Notes on Completion: Please refer to the appropriate NIA Governance Document to assist in the completion of this form. The full completed submission should not exceed 6 pages in total.

NIA Project Registration and PEA Document

Date of Submission

Aug 2025

Project Reference Number

NIA2_NESO112

Project Registration

Project Title

Response Market Schedule Review

Project Reference Number

NIA2_NESO112

Project Licensee(s)

National Energy System Operator

Project Start

July 2025

Project Duration

0 years and 11 months

Nominated Project Contact(s)

Edward Silverstone / Laura Burdis

Project Budget

£370,000.00

Summary

The Response Market Schedule Review project aims to evaluate the potential benefits of alternative auction timings for frequency response services. The focus is on exploring whether closer-to-real-time auctions—or combinations of auctions across different timescales could improve market efficiency, system operability, and participant engagement. The project will assess high-level design options for auction timing, granularity, and delivery duration, with recommendations developed in collaboration with NESO. This work will inform future market design decisions and support the transition to a more flexible, responsive energy system

Nominated Contact Email Address(es)

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Problem Being Solved

Dynamic Response is a market currently worth approximately £100 million/year (1 July 2024 – 1 July 2025), with more than 30 active participants, and is still growing. The current procurement arrangements were chosen in part for their simplicity to enable the rapid launch and growth of the market. Now the market is becoming mature, a review of procurement structures is prudent, whether the review identifies opportunities to improve social benefit or simply confirms that the existing arrangements are performing well

Method(s)

The selected method to deliver this project is a combination of quantitative and qualitative market analysis using Dynamic Response Auction and Wholesale Market data. The analysis will focus on alternative auction timings and scheduling for the Dynamic Response Market, with the aim of identifying structures that meet operational requirements while improving accessibility and minimising procurement volatility.

The project will be delivered through the following work packages:

▪ WP-1: Inception and Scope Definition

A short note will be produced outlining the agreed scope of work, approach, and timelines. This will be supported by kick-off meeting materials to ensure alignment across stakeholders.

▪ WP-2: Auction Design Element Assessment

This work package will deliver a report describing individual auction design elements (e.g. timing, granularity). It will include:

A qualitative assessment based on NESO's key objectives, leading to a shortlist of viable design elements.

A quantitative assessment of the impact of each shortlisted element compared to the status quo, focusing on market depth (total participation and diversity of technology types/providers) and cost implications.

▪ WP-3: Overall Auction Design Options

A final report will present combinations of auction design elements forming overall market structures. It will include:

A quantitative assessment of each option's impact on wider market functioning, including long-term trends over the next ten years (with greater precision expected for near-term impacts).

In line with the ENA's ENIP document, the risk rating is scored Low
TRL Steps = 3
Cost = 1 (£350k)
Suppliers = 1
Data assumptions = 1
Total = 6 (Low)

Scope

This project will assess alternative auction timings and market design structures for Dynamic Response services, with the aim of improving procurement efficiency, market accessibility, and system operability.

The scope includes two core items:

• Item 1: Auction Options Assessment
A review of the timing and structure of the DM/DR/DC auctions will be conducted. High-level options for alternative auction timings and assessment approaches will be identified and jointly agreed with NESO before detailed analysis begins. In addition to auction timing, the review will consider:
• Granularity of procurement
• Duration of the total delivery period included in each auction
• Any further design elements identified during ideation

• Item 2: Market Design Options Assessment
Building on the findings from Item 1, this phase will investigate the impact of implementing two or more shortlisted auction design elements in parallel. A specific shortlist of combined arrangements will be
selected collaboratively with NESO prior to detailed evaluation

In Scope:
• Quantitative and qualitative analysis of auction design elements
• Assessment of individual and combined market design options
• Evaluation of impacts on market depth, cost, and system operability
• Use of NESO data sources including Dynamic Response and Wholesale Market datasets

Out of Scope:
• Implementation of any recommendations
• Stakeholder engagement following project completion
• Policy or regulatory changes
• IT system development or procurement platform changes

Objective(s)

The primary objective of this project is to assess whether the procurement arrangements for Dynamic Response services can be improved through changes to auction timing and market design. This will be achieved by:

▪ Developing a short-list of options for changes to the procurement arrangements of Dynamic Response services, including auction timing, granularity, and delivery duration.
▪ Conducting a cost-benefit analysis of each shortlisted option, focusing on market and consumer impacts. Implementation costs (e.g. IT system changes) will be explicitly excluded from this analysis.
▪ Evaluating the impact of combining two or more shortlisted options into integrated market design structures.
▪ Supporting NESO's strategic goals of improving market accessibility, operational efficiency, and compliance with regulatory frameworks.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

This project has been assessed as having a neutral impact on customers in vulnerable situations because it will only impact on the frequency response markets.

