling, robust data management, and sharing capabilities, alongside DSI. Here, the stakeholder portal plays a pivotal role, facilitating seamless versioning and comprehension of data. Interactive pathway consultation is augmented with spatial tools, and the AI-driven approaches from tRESP and SSEP are redeployed to strengthen stakeholder engagement and consultation support.

Legacy platforms are integrated into established modelling frameworks or evolved through DAP analytics, unlocking new possibilities for data sharing and management, as well as broader capability integration. Finally, the ongoing development of modelling tools continues at pace, marked by further enhancements to POUYA, AVAT, ARSA, and SCT, with a strategic reassessment of our modelling tools (taking place periodically) to ensure they stay fit for purpose.

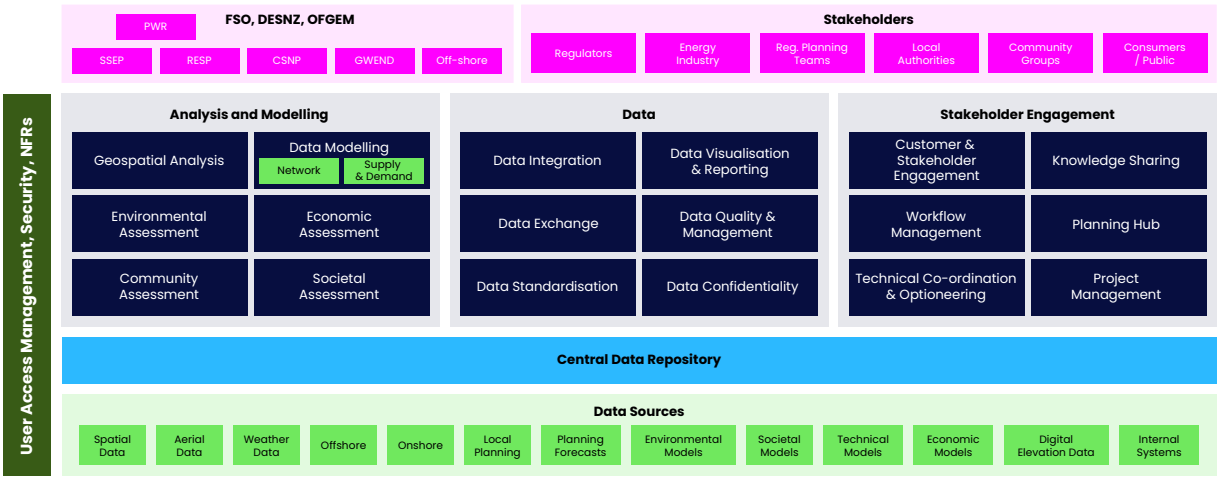



Figure 4: Technological landscape required to address the various SEP needs

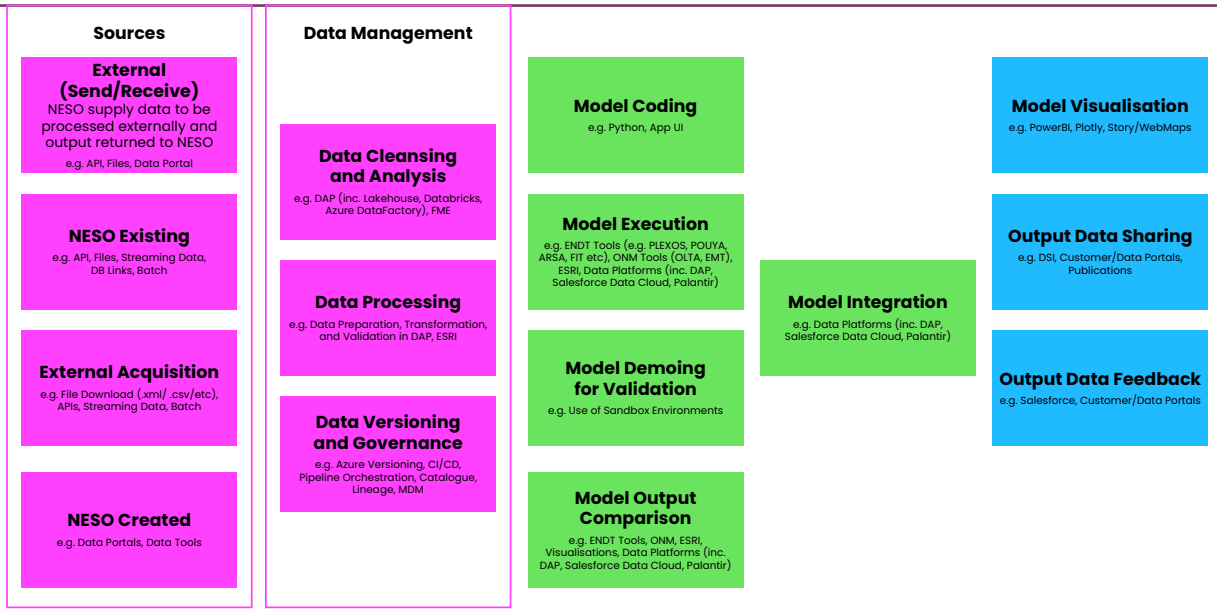
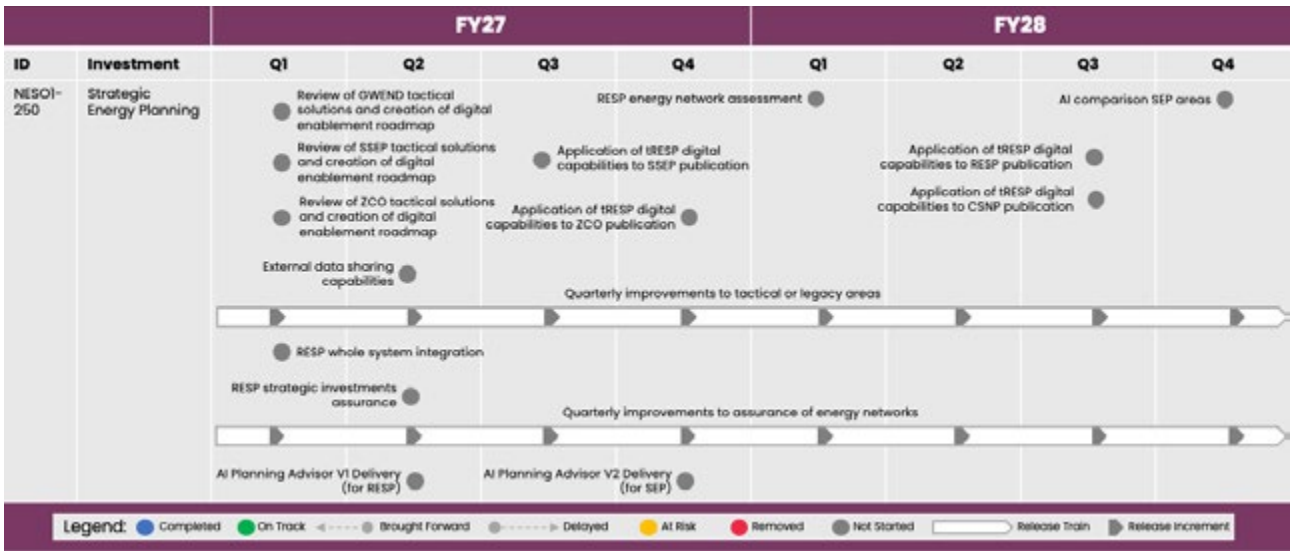



Figure 5: Analysis and modelling aspects of RESP (supporting technology solutions)

### Roadmap

It is expected that this programme will continue past the NESO1 period.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Quarterly improvements to tactical or legacy areas | Removal or enhancement of processes and tools in all of SEP to align all areas to digital ambitions | Every Quarter |
| Milestone | Quarterly improvements to assurance of energy networks | Improvements to how SEP conducts assurance of energy networks including creating its own options as per tCSNP2 Refresh | Every Quarter |
| Milestone | Review of GWEND tactical solutions and creation of digital enablement roadmap | Definition of business needs, impacts to platforms, and change strategy with estimates of effort and costs for further work | Q1 FY27 |
| Milestone | Review of SSEP tactical solutions and creation of digital enablement roadmap | Definition of business needs, impacts to platforms, and change strategy with estimates of effort and costs for further work | Q1 FY27 |
| Milestone | Review of ZCO tactical solutions and creation of digital enablement roadmap | Definition of business needs, impacts to platforms, and change strategy with estimates of effort and costs for further work | Q1 FY27 |
| Milestone | RESP whole system integration | Finalising whole system model which includes integration of the various energy models | Q1 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | External data sharing capabilities | SEP teams have a consistent capability for having relevant data regularly submitted and validated by external stakeholders who don't have access to better digital channels | Q2 FY27 |
| Milestone | AI Planning Advisor V1 Delivery (for RESP) | Deliver AI-assisted processes between RESP, SSEP and CSNP and automated what if scenarios and pathway modelling | Q2 FY27 |
| Milestone | RESP strategic investments assurance | RESP able to document and iterate regional strategic investments agreement | Q2 FY27 |
| Milestone | Application of tRESP digital capabilities to SSEP publication | Scale and leverage all digital products created for tRESP to enhance SSEP publication | Q3 FY27 |
| Milestone | Application of tRESP digital capabilities to ZCO publication | Scale and leverage all digital products created for tRESP to enhance ZCO publication | Q4 FY27 |
| Milestone | AI Planning Advisor V2 Delivery (for SEP) | Open the AI Planning Advisor to all relevant SEP stakeholders to assist top-down and bottom-up planning for net zero against NESO plans and pathways to help industry align all aspects of strategic energy planning | Q4 FY27 |
| Milestone | RESP energy network assessment | RESP able to perform assessment of energy networks to compare to regional ambitions | Q1 FY28 |
| Milestone | Application of tRESP digital capabilities to RESP publication | Scale and leverage all digital products created for tRESP to enhance RESP publication | Q3 FY28 |
| Milestone | Application of tRESP digital capabilities to CSNP publication | Scale and leverage all digital products created for tRESP to enhance CSNP publication | Q3 FY28 |
| Milestone | AI comparison SEP areas | Natural language querying of CP30, SSEP, CSNP and RESP outputs | Q4 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £12.6m | £13.2m | £25.8m |
| OpEx | £0.4m | £0.3m | £0.7m |
| **TotEx** | **£13.0m** | **£13.5m** | **£26.5m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that the ambition to create a whole energy system plan is unprecedented globally and may be too complex to solve within acceptable timeframes. | Use of proof-of-concept solutions, microservices architecture, and exploration of AI options to validate direction and improve efficiency. | 4 | 2 |
| NESO currently lacks a robust tool to model cascading impacts and interdependencies across electricity and gas systems. | Investment in a new modelling tool to support data-driven analysis and build on the Scenarios for Extreme Events (SFEE) innovation project. | 4 | 3 |
| Multiple internal and external stakeholders are required for any prioritisation and decision making. | Clear stakeholder map empowered with decision making. | 4 | 2 |
| We build short-lived solutions as the ambition to create a whole energy system plan is a new requirement for NESO, which hasn't been tried in any other country in the world. | Create Proof of Concept solutions where possible and relevant to validate direction of travel. | 3 | 1 |
| Customers, and stakeholders may not use tools correctly as will require the appropriate skills and training to make the process of performing planning activities accessible. | Users and customers must be empowered to self-serve to optimise their data. Train each regional representative to be able to train stakeholders. | 3 | 2 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| Decisions or changes on roles, methodologies and publication dates are outside of NESO's full control. | Apply Agile mentality to how we work Establish robust reprioritisation methods Engage early with all stakeholders. | 4 | 1 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Dependency | DAP to ingest and host most if not all required data | Data and Analytics | Monthly |
| Dependency | AI investment to support with required resources to complete work | Data and AI | Monthly |
| Dependency | Geospatial team to support with required resources to complete work | Geospatial and Locational Intelligence | Monthly |

**Alternative options**

We have identified several candidate solution components to enable the core capabilities. Our belief is that many capabilities that are required are not unique to SEP and can benefit other areas of the NESO organisation, the wider energy ecosystem players and consumer communities alike. We will drive standardisation with policies and guidelines to facilitate interoperability and best practices, ensuring that we look to meet the SEP outcomes in a repeatable, modular and adaptable manner to maximise opportunities for future demand and enhancement.

Several NESO-wide capabilities have already been identified which will help in the delivery of SEP outcomes. These capabilities have been introduced through initiatives such as 690 Geospatial and Location Intelligence, 220 Data and Analytics Platform, 250 Digital Engagement Platform, 380 Connections and 390 Electricity Network Development Tools.

The discovery phase may identify additional capabilities, and these will be reviewed in line with our Architectural Principles. This will ensure the responsible re-use of existing capabilities as is appropriate before considering buying or building a new capability. Also, SaaS and COTS solutions will be considered where buy vs build is preferable/more efficient, with the intention of avoiding customisation and minimising configuration.

# 3.6 System Operations

## Balancing Asset Health (NESO1-410)

### Overview

Balancing Asset Health is a critical investment that ensures the continued reliability and performance of NESO's existing Balancing Mechanism (BM) systems. While NESO transitions to the Open Balancing Platform (OBP), this investment maintains a secure and stable balancing capability to support safe system operation and short-term market value.

This investment includes both ongoing maintenance and planned decommissioning of legacy BM assets. It enables NESO to meet operational requirements, manage risk, and provide a controlled transition to future digital platforms.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 210 | Balancing Asset Health |

### Current state

NESO has delivered all major milestones for legacy balancing asset health as set out in BP2 and BP3. Targeted upgrades have improved system performance, dispatch efficiency, and control room functionality. These enhancements have also supported integration with the Open Balancing Platform (OBP), preparing for the future migration of BM functions.

The EBS Migration Project is complete, allowing for the progressive retirement of the legacy scheduling systems to be started. All process transitions and interface disconnections were managed to minimise operational risk, and hardware decommissioning was carried out securely with supplier support.

While the BM remains operationally robust, it is an ageing system. Without continued support, it risks failure during the critical transition period before OBP is fully in place. This investment ensures the BM remains reliable, supports control room operations, and provides data to aid OBP development and integration.

Legacy systems such as EFS, EBS, SPICE, SORT, Vergil, Demand Predictor, Clogs, and ASDP continue to deliver essential functionality but are fragmented, costly to maintain, and difficult to integrate. Without support, they pose risks to system resilience, market responsiveness, and operational efficiency.

### Future State

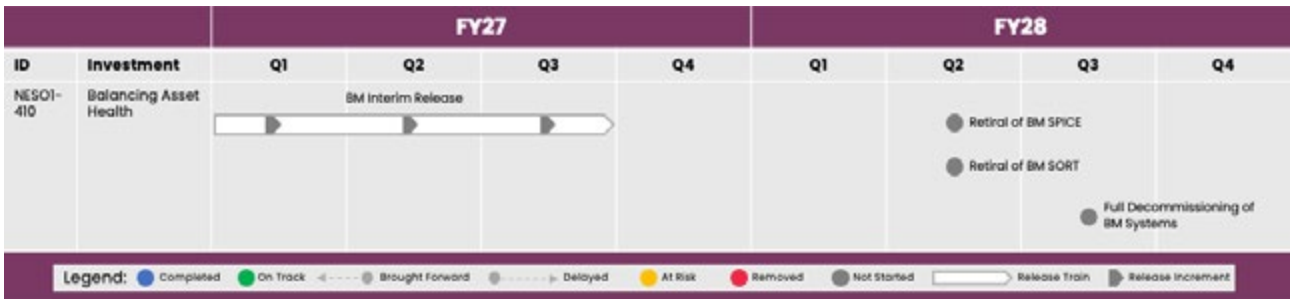
By 2027, NESO expects the OBP to iteratively replace the functions of the existing BM, enabling the safe and complete decommissioning of legacy systems. Until then, the BM will continue to play a vital role in delivering daily balancing services. This investment ensures the BM remains secure and reliable throughout the transition, supporting system operators and market participants. It also enables NESO to manage the final decommissioning in a structured and risk-controlled way, aligned with OBP readiness.

A formal BM Retirement Strategy will guide this process, with clear milestones and no capability withdrawn until its replacement is in place. NESO will work closely with stakeholders, to ensure risks are managed transparently and dependencies are addressed.

OBP replaces EBS, ASDP, and BM sub-systems (SPICE, SORT, Vergil, Demand Predictor, Clogs), delivering unified dispatch and balancing services across BM and non-BM units. This transition will improve system stability, reduce operational costs, enhance situational awareness, and support a more flexible, resilient, and low-carbon electricity system.

### Roadmap

We envisage this investment will not proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Q1 FY27 BM Interim Release | Priority control room performance and stability enhancements | Q1 FY27 – Q3 FY27 |
| Milestone | Retiral of BM SPICE | As scheduling is fully delivered by OBP the dispatch functionality provided by SPICE will be retired | Q2 FY28 |
| Milestone | Retiral of BM SORT | As dispatch is fully delivered by OBP the dispatch functionality provided by SORT will be retired | Q2 FY28 |
| Milestone | Full Decommissioning of BM Systems | All legacy BM systems are taken offline and fully decommissioned | Q3 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £6.1m | £6.7m | £12.8m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£6.1m** | **£6.7m** | **£12.8m** |

## Balancing Innovation Delivery (NESO1-420)

### Overview

Balancing Innovation Delivery is NESO's dedicated investment stream for accelerating the integration of advanced AI, optimisation, and data-driven tools into balancing operations. The Volta programme was started in 2021 and brought together leading researchers from the University of Cambridge and Google DeepMind to co-develop cutting-edge AI and optimisation solutions, accelerating innovation in balancing operations through academic-industry collaboration.

This initiative builds on the Volta Innovation Programme, focusing on delivering AI-driven models that evolve with changing grid conditions to improve forecasting accuracy and operational decision-making.

The programme is designed to deliver innovation into tangible value to system operations. As the energy system becomes more complex and dynamic, the ability to quickly test, iterate, and embed new digital tools is essential for maintaining reliability, efficiency, and market responsiveness. This investment supports NESO's ambition to lead in digital system operations and to deliver a more intelligent, adaptive, and efficient balancing function.

### Current state

Currently, the Volta stream is actively developing and testing new capabilities within advanced optimisation algorithms, scenario modelling, and AI-driven decision support tools. These innovations are being developed with alignment of business priorities and operational requirements in mind. Early prototypes have demonstrated the potential to enhance situational awareness, improve scheduling accuracy, and support more effective system balancing.

The transition from prototype to production is not without challenges. The timing and impact of innovation delivery are closely linked to the readiness of the Open Balancing Platform (OBP) to absorb new functionality. Resource constraints and the need to maintain robust operational performance during periods of change require careful management and prioritisation of innovation activities.

### Future state

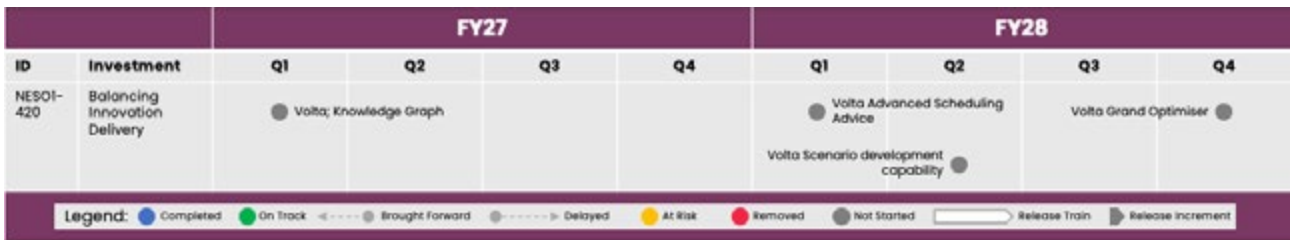
Volta will continue to develop and test advanced AI and optimisation tools, with selected solutions being productionised on OBP where there is a clear operational benefit and robust delivery plan. These selected elements of the innovation project will support more intelligent, adaptive, and efficient balancing. The programme will continue to iterate, test, and deploy new tools, strengthening NESO's position as a leader in digital system operations.

### Approach

The approach is design-led and agile, enabling continuous improvement and rapid iteration. Projects are co-designed with internal and external partners, to deliver evidence led innovation and operational priority alignment. Robust governance and structured stakeholder engagement keep VOLTA focused on delivering business value and system reliability.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.



| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Volta Knowledge Graph | A dynamic, query-able graph database model developed to visualise and manage electricity system balancing processes, with a structured representation of roles, tools, and data interdependencies. | Q1 FY27 |
| Milestone | Volta Advanced Scheduling Advice | First delivery of Advanced Scheduling Advisor onto OBP. | Q1 FY28 |
| Milestone | Volta Scenario development capability | An AI powered capability that enables operators and planners to generate, manage, and visualise multiple future system states adaptive models and probabilistic inputs to support real-time and forward-looking decision-making. | Q2 FY28 |
| Feature | Volta: Support for AI Tools | Support development of AI tools for System Ops. | Q2 FY28 |
| Milestone | Volta Grand Optimiser | First deployment of Grand Optimiser solution onto OBP. | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £5.0m | £5.0m | £10.0m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£5.0m** | **£5.0m** | **£10.0m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that delivery of innovation features may be delayed if OBP is not ready to absorb new functionality, resulting in slower realisation of operational benefits. | Align innovation roadmap with OBP development milestones; maintain flexibility to adjust priorities and timelines as needed. | 3 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that technical challenges in scaling AI and optimisation tools from prototype to production may lead to performance issues or require rework. | Align innovation roadmap with OBP development milestones; maintain flexibility to adjust priorities and timelines as needed. | 3 | 4 |
| There is a risk that technical challenges in scaling AI and optimisation tools from prototype to production may lead to performance issues or require rework. | Implement robust testing, simulation, and phased rollouts; engage technical experts early in the development cycle. | 3 | 4 |
| There is a risk that due to Volta projects having a degree of uncertainty due to their nature, delivery items may require several iterations to achieve the required objectives. | Regular updates will be provided to the programme team and roadmap updated in line with latest plans. | 3 | 3 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Budget for innovation activities will remain aligned with planned scope and priorities, allowing for necessary adjustments as new opportunities arise. | Cost, Strategic Alignment | Quarterly |
| Resource | Sufficient technical and operational resources will be available to support rapid prototyping, testing, and deployment of innovations. | Resource Allocation, Cost | Quarterly |

**Alternative options**

The alternative options that have been considered is to build a scheduling capability on the OBP platform similar to how this functionality works on BM. However, this would be a would not deliver the automation and AI benefits that are associated with the VOLTA programme and leave with a deterministic scheduling capability going forward.

## Digital Trials Platform (NESO1-490)

### Overview

The Digital Trials Platform is a new investment for NESO1, building on the progress of the REVEAL innovation proof of concept. It forms a critical part of NESO's strategy to modernise system operations and support sector-wide digitalisation.

The platform will provide a secure, cloud-hosted environment outside of Critical National Infrastructure (CNI), allowing NESO and industry participants to trial new services, technologies, and regulatory changes without operational risk. This capability is essential as the energy system becomes increasingly decentralised and complex, requiring agile, scalable solutions to maintain reliability and affordability.

### Current state

Today, REVEAL is being developed into a functional Minimum Viable Product (MVP), focused on delivering priority trials. As the first live project within the Digital Trials Platform, REVEAL has already illustrated how experimentation can become faster, less reliant on specialist teams, and entirely separate from live operations, providing a low-risk, flexible environment for developing ideas.

The current state reflects a strategic shift, building from the innovation project (REVEAL) and customer feedback to the creation of a broader Digital Trials Platform. This new capability will accelerate innovation, strengthen and build on current collaboration with market participants, and support sector-wide digitalisation. It positions NESO to stay ahead of market change and aligns directly with long-term ambitions, including Clean Power 2030.

### Future state

The Digital Trials Platform represents NESO's strategic ambition to build a flexible, scalable, and responsive capability for testing solutions to the energy system's emerging challenges. It is a new investment that will become the central environment for real-time experimentation, cross-industry collaboration, and evidence-based decision-making.

This future capability is being shaped by close engagement across NESO and drawing on influence from external parties, ensuring it directly addresses today's most pressing challenges while retaining the flexibility to adapt as the sector evolves into FY26/27 and beyond. The platform is designed to grow iteratively, with new functions and services added from a prioritised roadmap of trials, so that every enhancement delivers measurable system impact and business value.

Once fully established, the Digital Trials Platform will give NESO a robust and scalable testbed that enhances agility, strengthens our innovation culture, and ensures we can respond confidently to future system challenges. This capability underpins NESO's Clean Power 2030 goals and digitalisation strategy, helping us deliver safer, faster, and more collaborative innovation, and, ultimately, better outcomes for the energy system.

### Approach

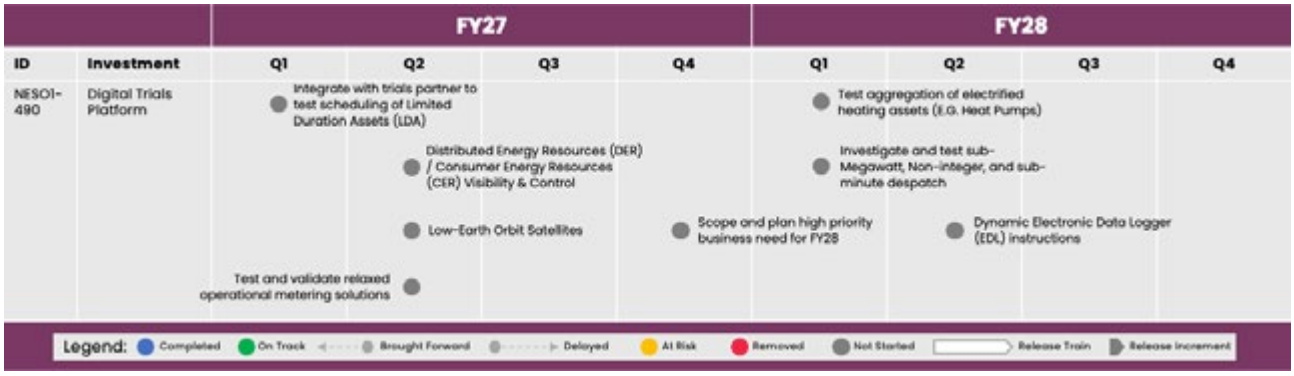
Our approach centres on business needs, agility, and collaboration. We will identify priority use cases, shape a delivery roadmap, and manage progress with agile methods involving internal technical teams and specialist partners. This keeps us flexible and responsive to changing requirements while making sure any solution aligns to NESO's architectural strategy.