Success Criteria

The project will be considered successful if it delivers a clear and comprehensive evaluation of alternative procurement structures for Dynamic Response services. Specifically, success will be defined by:

• The identification of a short-list of viable options for changes to auction timing and market design.
• Completion of a cost-benefit analysis for each option, focused on market and consumer impacts (excluding implementation costs such as IT system changes).
• A clear articulation of the risks associated with each option.
• Delivery of findings that enable NESO to make informed decisions about future procurement arrangements and facilitate strategic conversations around market reform.

Project Partners and External Funding

1 project partner: AFRY Management Consulting There is no external funding associated with this project.

Potential for New Learning

This project is expected to generate new insights into the timing and structure of Dynamic Response Services auctions. Specifically, it is expected to deliver:

• A more informed understanding of the benefits and limitations of alternative auction timings and market

arrangements.
• Identification of any auction structures that may not be viable or where no change is required, with clear rationale provided.
• New learning across several dimensions, including:
• Timing of the auction
• Granularity of procurement
• Duration of the total delivery period included in each auction
• Additional options identified during ideation and stakeholder engagement
The findings will be consolidated into a final report that comprehensively presents the outcomes from both stages of the project. This report will help to support future decision making and potential transition to Business-as-Usual (BAU) arrangements, where appropriate.

Scale of Project

This project is confined to a cost-benefit analysis with an initial ideation process to narrow down the options investigated and regular re-assessments of the value of different lines of investigation.
It is therefore small in scale. The project is estimated to last 11 months.

Technology Readiness at Start

TRL1 Basic Principles

Technology Readiness at End

TRL2 Invention and Research

Geographical Area

This project will be conducted within GB

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

The total project cost is £350,000

Project Eligibility Assessment Part 1

There are slightly differing requirements for RIIO-1 and RIIO-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RIIO-2 / RIIO-1).

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations (Please complete sections 3.1.1 and 3.1.2 for RIIO-2 projects only)

Please answer **at least one** of the following:

How the Project has the potential to facilitate the energy system transition:

As the electricity system transitions towards net zero, it increasingly relies on variable, weather-dependent generation and experiences lower system inertia due to reduced synchronous generation. Frequency response products are critical to maintaining system stability under these conditions.

This project supports the energy system transition by identifying procurement arrangements for Dynamic Response services that could deliver greater value and reduce costs. Specifically, it will assess alternative auction timings and structures that may better align with the operational characteristics of low-carbon technologies.

By exploring options such as closer-to-real-time procurement, the project could lower barriers to entry for assets with uncertain availability such as wind and solar etc thereby improving market access and participation.

This would enable more efficient procurement of frequency response, reduce reliance on more expensive alternatives, and enhance compliance with regulatory frameworks.
The findings will inform NESO and could lead to future implementation of more optimal market arrangements, supporting a more flexible, inclusive, and cost effective system as it evolves towards net zero.

How the Project has potential to benefit consumer in vulnerable situations:

This project has the potential to benefit consumers in vulnerable situations by identifying procurement arrangements for Dynamic Response services that reduce overall system costs. By exploring more efficient auction timings and market structures, the project aims to improve the value delivered through frequency response procurement.

Lower procurement costs can translate into reduced operational costs for the electricity system, which may ultimately be passed on to consumers through lower energy bills. Vulnerable consumers, who are often more sensitive to energy price fluctuations, stand to benefit from any cost efficiencies achieved.
Additionally, by enabling greater participation from low carbon, weather-dependent assets, the project supports a more inclusive and flexible energy system one that is better equipped to meet the needs of all consumers, including those in vulnerable situations.

Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

Project must have the potential to deliver a Solution that delivers a net benefit to consumers of the Gas Transporter and/or Electricity Transmission or Electricity Distribution licensee, as the context requires. This could include delivering a Solution at a lower cost than the most efficient Method currently in use on the GB Gas Transportation System, the Gas Transporter's and/or Electricity Transmission or Electricity Distribution licensee's network, or wider benefits, such as social or environmental.