The DTP will advance through iterative cycles, prioritising high-value trials and allowing adaptation as new needs arise. Agility ensures strategic alignment in a digital energy landscape.

New trials will be submitted via a central backlog or portal for easy tracking and management. Requests will be regularly reviewed and prioritised using a scorecard aligned with business goals and resources. The number of concurrent trials is based on capacity, helping deliver value quickly and maintain platform stability.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Integrate with trials partner to test scheduling of Limited Duration Assets (LDA) | Full integration with trials partners to deliver near real time testing of additional parameters used to support within day scheduling of LDA. | Q1 FY27 |
| Milestone | Distributed Energy Resources (DER) / Consumer Energy Resources (CER) Visibility & Control | Define scope and agreed timelines to support DER & CER visibility and control.<br>Understand and test new communications protocol. | Q2 FY27 |
| Milestone | Low-Earth Orbit Satellites | Demonstrate the feasibility of using Low-Earth Orbit Satellites to send secure dynamic data and investigate the feasibility of using the technology to support DER/CER. | Q2 FY27 |
| Milestone | Test and validate relaxed operational metering solutions | Provide an evidence-based route to proving and validating relaxed metering options, ensuring the most accurate and reliable option is chosen by NESO. | Q2 FY27 |
| Milestone | Scope and plan high priority business need for FY28 | Build the trials roadmap out for FY28. Understand where business priorities sit and create a delivery plan to provide the testing capabilities required. | Q4 FY27 |
| Milestone | Test aggregation of electrified heating assets (E.G. Heat Pumps) | Integrate and test aggregated electrified heating assets to assess feasibility of including these flexible units in the Balancing Mechanism. | Q1 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Investigate and test sub-Megawatt, Non-integer, and sub-minute despatch | Investigate the feasibility of sub-Megawatt, Non-integer, and sub-minute despatch. Integrating with participants to test modifications to EDL standard. | Q1 FY28 |
| Milestone | Dynamic Electronic Data Logger (EDL) instructions | Prove the concept of dynamic EDL instructions. Human issued instructions that trace frequency. | Q2 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.9m | £3.1m | £6.0m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£2.9m** | **£3.1m** | **£6.0m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that priority trials identified in the design phase do not have the correct business owners. | All trials will pass through a governance structure where a business owner will be agreed and assigned. | 3 | 3 |
| There is a risk that trial participants are not able to integrate with the REVEAL platform or that integration takes longer than anticipated. | Once the trials pipeline has been approved by our steering committee, the pipeline and planned industry engagement will be shared promptly. | 2 | 3 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost / Support / Scope | Based on the current team size and composition, we can support approx. 3 trials simultaneously. If business demand changes, the team would need to be restructured. | Restructuring the team based on business demand may require further investment. | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Scope | The prioritised trials pipeline is yet to be confirmed by the steering group. We are working on the assumption that our recommended order will be accepted. | If the business suggests an alternative order of trials. The scope will need to be adjusted accordingly. | Quarterly |

**Alternative options**

### Option 1: Do Nothing

Retain the existing platform environment as-is, with current BM/OBP data types and limited proof-of-concept capabilities. This option is not viable for integration into the wider CNI due to high risk and low maintainability (not recommended, as constraints are significant).

### Option 2: Stand Up Independent Trial Solutions

Run separate trial environments for each new project. While this allows for tailored delivery, it may require considerable investment of time and resources, and risks duplication of effort.

Additionally, we will investigate alternative solution options for each platform during its discovery and will provide detail on those through the current regulatory reporting mechanisms.

## Dispatch Transparency (NESO1-480)

### Overview

NESO's Dispatch Transparency investment addresses long-standing challenges in the Balancing Mechanism, particularly skip rates faced by battery storage operators. Legacy systems, limited visibility, and manual interventions have hindered operational efficiency and stakeholder trust. This programme delivers tools to enhance transparency, automate processes, and improve decision accountability, while enabling real-time mitigation of skips and better post-event analysis. The investment's success depends on coordination with the Balancing Programme, which supports skip rate reduction through improved constraint and dispatch optimisation. Ultimately, these changes will strengthen stakeholder engagement and system performance.

Within this investment we expect the following projects to be delivered:

- Strategic Skip Rates Monitor
- Productionisation of the innovation project Dispatch Intelligence Tool

### Current state

Skip rates are an integral part of our BP3 performance metric with requirements to reduce skip rates, have parity in skip rates across all technology types and to have a common methodology and publish data on our skip rate performance. In addition, we will need to work with industry to set a target and develop a methodology to measure skip rates behind constraints, along with delivering our roadmap of initiatives.

To date, we have successfully delivered several aspects of the investment:

- **Root cause analysis:** this work has systematically assessed the underlying causes of skip rates, ensuring that activity to address these causes is comprehensive and prioritised.
- **Skip Rate Monitor tool development:** the Skip Rate Monitor tool provides the control room with a real-time understanding of dispatch efficiency and is intended to support continuous improvements and reduce skip rates. The tactical skip rate tool is live in the control room, and we continue to develop the tool and the current methodology and improve performance/outputs. This also produces the skip rate data sets that are published at Day+1 on our data portal.
- **Skip rate publication:** we enhanced data accessibility by automating publication to the data portal and will complete DAP integration by end of FY26 to make datasets seamlessly available to internal users.
    - **New Methodology:** we have enhanced the skip rate methodology to consider the costs of skips and to look at the impact of skips behind constraints.
    - **Dispatch strategic review:** we have engaged in mapping current control room scheduling and dispatch processes, identifying issues which are currently contributing to skip rates and highlighting recommendations for these processes to be fit for operating a 2030 Clean Power system.
    - **GC0166:** is a grid code modification requiring BM participants to provide NESO with new dynamic parameters relating to the state of their limited duration assets / batteries. We have completed the GC0166 options assessment and now have confirmed dates and costs of its implementation as part of the Open Balancing Programme Investment.

### Future state

Moving forward with our investment in Dispatch Transparency, NESO will look to complete this programme with expected outcomes and benefits in the short term. We will continue to refine our outcomes on Skip Rates and make sure our products are properly utilised by the Control Room to enhance their decision-making capability. We will look to improve our industry-wide transparency as we refine our end-state solutions, these will be subject to further discovery effort:

- The baseline strategic solution will establish the capability for a tactical skip rate monitor, providing real-time visibility into dispatch decisions and their downstream impacts. The end-

state design is expected to bring together integrated services that support both real-time control room operations and post-event analysis, with recognition that two tools may be required given the differing timelines, near real-time for operational use and D+1 for calculated and published data. This approach will strengthen transparency, accountability, and consistent decision-making across the process.

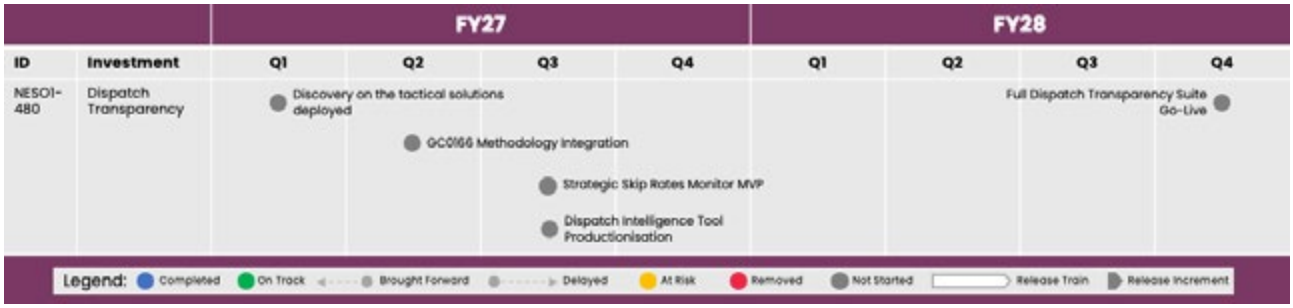
- To support the strategic skip rates solution, we will refine and publish datasets through a dedicated data portal to improve transparency of dispatch decisions and ancillary performance, while also delivering user stories, non-functional requirements, and UI designs to underpin the strategic system replacement.
- The Skip Rate Methodology will incorporate constraints into the real-time Skip Rate Monitor with appropriate datasets being published on the data portal increasing transparency. The Skip Rate Monitor will continue to perform root-cause analysis and operational refinements to the live environment which will improve its ongoing performance.
- Following completion of Dispatch Intelligence Proof of Concept (PoC) activities and the subsequent, pending, evaluation phase it is expected (subject to passing evaluation) that the tool will progress from the innovation phase towards production. Its primary focus is on post event analysis, helping to explain why dispatch actions were taken and strengthening transparency of decisions. This capability builds on the PoC evaluation and provides valuable insight to support learning and continuous improvement, rather than influencing real-time dispatch. Our current tools provide visibility when units have been skipped and provide a forward look to advise the NBE of economic zonal location of volume.
- Our Skip Rate Methodology will be adapted to reflect changes in scheduling and dispatch, incorporating the outcomes of enhanced battery optimisation enabled by GC0166, which is scheduled for delivery by Q4 FY2026. We will continue to capture and analyse scheduling and dispatch decisions to improve performance and transparency, while also monitoring and publishing skip-rate information.

### Approach

The Dispatch Transparency investment will use agile techniques, delivering improvements in manageable stages and adapting to feedback. Stakeholder engagement, including control room operators, analysts, managers, and industry partners, will shape solutions through workshops and regular reviews. By incorporating insights as the project progresses, we aim to enhance transparency, accountability, and decision-making, while remaining flexible to future changes.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, and we currently envisage this investment will not continue beyond the end of the NESO1 period.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Discovery on the tactical solutions deployed | Clarity on performance, gaps, and next steps for the deployed tactical solution. | Q1 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | GC0166 Methodology Integration | Dispatch transparency tooling aligned with GC0166 data inputs. | Q2 FY27 |
| Milestone | Strategic Skip Rates Monitor MVP | Initial version deployed to control room for trial use. | Q3 FY27 |
| Milestone | Dispatch Intelligence Tool Productionisation | Innovation tool transitioned to live operational use. | Q3 FY27 |
| Milestone | Full Dispatch Transparency Suite Go-Live | All tools and integrations operational and embedded. | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.5m | £2.5m | £5.0m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£2.5m** | **£2.5m** | **£5.0m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that a lack of clarity in manual dispatch overrides may undermine transparency | Develop audit trail features for manual interventions | 2 | 2 |
| There is a risk that a delay in GC0166 implementation may affect tool integration | Align development roadmap with Balancing Programme milestones | 2 | 1 |
| There is a risk that insufficient stakeholder engagement may reduce trust in our outputs | Embed stakeholder feedback loops and publish regular updates | 2 | 3 |
| There is a risk that resource constraints may delay delivery | Secure dedicated delivery team and avoid BAU conflicts | 2 | 4 |
| There is a risk that data quality issues may limit the tool effectiveness | Implement data validation and fallback logic | 2 | 4 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery / Scope | GC0166 implementation will be completed by Q4 FY27 | Dispatch tooling integration, skip rate reduction | Quarterly |
| Delivery / Resourcing | Dedicated team will be funded and not reliant on BAU | Delivery cadence, quality assurance | Quarterly |
| Stakeholder Engagement | Industry sentiment tracking will be embedded in programme tooling | Reputation, stakeholder trust | Quarterly |
| Platform Integration | Dispatch transparency tools will integrate with OBP and National Dispatch Optimiser | System architecture, operational efficiency | Quarterly |
| Data Access | Real-time access to BOA and system condition data will be available | Tool functionality, auditability | Quarterly |

### Alternative options

#### Option 1: Rely on OBP/National Dispatch Optimiser only (do nothing)

Assume that forthcoming Balancing Programme initiatives - such as the National Dispatch Optimiser and GC0166 - will significantly reduce skip rates and improve auditability and therefore do not invest in dedicated transparency tooling. However, this approach is not suitable, as these enhancements alone will not deliver the industry-facing explanations, post-event analysis, or robust audit trails for manual interventions that stakeholders require. NESO still needs a consistent methodology and regular publication of datasets to maintain stakeholder confidence.

#### Option 2: Defer until GC0166/OBP are fully embedded

Defer investment in dedicated transparency tooling until GC0166 and National Dispatch Optimiser enhancements are fully embedded, then reassess the need. This approach is not advisable, as delaying action risks missing industry expectations for skip rate reduction and timely data publication, while also prolonging reputational risks related to limited visibility, lack of transparency and accountability, and continued reliance on legacy manual processes.

#### Option 3: Continue Operating the Tactical Skip Rate Tool

This option would keep the current tactical skip rate tool as the main solution for dispatch transparency. While it provides real-time monitoring, it is a temporary, standalone tool that is not integrated with core control room systems. This results in a fragmented user experience and operational inefficiency. The tactical tool does not align with NESO's architectural strategy for integrated, scalable solutions. Relying on it risks ongoing manual interventions, limited visibility, and inconsistent data, which undermines transparency and stakeholder confidence. Operators must use multiple screens, and the tool lacks robust audit trails and industry-facing explanations. Furthermore, considering expected ongoing licence, support, and hosting charges, the tactical solution is unlikely to deliver acceptable value for money for NESO.

## ENCC Operations Enablement (NESO1-450)

### Overview

We are rapidly moving towards a whole energy environment that is increasingly complex, more volatile, and with higher levels of uncertainty than ever before.

Our Electricity National Control Centre (ENCC) is at the centre of our operational activities. As such, it is imperative that the ENCC has effective tools and capabilities to be able to meet our energy transition goals. To deliver effectively, the ENCC teams must have confidence in their operational tools, be adaptive to change, work in a dynamic environment, and have appropriate training and support to deal with any system events that may occur.

This investment targets delivery of improved capabilities and efficiencies to support the ENCC workforce in their operational work. Through delivering streamlined and future-looking technology, underpinned by robust tools and platforms, we can ensure that the ENCC can continue to operate a secure and resilient energy system in line with our strategic goals.

This investment consolidates the following BP3 investments into a single framework that targets delivery of operability-related outcomes:

| Investment ID | BP3 Investment Name |
|---|---|
| 140 | ENCC Operator Console |
| 190 | Workforce and Change Management Tools |
| 200 | Future Training Simulator and Tools |
| 240 | ENCC Asset Health |
| 850 | System Ops Tech Enablement: Future Control Room |

### Current state

We have progressed our vision of the future control room by delivering several key features and performing discovery in other areas to further define the capabilities required to meet our vision.

Our achievements to date encompass the following areas:

- **Enhanced workforce automation:** through deployment of an integrated training planning module within the rota management tool, automation to optimise shift management processes, and improvements to reporting capabilities.
- **Increased situational awareness:** through delivery of gas and electricity dashboards, improved historical trend tracking, and implementation of web-based forecasting tools.
- **Strengthened system resilience and security:** through delivery of a targeted upgrade and patch plan on our systems, digital transformation of niche tools onto strategic platforms, and migration to NESO data centre architecture. We have onboarded new market participants in line with our regulatory goals.

In addition to the above, we have made significant progress in discovery and delivery activities in the following key areas:

- **Future control room technology:** we have made considerable progress in our vision of a seamless, integrated, and flexible user experience for our control room operators. We have completed a procurement activity to select a vendor to design, implement, and support a new operator console solution. We have performed design thinking sessions with representatives to

co-create optimal ser interface arrangements, and we have identified additional situational awareness enhancements that other existing investments can deliver through their backlog process. Additionally, we have provided recommendations on the use of the videowall to inform our future ways of working.

- **Improved knowledge management and information sharing:** we have completed discovery and solution analysis for a replacement control room operational knowledge tool, as well as exploring opportunities to automate the shift handover process and remove paper-based processes.
- **Integrated training capability:** we completed discovery of high-level requirements for future training simulator and identified an opportunity for enhanced training management and tracking tools. We have performed initial market evaluation to understand available options and have kept close alignment with our supporting projects delivering the core simulator capabilities that shape our delivery roadmap.

### Future state

Our ambition is for the ENCC to have a unified and customisable operator workspace that seamlessly integrates all control room applications, data, and workflows. This holistic, secure, and resilient operational platform will provide much enhanced real-time situational awareness and decision support, using technology to reduce cognitive load whilst still retaining the human in the loop for assurance.

The operator workforce will benefit from an integrated training simulator environment aligned with our modern network control and balancing platforms for realistic, scenario-based operator training. This will be supported by a metrics-based, targeted programme of development that will ensure we have the right skills, roles and toolsets to operate safely and efficiently in a zero-carbon environment.

Through this investment, we will be providing the technology enablers for a future-ready ENCC that is highly responsive to organisational and operational change within the context of a decarbonised power system.

### Approach

To facilitate the rollout and ongoing support of the new operator console, we will initially establish an 'experience desk' designed to demonstrate, test, and assess optimal user interface arrangements. Engaging with control room operators during this phase will enable us to optimise the console prior to implementation in control training and subsequent deployment in the Control Room.

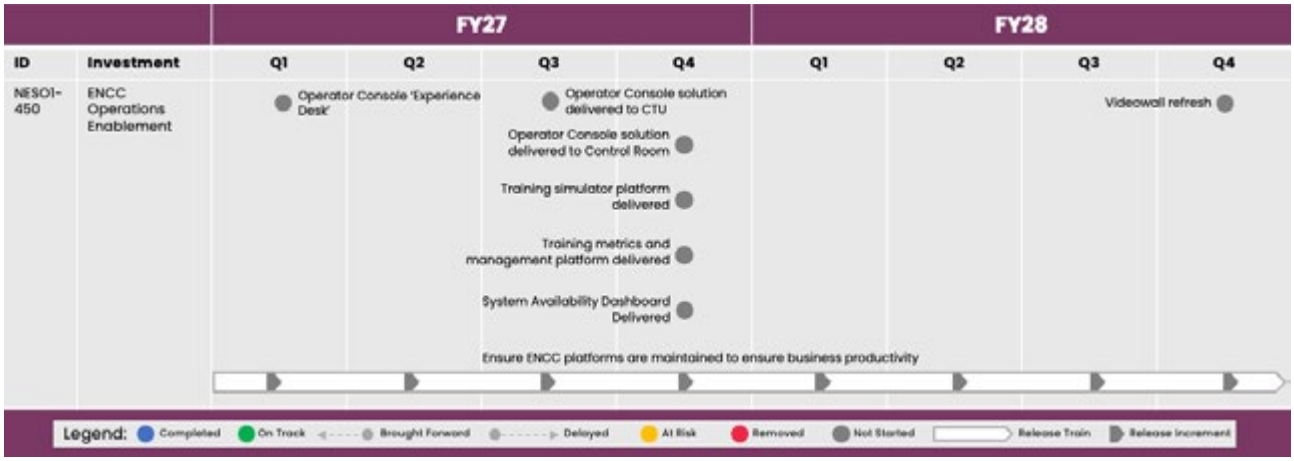
Continuous calibration of the operator user interface is underway to integrate tools provided by other investment sectors that facilitate restoration, network optimisation, and transmission analysis.

Delivery of a robust training management and metrics framework will integrate with and extend the current workforce management solution, providing a much more holistic perspective of individual training goals and ENCC-wide targets for continuous workforce development and compliance.

Our approach will encompass a spectrum of delivery methods, from agile to waterfall, as appropriate. Additionally, each capability delivered will be supported by a product roadmap clearly outlining the phases of implementation.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Operator Console 'Experience Desk' | Delivery of an 'experience desk' installed with the latest control room technology, which will be used to demonstrate, test and evaluate our future ways of working with our control room operators. | Q1 FY27 |
| Milestone | Operator Console solution delivered to CTU | Deployment of the operator console to the Control Training Unit. | Q3 FY27 |
| Milestone | Operator Console solution delivered to Control Room | Deployment of the operator console to the Control Room. | Q4 FY27 |
| Milestone | System Availability Dashboard Delivered | Delivery of a system availability dashboard to track live status of ENCC tools/systems. | Q4 FY27 |
| Milestone | Training simulator platform delivered | Delivery of an integrated training simulator capable of performing scenario-based, end-to-end training for our control room. | Q4 FY27 |
| Milestone | Training metrics and management platform delivered | Implementation of training platform tools and metrics to support more targeted, consistent and measurable control room training. | Q4 FY27 |
| Milestone | Videowall refresh | Replacement of Video Walls at both Control Locations. | Q4 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Quarterly Release Train: Ensure ENCC platforms are maintained to ensure business productivity | Operational impacts from maintenance or end of life are minimised for systems outside of transformation investments. | Every quarter |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £12.7m | £6.7m | £19.4m |
| OpEx | £1.0m | £0.9m | £1.9m |
| **TotEx** | **£13.7m** | **£7.6m** | **£21.3m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that the cost of refreshing the existing video wall and associated components will exceed budget allocation. | Agree technology options for refresh vs risk profile. Request and review supplier quotations. | 2 | 2 |
| There is a risk that a lack of key internal SME / system user availability may delay the implementation and testing phases of the new system. | Ensure early forecast of resource requirements to business units. Timely recruitment for appropriately skilled resources. | 1 | 3 |
| There is a risk that compatibility issues between the various tools may emerge, leading to delay and increased costs. | Ensure tools being developed utilise industry standard protocols and are developed in line with best practice. Undertake suitable due diligence in advance of procurement event award to ensure tooling fit for purpose end to end. | 2 | 2 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Timeline | NCMS and OBP have delivered simulator capabilities and environments that can be integrated to facilitate end to end control room scenario training. | Training simulator platform delivered | Monthly |
| Timeline | Delivery of Operator Console into CTU and Control rooms is not dependent on the delivery of other investments. The Operator Console will operate with both legacy and new capabilities being delivered. | N/A | Monthly |

### Alternative options

As this investment is the result of merging previous BP3 investments, no alternative options have been considered as they have been considered in the previous business plans and their respective DD&T annexes.

## Forecasting and Predictions (NESO1-430)

### Overview

The Forecasting and Predictions investment brings together two complementary workstreams - Forecasting Enhancements (260) and Real-Time Prediction (670) - into a single, unified investment. This consolidation creates a more integrated and responsive capability for NESO operations, improving coordination between forecasting outputs and real-time prediction signals, reducing duplication, and supporting more timely changes for control room and stakeholder needs.

In addition to supporting operational decision making within NESO, transparent and accurate forecasts are essential for market participants' trading and operational decisions. NESO publishes forecasts via the Data Portal and Elexon and engages stakeholders through the Forecasting Stakeholder Forum to capture feedback and drive continuous improvement. Forecast accuracy links directly to incentive performance, including metric 1B (day-ahead demand forecast) and metric 1C (day-ahead BM Unit wind forecast).

Within Forecasting, the Platform for Energy Forecasting (PEF) supports the industry and key ENCC operations by providing forecasts for wind generation, solar PV generation, Grid Supply Point (GSP) demand, and National Demand. These forecasts are produced across multiple operational horizons, including intraday, day-ahead, and week-ahead—and are integrated with control room systems and used by the market to inform operational decisions.

For Predictions, our The Real-Time Prediction (RTP) capability, which is being developed during BP3, will provide minute-by-minute predictions for the control room, enabling timely and effective balancing decisions. By the end of BP3 the investment will have delivered a robust, scalable prediction system that complements the forecasting suite.

This investment consolidates the following BP3 investments:

| Investment ID | BP3 Investment Name |
|---|---|
| 260 | Forecasting Enhancements |
| 670 | Real-Time Prediction |

### Current state

The Forecasting and Prediction investment continues the work started under Forecasting Enhancements (260) and Real-Time Prediction (670). Although newly categorised this year, it is a continuation and consolidation of capabilities that have already delivered material progress. Treating forecasting and prediction as a single investment creates a more cohesive approach to operational insight, linking established forecast products with emerging real-time prediction signals to support decision-making across the control landscape.

#### Forecasting

The Platform for Energy Forecasting (PEF) is central to ENCC operations, providing forecasts for wind generation, solar PV generation, Grid Supply Point (GSP) demand, and National Demand.

As part of the current investment, all legacy Energy Forecasting System (EFS) functionality is being transitioned into PEF, ensuring a single, modern forecasting platform. This transition includes the development and deployment of new wind and solar models, as well as enhancements to GSP and National Demand forecasting. The result is a step-change in forecast accuracy, speed, and reliability—enabling the control room to respond more rapidly and confidently to system changes.

In addition, the investment is delivering improved short-term demand forecasting tools, designed in collaboration with the energy forecasting team and control room users. These new capabilities replace legacy tools and provide greater visibility and situational awareness for the control room. Further enhancements include better integration of market and consumer data, and new tools to support data interpretation and operational decision-making.

### Prediction

The Prediction component is on track against BP3 milestones. The initial release of real-time prediction tools is already available in the control room. The models underpinning this capability are entirely new, developed during BP3 using modern techniques and platforms to improve performance and scalability. Between now and March 2026, engineers will continue to test and evaluate the tools, with iterative improvements based on operational feedback.

By March 2026, the prediction capability is expected to reach full go-live, marking the transition from experimental/beta tools to a fully operational solution embedded within control-room workflows. This will have incorporated improvements based on operational feedback resulting in a robust, scalable prediction system that complements the forecasting suite and supports more responsive, data-driven decisions in real time. This capability will continue to mature and strengthen overall situational awareness.

### User engagement and foundations

We have worked closely with both operational users and external stakeholders throughout BP3 to ensure forecasting and prediction solutions are fit for purpose. This engagement has included regular feedback sessions with control room teams, collaboration with market participants and data consumers, and targeted stakeholder forums. Their input has shaped product priorities, guided feature development, and helped us deliver tools and data that are relevant, reliable, and aligned with both operational requirements and broader industry expectations.

Bringing forecasting and prediction together enables an integrated approach that supports real-time operational decision-making and contributes to the broader transformation of the energy system. Alignment of technical delivery with user feedback and strategic priorities positions forecasting and prediction as core enablers of system-wide agility and insight.

#### Future state

The Forecasting and Predictions investment will deliver a modernised, integrated capability for NESO, enhancing both forecasting and real-time prediction to meet evolving operational needs. Forecasting outputs will continue to cover wind generation, solar PV generation, Grid Supply Point (GSP) demand, and National Demand, with ongoing refinement to improve accuracy and responsiveness. New data sources, including weather and live metering, will be incorporated to strengthen output quality and support more informed control room decisions.

Real-Time Prediction (RTP) will expand its coverage to include wind and solar signals, providing minute-by-minute insights for the control room. Integration with the Open Balancing Platform (OBP) will ensure prediction outputs are delivered seamlessly into operational workflows. The VOLTA innovation project will further enhance RTP by introducing advanced machine learning models, enabling more accurate, adaptive, and probabilistic predictions that help operators manage uncertainty in real time.

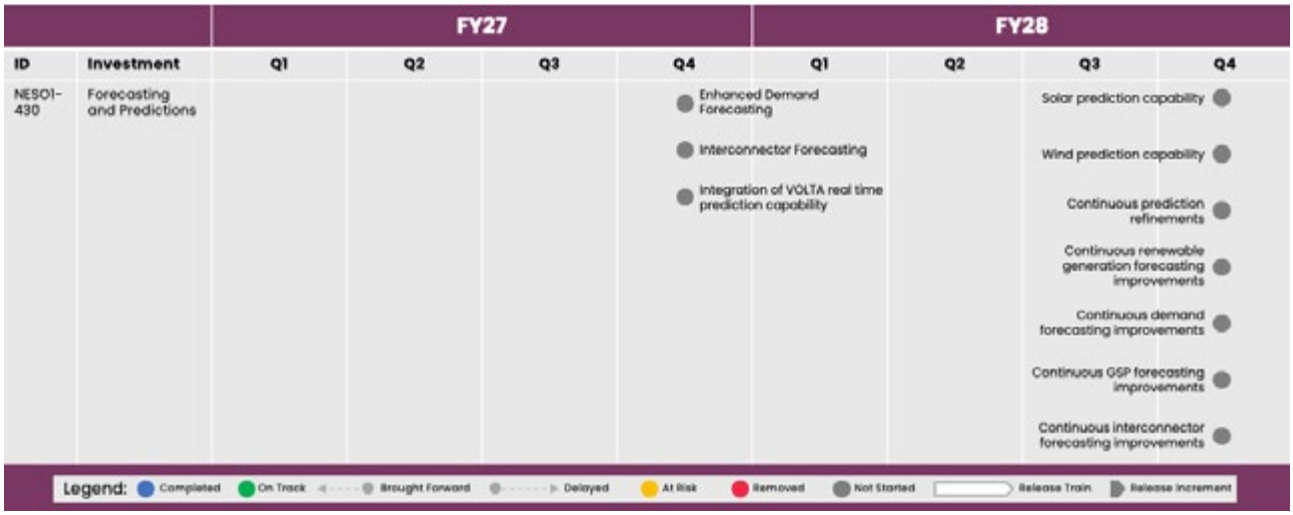
A new interconnector forecasting capability will be developed within PEF, replacing legacy tools and providing improved visibility of transfers across interconnectors to support both planning and real-time operations within the ENCC.

#### Approach

The delivery will use an agile and collaborative approach, with dedicated workstreams focusing on specific products and platforms. Active stakeholder engagement—both internally and through industry forums—ensures alignment with operational priorities and market needs. Forecasting and prediction products are managed on separate, purpose-built platforms, maintaining technical integrity and seamless integration. This approach keeps the investment responsive, user-focused, and adaptable to shifting requirements while supporting timely and effective outcomes.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Enhanced Demand Forecasting | Refinement of new forecasting capabilities providing improved intra-day, day-ahead and long-term forecasting | Q4 FY27 |
| Milestone | Interconnector Forecasting | New interconnector forecasting capability providing insight into interconnector movements to support control room operations | Q4 FY27 |
| Milestone | Integration of VOLTA real time prediction capability | Refinement of the prediction capability based on outputs from the VOLTA innovation project | Q4 FY27 |
| Milestone | Solar prediction capability | Near to real-time Solar prediction to inform control room operations | Q4 FY28 |
| Milestone | Wind prediction capability | Near to real-time Wind prediction to inform control room operations | Q4 FY28 |
| Milestone | Continuous prediction refinements | Incremental improvements to real time prediction to meet changing landscape, including ingestion of new datasets and model refinement | Q4 FY28 |
| Milestone | Continuous renewable generation forecasting improvements | Incremental improvements to renewable forecasting to meet changing landscape, including ingestion of new datasets and model refinement | Q4 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Continuous demand forecasting improvements | Incremental improvements to demand forecasting to meet changing landscape, including ingestion of new datasets and model refinement | Q4 FY28 |
| Milestone | Continuous GSP forecasting improvements | Incremental improvements to GSP forecasting to meet changing landscape, including ingestion of new datasets and model refinement | Q4 FY28 |
| Milestone | Continuous interconnector forecasting improvements | Incremental improvements to interconnector forecasting to meet changing landscape, including ingestion of new datasets and model refinement | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £8.1m | £7.6m | £15.7m |
| OpEx | £0.5m | £0.5m | £1.0m |
| **TotEx** | **£8.6m** | **£8.1m** | **£16.7m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that an insufficient team size or skill mix may delay model development and deployment. | Maintain minimum team structure and secure resource allocation early in planning. | 3 | 4 |
| There is a risk that ambiguity in the SRE team's scope may lead to gaps in platform reliability or product support. | Clearly define SRE responsibilities and split teams by platform vs. product domains. | 3 | 3 |
| There is a risk of forecast model degradation due to a lack of continuous investment and upgrades. | Secure multi-year funding and embed continuous improvement cycles. | 3 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is risk of different technology choices making it difficult to provide a consistent and seamless experience between forecasting and predictions. | Integrate forecasting and prediction systems through automated data standardisation, collaborative platforms, and workflow orchestration tools to ensure consistency, transparency, and seamless user experience. | 3 | 4 |

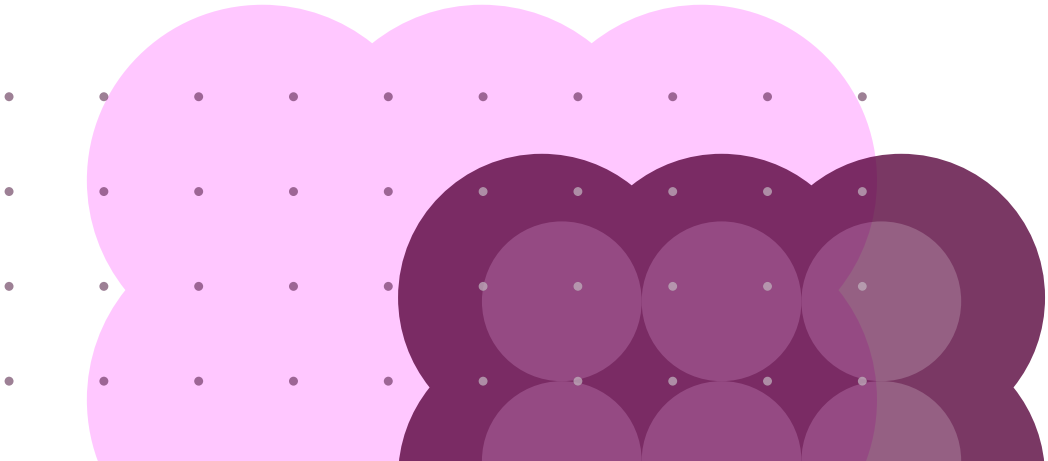
**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Team Size & Composition | Forecasting model development requires a consistent minimum team structure and assumes this resource will be fully funded through NESO1 period - Product Owner, Business Analyst, ML Ops, DevSecOps, Data Scientists, Automation Tester, Scrum Master, PowerBI Developer. | Model Development, Forecasting Accuracy, Delivery Cadence | Quarterly |
| SRE Team Structure | Assume we will transition from a single "All-in-one" SRE team to dedicated Platform and Product SRE teams (Generation, Demand and Contingent forecasting) to improve delivery focus and reliability. | Platform Reliability, Forecasting Tools, Operational Support | Quarterly |
| Product Workstream Alignment | Product workstreams aligned with SRE domains (Generation, Demand and Contingent forecasting) will reduce scope overlap between forecasting and prediction capabilities and improve prioritisation. | Delivery Efficiency, Stakeholder Engagement | Quarterly |
| Delivery / Timeline | Assume legacy EFS platform will be decommissioned by March 2026 as per current scope, removing legacy dependencies and enabling streamlined dispatch transparency tooling. | System Architecture, Dispatch Operations, Platform Transition | Quarterly |
| Delivery / Scope | NESO will build an interconnector forecasting capability in-house rather than procure an external product. | Forecasting Architecture, Platform Strategy, Procurement Planning | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery / Resourcing | Assumed that additional data science and product resources required for forecasting and balancing programmes will be funded by direct business hires with no increase in headcount. | Resource Planning, Delivery Capacity, IT-Business Collaboration | Quarterly |
| Delivery / Scope | It is assumed that the VOLTA innovation project will deliver Real Time Prediction models that can be integrated onto the platform during the NESO1 period. | Scope and Delivery | Quarterly |

**Alternative options**

As this is an investment has merged Forecasting Enhancements (260) and Real-Time Predictions (670), it has not explored alternative options as it is building upon the work of the previous investments – where alternative options had been explored during the inception of those investments, they have been recorded in previous business plans. If future regulatory changes require additional solutions to be considered, NESO will inform Ofgem of them through the existing regulatory reporting mechanisms.



## Interconnectors (NESO1-390)

### Overview

Interconnectors play a vital role in the UK's transition to cleaner energy by linking our electricity system with those of neighbouring countries. This investment strengthens our ability to support both existing and new interconnectors, ensuring flexibility, reliability, and alignment with future energy needs such as non-standard assets like Offshore Hybrid Assets. By modernising our platform for greater automation and integration, we can improve real-time control, reduce renewable energy waste, and expand access to energy markets. Ultimately, this investment supports smarter decision-making, enhances energy security, and helps the UK progress towards net zero emissions in line with European energy market developments.

This investment builds on the following BP3 investment:

| Investment ID | BP3 Investment Name |
|---|---|
| 120 | Interconnectors |

### Current state

Our Interconnectors investment is a standalone initiative that supports NESO's Balancing Transformation programme, consolidating progress from RIIO-2 and enabling reliable, flexible electricity exchange with neighbouring countries. Through upgrades like migrating legacy interconnectors to the IFLO platform and introducing a standard interconnector model, we've modernised management, enhanced automation, and improved security, resilience, and decision support for real-time operations. The integration of the Greenlink Interconnector and quarterly enhancements, including real-time situational awareness, have boosted system reliability and scalability to keep pace with growing data and operational demands. Looking ahead, we are focused on further automating processes, improving data sharing with European partners, and ensuring our systems can handle increased interconnector capacity—preparing for a future where UK interconnector capacity could exceed 18GW by 2032 if all planned projects are completed.

This investment has so far facilitated significant updates:

- Migrated legacy interconnectors (e.g. EWIC and Moyle) to IFLO our modern platform.
- Enhanced real-time control and visibility etc.
- Whilst we have enabled secure, automated cross-border energy exchange, we recognise that we still have manual processes and functions we need to automate.
- We also need to continue to align with NESO's broader Balancing Transformation programme.

Interconnectors are central to achieving net zero, expanding market access, and modernising system operations. This investment ensures they are fit for purpose and ready to support NESO's strategic goals in the next business planning period.

### Future state

This investment will support technical updates and upgrades to our interconnector architecture and landscape; it will continue to deliver enhancements and features to our IFLO application which will improve usability and help our control room better respond to the multiple and increased data flows driven by interconnector changes and due to the increasing number of interconnectors. It will also support future growth in Interconnectors and changes driven by external stakeholders to existing Interconnectors.

Our applications need to run quicker and have dynamic updates and screens. Visualisation needs to be improved with target performance in line with other CNI systems. To ensure resilience we currently perform and need to continue to perform regular backups of the application data and verify that these backups can be restored successfully. This guarantees that, in the event of data loss or corruption, we can quickly recover and continue operations without significant disruption.

Security is also a top priority; we need to continue to review and ensure we have robust practices in place to protect against threats and vulnerabilities. Regular software updates and system patching are critical components of this strategy, helping us to mitigate security risks and keeping the application secure.

We anticipate updates to interconnector operations such as changes to access rules, which translate to changes to, or the introduction of intraday markets, updates to the type and nature of data exchanges driven by process changes and regulatory updates.

The current drive by interconnector owners to move to a 30-minute Market Time Unit (MTU) will drive further increases to current data flows and information exchanges. Such changes will increase the need to ensure our systems continue to be resilient, robust and operate with a high availability.

The Open Balancing Platform (OBP) will introduce a new integration platform as part of the drive towards common Consistent Data Services. This platform will provide data exchange and orchestration services across platforms. Interconnector services will utilise this platform to integrate with OBP, as we move away from our legacy Balancing Mechanism (BM) system.

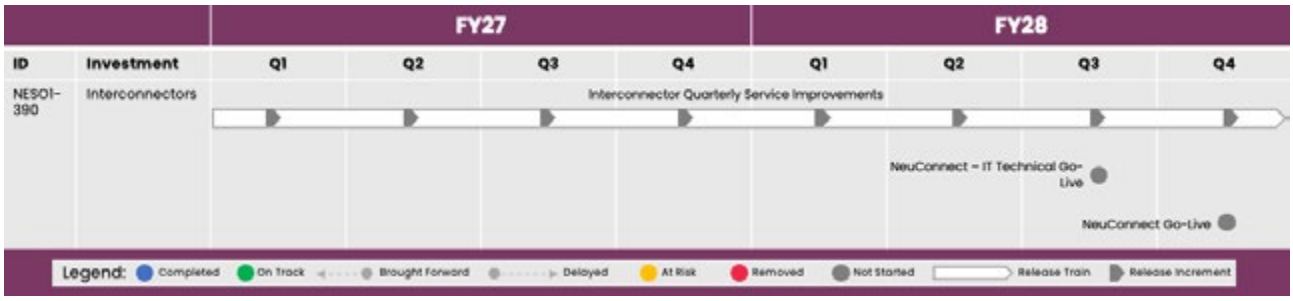
We expect our interconnector systems and service to integrate with other NESO programs such as DAP and STAR, ensuring that interconnector information is available to systems which need it to enable smarter, faster decision making, and more efficient processes.

To boost energy security and the shift to clean power, Ofgem in late 2024, approved a further 5 new interconnectors to further harness the vast potential of North Sea wind and help power millions of homes. Interconnectors are expected to help capitalise on the growing amount of homegrown wind power by providing additional channels for exporting in times of energy surplus and importing during times of more limited domestic supply. Two of the approved interconnector projects will create Great Britain's first ever Offshore Hybrid Assets (OHAs) which can directly feed energy generated by offshore wind farms into both our own and European grids.

We continue to engage with interconnector parties including TenneT (Germany) and other interconnector parties to design the framework for the 1400 MW NeuConnect interconnector, connecting the British and German electricity transmission systems. This Interconnector is expected to be the next interconnector scheduled for delivery in 2028 and the first of the new interconnectors in the pipeline for delivery between 2028 and 2032.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1 given the planned build of future interconnectors currently in the project pipeline.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Interconnector Quarterly Service Improvements | Delivering improvements and enhancements to the Interconnector IFLO application. | Every quarter |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | NeuConnect – IT Technical Go-Live | Deliver all relevant functionalities to enable and support the NeuConnect commercial go-live and start of commissioning testing. | Q3 FY28 |
| Milestone | NeuConnect Go-Live | First Interconnector between Germany and Great Britain. 1.4GW capacity. | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £1.5m | £1.5m | £3.0m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£1.5m** | **£1.5m** | **£3.0m** |

## Network Topology Optimisation (NESO1-460)

### Overview

The energy sector is facing rapid changes in the transition towards clean renewable sources. The growing share of volatile, fluctuating renewable generation has placed additional demands on the transmission networks, resulting in an increase in grid congestion. The cost of balancing services required to maintain grid stability has risen substantially, directly impacting consumers.

NESO is currently using manual Network Topology Optimisation (NTO) techniques to help manage constraints. NTO is a continuous process of using transmission system assets to alter electrical flow from generation to demand. The more efficiently the system can run, the fewer balancing actions are required and therefore the cost of balancing actions can significantly reduce.

This investment is looking to move towards a more automated and integrated NTO process. NTO will drive a focus on efficiency and sound economic decisions powered by digitally advanced, AI-enabled technologies.

This investment contributes directly to the NESO strategic objectives of driving consumer value, delivering a resilient and secure energy system through the transition to net-zero, and leading as a trusted expert through fostering strong global partnerships.

### Current state

Network Topology Optimisation for both planning and real-time operations is currently a wholly manual process that relies on the experience of engineers. Scenarios are created manually and assessed individually for different types of transmission system constraints across different time periods. Real-time rules are then manually applied to ensure that the optimal topology is feasible.

Due to the manual work involved, there are human limitations to NTO – it is impossible to manually optimise network topology for all constraints and for the vast number of permutations and associated business rules. Fully automated NTO in real-time has not been implemented in any network analysis tools across the wider industry due to the complexity of the task.

This investment follows completion of a Discovery investment (Investment 850), and NIA (Network Innovation Allowance) funded innovation work. As a result of this work, we have a strong understanding of international approaches to network topology optimisation including technologies that are currently available and those in development. We have evaluated best practice and performed benchmarking to understand the opportunities in this area, together with an assessment of the financial impact. We have defined a clear roadmap of next steps to be able to move the technology from research into operational delivery projects.

### Future state

Our future, long-term vision is to build out NTO capabilities that will deliver the following:

- **Automated NTO tools:** that will interact with power system models to generate an optimum topology for real-time constraints management, for any given transmission outage pattern or generation schedule.
- **Optimisation recommendations:** based on wide and varied scenarios and permutations, providing engineers additional options to manage system conditions.
- **Integrated, automatic application of operational rule sets within the NTO tools:** that will be used as inputs to provide optimisation recommendations in a real-time operational timeframe.
- **Integration of NTO tools:** within our planning and modelling tools and within our real-time situation awareness tools in the control room, presenting a unified and coherent experience for control room operators.
- **Full integration of NTO tools with other investment areas:** such as Volta and Dispatch Optimisation.

### Approach

Based on the outcomes of the NIA and Discovery investment, it is our expectation that it will take a significant number of years to achieve the high levels of automation envisaged in our future state.

Therefore, in this period, our approach will focus on the following:

- Further development of the plan and technical approach to formulate the research into modular development activities.
- Delivery of any legacy system upgrade opportunities that may present immediate benefit.
- Engagement with our stakeholders and the wider industry through a 'global community' to ensure best practice and aligned approaches underpin our strategy and direction.
    - This includes engagement with the Future Control Strategy team to understand organisational and operational procedure impacts.
- Ongoing engagement and alignment with other NESO investments and with the NESO System Operations Design Authority to ensure a collaborative and coherent approach across modelling, planning and operations.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.


| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Global Community initiated | Community of external parties formed with a regular meeting cadence established. Process for capturing and sharing best practice defined. | Q2 FY 27 |
| Milestone | Evaluation of operational best practice complete | Detailed evaluation of implemented operational best practice across a range of external organisations and vendors. | Q2 FY27 |
| Milestone | Capability-driven requirements definition complete | Epics and Capabilities documented and prioritised. | Q4 FY27 |
| Milestone | Transformational change design complete | Main transformational change designed and decomposed into a prioritised, modular approach for development and delivery. | Q3 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Modular development initiated | Development initiated for high-priority modules. In parallel initiate further scoping and design for all other modules. | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £0.5m | £3.0m | £3.5m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£0.5m** | **£3.0m** | **£3.5m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that there is no appetite for this global community initiative. | Although having less partners on these investments NESO could still pursue options. | 2 | 4 |
| There is a risk that no feasible solutions will be available to meet NESO's needs. | If there is not a suitable solution, then we would prevent continuing with this investment. | 3 | 4 |
| There is a risk that the solutions available are too costly to implement. | If a solution does not offer Value for Money, we would prevent continuing with this investment. | 3 | 5 |

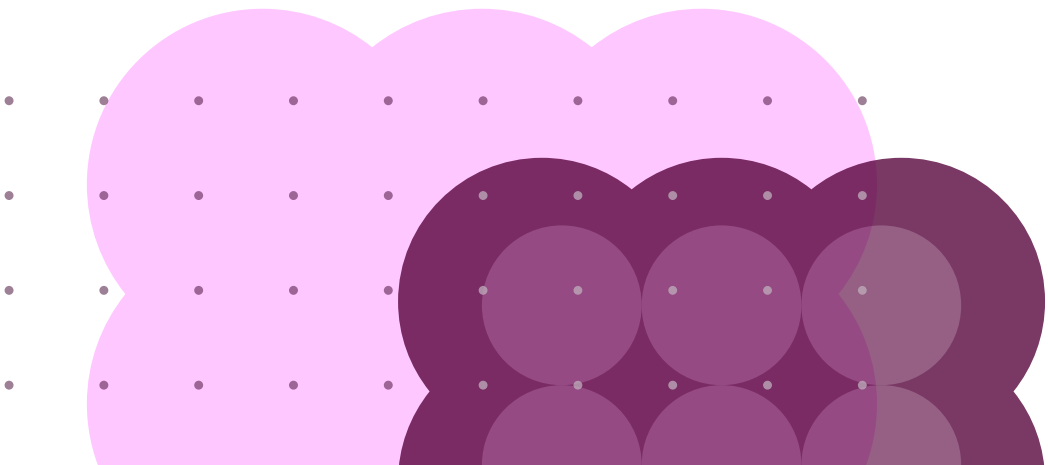
**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Scope | That our baseline research will not uncover a full off the-shelf vendor solution and that development work will be needed. | Solution Options | Quarterly |
| Delivery | That research groups will be able to commit to working with us on the NTO topic. | Delivery | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Scope / Delivery | That commercially available computing technology will prove adequate to progress with a viable solution. | Solution Options | Quarterly |

**Alternative options**

As this investment has not yet gone through discovery, we have not yet explored alternative solution options. However, we will do so as part of the discovery process and will then publish our outputs via the current regulatory reporting mechanisms.



## Open Balancing Programme (NESO1-400)

### Overview

As the energy system becomes more dynamic and decentralised, NESO's approach to balancing is evolving to meet new operational and market challenges. NESO will operate a flexible, and increasingly intelligent electricity system, make transparent real-time decisions in an optimal way to manage a complex, zero carbon grid and ensure a resilient energy system enabled through data, automation, and future-ready digital tools. This investment delivers both the platform and the product for Open Balancing—combining the underlying digital capability with the market-facing functionality participants will use.

The Open Balancing Platform (OBP) is central to this transformation, moving NESO to a unified system that co-optimises key balancing activities to drive operational efficiency, improve transparency and reduce cost. Through this investment, legacy system functionality is being progressively integrated into OBP enabling the phased retirement of these legacy platforms.

OBP is already improving transparency, streamlining processes, and reducing inefficiencies and manual workarounds. This is allowing system operations to make more informed and consistent decisions across all balancing timescales. The platform's modular and adaptable design is supporting the rollout of new energy services, integration with Distribution Network Operators (DNOs), and the inclusion of a growing number of flexible, smaller technologies. The OBP team support delivery of multiple milestones from other investments onto the platform as well as those detailed in this narrative.

Ongoing engagement with customers through Balancing Programme events and forums continues to reinforce the need for an integrated solution. As implementation progresses, these changes are expected to simplify customer participation, enhance operational efficiency, and support long-term cost reduction. Ultimately, OBP is laying the foundation for an electricity system that is more agile, transparent, and low-carbon—addressing the increasing complexity and cost of balancing, and meeting customer expectations for greater openness in system operation.

This investment consolidates previous BP3 investments:

| Investment ID | BP3 Investment Name |
|---|---|
| 180 | Enhanced Balancing Capability (OBP) |
| 480 | Ancillary Service Dispatch Platform (ASDP) |

### Current state

OBP is maturing as a key element of NESO's digital transformation, providing resilient, scalable capability for real-time system balancing. Designed to replace legacy tooling, OBP operates as a hybrid-cloud platform that advances the transition to a low-carbon electricity system while accommodating growing volumes and a broader spectrum of participants.

Selected notable achievements to date

- **New services on OBP:** Balancing Reserve and Quick Reserve are operational and continue to evolve through iterative releases.
- **Dispatch optimisation:** OBP provides enhanced dispatch capabilities, enabling faster execution, finer control where required, and better coordination across balancing activities.
- **Constraint-aware operation:** improved visualisation and bulk dispatch capability within network constraints, aimed at enhancing operator situational awareness and efficiency.
- Improved dispatch advice through the deployment of national optimisation in FY26.
- **Broader asset enablement:** enablement of smaller and more flexible assets is expanding, enabled through the implementation of bulk optimisation and non-BM services.

- Delivered secure CNI datacentre capability and core services to host OBP and related platforms, enabling resilient, compliant, and future-ready balancing operations.

OBP is also being integrated with NESO's wider digital estate, supporting the creation of a more unified balancing environment and reducing fragmentation across tools and data sources. The scope and sequencing of this integration are managed through the balancing roadmap to ensure operational stability is maintained throughout the transition. Alongside this, targeted training and change management activities are helping to ensure operator readiness as new features are introduced.

In summary, the current state of the Open Balancing Platform by March 2026:

- OBP will deliver the bulk of real-time dispatch, making operations more efficient and resilient.
- OBP will be expanding its role in scheduling however legacy systems will still be used for scheduling by the end of BP3 period.
- Operators and market participants will benefit from faster, more consistent processes, but some legacy systems will remain critical during the transition.

As OBP's capabilities expand, NESO is increasingly well positioned to support regulatory reforms suited to a zero-carbon grid while also providing greater transparency to customers and stakeholders.

**Future state**

Over the next investment period, NESO will complete the transition to a unified, modern balancing capability centred on the Open Balancing Platform (OBP). The programme's priorities are to finalise the remaining core capabilities and integrations, ensure a safe and effective transition from legacy systems, and further strengthen transparency and market alignment.

OBP will continue to evolve, enabling more coordinated decision-making across response, reserve, and constraint management in near real-time. The emphasis will be on robust optimisation models and engineered data pipelines that support consistent, scalable, and high-performance operations, laying the foundation for future co-optimisation across balancing services.

The focus will be on delivering the final upstream and downstream integrations required for OBP to assume full responsibility for balancing operations. This includes dispatch and scheduling capability such as interfaces for constraint data, supporting scheduling of storage assets in line with GC0166, improved interconnector visibility and management. In addition, to deliver transparency to internal and external customers we will create interfaces for settlement and market reporting with ability to publish operational data to market platforms such as Elexon and the Settlement Administration Agent.