Please provide an estimate of the saving if the Problem is solved (RIIO-1 projects only)

N/A

Please provide a calculation of the expected benefits the Solution

N/a – this is a research project, The outputs are expected to provide a quantification of the potential benefits of the different options considered

Please provide an estimate of how replicable the Method is across GB

N/a – Please provide an outline of the costs of rolling out the Method across GB.
Unknown – this is a research project. Following assessment of the options, NESO will carry out an impact assessment of implementation which will outline the costs. This is out of scope for this project

Please provide an outline of the costs of rolling out the Method across GB.

n/a

Requirement 3 / 1

Involve Research, Development or Demonstration

A RIIO-1 NIA Project must have the potential to have a Direct Impact on a Network Licensee's network or the operations of the System Operator and involve the Research, Development, or Demonstration of at least one of the following (please tick which applies):

☐ A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).

☐ A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)

☐ A specific novel operational practice directly related to the operation of the Network Licensees system

☐ A specific novel commercial arrangement

RIIO-2 Projects

☐ A specific piece of new equipment (including monitoring, control and communications systems and software)

☐ A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven

☐ A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)

☐ A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology

☐ A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution

☑ A specific novel commercial arrangement

Specific Requirements 4 / 2a

Please explain how the learning that will be generated could be used by the relevant Network Licensees

The findings from this project could directly inform updates to NESO's Dynamic Response auction arrangements. By identifying which procurement structures offer the greatest value or are unsuitable, the learning will support future market design decisions and help Network Licensees optimise procurement strategies as part of the energy system transition

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RIIO-1 only)

n/a

Is the default IPR position being applied?

☑ Yes

Project Eligibility Assessment Part 2

Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

Please demonstrate below that no unnecessary duplication will occur as a result of the Project.

No known duplicate research is occurring or has occurred.

If applicable, justify why you are undertaking a Project similar to those being carried out by any other Network Licensees.

n/a

Additional Governance And Document Upload

Please identify why the project is innovative and has not been tried before

This project is innovative because it explores alternative auction timings and market structures for Dynamic Response services an area that has not previously been examined in depth. The current procurement arrangements are based on day ahead scheduling, which may not be optimal as the system evolves. The review will investigate future trends and assess the eligibility of new solutions that are currently unknown.

It will generate insights into auction timing, granularity of procurement, and delivery duration dimensions that have not been systematically analysed before. This foundational research is necessary to understand whether more accessible and efficient arrangements can be developed, particularly for low-carbon technologies with variable availability.

Relevant Foreground IPR

Final report articulating options considered, option selection rationale, and results of analysis.

Data Access Details

Data for this project and all other projects funded under the Network Innovation Allowance (NIA), Network Innovation Competition (NIC) or the new Strategic Innovation Fund (SIF) can be found or requested in a number of ways:

1. A request for information via the Smarter Networks Portal at https://smarter.energynetworks.org, to contact select a project and click 'Contact Lead Network'. National Energy System Operator already publishes much of the data arising from our innovation projects here so you may wish to check this website before making an application.
2. Via our Innovation website at https://www.neso.energy/about/innovation
3. Via our managed mailbox innovation@nationalenergyso.com

Details on the terms on which such data will be made available by National Energy System Operator can be found in our publicly available "Data sharing policy relating to NIC/NIA projects" at Data Sharing Approach | National Energy System Operator

Please identify why the Network Licensees will not fund the project as apart of it's business and usual activities

The Network Licensee is not funding this project through business-as-usual activities due to several specific risks and uncertainties. These include:
- Uncertainty around whether a better procurement structure will be identified.
- The highly specialised nature of the analysis, which requires external expertise not available internally.
- Unknown operational capabilities that the project aims to explore and define.

Please identify why the project can only be undertaken with the support of the NIA, including reference to the specific risks(e.g. commercial, technical, operational or regulatory) associated with the project

This project proposes a novel approach to Dynamic Response procurement through the exploration of real-time auction structures an area that has not been previously trialled. The innovation is not a standard process improvement, nor is it available off the shelf. It requires bespoke research into future system needs, auction design, and market behaviour.

The work involves designing new auction timings and developing assessment methodologies to evaluate their impact on system efficiency and stability. Due to the uncertainty of outcomes and the need for specialist expertise not available internally, the project falls outside the scope of business-as-usual and is therefore suited to NIA support.

This project has been approved by a senior member of staff

- [x] Yes