Investment in the Critical National Infrastructure Data Centre will ensure the platform has the capacity, connectivity, and resilience required by OBP as more capability is created/transitioned. This will include improvements to the path to production, continuous integration and delivery, observability, and the replacement of selected tooling to reduce technology costs and deliver value for money. The programme will also explore extending CNI capabilities into the cloud, with the aim of establishing a secure and viable strategy by the end of the period, subject to security and vendor assurance.

Finally, OBP will continue to strengthen integration with adjacent capabilities, such as the Network Control Management System (NCMS) for constraint limits and improving situational awareness, and with Distribution Network Operators as new network tools and pathfinder units are introduced. The aim is to ensure consistent, timely data exchange and reduce fragmentation across the operational estate.

**Approach**

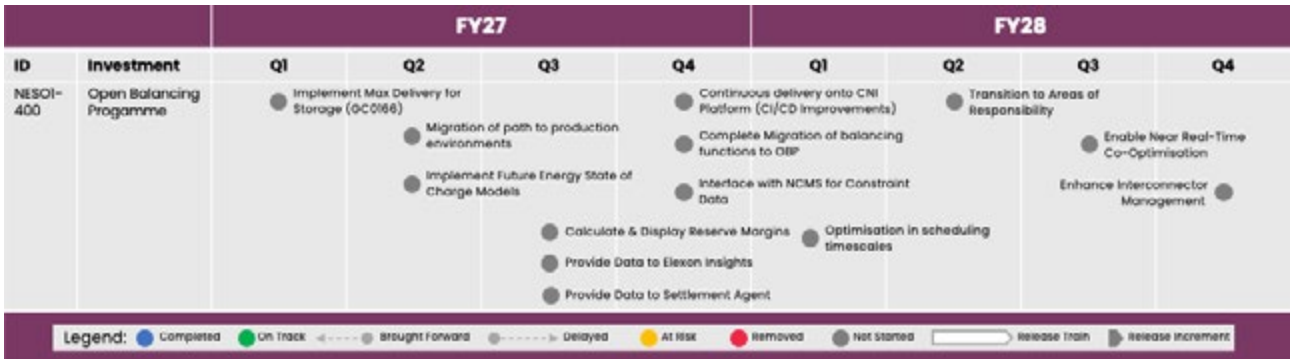
The roadmap is built on strong stakeholder engagement, shaped through industry events, internal workshops, and collaboration with DD&T, Architecture, and Business Sponsors.

Delivery methods are tailored to each initiative:

- Design-led agile for the Open Balancing Platform, enabling rapid iteration and continuous improvement.
- Waterfall for CNI DCE infrastructure, ensuring robust planning and risk management.
- This blended approach enables NESO to deliver change at pace where appropriate, while safeguarding operational stability for critical systems.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1. This roadmap includes the direct milestones under this investment. The delivery team supports a much wider scope of milestones for inclusion on OBP within other investment roadmaps.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Implement Max Delivery for Storage (GC0166) | To improve the utilisation of energy storage, the system will support optimising storage assets based on their GC0166 max delivery offer/bid. | Q1 FY27 |
| Milestone | Migration of path to production environments | Migration of all environments on path to production to the NESO Azure tenancy from NG Azure. | Q2 FY27 |
| Milestone | Implement Future Energy State of Charge Models | To align with new industry standards this will implement future state of energy charge models within the Open Balancing Platform. This enables OBP to more effectively use storage assets in scheduling timescales assuming all asset type models are available. | Q2 FY27 |
| Milestone | Calculate & Display Reserve Margins | To enhance operational awareness, this will enable the calculation and clear visibility of reserve margins across different timescales within the Open Balancing Platform. This helps OBP ensure sufficient backup capacity is available. | Q3 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Provide Data to Elexon Insights | To support market transparency and analysis, the Open Balancing Platform will publish market information to the Elexon Insights Solution. This aids regulatory oversight and market participant understanding of OBP operations. | Q3 FY27 |
| Milestone | Provide Data to Settlement Agent | To ensure accurate financial settlement of market activities, the Open Balancing Platform will publish necessary market information to the Settlement Administration Agent. This ensures OBP-driven actions are correctly settled. | Q3 FY27 |
| Feature | Continuous delivery onto CNI Platform (CI/CD Improvements) | Improved continuous delivery framework including support for multiple major releases and observability of testing across estate. | Q4 FY27 |
| Milestone | Complete Migration of balancing functions to OBP | OBP has taken over all scheduling and dispatch functions allowing retirement of BM systems. | Q4 FY27 |
| Milestone | Interface with NCMS for Constraint Data | To improve constraint management, this will establish an interface for the Open Balancing Platform to receive profiled constraint limits from the Network Control Management System's look-ahead function. This ensures OBP uses the latest network status for its decisions. | Q4 FY27 |
| Milestone | Optimisation in scheduling timescales | To ensure cost-effective security, the Open Balancing Platform will optimise the commitment of units to meet required reserve margins and response. This ensures OBP maintains reliability at the lowest possible cost. | Q1 FY28 |
| Milestone | Transition to Areas of Responsibility | To create a unified approach to grid management, this will further develop the Open Balancing Platform into a comprehensive whole-system balancing capability. This centralises and optimises national balancing functions within OBP and provides flexibility to move away the legacy tool's zonal structure. | Q2 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Enable Near Real-Time Co-Optimisation | To achieve greater system efficiency, this will enable the Open Balancing Platform to co-optimise response, inertia, reserve, and constraint management services in near real-time. This ensures OBP takes the most cost-effective combination of actions. | Q3 FY28 |
| Milestone | Enhance Interconnector Management | To better utilise interconnector capacity, this will provide enhanced visibility of interconnector operational options within the Open Balancing Platform and enable OBP to send emergency actions and instructions. This supports security of supply and market integration through OBP. | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £37.2m | £38.7m | £75.9m |
| OpEx | £0.5m | £0.5m | £1.0m |
| **TotEx** | **£37.7m** | **£39.2m** | **£76.9m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a dependency on the Volta "Advanced Scheduling Advice" not delivering — OBP scheduling lacks AI-assisted decision support if the PoC/stream doesn't land as planned. | Be prepared to define and deliver a deterministic scheduling MVP on OBP (rule-/constraint-based); maintain clear API contracts to swap in advanced advice later; pre-approve a "no-regret" feature set so scheduling release doesn't block on Volta outcomes. | 3 | 5 |
| There is a risk that the delivery may be impacted by the inability to retain key resources with knowledge and expertise. | Succession planning and building redundancy around key resources. | 3 | 3 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that competing programme activities may necessitate strategic trade-offs in investment allocation. | Clear priorities determined, managed identifying conflicts and replan where necessary. | 3 | 3 |
| There is a risk that due to the complexity of migrating all capabilities onto OBP in addition to new functionality there may be challenges in meeting the target milestone of full migration of balancing functions from legacy systems. | Ongoing prioritisation of activities required throughout programme management boards and ongoing engagement with customers (internal & external). | 4 | 4 |
| There is a risk that each investment area has roadmap items which may require significant work by other programmes, and this dependency is not yet interlocked leading to significant delays in delivery. | Undertake a joint review of all roadmap items and document the assumed areas impacted. | 4 | 4 |
| There is a risk that the current investment activities planned for FY26 may be replanned and therefore may spill over in the new investment period. | Reassess once replanning is complete. Additional delivery focus on current investment period. | 4 | 3 |
| There is a risk that new business requirements may emerge during this period which delay the committed objectives. | Early engagement and plan discovery activities to identify early. | 3 | 3 |
| There is a risk that the roadmap identifies business outcomes, but the design may reveal the need for significant technical enablers. | As part of the joint roadmap review (identified above), create a candidate list of significant enablers. | 3 | 3 |
| There is a risk that BMU onboarding and ramp up may happen faster than expected leading to performance issues that could derail the roadmap. | Agree expected update prior to sanction to have contingency to account for such an event. | 3 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that an inability to use 'open' AI models to complement and enhance delivery may cause security concerns. | Consider a secure, on-premises model as part of the investment and closed to the internet. | 4 | 4 |
| There is a risk that security or cloud vendor reviews into CNI in the cloud may lead to the approach not being viable, leading to additional spend in maintaining CNI datacentres. | Cost provision for new hardware to support CNI systems. | 3 | 4 |
| There is a risk that due roadmap milestones being contingent on the readiness of market providers, their readiness to participate in new services/systems may cause impact to delivery timelines. | Maintain regular consultation through balancing programme engagement events and stakeholder groups. Creation and sharing of implementation plans early with industry participants. | 3 | 3 |
| There is a risk that the level of system upgrades required may cause change fatigue with our stakeholders and customers, causing delays in user acceptance testing. | Early site of changes and engagement with stakeholders can help alleviate this and ensure UAT is planned with sufficient time to adjust to changes before planned go live dates. | 3 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | The costs for supporting and implementing scope on OBP for other investments will be paid by those investment budgets | Cost | Quarterly |
| Cost | The FY26 resource profile will be sufficient to deliver scope of the FY27 & FY28 roadmap | Cost<br>Resource Allocation | Quarterly |
| Cost | There is a compound annual inflation of 5% for FY27 & FY28 | Cost | Annually |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Resource costs have been estimated based on 2025 contractual frameworks in place between NESO and ADAM partners | Cost | Quarterly |
| Cost | Contracted capacity for hardware and software licences will be sufficient to support the growth as understood for FY27 and FY28 | Cost<br>Schedule<br>Benefits Realisation | Quarterly |
| Cost | No more than 10% of programme costs will be required to support new hardware, network and software products through FY27 & FY28 | Cost<br>Strategic Alignment<br>Benefits Realisation | Monthly |
| Delivery | Timely prioritisation decisions made to support delivery roadmap | Schedule | Monthly |
| Delivery | Roadmap is based on T-shirt sizing estimates of current understanding of requirements. | All | Monthly |
| Delivery | It is possible to integrate innovation outcomes for scheduling on OBP with minimal changes to platform | Strategic Alignment | Monthly |
| Delivery | We will have required SME knowledge within Business and DD&T to support evolution of the roadmap | Resource<br>Benefit Realisation | Monthly |
| Scope | The scope of other programmes will not impose additional demands on the roadmap not yet been identified | All | Monthly |
| Cost | The scope of BMU uptake will require additional compute to keep performance standards ahead of SLAs | Benefits Realisation | Quarterly |

### Alternative options

As this investment is merging the previous BP3 investments, Enhanced Balancing Capability (180) and Ancillary Service Dispatch Platform (480) and is continuing the work carried out by those investments – there isn't a need to explore alternative options. This investment has brought those together due to their interdependencies and synergies to effectively realise their strategic objectives.

## Situational Awareness Tools (NESO1-470)

### Overview

Situational awareness is critical in providing our ENCC operators with the information needed to make accurate and clear decisions in response to real-time events. We require ever-greater visibility of current system conditions and predicted future conditions to ensure our decision-making is confident and trustable.

As the transition toward zero-carbon grid operations advances, managing transmission system operations is becoming more complex and uncertain. The shift to low-carbon generation has resulted in traditional sources of inertia (typically provided by synchronous generators) being replaced by asynchronous resources, thereby elevating the risk of instability and potential impacts on system frequency.

This investment focuses on delivery of advanced monitoring tools and data infrastructure to support increased visibility of system conditions, frequency, and inertia. These capabilities will ensure that we continue to provide a secure, efficient and cost-effective system operation – our core priority and continuing strategic goal. Additionally, by implementing a new Network Control Management System, we further contribute to meeting our target of full separation from National Grid Electricity Transmission (NGET).

This investment also aims to deliver the Transmission Analysis Capability Reform (TACR) initiative; a strategic transformation effort aimed at modernising how NESO conducts power system analysis across operations and planning.

This investment builds on the advancements achieved during BP3 by integrating three areas of investment to enable a co-ordinated strategy for delivering essential situational awareness:

| Investment ID | BP3 Investment Name |
|---|---|
| 110 | Network control |
| 130 | Inertia Monitoring |
| 170 | Frequency Visibility |

### Current state

Our focus remains to deliver a secure and independent Network Control Management System (NCMS) that will replace the existing system shared with NGET. Having pivoted to implement the GridOS platform, we are delivering a more modern architecture with an improved integration capability, whilst also promoting more rapid deployment of future products/features.

The development, testing, and verification of NCMS product features essential for systems operations have been completed in collaboration with our end-user community. We have implemented consistent deployment procedures across both GE Vernova and NESO environments to support operational readiness and facilitate the ongoing integration of new features.

In addition to product delivery and verification, preparations are underway for system cutover, including the conversion of the Integrated Energy Management System (iEMS) database and displays, as well as the setup and configuration of new features. Change management activities are being implemented to support the readiness of the control room and key business functions for the adoption of NCMS.

We have deployed two innovative inertia monitoring technologies for control room evaluation purposes:

- Real-time inertia monitoring and forecasting for Scotland only via Inertia Grid Analytics software

- Real-time inertia monitoring via the Gridmetrix platform, which monitors the whole of GB

We have built reference cases and used the outputs from these to further adjust the parameters and improve the estimation process. We have in parallel completed an innovation project to validate inertia measurements in both tools compared to legacy Electricity National Control Centre (ENCC) calculations and have had independent measurements performed by the National Physical Laboratory (NPL). We are regularly feeding back the results from the new methods into improvements to our estimation outturn method within the control room.

We have deployed Oscillation Guard Pro, which provides analysis and visualisation to monitor the stability of the network, providing enhanced visibility and management of issues related to oscillation events.

Our new frequency monitoring system, FATE-R, is implemented in the control room and parallel running with the legacy system. The legacy system continues to feed data to downstream systems, including Balancing Mechanism (BM) and Comprehensive Integration Services (CIS) and is still used as the primary indicator of system frequency. We have acted on control room feedback to incorporate changes and improvements to FATE-R whilst it undergoes the period of validation.

A discovery phase has been conducted for Dynamic System Monitoring (DSM) to identify the most effective method for consuming generator data and transitioning from the NGET application. As part of this process, a proof of concept was executed with a limited set of generators to assess the feasibility of utilising a data portal for accessing information from DSMs. The results of the proof of concept are currently being compiled and will be reviewed alongside alternative DSM data acquisition strategies to determine a sustainable long-term solution.

Additionally, we are currently delivering a discovery on identifying the capabilities necessary for future transmission analysis capabilities. The objective of the discovery is to evaluate whether NESO's current transmission modelling tools can adequately support future scenario analysis and system planning needs. Since transmission analysis underpins multiple functions across the organisation, the discovery phase is engaging stakeholders from network modelling, systems operations, scenario development, operational planning, and regulatory strategy to ensure a comprehensive and inclusive assessment.

**Future state**

During NESO1, we aim to have enhanced the situational awareness capability, delivered through a seamless operator user interface to support zero carbon grid operations:

- Network issues are visualised quickly and supported by system-provided guidance enabling users to make informed decisions. Intelligent alarm processing supports decision making through automation and business rules, and we have more accurate forecasting of system status through look-ahead functionality.
- Integrated Wide Area Monitoring (WAMS) functions enable dynamic power system quantities to be monitored in real-time increasing situational awareness for control engineers.
- Inertia monitoring capability is tuned and includes forecasting for England and Wales using NGET-provided PMU data. We incorporate inertia data into our Balancing and analytical tools to ensure that inertia analysis is included as part of optimising the operating plan.
- We are receiving PMU data from all Transmission Operators, including Scottish & Southern Energy Networks (SSEN), Scottish Power Energy Network (SPEN) and NGET, achieving full national coverage in our FATE-R system.
- We have deployed an enduring Dynamic System Monitoring, providing us with direct access to data collected following system events, reducing balancing costs, improving customer relations, and reducing the time to resolve generator compliance issues.
- We have designed and delivered the future digital state of NESO's transmission analysis capability that automates the transmission analysis process and drive towards a first-class IT infrastructure for network modelling. Our discovery will cover tools such as: POUYA (Power

Uncertainty Year-Round Analyser); PSCAD (Power System Computer Aided Design); ARSA (Automated Rotor Stability Assessment) and many more. We will continue to publish updates through the existing regulatory reporting framework.

The above capabilities provide enhanced, systematic monitoring and management of system events, frequency and inertia. We have decommissioned two legacy systems of FATE and iEMS and achieved separation of our core situational awareness tools from NGET. The FATE-R system feeds data to downstream systems, including Balancing Mechanism (BM) and Consistent Data System Architecture (CDSA) and is the primary indicator of system frequency.

The establishment of enduring practices support ongoing incremental provision of new live features, safeguarding current operations, to control centre operations.

### Approach

Our strategic direction is to transition from iEMS to a NESO-only NCMS. NCMS is the central system in NESO Network Control and, once finalised, the surrounding system landscape will be evolved with a suite of situational awareness tools to assist control room engineers and wider stakeholders.

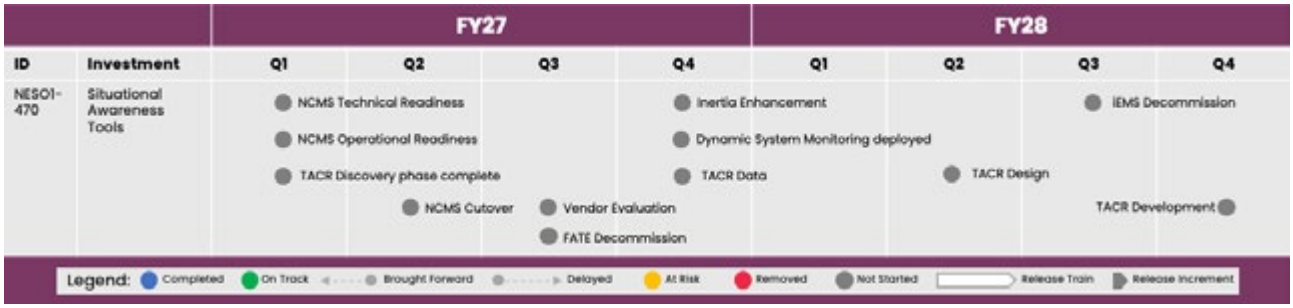
As one of the primary tenants in the new CNI Data Centres, NESO will allocate investment towards servers, storage, operational technology (OT), and IT networks to ensure robust hosting of all mission-critical operational applications.

We will implement a delivery methodology that is both proportionate and pragmatic, tailored to the specific portfolio of applications and vendors involved. Our approach will encompass a spectrum of delivery methods, from agile to waterfall, as appropriate. Additionally, each capability delivered will be supported by a product roadmap clearly outlining the phases of implementation.

We will engage with internal and external stakeholders and lead discussions to encourage sector wide digitalisation strategic thinking within transmission analysis.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | NCMS Technical Readiness | Control room engineers and wider stakeholder groups have verified the NCMS full feature set is fit for purpose and can replace iEMS following operational readiness activities. | Q1 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | NCMS Operational Readiness | All cutover activities have been completed, including operator training, iEMS database conversion, cutover runbooks and associate dry runs. | Q1 FY27 |
| Milestone | TACR Discovery phase complete | Ongoing discovery - Definition of business needs, impacts to platforms, and change strategy with estimates of effort and costs for further work. | Q1 FY27 |
| Milestone | NCMS Cutover | Our new NCMS has been successfully accepted into production service, replacing the existing iEMS. | Q2 FY27 |
| Milestone | FATE Decommission | Decommissioning of the legacy FATE system. | Q3 FY27 |
| Milestone | Vendor Evaluation | Evaluating vendor platforms for alignment with future network analysis needs, selecting technologies that enable robust transmission forecasting and reform. | Q3 FY27 |
| Feature | TACR Data | Ensure data integrity and accuracy. | Q4 FY27 |
| Milestone | Inertia Enhancement | Develop an inertia measurement assessment algorithm with National Physical Laboratory (NPL) to provide a real -time confidence metric for inertia values. | Q4 FY27 |
| Milestone | Dynamic System Monitoring deployed | Service providers can link their DSM kit to NESO and supply high-resolution generator data after events for compliance checks. | Q4 FY27 |
| Milestone | TACR Design | Define a new strategic modelling tool aligned to NESO strategic Alignments. | Q2 FY28 |
| Milestone | iEMS Decommission | Decommissioning of iEMS completed including secure infrastructure removal and disposal. | Q3 FY28 |
| Milestone | TACR Development | Deployment of the new automated modelling tools (AI). | Q4 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £11.9m | £14.0m | £26.0m |
| OpEx | £2.5m | £2.5m | £5.0m |
| **TotEx** | **£14.5m** | **£16.5m** | **£31.0m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that re-integration of iEMS change requests into the NCMS solution may take longer than planned due to the unknown nature of product evolution compatibility. | Phase the delivery of iEMS re-integration by sub-system to align with test plans.<br>Prioritise change requests based on severity and establish alternative working procedures for those not re-integrated. | 2 | 3 |
| There is a risk that the time to deploy, configure and promote deployments through NESO environments may take longer than planned due to the complex nature of NCMS products. | Prove deployment pipelines in GE environments before NESO deploy.<br>Enhance deployment scripts to incorporate configuration activities/steps.<br>Sequence product deployments to support testing cycles. | 2 | 3 |
| There is a risk that delays to NGET commissioning the SCADA replacement will impact NESO's ability to decommission iEMS, requiring continued dual support of NCMS and iEMS. | Work closely with NGET to support delivery of their SCADA programme.<br>Leverage GEV through extending the Master Services Agreement to provide ongoing support of iEMS. | 1 | 2 |
| There is a risk that delays in receiving PMU data from all TOs will extend the parallel running of FATE systems and delay FATE decommissioning. | Regular engagement with Transmission Operators to align PMU delivery plans. | 2 | 2 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Timeline | PMU data from NGET is integrated, NESO will achieve full national coverage in FATE-R, enabling the decommissioning of the legacy FATE system. | FATE Decommissioning | Monthly |
| Design | Alignment on the vison of TACR across NESO. | TACR | Quarterly |
| Timeline | Stakeholders are exclusively from within NESO. | TACR | Quarterly |

### Alternative options

As this is an investment has merged several pre-existing investments, it has not explored alternative options as it is building upon the work of the previous investments.

Where alternative options had been explored during the inception of those investments, they have been recorded in previous business plans. If future regulatory changes require additional solutions to be considered, NESO will inform Ofgem of them through the existing regulatory processes.

## System Access (NESO1-440)

### Overview

The System Access investment brings together five interdependent programmes - System Access Reform (SAR), the Regional Development Programme (RDP), Planning & Outage Data Exchange (PODE), Offline Network Modelling (ONM), and Network Services Procurement (NSP) - to transform how access to the transmission system is planned, coordinated, and operated. It will digitise operational data flows, modernise network modelling and procurement, and enhance NESO's ability to manage a more complex, decentralised, and low-carbon energy system.

This investment responds to the scale and pace of transmission build-out required for Clean Power 2030, which is driving a step change in planned outages, regional constraints, and system operability. Current processes and data exchanges are fragmented, limiting NESO's ability to optimise access windows, reduce constraint costs, and provide transparent, system-wide visibility to industry stakeholders.

Within this investment, there will be five main delivery areas aligned to:

#### System Access Reform (SAR)

SAR will overhaul how access to the transmission system is planned and delivered so the CP30 build-out can be delivered safely, predictably and at the least cost. We will move from an annual planning to a rolling multi-year plan, accelerate agreed Transmission Acceleration Plan actions, and redesign the end-to-end process with digital tooling. We will also be investing in AI, managed by the NESO AI Excellence Programme. We have identified this programme as a key area where AI can realise significant benefits to operations and productivity through four key areas: delivering value through AI products, data enablement and knowledge bases, people and skills, and assessing AI's impact on our ways of working.

#### Regional Development Programme (RDP)

RDP delivers targeted regional operability improvements, such as enhanced MW dispatch and better interconnector coordination, to relieve constraints and enable connections where local action has national benefit. Delivery will proceed through focused pilots and staged rollouts with DNOs and TOs, feeding lessons into control room procedures. The result is lower constraint spend, faster connections, and stronger operational resilience in hotspots.

#### Planning and Outage Data Exchange (PODE)

PODE provides enhancements of outage planning and data exchange systems to enable a whole system approach to access networks. PODE manages significantly increased data volumes and provides interactive stakeholder engagement.

#### Offline Network Modelling (ONM)

ONM is a strategic investment aimed at transforming NESO's modelling and data management capabilities to support zero-carbon operability.

#### Network Services Procurement (NSP)

NSP supports the delivery of stability, voltage, and constraint management services via the Pathfinder programme and enhanced control room capabilities.

Together, these initiatives will enable NESO to manage the growing volume of works safely and efficiently, reduce consumer costs, and deliver a secure, transparent, and digitally enabled electricity system. The investment directly supports NESO's strategic objectives by improving system resilience, accelerating digitalisation, enabling decarbonisation, and strengthening NESO's role as a trusted system planner and operator.

This investment consolidates the following BP3 investments:

| Investment ID | BP3 Investment Name |
|---|---|
| 340 | Regional Development Programme (RDP) Implementation & Extension |
| 350 | Planning & Outage Data Exchange (PODE) |
| 360 | Offline Network Modelling |
| 720 | Network Services Procurement |

**Current state**

### System Access Reform (SAR)

SAR is in early investigation following BP3 approval. The scope is defined at a high level, focusing on transitioning from annual outage planning to a rolling multi-year access plan and redesigning the end-to-end process with Transmission Owners (TOs). Foundations include whole system planning, cross-industry engagement, and early development of digital performance tools. AI is being explored to optimise outage planning, with initial delivery focused on improving insights for engineers. Technical requirements for system changes are expected by December FY26.

### Regional Development Programme (RDP)

RDP has delivered four phases (RDP1-4) across BP2 and BP3. RDP5 is paused due to dependencies on the ICCP link upgrades, expected in Q2 FY27. Closure activities for earlier phases are complete, and stakeholder engagement is ongoing. Constraint hotspots and connection delays persist due to limited visibility and control. Restarting RDP5 will enable standardised MW Dispatch tools, structured pilots, and integration into control room operations.

### Planning & Outage Data Exchange (PODE)

PODE has implemented standard interface specifications (APIs/ICCP) for target Distributed Network Operators (DNOs). Operational data remains fragmented and delayed, limiting decision-making. PODE is establishing a single, standardised route for data exchange. Key deliverables include MW Dispatch enhancements, incremental improvements to Electricity Network Access Management System (eNAMS)/Electricity Generator Availability and Margin Analysis (eGAMA), and development of Electricity Modelling Information Data System (eMIDS) to support model merging across TOs and DNOs.

### Offline Network Modelling (ONM)

ONM has adopted a dual product team model which has delivered cost savings. Migration to a strategic Azure platform has improved performance and resilience, with further integration into NESO-owned Azure platform planned to achieve full separation. Key developments include Transient Time Domain (EMT - Electromagnetic Transient) analysis tools, strategic tooling integrations, the Data Registration Code (DRC) portal, and security upgrades for cybersecurity (NIS/CAF) compliance. Co-simulation feasibility studies are complete, supporting future modelling innovation.

### Network Services Procurement (NSP)

NSP has delivered key milestones including Stability Phase 2 site go-live, Integrated Energy Management System (iEMS) enhancements, and progress on Stability Y-1 MBP and Voltage 2026 solutions. Digital Charters workshops have aligned long-term plans with NESO's architecture. The programme will expand to support distributed partner components and lower-carbon operations, while providing strategic guidance on long-term system requirements and connection coordination.

**Future state**

### System Access Reform (SAR)

Over NESO1, SAR will move from design into phased implementation to deliver a predictable, multi-year access regime that enables the Clean Power 2030 build-out at least cost and with high operational confidence. SAR focuses on three outcomes delivered in partnership with TOs:

1. Accelerate Transmission Acceleration Plan actions for outage planning.
2. Stand up a rolling six-year system access plan to optimise outages across years.
3. Complete an end-to-end access process review, turning prioritised recommendations into costed, sequenced changes.

Digital tooling, including targeted AI for planning support, coordination and drafting, underpins the shift from annual planning and manual re-work to stable, auditable workflows.

Key outputs include:

- Implementation of agreed solutions and embedding of digital tools, automation, and transparent coordination with new processes, where required.
- Piloting of novel approaches where appropriate, refined based on feedback, and integrate quick wins into business as usual (BAU).
- Consolidation and embedding of reforms into enduring governance, processes, and digital platforms.

We plan to leverage AI for SAR, exploring how we implement optimal outages to deliver CP30 plans, streamline the end-to-end system access process, and contribute to enhanced outage planning. In the near-term, we are implementing AI for network access planning to improve the quality of insights to engineers and inform decisions.

### Regional Development Programme (RDP)

RDP will resume targeted regional operability deliveries, such as enhanced MW Dispatch, GSP technical limit management, and improved interconnector coordination, to relieve local constraints, accelerate connections and strengthen resilience in identified hotspots. Work proceeds through focused pilots and staged rollouts with DNOs and TOs, with learning embedded into control room procedures.

RDP5 completion is expected in Q2 FY27, and contingent on delivery of required ICCP link upgrades. Programme re-baselining for RDP5 is prepared and will mobilise once the ICCP link dependency is met.

The key output for RDP is the restart and completion of RDP5 following ICCP readiness; pilots transitioning into standard operating procedures for regional constraint management.

### Planning & Outage Data Exchange (PODE)

PODE provides the data backbone for planning and operations so that plans, limits, states and instructions flow reliably and near real-time across NESO, TOs and DNOs. Over NESO1, PODE will continue to deliver enhancements to the key tools including eNAMS, eGAMA and eMIDS in line with stakeholder requirements. This delivery will be structured in 3 workstreams.

1. eNAMS Enhancements: Delivery of enhancements to eNAMS, eGAMA, and eMIDS, and delivery of TO and DNOs strategic roadmap changes.
2. Deeper DNO/DSO Access: Develop strategic work on DNO outage exchanges into operational exchange using GC0139 data as the basis (linked to Workstream 3), including the expansion of data sharing solution delivered to target DNOs in current state.
3. External Data Exchange (EDE) Replacement: eMIDS improvements following external user operation and feedback, and installing GC0139 Common Information Model (CIM) Profile-capable OLTA version and make available to the business, develop capability inside OLTA to

utilise the GC0139 DNO data submissions to better define the user imported data for use in NAP & ENCC.

### Offline Network Modelling (ONM)

ONM will continue to enable NESO to meet its license obligations by ensuring a secure, resilient & operable energy system. The programme will expand both OLTA which is the steady state analysis (called RMS – Root Mean Square methodology) and the Transient Time Domain analysis (called EMT – Electromagnetic Transient methodology) platforms running two product teams. As we increasingly build a net zero system, with huge increases in the inverter-based resources (IBRS), renewable technologies, HVDCs and new connections, it is crucial that we continue to understand and plan the complex GB network system.

The programme will implement several forward-looking initiatives:

- Power System Modelling – Power Factory for OLTA, PSCAD (integrated Power System Computer Aided Design) simulation software for EMT and custom tools or derivatives and align with the Digitalisation strategy.
- Deeper Access Planning: Complete the DNOs and Distributed Energy Resources integration into the OLTA Platform - GC0139 (Grid Code technical specification).
- Co-Simulation Techniques: Exploration of co-simulation methods to reduce simulation time and cost, improving signal behaviour analysis across the GB system.
- Enhanced EMT Capability: Continued scaling of EMT tools to support zero-carbon network operations, including new PSCAD versions and enhanced licences. Also included are the Sub-Synchronous Oscillation (SSO) phase 2 & automation capabilities.
- Ratings Management System Replacement: Delivery of a new strategic system that will manage both thermal, short circuit and dynamic line ratings across an increasingly decarbonised whole GB energy system.
- Data Registration Code (DRC) Portal Phase 3 & 4: Strategic enhancement of the Generators Connections Grid Code data submission platform to enable end to end compliance submissions align to our digital charter mandate.
- Grid Connection Simulation Tool Project: Delivery of the capability that allows the sharing of Transient Time Domain network model within GB, thus mitigating the system Oscillations risks caused by the introduction of inverter-based resources (primarily HVDC interconnectors and offshore wind farms).

### Network Services Procurement (NSP)

NSP will look to support the energy sector by coordinating connections to the energy transmission system and addressing long term operational requirements by offering guidance and knowledge on long-term strategies. Throughout the NESO1 period, this investment will aim to expand delivery scope and support to distributed partner components, to operate systems with lower carbon emissions.

Future activities include:

- Delivery of enhancements to provide improved operational flexibility to the Control Room engineers, with the management of effectiveness factors and mapping of Balancing Mechanism Units (BMUs).
- Delivery of the Stability Y-1 and Voltage 2026 solutions to further enhance the Control Room engineers to operate these business contracts; provide greater awareness and capabilities to instruct stability units and support the new mid-term Reactive Power Market contracts.
- Design and Delivery of the EC5 Enduring solution to provide additional capabilities to support the operation of the EC5 (East Anglian boundary region) constraints boundary.

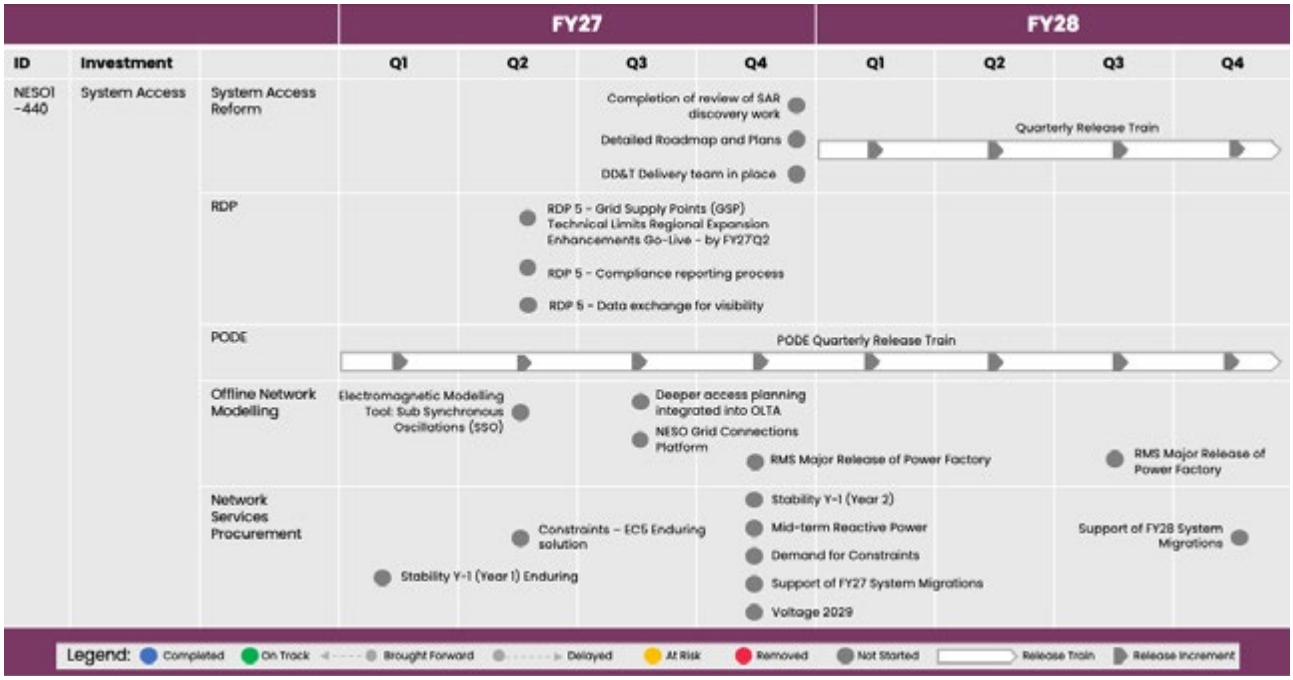
### Approach

We will be implementing an Agile approach across the various programmes in this investment to enhance responsiveness, collaboration, and value delivery.

- SAR will continue to evolve its operating model by introducing incremental changes to its organisational structure and operational practices, as needed. This evolution will be guided by Agile principles to foster flexibility, responsiveness, and continuous improvement. Agile methodologies will also underpin the exploration and integration of AI opportunities across key areas, including planning, submission support, review and coordination, drafting and refinement, and execution and recovery.
- RDP will continue to employ Agile methodologies where possible, using short sprints to define, plan, and complete tasks. The project will continuously refine and validate the GSP Technical Limit service with stakeholders to ensure evolving requirements are met. Regular bilateral meetings and potential Joint Project Management Board sessions will support governance and decision-making.
- PODE, ONM, and NSP are already being delivered as Agile projects, with a dynamic backlog that can be re-prioritised to optimise business value and respond to user feedback in real time.

### Roadmap

This below roadmap accounts for the milestones during the NESO1 period, but we envisage this investment to proceed past NESO1.




Milestones for delivery are confirmed once a release scope has been mobilised, and it has proceeded through our start-up stage. Delivery of the customer / process enhancements and technical enhancements that form part of each of the below release trains will be communicated via the cost monitoring framework reporting.

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| | | **SAR** | |
| Milestone | Completion of review of SAR discovery work | DD&T team have a complete understanding of outputs from the discovery phase expected December FY27 including:<br>• Identifying relevant departments/ teams, individuals, systems, processes and data models and existing plans that are impacted by SAR.<br>• Design for the proposed new System Access Operating model, which may include changes across organisation structure, technology, information flow, and ways of working between industry actors.<br>• Gap analysis between existing and proposed models completed. | Q4 FY27 |
| Milestone | Detailed Roadmap and Plans | Following initial prioritisation deliver a roadmap for these ambitions. | Q4 FY27 |
| Milestone | DD&T Delivery team in place | Delivery Team in place to deliver against the prioritised backlog of work identified during Discovery phase into the NESO estate. | Q4 FY27 |
| Milestone | Quarterly Release Train | Quarterly release based on roadmap / priorities planned after agreement of the solution. | Every quarter |
| | | **RDP** | |
| Milestone CR0754 Approved | RDP 5 - Grid Supply Points (GSP) Technical Limits Regional Expansion Enhancements Go-Live - by FY27'Q2 | Economic and operable solution/s delivered across all DNOs to manage growth of distribution storage in England & Wales achieved through The Grid Supply Points (GSP) Technical Limits. | Q2 FY27 |
| Feature | RDP 5 - Compliance reporting process | NESO to build new IEMS screens to monitor the relevant GSP flows in real time. | Q2 FY27 |
| Feature | RDP 5 - Data exchange for visibility | Data exchange between DNO-ESO via ICCP link per GSP of the DER's to enhance visibility and Operational decision making. | Q2 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| | | **PODE** | |
| Milestone | PODE Quarterly Release Train | Delivery of customer / process enhancements and technical enhancements. | Every quarter |
| | | **ONM** | |
| Milestone | Electromagnetic Modelling Tool: Sub Synchronous Oscillations (SSO) | Increase ESO Networks capability to carry out system analysis using EMT tools to tackle Sub Synchronous Oscillations within the GB system for Phase 2. | Q2 FY27 |
| Feature | Data Registration Code Generator Digital Submission | A live Digital DRC submission service for Generators to complete Week 24 submissions online Phase 3 & 4. | Q2 FY27 |
| Feature | Co-simulation Capability | Business Case for Simulation service for RMS and EMT Modelling integrated into Transmission Analysis review. | Q2 FY27 |
| Milestone | Deeper access planning integrated into OLTA | Enabling the capability to include Deeper Access Planning in the OLTA Models and in the integration with PODE if required (GC 0139). | Q3 FY27 |
| Milestone | NESO Grid Connections Platform | Service for external vendors to submit their local EMT models to be validated against a regional EMT model, 4 per year. | Q3 FY27 |
| Feature | DRC Compliance Enhancements | Implement Industry agreed compliance requirements for FY27. | Q3 FY27 |
| Milestone | RMS Major Release of Power Factory | Upgrades to offline modelling capability to analyse a more complex power system, address operability challenges and enable more efficient exchange of data. | Q4 FY27 and Q3 FY28 |
| Feature | Automation Tools within the EMT Platform | Automation tools available implementation of Automation scripts on EMT Platform on production environment. | Q4 FY27 |
| Feature | Ratings Management System Replacement | A NESO Capability integrated with the TOs to manage both thermal, Short Circuit and Dynamic Ratings across the GB system Phase 1 Design Build and Test. | Q4 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Feature | Ratings Management System Replacement | A NESO Capability integrated with the TOs to manage both thermal, Short Circuit and Dynamic Ratings across the GB system Phase 2 – Implementation. | Q3 FY28 |
| Feature | DRC Compliance Enhancements | Implement Industry agreed compliance requirements for FY28. | Q3 FY28 |
| | **NSP** | | |
| Milestone | Stability Y-1 (Year 1) Enduring | Additional enduring capabilities for awareness and instruction of stability units for the control room and insights for billing team. | Q1 FY27 |
| Milestone | Constraints – EC5 Enduring solution | Additional capability to deliver the operation of the EC5 constraints boundary. | Q2 FY27 |
| Milestone | Stability Y-1 (Year 2) | Changes to support stability Y-1 (Year 2) project. | Q4 FY27 |
| Milestone | Mid-term Reactive Power | Changes to support Mid-term Reactive Power Market Contracts. | Q4 FY27 |
| Milestone | Demand for Constraints | Changes to support the 'Demand for Constraints' service which is intended to incentivise more new, flexible demand at the right locations to help with thermal constraints. | Q4 FY27 |
| Milestone | Support of FY27 System Migrations | Ensure that existing IT functionality to support Network Services contracts is successfully migrated to new NESO systems. | Q4 FY27 |
| Milestone | Voltage 2029 | Changes to support long term 2029 contracts. | Q4 FY27 |
| Milestone | Support of FY28 System Migrations | Ensure that existing IT functionality to support Network Services contracts is successfully migrated to new NESO systems. | Q4 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £11.9m | £14.0m | £25.9m |
| OpEx | £2.5m | £2.5m | £5.0m |
| **TotEx** | **£14.4m** | **£16.5m** | **£30.9m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| **SAR** | | | |
| There is a risk that a delay in delivering requirements during BP3 would have a knock-on impact to the start of the technical implementation. | Working closely with the System Access team during BP3 supporting where possible to keep to timelines. | 1 | 2 |
| **RDP** | | | |
| There is a risk that misalignment with DNOs regarding objectives, timescales, technical design standards and their ability to fund investments, may lead to delays in realisation of benefits and increased costs to deliver solutions. | Engage closely with DSOs and progressively develop ways of working and agreed standards. | 5 | 2 |
| There is a risk that RDP5 scope deferment in FY27 will not align with DD&T Annex milestone due to dependent NESO Strategic Transformation Programme -NCMS uncertainty in delivery timeframes, with potential for conflicting priorities, leading to delays in realisation of benefits. | Build integrated delivery plans and ensure alignment of RDP changes with wider portfolio, specifically dependent Projects – ICCP Delivery & Migration across to NCMS, including Time Series Data Historian (compliance reporting). | 5 | 2 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| **PODE** | | | |
| There is a risk that a delay in concluding GC0139 will have an impact on EDE final solution delivery due to the dependency of CIM standards, leading to delays in transforming our capability in modelling and data management. | Ensure regular GC0139 delivery schedule tracking and impact analysis of CIM Standards Focus resource on data modelling activity within our product team structure. | 4 | 2 |
| **ONM** | | | |
| There is a risk that the NESO Network (E-STIG) may not be in place as a pre-requisite for OLTA Migration to NESO Azure. | Review the NIS design for NESO on the OLTA platform. The migration to NIS tier will happen after OLTA has been migrated to NESO Azure. | 3 | 3 |
| There is a risk that OLTA platform Security compliance is unclear when migrated to NESO Azure due to lack of design documentation and CAF compliance. | Work with the NESO migration lead and Solution Architect to identify the gaps in design documentation. The design documentation required by the migration team has been shared by the OLTA SA team. | 4 | 2 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| **SAR** | | | |
| Cost | Without the outcomes of this year's System Access Reform project an assumption has been made that the project will be similar in size to PODE and costed accordingly. | Cost & Scope | Quarterly |
| Cost | System Access Reform appears an ideal candidate for AI solutions. The costs assume some of the Reform findings will be delivered and funded via the AI investment. | Cost & Scope | Quarterly |

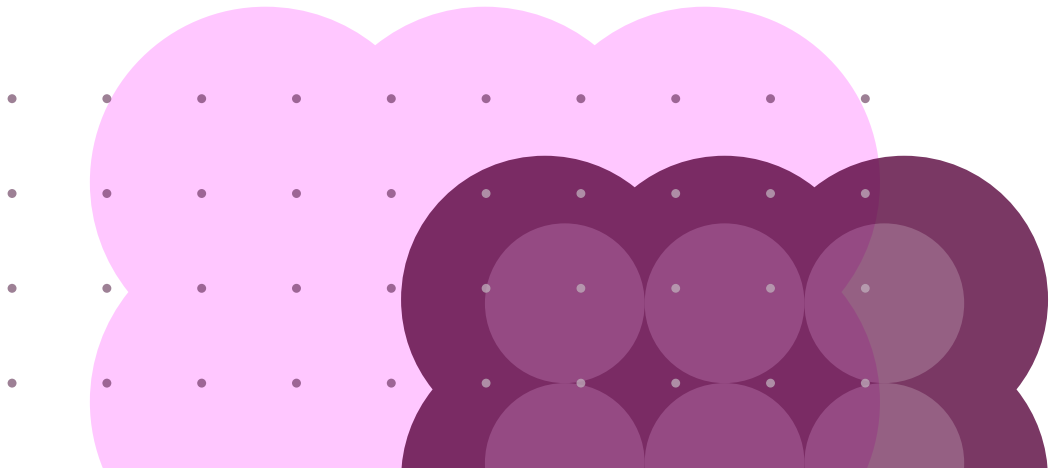
| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Timeline | All milestones assume the activities for System Access in BP3 are delivered to the current plan, therefore delivering the requirements for this work to begin. | Timeline | Monthly |
| **RDP** | | | |
| Timeline | Delivery of ICCP links to DNO is expected in Q2 FY27 allowing the work on RDP5 to resume. Any delay to this dependency would delay RDP delivery. | Timeline & Scope | Monthly |
| Cost | It is assumed that the RDP5 scope deferment can still be accommodated within the sanctioned Investment. | Timeline & Cost | Monthly |
| Scope | All iEMS functionality including that delivered for RDP 5 will be built and delivered by NCMS Programme as part of Migration. | Timeline & Cost | Monthly |
| Scope | Time Series Data Historian (TSDH) will deliver RDP 5 compliance reporting solution. | Timeline & Cost | Quarterly |
| Timeline | All DNO's as required to be available in FY26 to ensure the completion of the RDP 5 project. | Timeline & Cost | Monthly (NPG)<br>Quarterly (SPM & ENW) |
| Cost | The DD&T AI budget has System Access Reform listed as a key use case. It is assumed that cost of AI delivery in SAR will be covered from this budget. | Cost & Scope | Quarterly |
| **PODE** | | | |
| Design | All DNOs will engage as required to satisfy Deeper Access Planning design and delivery. | Final solution design and delivery will only fulfil needs of those DNOs that meet data request requirement. | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Timeline and Scope | DNO/DSO partners to agree to the same ambition / outcomes and resource a common project plan to achieve it. | Timeline & Scope | Quarterly |
| Timeline | GC0139 grid code change requirements and change will be approved in Q4 FY 2026. | Delay in GC0139 will affect the delivery timeline of the implementation of its outcome. | Quarterly |

**Alternative options**

As this is an investment has merged several pre-existing investments, it has not explored alternative options as it is building upon the work of the previous investments.

Where alternative options had been explored during the inception of those investments, they have been recorded in previous business plans. If future regulatory changes require additional solutions to be considered, NESO will inform Ofgem of them through the existing regulatory processes.



# Part 4 – Investments by Enabling Function

Our Enabling Functions provide the essential foundations for effective delivery. This section outlines DD&T investments that support and strengthen these functions.

## 4.1 Business Health

### Digital Change for Legal, Risk, and Regulation (NESO1-210)

**Overview**

The NESO Digital Change for Legal, Risk, and Regulation project is a strategic investment initiative under NESO's broader digital transformation programme. It aims to modernise and digitise the Legal, Risk, and Regulation function by equipping teams with advanced digital tooling, enhancing operational capabilities, and aligning with NESO's independence and regulatory obligations.

Key objectives include:

- Strengthening NESO's legal and regulatory advisory capabilities.
- Enhancing risk management and assurance frameworks.
- Supporting compliance, ethics, and governance through digital enablement.
- Exploring AI applications to unlock additional value in regulatory and legal operations.

**Current state**

As of mid-2025, the project is in its early investment and planning phase, with foundational work underway across several streams:

- Tooling and Infrastructure: The legal and regulatory teams are being equipped with digital platforms to support proactive and reactive guidance, risk readiness, and compliance assurance.
- Stakeholder Engagement: Initial stakeholder mapping and narrative drafting are in progress, with collaboration across teams to identify investment owners and contributors.
- Integration with BP3: The project is being structured to align with NESO's BP3 investment framework, ensuring consistency with broader digital change efforts across other enabling functions.
- Taking the work already completed on Digital Charters forward into a set of deliverables for the portfolio to be achieved over the next couple of years.
- Working with the leads across Legal & Reg to understand how we may leverage existing tools and applications across NESO to give some immediate support and benefit to teams.

**Future state**

The envisioned future state for Legal, Risk, and Regulation under NESO's digital change programme includes:

- Digitally Enabled Advisory: Legal and regulatory teams will operate with best-in-class digital tools, enabling faster, more accurate, and strategic decision-making.
- AI-Driven Insights: Exploration of AI applications to enhance early competition processes, automate regulatory assessments, and improve risk forecasting.
- Use of AI tools to perform repeatable tasks freeing up key NESO resources to perform more value-added tasks.

- Integrated Compliance Frameworks: A unified approach to ethics, safety, health, and wellbeing, supported by digital compliance and governance platforms.
- Strategic Independence: Full separation from National Grid services, with NESO owning and operating its legal and regulatory infrastructure independently by September 2026.

The project will continue to evolve through iterative planning, stakeholder engagement, and alignment with NESO's broader transformation roadmap. Future updates will be shaped by outcomes from discovery activities, regulatory feedback, and internal governance reviews.

### Approach

Our approach for this investment is to run a period of discovery with the business areas to:

- Define their requirements and goals, aiming to build up a picture of what is required over the next few years.
- Utilise the skills and knowledge of our Enterprise Architects and strategic partners to understand the type of tools available in house within NESO and in the market to deliver these requirements.
- Formulate a plan of delivery including the running of procurement events to select the required application set to meet Legal & Reg needs.
- Build a delivery plan for implementation ensuring that the right knowledge and skills are in place across both DD&T and the functional areas to enable successful delivery.

### Roadmap


| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Discovery | Discovery Phase | Work with Legal & Reg functional areas to define high level requirements/ strategic aims. | Q2 FY27 |
| Architectural Approach | Build Architecture approach | Work with Enterprise Architects and Partners to define application set to delivery strategic aims. | Q2 FY27 |
| Procurement | Procure applications | Vendor and solution contracted, via tender or other internal or commercial mechanism available. | Q2 FY27 |
| Implementation | Delivery completed | Delivery of applications/solutions. | Q4 FY27 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £0.2m | £0.2m | £0.4m |
| OpEx | £0.5m | £0.6m | £1.1m |
| **TotEx** | **£0.7m** | **£0.8m** | **£1.5m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk of mismanagement of data and AI | Implement robust controls and governance frameworks for data and AI usage | 3 | 4 |
| There is a risk of legal reporting gaps to stakeholders | Establish litigation protocols and ensure timely updates on legal risks and compliance | 1 | 3 |
| There is a risk of a lack of visibility on foundational service interdependencies | Maintain a dependency log and ensure programme-level risks are flagged appropriately | 1 | 3 |
| There is a risk of misalignment with regulatory changes | Monitor regulatory targets and adjust investment plans accordingly | 2 | 3 |
| There is a risk of third-party misalignment with NESO priorities | Maintain regular engagement cadence and provide early visibility of service needs | 2 | 3 |
| There is a risk of inadequate personnel security due to NSV clearance delays | Formalise Exceptions Risk Assessment process and align with NESO security policy | 2 | 3 |
| There is a risk of inadequate stakeholder engagement in Legal, Risk, and Regulation transformation | Enhance SME sessions and coalition governance to build stakeholder confidence | 2 | 3 |
| There is a risk of undefined process ownership across Legal, Risk, and Regulation | Establish clear ownership models for legal, regulatory, and compliance processes | 2 | 3 |
| There is a risk of delays in tooling deployment | Expedite infrastructure setup and align with BP3 timelines | 2 | 3 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery / Cost | Any tendering activity will take a reasonable amount of time and vendors will respond. | Procurement | Quarterly |
| All | The delivery phase will provide the required quality outputs with which to analyse and make decisions on next steps. | Project | Weekly |
| Scope / Timeline | The relevant SME's will be able to support any requirement gathering activities with high quality input and sufficient time. | Quality | Weekly |
| Scope/Cost | The remit for delivery of the areas within Legal and Regulation remains the same. If new requirements are brought in over the period of BP3 then the scope for delivery of this programme may also change. | Costs/Time | Quarterly |

### Alternative options

As this investment has not yet been through discovery, but will do so during the NESO1 period, we are not yet able to discuss alternative options – but we will investigate multiple options as part of our discovery. We will then produce an output of our discovery and present our findings on the chosen and alternative solution options and via the existing regulatory reporting mechanisms.

## Network and System Modelling Capability Modernisation (NESO1-220)

### Overview

This investment will deliver an enduring platform for NESO's geospatial and location intelligence capabilities. This includes full integration with data platforms to deliver centralised geospatial technologies and intelligence across NESO.

The enterprise-wide platform will enable insight-driven decision making, through managed, accessible, and accurate location data. The solution will deliver benefits to multiple directorates, users, and external parties, delivering greater insights and providing quality trusted geospatial data.

Locational Intelligence (LI) is a set of spatial technologies and processes for gaining insight from geospatial data. LI provides different end users with the ability to create, view, share, analyse, edit, interact, and understand the complexity of geospatial data. Geographical Information Systems (GIS) is a key part of the wider geospatial ecosystem. GIS enables end users to visualise insights and data as a map in a geographical application (e.g., Desktop GIS, Web Mapping Application, Dashboard).

Previous BP3 investments this investment continues from:

| Investment ID | BP3 Investment Name |
|---|---|
| 690 | Geospatial & Locational Intelligence |

### Current state

During FY26, NESO procured and deployed a centralised geospatial technology platform. The enduring solution infrastructure and main components have been successfully deployed, and legacy solutions have been decommissioned. A clear technology and business roadmap has been defined, with specific needs from other areas supported and funded through targeted investments.

On top of achieving all BP3 commitments, various visualisations were delivered to allow internal and external stakeholders to better understand and interact with technical documents:

- CP30 web map
- FES25 web map

A minimal viable product for the Centralised Strategic Network Planning (CSNP) route optimiser was also delivered.

Stakeholder engagement has aligned business objectives and dependencies, such as geospatial analysis for Strategic Environmental Assessments, Habitat Regulations Assessments, and Marine Conservation Zone reviews required in Strategic Energy Planning.

### Future state

Looking forward, NESO will look to integrate AI capabilities into the solution's design, supporting both internal and external enablement. Additionally, NESO will enable full integration with NESO's strategic platforms such as the Data and Analytics Platform and Single Markets Platform, ensuring seamless functionality across platforms.

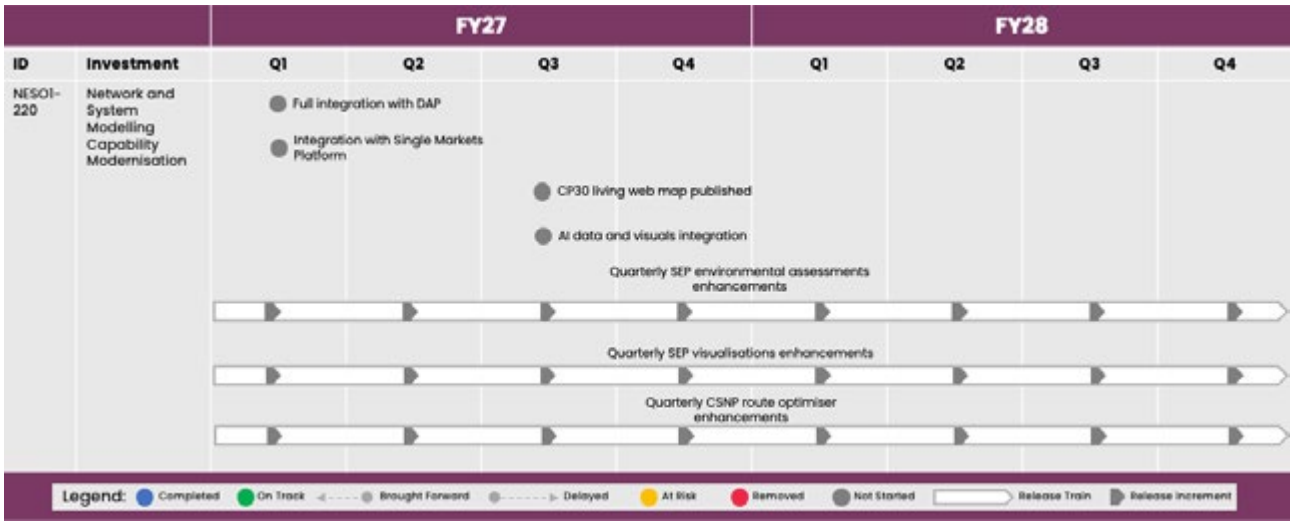
### Approach

This delivery will continue to follow an industry standard agile methodology. This approach will ensure that the most critical requirements are prioritised and delivered in an effective manner meeting customer expectations. This will be aligned with the use of modern user experience tools such as wireframes and prototypes enabling the delivery of effective tooling that is adopted at pace with minimal rework.

This investment is aimed at improving both the platform and its associated services, as well as strengthening the geospatial Centre of Excellence framework. The objective is to provide targeted support for NESO areas that require specialised resources and expertise, while also facilitating self-service visualisation development for teams possessing embedded geospatial capabilities.

### Roadmap

It is expected that this programme will continue past the NESO1 period.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Full integration with DAP | GIS Integration with Data and Analytics Platform | Q1 FY27 |
| Milestone | Integration with Single Markets Platform | Enabling visualisation of market participants and their key information based on user permissions | Q1 FY27 |
| Milestone | CP30 living web map published | A comprehensive and living web map detailing all projects required for CP30 and their latest status | Q3 FY27 |
| Milestone | AI data and visuals integration | AI solutions enable querying of geospatial data and visuals | Q3 FY27 |
| Milestone | Quarterly SEP environmental assessments enhancements | Improvements to processes and assessment functionality | Every quarter |
| Milestone | Quarterly SEP visualisations enhancements | Implementation of visualisation needs across SEP | Every quarter |
| Milestone | Quarterly CSNP route optimiser enhancements | Continuous enhancements to route optimiser | Every quarter |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £1.1m | £0.3m | £1.4m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£1.1m** | **£0.3m** | **£1.4m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that customers, and stakeholders may not use tools in the most effective ways and will require the appropriate skills and training. | An effective and clear user manual will be provided, and Self-Serve training material will be provided. The user community will also be supported by the central data function. | 3 | 1 |
| There is a risk that multiple stakeholders are required for prioritisation and decision making which causes delays. | Effective and targeted frequent communications for stakeholders and being clear on approvers will reduce this risk. | 4 | 2 |
| There is a risk of a lack of visibility on foundational service interdependencies | Maintain a dependency log and ensure programme-level risks are flagged appropriately | 1 | 3 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Geospatial needs across NESO will be funded by respective areas requesting these services | Geospatial and Location Intelligence | Quarterly |

### Alternative options

We conducted market research to select our platform vendor, which is considered a market leader and has all the capabilities required by NESO.

## Transformation Enablement Project (NESO1-300)

### Overview

The Transformation Enablement Project is a strategic investment designed to support NESO's evolution into a fully independent, digitally advanced, and operationally resilient organisation. This initiative aims to transform how NESO plans, delivers, and tracks change across the business, providing a unified, intelligent view of transformation and major projects.

At its core, the project will develop a centralised, AI-powered cockpit, offering leaders and teams real-time, actionable insights. This will enable early risk identification, progress tracking against strategic goals, and confident, data-driven decision-making. This tool will drive efficiency, agility, and focus, supporting planning, delivery, and performance tracking across all directorates.

The Transformation Enablement Project is foundational to NESO's ambition to become a smarter, more connected, and future-ready system operator, ensuring better coordination and visibility at every level.

### Current state

NESO currently uses a mix of tools (e.g., Project Online, spreadsheets, emails, shared folders) to manage projects and track progress. These tools are not fully integrated or consistently used, resulting in fragmented reporting and limited visibility across directorates. There is no single source of truth for transformation activities, making it difficult for leaders to understand the full picture, especially regarding non-financial benefits such as cost avoidance or strategic alignment. Decision-making is slowed, and resource prioritisation is challenging without a clear view of ongoing work and emerging risks.

### Future state

The ambition for NESO1 and beyond is to establish a centralised, AI-powered cockpit that delivers:

- Clear, real-time visibility of transformation activities
- Smarter insights to support executive decisions
- Early delivery of value and momentum
- Alignment of projects with strategic goals
- Enhanced tracking of benefits, including non-financial outcomes

This capability will be shaped by ongoing discovery work and stakeholder engagement, ensuring alignment with NESO's roadmap and strategic priorities. The outcome will be a smarter, more connected NESO, able to deliver transformation at pace and scale.

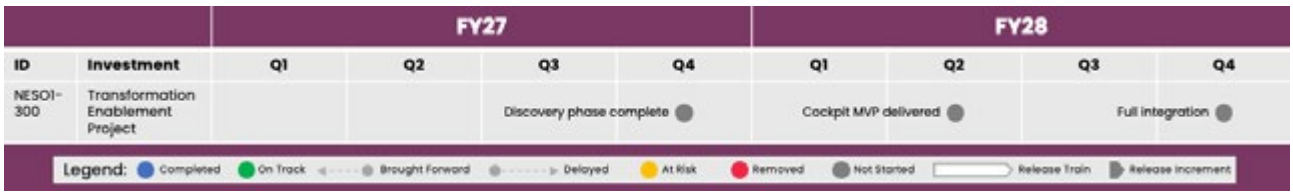
### Approach

The approach will be business-led, agile, and collaborative:

- Discovery work will engage stakeholders across NESO to define business needs and shape the solution.
- Delivery will follow agile principles, enabling iterative development and rapid adaptation to changing requirements.
- External feedback and best practices will be incorporated to ensure the solution meets industry standards and stakeholder expectations.

### Roadmap

We expect this project to conclude by end of NESO1 period subject to the discovery phase findings.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Discovery phase complete | Definition of business needs, platform impacts, and change strategy with estimates of effort and costs | Q4 FY27 |
| Milestone | Cockpit MVP delivered | Initial AI-powered cockpit available for pilot teams | Q2 FY28 |
| Milestone | Full integration | Cockpit rolled out across all directorates, supporting transformation tracking and decision-making | Q4 FY28 |

### Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £0.3m | £0.0m | £0.3m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£0.3m** | **£0.0m** | **£0.3m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that fragmented data sources may hinder integration | Early stakeholder engagement and data mapping | 3 | 4 |
| There is a risk of resistance to new ways of working | Change management and training programme | 3 | 3 |
| There is a risk that the AI solution does not meet user needs | Iterative development with user feedback | 2 | 4 |

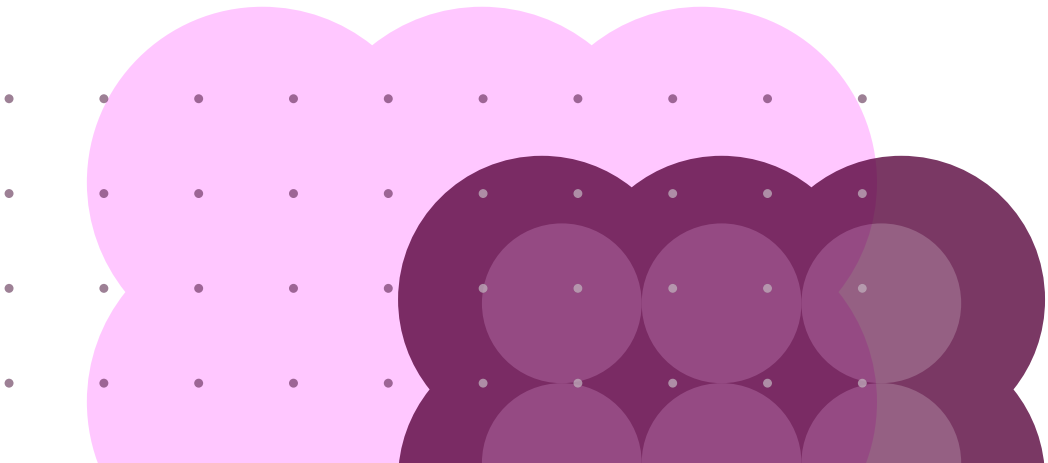
### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery | Stakeholders will engage in discovery and pilot phases | Solution design, adoption | Monthly |
| Cost | CapEx estimates remain stable | Budget planning | Quarterly |
| Timeline | Agile delivery enables early value | Roadmap milestones | Monthly |

### Alternative options

As we have not yet completed the discovery for this investment, we have not yet explored the solution options to deliver the centralised platform. Once the discovery has been completed and we are able to produce its outputs, we will then publish our findings on alternative solution options through the existing regulatory reporting mechanisms. However, regarding the alternatives of this investment in its entirety, there are three options that we have considered:

- Do nothing: This would retain the current fragmented tools and reporting, risking continued inefficiency and lack of visibility.
- Stand up independent solutions for each directorate: Allows tailored delivery but risks duplication, higher costs, and inconsistent reporting.
- Integrate with existing platforms: High risk due to lack of flexibility and scalability.



# 4.2 Customer

## Digital Change for Customer (NESO1-600)

### Overview

The Digital Change for Customer investment aligns with NESO's commitment to achieve a high degree of trust by providing excellent service delivery, differentiated customer relationships, and purposeful and collaborative engagement. We will achieve this by advancing digital solutions, leveraging technologies such as AI and unlocking power of data.

We will adopt an AI-powered, digital first approach to develop and enhance the capabilities required for consistent, high quality, transparent, and reliable service delivery. In customer operations, we will lead with an AI-first, automation-first, and mobile-first approach. Our aim is to enable a fully aligned, end to-end omnichannel customer journey that is consistent across all engagement channels and systems, providing our customers with the right information through guided insights.

We will establish solutions that enable NESO to develop differentiated customer relationships, engage stakeholders, and drive purposeful and collaboration for activities such as survey, feedback, idea sharing etc. driven through customer insights and analytics.

This investment aims to enable:

1. Service delivery excellence as part of Customer Strategy through automation, establishing tools, and leveraging technology such as AI.
2. The improvement of customer experiences and engagement with NESO, through enhancing existing system capabilities.
3. Effective customer collaboration and customer insight collection through technology and data.
4. The delivery of integrated data and insights through the improvement of customer data, establishing authoritative data sources, and strengthening data governance.

### Current state

We have conducted comprehensive discovery and analysis to develop a delivery roadmap, ensuring the achievement of customer benefits. This includes:

- Customer data quality, access and control, and governance improvement:
  - Established enterprise customer data model and target data architecture to maintain and govern customer data quality.
  - Ongoing customer data quality remediation through removal of duplicates.
  - Established data governance and data quality measurement.
- Enhanced Salesforce capabilities including
  - Data Cloud: Unify customer profiles and enable AI-driven insights.
  - Salesforce maps: Support Strategic Energy Planning and Clean Power 2030 initiatives.
  - Salesforce calendar: Integrate for improved scheduling and coordination.
- Optimisation of customer services: Utilised and implemented AI options to enhance customer service efficiency and implemented first AI use case to increase productivity of the agents working on the Connections reform.
- Establishing a query management solution for the rest of the NESO by leveraging lesson learnt from the Connections reform.

- Help centre solution: Developed a help centre to facilitate customer interactions, learning, and self-service, thereby reducing incoming queries and demand on resources, while enhancing customer satisfaction.
- Personalised targeted customer communications: Delivered tailored communications to meet specific customer needs and preferences.

### Future state

The ambition of this investment to achieve high degree of trust with our customers. We will be leveraging digital systems, data and modern technologies such as AI to enable service delivery excellence, differentiated customer relationships and purposeful and collaborative engagement and thus achieving trust with our customers. We will be achieving it through:

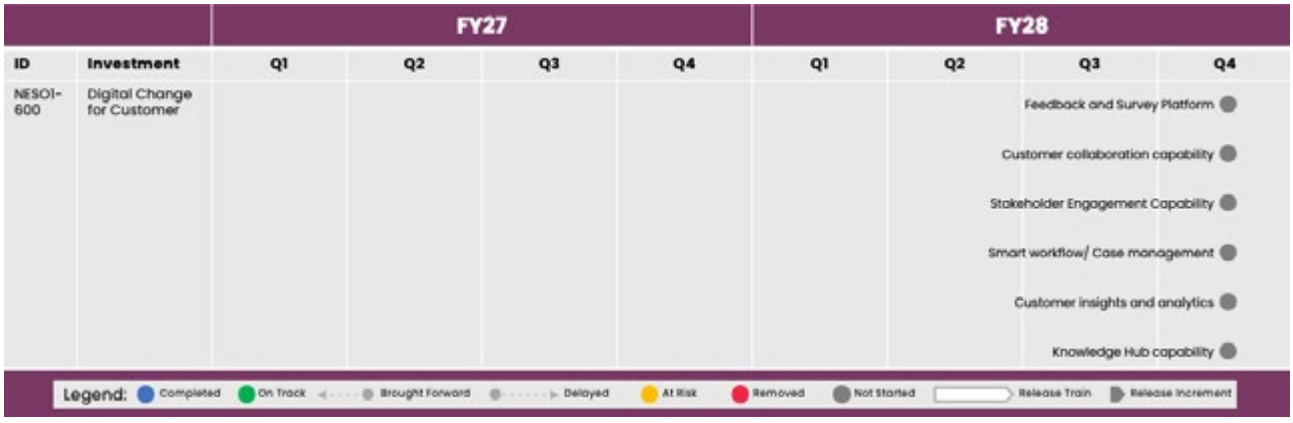
1. Service delivery excellence as part of our Customer Strategy through automation, establishing tools, and leveraging technology such as AI.
2. Improvement of customer experience and engagement with NESO through enhancing existing system capabilities and establishing tools.
3. Enabling effective customer collaboration and customer insights collection through leveraging technology and data.
4. Delivery of integrated data and insights through the improvement of customer data, establishing authoritative data sources, and strengthening data governance.

### Approach

We will take Agile approach to implement the solution. Whilst our Customer Strategy is in place, NESO as an organisation and our customer landscape is evolving hence our digital solution may need to adopt agile approach.

### Roadmap

The high-level roadmap below will be reviewed and revised on a continuous basis.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Feedback and Survey Platform | Capture customer sentiments to achieve measurement of trust; closes feedback loops; informs service improvements | Q4 FY28 |
| Milestone | Customer collaboration capability | Always-on collaboration hub. Improves transparency; engages customers in co-design; strengthens trust through collaboration | Q4 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Stakeholder Engagement Capability | Ensures accountability; tracks promise; evidence engagement; reduces missed follow-ups | Q4 FY28 |
| Milestone | Smart workflow/ Case management | Faster, consistent issue resolution; proactive management of risks; improved trust outcomes | Q4 FY28 |
| Milestone | Customer insights and analytics | Insight-led decision-making; prioritises high-impact interventions; measures trust outcomes | Q4 FY28 |
| Milestone | Knowledge Hub capability | Standardises practice; reduces knowledge loss; accelerates onboarding & response | Q4 FY28 |

Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.8m | £2.8m | £5.6m |
| OpEx | £1.2m | £1.2m | £2.4m |
| **TotEx** | **£4.0m** | **£4.0m** | **£8.0m** |

Risks/issues

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that change and adoption of new solutions and capabilities may not be achieved | Training on current and new capabilities, platforms and processes | 3 | 3 |
| There is a risk that poor customer data quality may not enable effective insights | Define and implement data governance including customer data ownership | 3 | 3 |
| There is a risk that our Customer strategy and streamlined processes may not be fully understood and adopted across NESO | Track alignment through governance and highlight gaps | 2 | 2 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Delivery | Impact assessments will take place prior to implementing any data changes in the Salesforce Platform | Customer solutions | Quarterly |
| Delivery | Customer and External Affairs directorate will align on strategy and areas of delivery | Website and Customer solutions | Quarterly |
| Delivery | Customer and other customer facing directorates will have alignment on streamlined processes | Customer solutions | Quarterly |
| Support | Current platforms, applications and technologies will be reviewed and re-used unless it is not fit for purpose as deemed by architecture | Customer solutions | Quarterly |

### Alternative options

As this investment has not yet gone through discovery but will have by the start of the NESO1 period, we have not yet explored solution options to address our business needs. However, we will explore alternative options as part of our discovery and relay our findings as part of the existing regulatory reporting mechanisms.

# 4.3 Digitalisation, Data, and AI

## Innovation Productionisation (NESO1-100)

### Overview

The purpose of the Innovation Productionisation investment line is to advance and implement into our systems and processes proven innovation projects which have previously been funded through the Network Innovation Allowance (NIA), Network Innovation Competition (NIC) and the Strategic Innovation Fund (SIF). We acknowledge and appreciate the significant contributions of Ofgem in driving industry innovation, as this has enabled NESO to deliver projects which have completed the initial Research, Development or Demonstration phases. This investment supports the successful innovation projects which are now ready for fast and effective implementation.

The Innovation Productionisation investment enables us to transition successful innovation initiatives into operational NESO products and services, supporting the delivery of significant benefits to NESO's Performance Objectives, industry and our customers. This funding is intended to be a flexible, agile resource that supports delivery. Projects requiring formal IT productionisation will be aligned with our technology strategy, commercial terms, support requirements, and security standards. This approach ensures that NESO can swiftly catalyse the realisation of benefits and accelerate innovation.

This investment allows NESO to better:

1. Identify and advise innovation projects with common system/interface and security dependencies or constraints which may help to define the benefits from implementation.
2. Resource a team to deliver the implementation of the innovation projects into a IT service Delivery framework and realise the outcomes as BAU (Business as Usual).
3. Realise the benefits of Ofgem and industry innovation projects at the accelerated pace demanded by consumers, enabling NESO to act swiftly and decisively to ensure that consumer needs are met without delay.

### Current state

In March 2024, we launched the Innovation Incubator team, acknowledging the necessity of accelerating deployment of innovation projects, guiding them through the process towards implementation, and realising their benefits faster.

Prior to 2024/25 Innovation Productionisation funding had been under-utilised. This was partially due to projects utilising available budget from alternative investment lines, and partially due to deferring until the funding drawdown process was agreed following the launch of NESO.

However, there has been a steep increase in implementation requirements over the last two years of RIIO-2, due to a higher volume of completed innovation projects at the 'Development' and 'Demonstration' stages being ready to progress onto implementation.

To date, NESO has utilised £4.26 million to support six projects, including the development of minimum viable products for the **Virtual Energy System** and **REVEAL**, and implementation support for **Dynamic Reserve Setting** and **Automated Identification of Sub-Synchronous Oscillation Events**. We have also funded the implementation of **Battery Storage Modelling for Enhanced Connection Assessments** and **Construction Planning Assumptions Methodology Review**[1], initially supported through NIA, to aid in Connections Reform. This effort has facilitated significant industry changes, including the integration of new technologies, the use of statistical scenario modelling, and the application of automation to improve the efficiency of system connections.

1 smarter.energynetworks.org/projects/nia2_ngeso083

Productionisation for three projects identified in RIIO-2 (**Regional Reserve**, **Consumer Building Blocks** and **Dispatch Transparency Methodology**) with a total estimated cost of £1.30 million, has been postponed to NESO1 due to funding constraints.

### Future state

Our requested Innovation Productionisation allocation of £10 million for NESO1 aligns with the scale of the opportunities ahead and our capacity to effectively address them.

These projects are currently unable to incorporate their productionisation activities into the business plan, as detailed scoping is not possible at this stage given that the outcomes of the innovation activities have not yet been realised. As a result, funding productionisation of these projects is only possible through this investment line to enable timely implementation and to prevent delays in benefits realisation across several Performance Objectives (Figure 6).

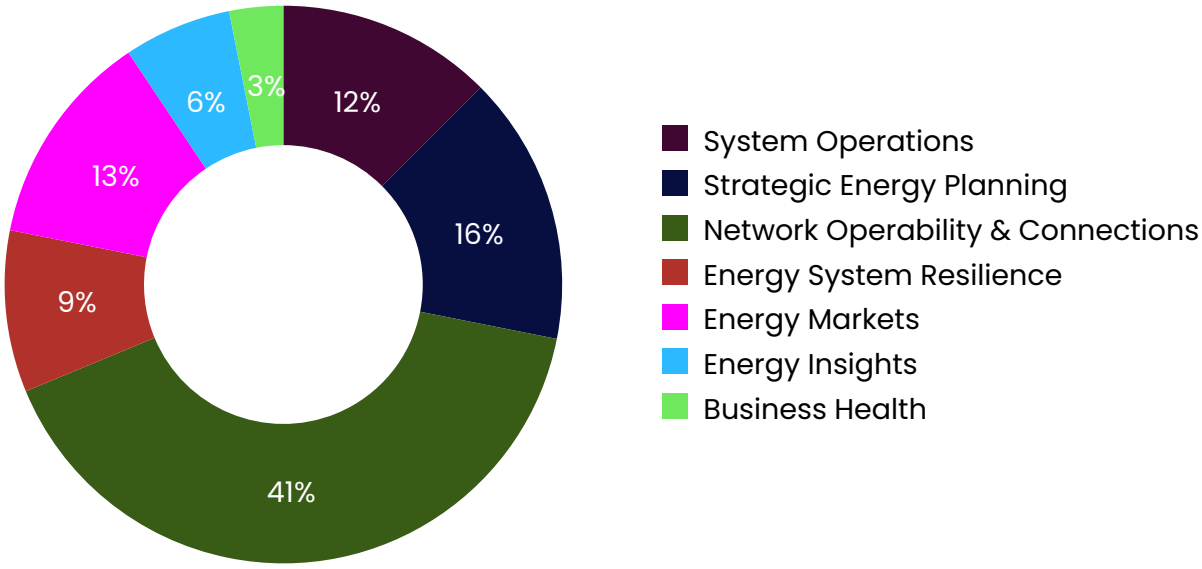
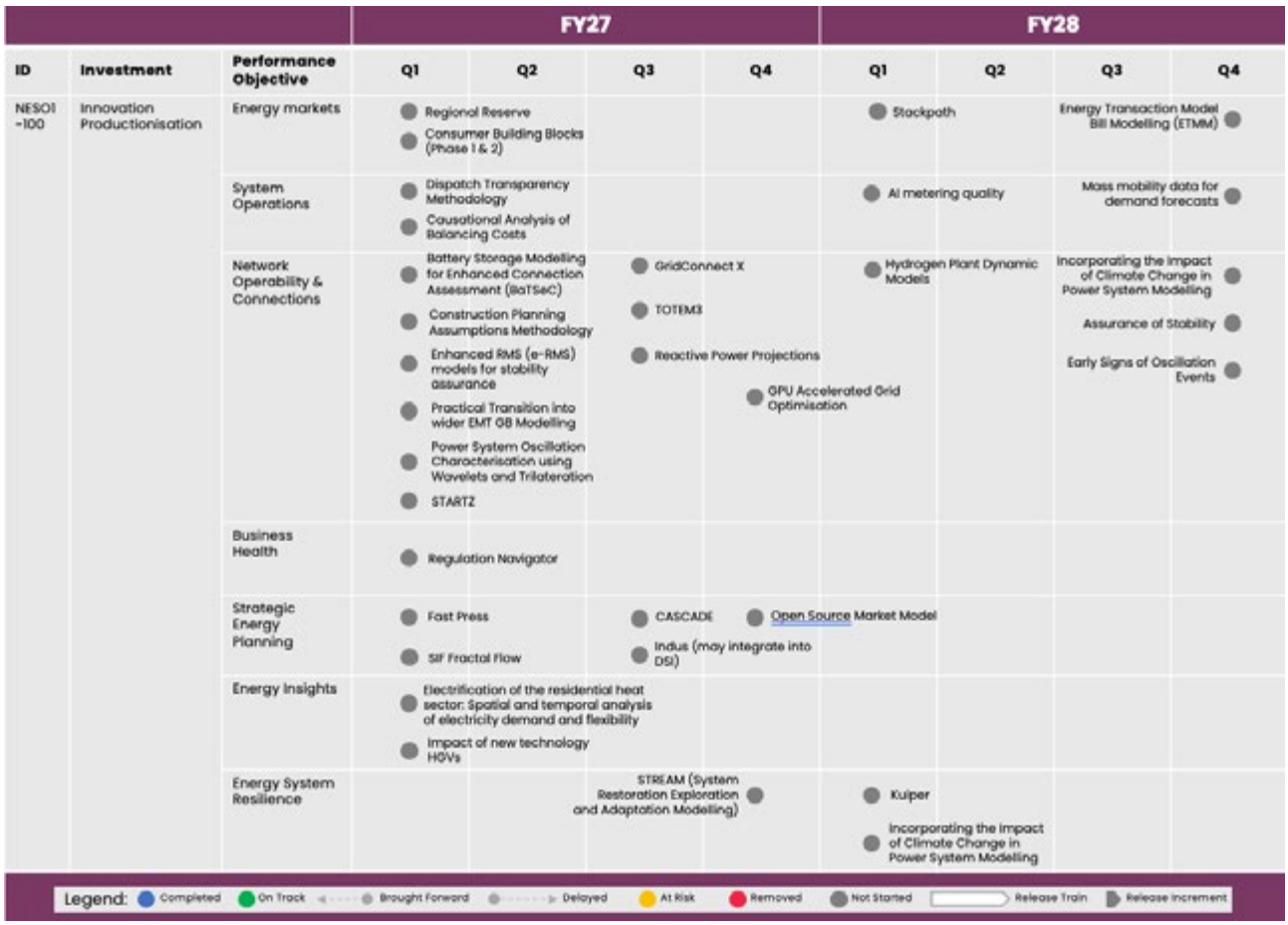



Figure 6: **Anticipated NESO1 Innovation Productionisation portfolio split by Role**

Investment is required to enable us to respond to challenges as they appear, and we continue to evaluate innovation projects that may require funding in NESO1. Given the requirement to establish proof-of-concept prior to advancing to productionisation, the list of projects deemed ready for implementation remains dynamic and may be adjusted as circumstances evolve.

### Roadmap

We have shortlisted 32 projects within the existing Innovation portfolio that are most likely to require funding for productionisation within NESO1. This list is indicative due to the inherently uncertain nature of innovation, and therefore, subject to change. Innovation projects will be assessed for productionisation on a case-by-case basis. It is envisaged that this investment will continue past the NESO1 period.




| Innovation Project | Performance Objective | Estimated Start |
|---|---|---|
| Regional Reserve | Energy Markets | Q1 FY27 |
| Dispatch Transparency Methodology | System Operations | Q1 FY27 |
| Consumer Building Blocks (Phase 1 & 2) | Energy Markets | Q1 FY27 |
| SIF Fractal Flow | Strategic Energy Planning | Q1 FY27 |
| Battery Storage Modelling for Enhanced Connection Assessment (BaTSeC) | Network Operability & Connections | Q1 FY27 |
| Construction Planning Assumptions Methodology | Network Operability & Connections | Q1 FY27 |
| Impact of new technology HGVs | Energy Insights | Q1 FY27 |
| Enhanced RMS (e-RMS) models for stability assurance | Network Operability & Connections | Q1 FY27 |
| Practical Transition into wider EMT GB Modelling | Network Operability & Connections | Q1 FY27 |

| Innovation Project | Performance Objective | Estimated Start |
|---|---|---|
| Power System Oscillation Characterisation using Wavelets and Trilateration | Network Operability & Connections | Q1 FY27 |
| Regulation Navigator | Business Health | Q1 FY27 |
| Fast Press | Strategic Energy Planning | Q1 FY27 |
| Electrification of the residential heat sector: Spatial and temporal analysis of electricity demand and flexibility | Energy Insights | Q1 FY27 |
| Causational Analysis of Balancing Costs | System Operations | Q1 FY27 |
| STARTZ | Network Operability & Connections | Q1 FY27 |
| GridConnect X | Network Operability & Connections | Q3 FY27 |
| TOTEM3 | Network Operability & Connections | Q3 FY27 |
| CASCADE | Strategic Energy Planning | Q3 FY27 |
| Indus (may integrate into DSI) | Strategic Energy Planning | Q3 FY27 |
| Reactive Power Projections | Network Operability & Connections | Q3 FY27 |
| STREAM (SysTem Restoration Exploration and Adaptation Modelling) | Energy System Resilience | Q4 FY27 |
| Open Source Market Model | Strategic Energy Planning | Q4 FY27 |
| GPU Accelerated Grid Optimisation | Network Operability & Connections | Q4 FY27 |
| Kuiper | Energy System Resilience | Q1 FY28 |
| Stackpath | Energy Markets | Q1 FY28 |
| Hydrogen Plant Dynamic Models | Network Operability & Connections | Q1 FY28 |
| AI metering quality | System Operations | Q1 FY28 |

| Innovation Project | Performance Objective | Estimated Start |
|---|---|---|
| Incorporating the Impact of Climate Change in Power System Modelling | Network Operability & Connections | Q4 FY28 |
| Assurance of Stability | Network Operability & Connections | Q4 FY28 |
| Early Signs of Oscillation Events | Network Operability & Connections | Q4 FY28 |
| Energy Transaction Model Bill Modelling | Energy Markets | Q4 FY28 |
| Mass mobility data for demand forecasts | System Operations | Q4 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £5.0m | £5.0m | £10.0m |
| OpEx | £0.0m | £0.0m | £0.0m |
| **TotEx** | **£5.0m** | **£5.0m** | **£10.0m** |

## NESO AI Energy Core Delivery (NESO1-110)

### Overview

Growing electricity demand, a shifting generation mix, and an increase in digitisation across the wider industry is resulting in NESO managing the energy system through unprecedented levels of change and complexity. In addition to these external headwinds, NESO is playing a greater role in energy planning and meeting rapidly evolving customer requirements (e.g., coordinating millions of new market participants by 2030 etc.).

Artificial Intelligence (AI) can help to interpret and derive insights from a high volume of structured and unstructured data, whilst also accelerating the execution of repeatable tasks. For example, AI-driven simulation and modelling that accurately reflects the real-world power system could play a critical role in managing this growing complexity. Without investment in new AI-led capabilities, we risk falling short of evolving customer demands and expectations. By embracing AI, NESO can reduce operational risks, enhance system resilience, and maintain relevance in this digital age.

The NESO AI Energy Core Delivery investment aims is to deliver upon our AI ambition. Our vision outlines three key pathways to do so:

1. **NESO Excellence:** NESO aims to be a top adopter of AI across its core roles, ensuring safe ethical, and efficient operations. This will be realised through implementing the principle of 'AI Everywhere' by leveraging existing and emerging AI technologies.
2. **GB Industry Champion:** NESO will facilitate AI adoption across the GB energy sector, making AI outputs accessible to all industry players. This will be realised through the development of the NESO.AI platform for industry-wide collaboration and open access to AI data and models.
3. **Global Impact:** Use GB's success as a blueprint to offer AI solutions globally. This will be realised through the sharing of AI successes and tools globally to accelerate decarbonisation.

Our 2030 AI roadmap defines four key focus areas: delivering value through AI products, data enablement and knowledge bases, people and skills, and assessing AI's impact on our ways of working. The delivery of our AI roadmap will be realised either through the AI Delivery Centre or DD&T Delivery functions.

### Benefits Case

Analysis suggests that the business case for AI is net positive, both for NESO as well as for the wider GB energy system. Financial benefits for NESO in 2025-2035 are currently estimated at ~£20-30 million per annum (via future avoided costs), while the energy system could expect to experience net benefits of ~£0.5-1.5 billion (via lower balancing costs).

Benefits from AI have been defined through a framework that incorporates both quantitative and qualitative elements. This builds on existing NESO frameworks such as the Value for Money and AI Benefits frameworks and aligns business case metrics with HM Treasury's Green Book guidance.

### Quantitative Benefits

Four financial metrics have been defined to evaluate AI initiatives:

- Savings on current NESO costs
- Savings on future NESO costs
- Reduction in overall system energy costs and emissions
- Enhanced system resilience and security

The first two metrics directly impact NESO, while the latter two benefit the broader energy industry. These metrics are based on a cost baseline for 2025-2035, with a ramp-up for AI enabled benefits.

### Qualitative Benefits

AI initiatives were also assessed against a range of qualitative metrics to capture wider benefits:

- Improved public trust and confidence in NESO's ability to deliver on its commitments
- Enhanced stakeholder experience and satisfaction
- Future proofing and risk management
- Innovation and workforce capability

It is important to note that the headline numbers above reflect only quantitative financial metrics, and do not account for these qualitative benefits.

#### Current state

We are currently finalising the scope of planned initiatives to mobilise and establish the delivery teams. This includes both the internal team within the AI Centre of Excellence and teams within the DD&T Delivery Functions and other business areas e.g., business users, technical architects, and infrastructure teams etc.

To support AI and digital adoption across the industry, we have started to build the NESO.AI Platform, which will support key AI products and solutions for NESO and our customers. We have already started to build components of key use cases, such as tRESP and Connections AI, with a view to deliver these in FY26. Additionally, we have also run a series of workshops across NESO to establish roadmaps for each use case.

We are building upon the initial benefits analysis conducted to date to complete the AI benefits and cost-based work, to produce the final benefits case of the entire implementation phase.

We have developed the NESO AI Adoption plan, which includes the launch of the Key Performance Indicators (KPIs) that our AI initiatives will be assessed against; and the process to measure their impact on the workforce. We have also completed the AI Strategy and Roadmap Refresh.

#### Future state

The NESO Excellence and GB Industry Champion ambition pathways will be our focus throughout the NESO1 period.

**NESO Excellence:** We plan to deliver against several strategic AI uses cases:

- **Strategic Energy Planning (SEP):** this use case will be delivered by the Strategic Energy Planning (NESO1-250) investment but supported by the AI Centre of Excellence. We will have delivered AI use cases spanning geospatial modelling, technical network assessments, energy and market modelling applications, and stakeholder engagement methods. AI will have realised benefits such as reducing system cost through AI whole-system scenario creation, optimisation of generation and network siting, enhanced planning decision-making, and improved customer experience.
- **Scenario Modelling:** we will have shifted from the Future Energy Scenarios (FES) to a scenario-based model to form a wider strategic view of planning.
- **Connections:** this use case will be delivered by the Connections Enduring Capability Ecosystem (NESO1-230) investment supported by the AI Centre of Excellence. We will have carried out an AI-assisted assessment of applications and used AI to proactively assess Transmission Owner engineering plans. AI could help orchestrate the end-to-end connections process and deliver increased trust and improved reputation.
- **System Access:** this use case will be delivered by the System Access (NESO1-440) investment but supported by the AI Centre of Excellence. We will have implemented AI to streamline the end-to-end system access process and contributed to enhanced outage planning. This will allow us to transform system operations by enhancing forecasting and optimising real-time control room decision-making.

- **Volta:** this use case will be delivered by the Balancing Innovation Delivery investment (NESO1-420) but supported by the AI Centre of Excellence. We will have delivered the application of AI across the control room, including optimisation and adaptive modelling, and explored an AI first design for the control room.
- **NESO.AI Workbench and Navigator:** we will have evolved the NESO GPT experience, replacing it with the NESO AI Workbench and Navigator. This will impact cross-cutting delivery teams by orchestrating AI and Machine Learning models, decisions, and navigators for systems such as Volta, Vanguard, Connections AI, and System Access AI.

These six use cases will be enabled by our NESO.AI Platform and will all have a different pace of development and checkpoints to assess future growth. During mobilisation we will also build out our provisional business case. We require continued sponsorship from the relevant directorate to ensure this is fully embedded into the business plan process.

**GB Industry Champion:** We plan to create the NESO AI Community and Marketplace that unlocks and accelerates the adoption of AI across NESO and the energy industry. Members of this community will range from start-ups to corporates and academic institutes. All plans will be underpinned with legal and security considerations.

We see value for both NESO and the Industry in the creation of this community. For NESO, this includes:

- Supporting us to train AI across the whole energy system, ensuring AI models and solutions are industry ready, and accelerating the delivery of AI for NESO to create value exchange.
- Accelerating access to Energy AI models from start-ups and R&D bodies, to support NESO's ambitions and create a mutually beneficial value exchange.
- Providing access to funding to help solve common challenges for the energy industry, beyond existing funding frameworks.

The value we see this community providing to the Industry includes:

- Members collaborating on energy challenges and opportunities to solve for common energy problems with AI, including hackathons and AI co-creation events at scale.
- Sharing open Energy AI models, including deep AI R&D across the industry, for companies to adopt and accelerate their journey across AI.
- Accelerating growth and investment in Great Britain AI start-ups and AI academia, providing access to investors such as corporates and private equity to help solve energy challenges.
- AI policy and framework technology to help with the rapid implementation and accelerate safe adoption of AI at scale.

In addition to our focus on these two ambition pathways, it is imperative that we invest in our enterprise-level knowledge bases. These repositories will serve as foundational infrastructure, enabling AI systems to access, interpret, and act upon high-quality, domain-specific information. We will create a knowledge base for operations, planning, and general NESO information. These structured bases will not only accelerate decision-making and operational efficiency but also enhance model performance, reduce hallucinations, and support explainability. As AI adoption scales, the ability to curate and maintain dynamic, interoperable knowledge assets will become a key differentiator in driving innovation, resilience, and competitive advantage. We will leverage our NESO.AI platform to help orchestrate this.

Our strategic approach also focuses on accelerated upskilling of colleagues across NESO. To drive the necessary change over the NESO1 period, we will have:

- Demystified AI for staff and accelerated the uptake of AI across NESO
- Built trust and adoption of our AI and data products
- Supported mindset shifts to truly embed digital-first thinking

- Identified and supported the skills shift needed
- Defined and implemented an AI learning and development curriculum and plan for relevant employees across NESO

### Approach

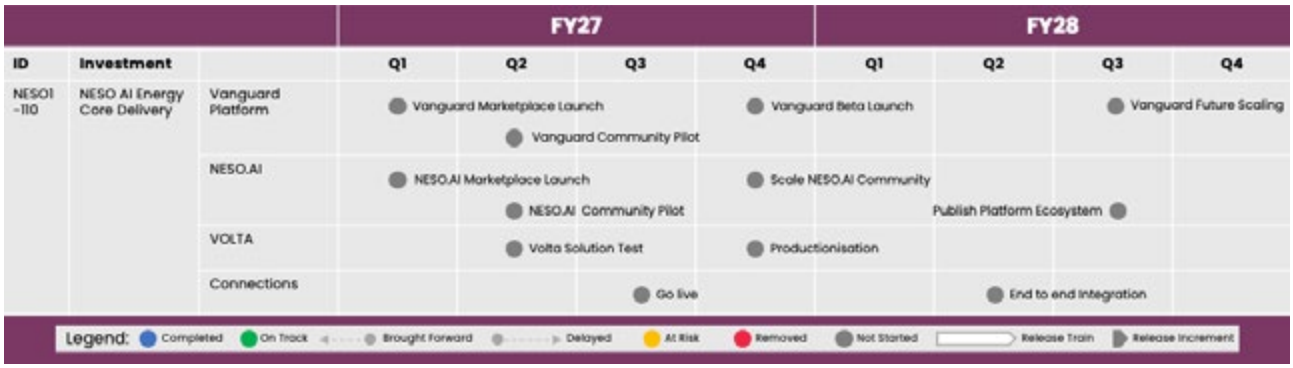
Our delivery approach is structured in three phases:

- **Mobilisation:** create and mobilise the NESO.AI Energy team with a provisional launch targeted for Q4 FY26.
- **Initial adoption:** initial adoption of the identified strategic use cases to prove the value of our AI initiatives, during FY27.
- **AI expansion:** throughout FY28, scale the AI initiatives that have proven to be of the greatest value for money and roll out our initiatives to a wider customer base.

Dependent on the discovery phase of each initiative, and our engagement with both business teams and the technical teams, we will develop bespoke delivery approaches that utilise agile or waterfall methods where appropriate and technical solutions and platforms based on the recommendation of our technical architecture function.

### Roadmap

It is envisaged that this investment will continue past the NESO1 period.




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| **Vanguard Platform** | | | |
| Milestone | Vanguard Marketplace Launch | Launch the platform on the marketplace for select members for early adoption | Q1 FY27 |
| Milestone | Vanguard Community Pilot | Open the Vanguard platform to further members of the community | Q2 FY27 |
| Milestone | Vanguard Beta Launch | Launch beta of the platform and release across all user groups | Q4 FY27 |
| Milestone | Future Scaling | Continue to scale the Vanguard platform | Q3 FY28 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| **NESO.AI (GB Industry Champion)** | | | |
| Milestone | NESO.AI Marketplace Launch | Launch the platform on the marketplace for select members for early adoption | Q1 FY27 |
| Milestone | NESO.AI Community Pilot | Open the NESO.AI platform to further members of the community | Q2 FY27 |
| Milestone | Scale | Scale the platform across all user groups | Q4 FY27 |
| Milestone | Publish Platform Ecosystem | Publish the NESO.AI platform and develop the ability for industry participants to co-create and share AI models | Q3 FY28 |
| **Volta** | | | |
| Milestone | Solution Test | Complete the integrated end-to-end solution and produce a visualisation test | Q2 FY27 |
| Milestone | Productionisation | Complete the Volta Productionisation and project and provide early life support | Q4 FY27 |
| **Connections** | | | |
| Milestone | Go live | End to end enduring connections AI solution go live | Q3 FY27 |
| Milestone | End to end Integration | Connections AI solution integrated with NESO ecosystem including operations adviser and Vanguard platform | Q2 FY28 |

Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £10.4m | £10.4m | £20.8m |
| OpEx | £2.0m | £2.0m | £4.0m |
| **TotEx** | **£12.4m** | **£12.4m** | **£24.8m** |

### Risks/issues

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk of delayed stakeholder engagement across NESO and industry partners. | Establish early engagement plans and regular communication forums. | 3 | 4 |
| There is a risk of insufficient internal capability to scale AI initiatives. | Invest in training and recruit AI specialists during Mobilisation phase. | 4 | 4 |
| There is a risk of regulatory or legal barriers to data sharing and AI deployment. | Engage AI compliance teams early; monitor regulatory changes. | 4 | 4 |
| There is a risk of delays in platform development. | Use phased delivery and modular architecture. | 2 | 4 |
| There is a risk of low AI adoption by the industry. | Design user-centric solutions. Involve industry stakeholders regularly. | 4 | 4 |
| There is a risk that data quality and availability may hinder AI training and deployment. | Establish robust data governance and quality assurance processes. | 3 | 4 |
| There is cybersecurity risks associated with AI systems and data pipelines. | Implement robust security protocols and conduct regular audits. | 3 | 5 |

### Assumptions

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Dependency | Industry partners will provide timely access to relevant use cases and data. | AI Use Cases | Quarterly |
| Dependency | Key stakeholders will engage and support AI adoption. | Support / Delivery | Quarterly |
| Dependency | Regulatory environment will remain supportive of AI innovation & Regulatory frameworks will allow for responsible AI deployment. | Scope / Risk | Quarterly |

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Assumption | AI technologies will continue to mature and remain commercially viable. | Delivery & Technical | Quarterly |
| Assumption | Cross-industry collaboration will be feasible and productive. | Scope & Strategic | Every 6 months |

**Alternative options**

As this investment has not begun yet and will go through the mobilisation phase during the BP3 period, we have not yet had the opportunity to explore alternative solution options. However, as we investigate our AI initiatives in further detail with the support of our technical architecture function – we will produce the outputs of our investigations into alternative options through the existing regulatory reporting mechanisms.

## Modelling Platforms and Tooling (NESO1-610)

### Overview

The Data and Analytics Platform (DAP) equips NESO with the necessary tools to develop data products for analytics and insights. It ensures that relevant data within the platform is both discoverable and accessible to internal and external stakeholders. By enhancing analytical capabilities, DAP supports data-driven decision-making across NESO.

The platform integrates datasets seamlessly and delivers intuitive visualisations and actionable intelligence, enabling stakeholders to make well-informed decisions. Our ongoing development of platform capabilities continues to strengthen decision-making, support our clean energy ambitions, and advance our broader organisational goals.

### Current state

We established a robust platform in the BP2 period which served as a repository for trusted, transparent, and high-quality data. In BP3, we continued to enhance and expand the platform's capabilities, delivering a seamless user interface and experience that ensured availability and accessibility.

We delivered outcomes that enabled interoperable data across our strategic technology landscape, completed the removal of legacy data applications, and continued to build our analytical modelling and insight capabilities. In parallel, we maintained the platform, supported self-serve consumption, and advanced our data ingestion efforts, significantly increasing the volume of centralised data. This work reflected our data governance and management approach, ensuring that DAP data remained governed and compliant with NESO data policies.

In BP3, as an additional deliverable, we have completed the migration from National Grid to NESO to enable DAP to run fully on NESO systems. Once migration is completed, National Grid will become one of the many data sources to the NESO DAP Lakehouse.

We also introduced the Time Series Data Historian (TSDH), which successfully connected, received, and ingested high-volume, real-time time-series data in a performant manner, transferring it to downstream applications. Additionally, TSDH demonstrated the ability to ingest, update, and validate Common Information Model (CIM) data. The CIM data model provided a consolidated view of energy network infrastructure equipment (e.g., transformers, circuit breakers, wires, cables) and their connectivity, enabling its use in power system tools.

### Future state

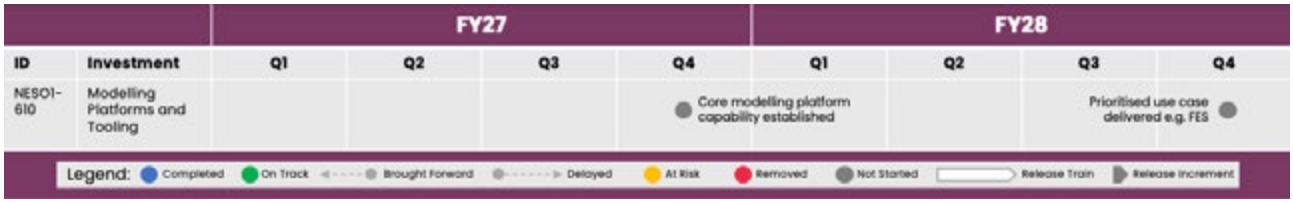
In NESO1, whilst we will continue to enhance DAP's core capabilities that were established in BP2 and BP3, we will establish and enhance modelling capabilities to support data-driven decision making across NESO.

This investment aims to enable NESO's data and AI ambitions at pace with the specific focus on modelling, scenario planning, and analytical capabilities. Note that this investment will support NESO's AI ambition and will incorporate AI use cases as appropriate as part of establishing modelling capabilities. However, establishing specific AI delivery and AI digital infrastructure is not part of the scope of this investment.

Continuing the journey from BP3, we will connect to systems across NESO as needed to establish a critical NESO Energy Ontology, a way to understand and unlock the relationship between data entities and attributes for better analytics and modelling. In NESO1, we will establish the highest priority areas and deliver multiple use cases in NESO's energy domain - this includes incorporating generative AI capabilities within use cases, if applicable.

We will continue to support NESO's position as a key enabler for wider energy industry. We will enable secure, governed data sharing and collaborative workflows across energy industry participants in alignment with NESO1-120 Data Sharing infrastructure. The modelling capability established in NESO1 will enable self-serve, automate manual workflows and deliver valuable use cases independently to deploy models at pace.

## Roadmap




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Core modelling platform capability established | A detail designed, resources, solution procurement and use case identification in place to establish the modelling capability | Q4 FY27 |
| Feature | Discoverable analytical modelling outputs | Enable analytical and modelling output discoverable and accessible to internal and external stakeholders | Q2 FY28 |
| Milestone | Prioritised use case delivered e.g. FES | Leverage modelling platform to build models across NESO in a secure, efficient and transparent manner | Q4 FY28 |
| Feature | Embedding AI within use cases | Process automation and increased efficiency of modelling and scenario planning | Q4 FY28 |
| Feature | Unified Network Model access | To create the unified network model for NESO when the design has been agreed across NESO transmission business | Q4 FY28 |
| Feature | Replacement of legacy data systems NED, MODIS, CM and IP | Replace NED, MODIS, IP and CM and implement modern data services for NESO and external customers | Q4 FY28 |

## Costs

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £8.0m | £8.0m | £16.0m |
| OpEx | £4.0m | £4.0m | £8.0m |
| **TotEx** | **£12.0m** | **£12.0m** | **£24.0m** |

# 4.4 Energy Insight

## Digitalisation of Enabling Functions (NESO1-200)

### Overview

The NESO Digitalisation of Enabling Functions is a strategic transformation initiative designed to modernise our Strategy and Policy, Finance, Procurement, and People services. Through continuing to digitalise our enabling functions and transitioning to NESO-owned systems and processes, it allows us to evolve our internal capabilities and continue to support the wider organisation.

Digital Change for Strategy and Policy is driven by a strategic vision to become a digital leader. This involves embedding a digital-first culture across strategic planning and policy functions, with a strong focus on customer-centric outcomes and continuous reinvention. The initiative prioritises investment in three core areas: advanced analysis and modelling, enterprise-wide data integration via the Data and Analytics Platform (DAP), and enhanced stakeholder engagement through digital tools.

Digital Change for Finance includes continuing to implement our Finance and Procurement systems post separation from National Grid, continuing to establish NESO-owned processes, systems, and governance structures, and integrating our Value for Money (VfM) Framework with NESO's Enterprise Performance Management (EPM) system.

Digital Change for People is driven by a need to deliver a unified digital experience for our people. This includes continuing to implement out HR systems post separation from National Grid, enhancing internal communications and engagement, and improving the employee experience.

### Current state

We are engaged in planning for the digital needs of Strategy and Policy, with the first iteration of an internal strategic knowledge hub delivered. This was enabled by AI solutions, and we are continuing to capture digital needs from other areas of the directorate. In addition, the first high level discovery of enabling scenario modelling capabilities is being undertaken.

Digital Change for Finance has progressed well, with the programme completing the high-level design of our new Finance and Procurement systems, and now continuing the build and configure phase, with a plan to begin testing in October 2025. Related Finance connected applications and services have been migrated onto the NESO estate, ultimately enabling us to replace legacy systems and define new taxonomies and process maps. We are integrating VfM principles into our EPM framework, improving strategic alignment, operational efficiency, and outcome delivery. Workshops and step-back sessions have underscored the importance of top-down planning and consistent performance reporting.

Digital Change for People has seen the completion of the design for our new HR system. Planning is underway to progress with the configuration and testing phases, with the implementation of a new operating model by April 2026. We have migrated the related People connected applications and services from National Grid on to the NESO estate and have selected our Managed Service Provider who will provide payroll services from May 2026.

Our intranet site has been migrated and refined to provide an improved user experience, and to reflect NESO brand and values. Internal communications have been assessed and refined to ensure inclusivity, clarity, and empathy. Messaging emphasises NESO's independence, digital-first priorities, and a journey shared by all colleagues. Training and engagement efforts are underway to prepare the organisation for the change including:

- Personas and user journey maps developed to tailor communications and support
- Change Champions actively involved in messaging and feedback loops
- Townhalls, NESO Home updates, and targeted emails used to maintain awareness

### Future state

Strategic demand items from Finance and Procurement will be continuously reviewed and verified to support necessary adjustments after the implementation our new systems. If required, additional funding will be allocated to items still in Discovery or those needing further implementation support. Initiatives aimed at ongoing improvement and optimisation across Finance and Procurement will persist beyond Go-Live, ensuring continuous development. By embedding EPM and VfM principles, NESO seeks to enhance its decision-making, accountability, and transparency, contributing to more effective resource management.

By Q1 2028, NESO's vision for People systems involves evolving into an autonomous, digitally enabled organisation. The future operating model integrates a user-centred digital experience informed by design systems and agile methodologies. Employees will manage holiday, life events, HR tasks, expenses, and timesheets via our new systems. Internal communications will be maintained through regular updates on the NESO website. The training plan will cover all aspects of system adoption, including post-Go-Live support, and governance procedures will standardise document review, publication, and notifications. Strategic demand items from People will continue to be assessed and delivered as required.

The Strategy and Policy directorate will be fully enabled through the adoption of digital strategies. Requirements of the Energy Insights team, including the establishment of a Centre of Excellence for scenario, sensitivity, and forecast development will be implemented. Real-time data and AI capabilities will be leveraged to continually scan for emerging trends in policy, technology, and market signals, facilitating the proactive generation of trusted analyses. Rather than relying on static annual reports or outdated information, teams will benefit from live dashboards and AI assistants, aligned with our AI strategy, which aggregate up-to-date data and produce initial insights. This approach will empower policymakers and industry stakeholders with immediate access to current scenarios and on-demand, data-driven advice.

The strategic knowledge hub will be expanded to mobile devices, ensuring transparent and accessible insights to the whole of NESO.

In addition, specialised tools will be deployed to support activities led by the NESO Chief Economist.

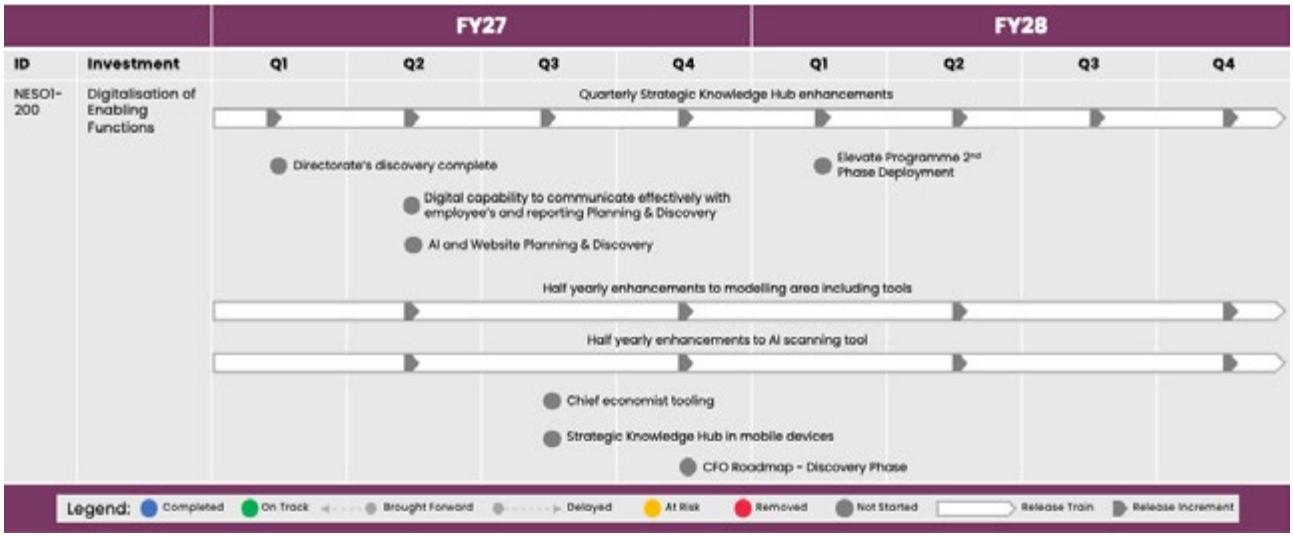
### Approach

Our Finance, Procurement, and HR programmes followed waterfall delivery during BP3. As the key milestones have been met, the programme will transition into a BAU function during the NESO1 period and support the business with ongoing improvements and enhancements.

Digital Change for Strategy and Policy will adopt a design thinking mindset during the discovery phase to ensure we accelerate the understanding of needs. As we learn more about the directorate's needs, we will evolve our approach and update our roadmap.

Any legacy tools will be assessed, reviewed and DD&T solutions enabled by AI will be deployed to enable directorates to leverage better insights in shorter timescales. All relevant data will also be ingested into DAP, enabling data visualisations such as dashboards.

## Roadmap




| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Quarterly Strategic Knowledge Hub enhancements | Quarterly enhancements to Strategic Knowledge Hub | Quarterly |
| Milestone | Directorate's discovery complete | Definition of business needs, impacts to platforms, and change strategy with estimates of effort and costs | Q1 FY27 |
| Milestone | Digital capability to communicate effectively with employee's and reporting Planning & Discovery | Improvements to Intranet/ Comms efficiency (NESO News, DD&T Download, Target Comms, Dashboard) | Q2 FY27 |
| Milestone | AI and Website Planning & Discovery | AI enabled search on the intranet to determine how users can obtain the information they require | Q2 FY27 |
| Milestone | Half yearly enhancements to modelling area including tools | Enhancements to modelling area tools | Every 6 months |
| Milestone | Half yearly enhancements to AI scanning tool | Enhancements to AI scanning tool | Every 6 months |
| Milestone | Chief economist tooling | Tools delivered to enable chief economist activities | Q3 FY27 |
| Milestone | Strategic Knowledge Hub in mobile devices | NESO users can access NESO insights on their mobile devices | Q3 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | CFO Roadmap - Discovery Phase | 29 Multiple Items for delivery over 1.5 years | Q4 FY27 |
| Milestone | Elevate Programme 2nd Phase Deployment | System replacement Workday and Ivalua further enhancements | Q1 FY28 |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £4.4m | £4.3m | £8.7m |
| OpEx | £1.1m | £0.9m | £2.0m |
| **TotEx** | **£5.5m** | **£5.2m** | **£10.7m** |

**Risks/issues**

The risks and issues outlined below represent those considered most significant for this investment, and do not constitute an exhaustive list. The likelihood and impact ratings for each risk are assessed prior to any mitigation actions.

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that poor data quality may lead to extended issues | Address data migration, enterprise data flow, and historical data solutions | 4 | 4 |
| There is a risk that an inability to digitise may hinder the meeting of strategic objectives | Accelerate digitalisation efforts with additional resources specific to demand and align with NESO's strategic priorities | 3 | 4 |
| There is a risk of inadequate system maintenance | Define and implement a robust operating model for system maintenance | 3 | 3 |
| There is a risk of unclear process ownership across the enabling functions | Establish clear ownership models for finance planning, forecasting, and contract management | 3 | 3 |
| There is a risk of mismanagement of data and AI | Implement robust controls and governance frameworks for data and AI usage | 3 | 4 |
| There is a risk of legal reporting gaps to stakeholders | Establish litigation protocols and ensure timely updates on legal risks and compliance | 3 | 4 |

| Risk/Issue | Mitigation | Likelihood | Impact |
|---|---|---|---|
| There is a risk that required tools for the Chief Economist are more complex than currently assumed | Ensure discovery activities define all requirements. | 3 | 2 |
| There is a risk that discovery identifies scope not identified until now | Do further early engagement ahead of discovery | 4 | 3 |
| There is a risk that AI POCs may not deliver all expected benefits | Develop all critical functionality in parallel to AI POCs with conventional methods | 3 | 3 |
| There is a risk that stakeholders do not adopt digital first approaches leading to delays or incorrect usage of tools and processes | Keep stakeholders engaged, addressing any usability issues and escalating if not following agreed approach | 2 | 4 |

**Assumptions**

| Category | Assumption | Investment Impact Areas | Review Frequency |
|---|---|---|---|
| Cost | Finance Reporting – Several demand pipeline items are still in discovery. These may need to be absorbed into the current programme deliverables and others may need to be actioned after Q1 FY27 to provide the best possible solution. | Finance Reporting | Monthly |
| Delivery & Cost | Demand Pipeline Items still in discovery, may need to be actioned after Q1 FY27 to provide the best possible solution. | Employee Comms and Intranet | Monthly |
| Dependency | Digital Change for Strategy and Policy: DAP to ingest and host most if not all required data. | Data and Analytics | Monthly |
| Dependency | Digital Change for Strategy and Policy: AI investment to support with required resources to complete work. | Data and AI | Monthly |

## 4.5 People

NB. There are no specific DD&T investments related to the People function, however, please refer to the Digitalisation of Enabling Functions investment.

# 4.6 Public Voice and Brand

## Digital Engagement Platform (NESO1-620)

### Overview

The Digital Engagement Platform (DEP) is central to improving NESO's customer experience, helping us engage as a trusted partner and supporting our goals for innovation, digital-first approaches, and data-driven decisions. Through removing barriers to engagement and market participation it also plays a key role in encouraging/promoting competition.

DEP sits at the heart of our vision to provide a common engagement channel and world-class Digital experience for everyone who engages with NESO.

Additionally, DEP provides a single point of secure access to NESO systems and external-facing processes to the NESO website (NESO.energy). DEP also provides secure access to our Customers via CIAM (Customer Identity and Access Management). It provides external visualisation of open and subscribed content and data, compliant with data classification policies and standards via the NESO website (NESO.energy) and the digital experience (DXP).

As part of our vision, the DEP has enabled external customers and stakeholders to access NESO data and services in a simple, intuitive, predictable, personalised, and seamless manner, offering a frictionless user experience and making it easier to do business with NESO. It serves as a "digital concierge" providing accessibility to our markets, data, and new insights, as well as enabling more engaging ways to collaborate and participate in our journey to net zero.

This investment has two key areas of delivery:

1. **Digital Experience Platform (DXP) –** DXP provides integration with several other platforms allowing customers access to a wealth of data and functionality via a single point of access i.e., Data Analytics platform (DAP), Single Markets Platform (SMP), Digitalised Code Management (DCM), Connections, Electricity Network Access Management System (ENAMS), Electricity Generator Availability and Margin Analysis (EGAMA), Planning and Outage Data Exchange (PODE) and Enduring Auction Capability (EAC).
2. **Customer Identity Access Management (CIAM) –** DEP delivers functionality that enables single sign on security through CIAM, giving our end users a secure and intuitive journey.

### Current state

In BP3, we re-imagined our DEP to reflect NESO as an independent organisation and aligned to our customer strategy encompassing customer operation, customer engagement and customer management.

We implemented website enhancements to improve the end-user experience, while continuing to support business-as-usual enhancements, including:

- Design, content review and refresh of NESO.energy
- Enhancements to the search capability
- Open data integration (with DAP and new GIS capability)
- MyNESO account management enhancements
- Interactive content – development and support of the Balancing the Grid Game
- Targeted campaigns through automation

A key success in BP3 was the NESO Day 2 migration planning phase, which involved domain name system (DNS) changes from nationalenergyso.com to neso.energy. Planning was completed to deliver the CIAM App migration to neso.energy in parallel with associated downstream applications (i.e. EaC, PODE, Connections, SMP, eNAMS, eGAMA, STAR), ensuring no impact to service. This supported the consistency of NESO branding across all external portals and sites.

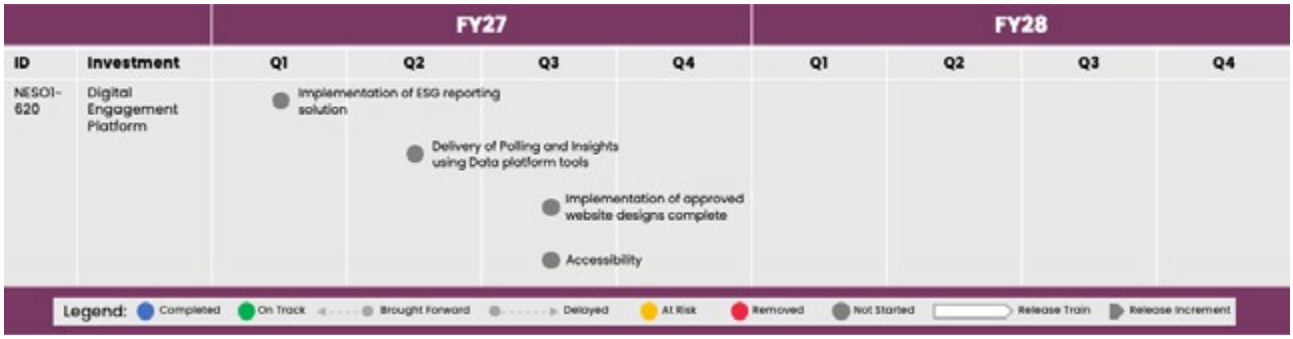
### Future state

Our ambition is to strengthen existing capabilities to enhance the User experience across NESO. energy and reflect NESO as an independent organisation in alignment with our Customer, Public voice and Brand, Digital, Data & AI strategies, whilst maintaining operational stability of NESO. energy. Enhancements to the website will improve the end user experience and enable engaging ways to collaborate and participate in our journey to net zero.

The outlined outcomes for FY27/FY28 will support the Public Voice and Brand Strategy by delivering enhancements in line with the following:

- **Digital Engagement:** leveraging digital platforms and social media tools to communicate NESO's work in accessible, engaging, and data-driven ways. Deployment of cutting-edge technologies. Revision of web content, interactive tools to reach all audiences and adapt messaging in real time. Interactive public tools for consultation.
- **Brand Management:** defining and maintaining a consistent, values-led brand identity that reflects NESO's purpose, independence, and expertise. Ensuring one voice across the organisation enables a single look and feel across NESO.
- **Alignment of visual identity, tone of voice, and messaging:** across all channels to build recognition and trust with stakeholders and the public.
- **Consumer Engagement:** designing and executing initiatives that connect NESO's work to the lived experiences of consumers, using polling, insights, and accessible storytelling.
- **Embed Clear, Consistent Communication:** NESO seeks to connect people to its mission, promote collaboration, and enable agile responses to system-wide challenges through purposeful, values-led communication.

### Roadmap

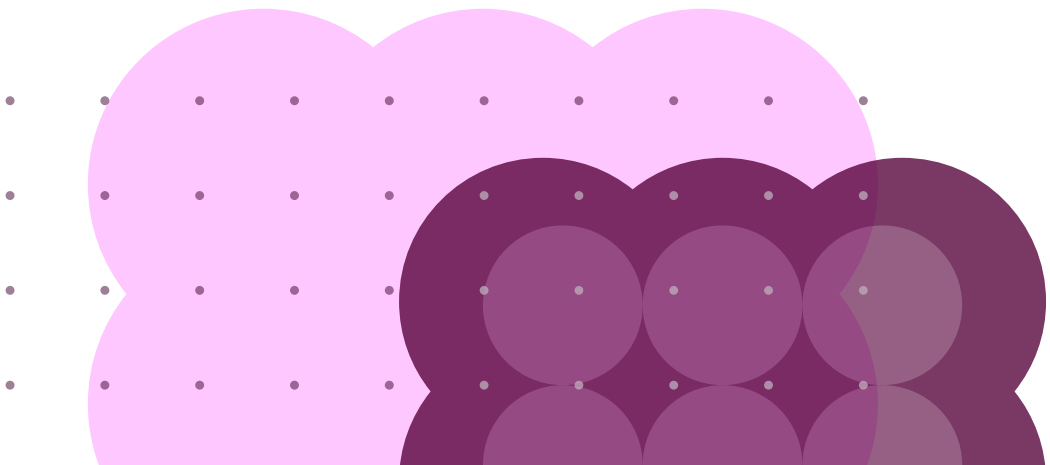



| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Implementation of ESG reporting solution | Implementation of Digital tool or solution to support ESG data Management for reporting and environment metric calculation. | Q1 FY27 (MVP delivered Q4 FY26) |
| Milestone | Delivery of Polling and Insights using data platform tools | Enhance and build solutions to support Corporate Affairs to interpret and analyse polling insights data (e.g. dashboards). | Q2 FY27 (MVP delivered Q4 FY26) |
| Milestone | Implementation of approved website designs complete | Redesigned website implementation: to support consistent and values led brand identity across NESO. energy that reflects NESO's purpose, independence and expertise. | Q3 FY27 |

| Event type | Event name | Outcome description | Date |
|---|---|---|---|
| Milestone | Accessibility | Discovery for Welsh language opportunities to include options for translation tools. | Q3 FY27 |
| Features | Continuous Improvement | Ongoing optimisation of user experience with features such as interactive content and "bolt-ons", consistent NESO branding, security enhancement etc. | Q4 FY27/28 (Incremental delivery) |

**Costs**

| | FY27 | FY28 | Total |
|---|---|---|---|
| CapEx | £2.5m | £1.5m | £4.0m |
| OpEx | £1.0m | £0.5m | £1.5m |
| **TotEx** | **£3.5m** | **£2.0m** | **£5.5m** |



# Part 5 – Appendix

## 5.1 Summary of Investment Changes from BP3 to NESO1

| NESO1 Investment | Related BP3 Investments | Comments |
|---|---|---|
| Open Balancing Programme | Implementation of ESG reporting solution<br><br>480 Ancillary Services Dispatch | Merged to form new capability group |
| Capacity Market and Contracts for Difference Regimes | 320 EMR<br><br>820 Contracts for Difference | Merged to form new capability group |
| Connections Enduring Capabilities Ecosystem | 380 Connections | Renamed |
| Forecasting & Predictions | 260 Forecasting enhancements<br><br>670 Real-time Prediction | Merged to form new capability group |
| System Access | 340 RDP implementation and extension<br><br>350 Planning and Outage Data Exchange<br><br>360 Offline Network Modelling<br><br>720 Network Services Procurement | Merged to form new capability group |
| ENCC Operations Enablement | 140 ENCC Operator Console<br><br>190 Workforce and change management tools<br><br>200 Future training simulator and tools<br><br>240 ENCC Asset Health<br><br>850 System Ops Tech Enablement | Merged to form new capability group |
| Flexibility Enablement | 650 DER/CER Visibility and Access | Renamed |
| Innovation Productionisation | 450 Future Innovation Productionisation | Renamed |

| NESO1 Investment | Related BP3 Investments | Comments |
|---|---|---|
| Market Access & Procurement | 400 Single markets platform<br>420 Auction Capability<br>680 Local Constraints Market<br>710 Primacy | Merged to form new capability group |
| Modelling Platforms & Tooling | 220 Data and Analytics Platform | Renamed |
| Regulations | 280 GB Regulations and Role in Europe (RiE) | Renamed |
| Resilience & Risk | 840 Resilience & Emergency Management Whole Energy Capability Model | Renamed |
| Restoration | 510 Restoration & Restoration Decision Support Tool | Renamed |
| Situational Awareness Tools | 110 Network control<br>130 Inertia Monitoring<br>170 Frequency Visibility | Merged to form new capability group |

## 5.2 NESO1 Portfolio – Continuing vs. New Investments

| Role | ID | Investment Name | Continuing or New |
|---|---|---|---|
| Energy Markets | NESO1-320 | Capacity Market and Contracts for Difference Regimes | New |
| | NESO1-330 | Regulations | Continuing |
| | NESO1-350 | Flexibility Enablement | Continuing |
| | NESO1-340 | Market Access & Procurement | New |
| Energy System Resilience | NESO1-370 | Resilience & Risk | Continuing |
| | NESO1-360 | Restoration | New |
| | NESO1-380 | Electricity Market Reform Discovery | New |
| Facilitating Sector Digitalisation | NESO1-120 | Data Sharing Infrastructure | Continuing |
| Network Operability & Connections | NESO1-230 | Connections Enduring Capabilities Ecosystem | Continuing |
| | NESO1-240 | Clean Power 2030 Enablement | New |
| Strategic Energy Planning | NESO1-250 | Strategic Energy Planning | Continuing |
| System Operations | NESO1-400 | Open Balancing Programme | New |
| | NESO1-440 | System Access | New |
| | NESO1-460 | Network Topology Optimisation | New |
| | NESO1-480 | Dispatch Transparency | New |
| | NESO1-430 | Forecasting & Predictions | New |
| | NESO1-450 | ENCC Operations Enablement | New |
| | NESO1-470 | Situational Awareness Tools | New |
| | NESO1-490 | Digital Trials Platform | New |
| | NESO1-420 | Balancing Innovation Delivery | New |
| | NESO1-390 | Interconnectors | Continuing |
| | NESO1-410 | Balancing Asset Health | Continuing |

| Role | ID | Investment Name | Continuing or New |
|---|---|---|---|
| | NESO1-300 | Transformation Enablement Project | New |
| Business Health | NESO1-220 | Network and System Modelling Capability Modernisation | New |
| | NESO1-210 | Digital Change for Legal, Risk, and Regulation | New |
| Customer | NESO1-600 | Digital Change for Customer | New |
| Digitalisation, Data & AI | NESO1-100 | Innovation Productionisation | Continuing |
| | NESO1-110 | NESO AI Energy Core Delivery | New |
| | NESO1-610 | Modelling Platforms and Tooling | Continuing |
| Energy Insights | NESO1-200 | Digitalisation of Enabling Functions | Continuing |
| Public Voice and Brand | NESO1-620 | Digital Engagement Platform | Continuing |

## 5.3 Acronym List

| Acronym | Definition |
|---|---|
| AI | Artificial Intelligence |
| API | Application Programming Interface |
| ASR | Ancillary Service Reform |
| BP2 | Business Plan 2 |
| BP3 | Business Plan 3 |
| CfD | Contracts for Difference |
| CER | Consumer Energy Resources |
| CIO | Chief Information Officer |
| CM | Capacity Market |
| CMF | Cost Monitoring Framework |
| DAP | Data and Analytics Platform |
| DD&T | Digital Data and Technology |
| DER | Distributed Energy Resources |
| DFS | Demand Flexibility Service |
| DNO | Distribution Network Operator |
| DRS | Dynamic Reserve Setting |
| DSAP | Digitalisation Strategy and Action Plan |
| EAC | Enduring Auction Capability |
| EMR | Electricity Market Reform |
| ENCC | Electricity National Control Centre |
| FFR | Firm Frequency Response |
| MFR | Mandatory Frequency Response |
| MW | Megawatt |
| NBM | Non-Balancing Mechanism |

| Acronym | Definition |
|---|---|
| NESO | National Electricity System Operator |
| OBP | Open Balancing Platform |
| Ofgem | Office of Gas and Electricity Markets |
| PMB | Programme Management Board |
| PO | Performance Objective |
| RIIO2 | Revenue = Incentives + Innovation + Outputs 2 |
| SMP | Single Market Platform |
| STAR | Settlement and Revenue System |
| TAC | Technology Advisory Council |
| TBM | Technology Business Management |
| TO | Transmission Owner |

## 5.4 Risk Assessment Methodology

| Score | Category | Impact of Occurrence | Likelihood of Occurrence |
|---|---|---|---|
| 1 | Remote | • Part of Project affected<br>• Minimal Time & Cost to remedy<br>• Minimal interruption to objectives | Less than 10% (remote) |
| 2 | Less likely | • Entire Project affected / Part of Programme affected<br>• Minor amount of Time & Cost to remedy<br>• Minor disruption to objectives | 10-30% (less likely to occur) |
| 3 | Equally likely as unlikely | • Entire Programme affected<br>• Significant Time & Cost to remedy<br>• Significant disruption to objectives and outputs<br>• Dependency affecting <3 projects | 30-50% (possible it may occur) |
| 4 | More likely | • Entire Programme affected<br>• Significant Time & Cost to remedy<br>• Significant disruption to objectives and outputs<br>• Dependency affecting <3 projects | 50-70% (likely to occur) |
| 5 | Almost certain | • Entire Portfolio affected<br>• Critical Time & Cost required, reputational damage<br>• Very difficult to recover from disruption<br>• Dependency affecting 7+ projects | More than 70% (almost certain) |

National Energy System Operator
Faraday House
Warwick Technology Park
Gallows Hill
Warwick, CV34 6DA

NESO
National Energy
System Operator