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

May 2025

Project Reference Number

NIA2_NESO114

Project Registration

Project Title

Regulation Navigator AI - Powered Compliance Assistant

Project Reference Number

NIA2_NESO114

Project Licensee(s)

National Energy System Operator

Project Start

May 2025

Project Duration

0 years and 4 months

Nominated Project Contact(s)

innovation@neso.energy

Project Budget

£450,000.00

Summary

This project is intended to determine a proof of concept foundation for the use of an AI Large Language Model tool ('RegNav') to minimise the density of regulatory review and response by reducing the time required to metabolise and disseminate new regulatory proposals. The current process is entirely manual and this project will help us understand if AI LLM (Large Language Model) tools can be used to improve the associated times and costs through the introduction of automation usage and generation of long format responses, sometimes referred to as reflection.

This tool will assess published regulatory changes in the form of consultations, calls for input, calls for evidence, and create prospective responses, and incorporate a feedback loop to improve responses over time. The tool is aimed to help minimise the density of regulatory early-stage response by reducing the time required to consume new regulation and quickly understand its impact.

Nominated Contact Email Address(es)

box.so.innovation@nationalgrid.com

Problem Being Solved

The process to identify, summarise, disseminate and respond to prospective regulatory changes is wholly manual. This includes ongoing monitor and review of consultations from various external bodies, including but not limited to regulators, government departments and industry bodies. The current process of navigating through regulatory documentation and auxiliary information is therefore time-consuming and administratively burdensome. Consultations on prospective regulatory changes can be lengthy, complex and assessing whether as an organisation, it should respond, as well as then drafting responses, draws on valuable subject matter

expert resource across the business. This challenge is reflected across the Energy and Utilities industry, where assessing regulatory documentation and auxiliary information in order to ensure ongoing awareness and engagement in regulatory change processes involves dedicated resource.

Method(s)

This project will be delivered through the following Work Packages (WP):

WP1 – Engagement and Commencement, Discovery and Summary

This work package will include the Discovery and Summary Feature. The key activities in WP1 will include technical research design development, a research and data feasibility review, metrics development. Additional activities in WP1 will cover User Interface wireframe development, assessment of chunking strategy to support Retrieval-Augmented Generation (RAG) and establishing a minimum viable knowledge base.

WP1 deliverables will be a Design Report, including high level diagrams communicating functional architecture.

WP2 – Response Feature

The methods used to provide a solution to the problem in WP2 include technical implementation of a multi-agent framework to facilitate long-form response in text format. The WP2 deliverables will include a prototype to facilitate summary and response capability, and user testing reporting.

WP3 – Enhancements

During WP3 the key activities to provide the solution will include application of chunking and prompt strategy, additional knowledge bases, optimising the user interface.

WP4 – Reporting

In the final work package, the final report to articulate the key learnings of the Regulation Navigator trial will be completed.

In line with the ENA's ENIP document, the risk rating is scored Low

- TRL Steps = 3
- Cost = 1
- Suppliers = 1
- Data assumptions = 1
- Total = 6 (Low)

Scope

This project seeks to streamline the regulatory consultation process through adopting Artificial Intelligence (AI) features. The project will develop an early-stage demonstration tool which would be used to augment and automate the process of responding to consultations on behalf of NESO teams from external organisations including Ofgem. The development of the Regulation Navigator tool would also include knowledge management accessible across an organisation.

A key benefit for NESO would include efficiencies in the process, enabling the prioritisation of resources to ne focused on more value adding activities. Other network licensees within the energy sector would benefit from the learnings on how to adopt a similar tool in their practices.

This project is focused on developing a proof of concept (PoC) to explore whether a tool like Regulation Navigator can effectively support NESO's regulatory review and response processes. The aim is to test the feasibility of applying this type of AI technology to our specific challenge streamlining consultation analysis and response generation using a controlled, exploratory approach. The PoC will help determine whether such a tool can meet NESO's needs and if successful will be shared.

Objective(s)

The objectives that are expected to be achieved are:

- Tested output of the reasoning achieved in long form responses using reflection of multi-agent framework
- Tested ability of Regulation Navigator to work with context beyond a limited individual context window based on a chunking strategy

that supports Retrieval-Augmented Generation.

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

Not Applicable

Success Criteria

The success criteria include:

- The project has delivered against objectives, timescales and budget as outlined in the proposal
- Development of the Regulation Navigator tool to demonstrate the effectiveness of AI LLM usage in a regulatory change process
- Successful testing of the Regulation Navigator tool against a set of evaluation metrics
- Development of the Regulation Navigator user interface to meet user requirements
- Data available to assess the reduction in time compared between manual and a digital process
- Data available to assess the qualitative output of the comparison between a manual and a digital process

Project Partners and External Funding

Mesh AI will be carrying out the work and no external funding is required.

Potential for New Learning

If successful, the project will demonstrate suitability of the utilisation of AI LLMs in regulatory change processes. It will provide insight and learning as to the possibilities available through application of novel technology such as the Regulation Navigator tool. The output will be deeper knowledge and understanding of the practical application of AI LLMs in producing long-form text response and a qualitative assessment of that output.

If successful, the project will demonstrate the efficiencies achievable through digitalisation of a regulatory change proposal process.

Final learning and recommendations will be shared through a delivered report and all relevant information will be available on the ENA Smarter Networks Portal.

An Executive Summary will be published on the Smarter Networks Portal to share learnings across the industry.

Scale of Project

This project will take 4 months with one project partner (Mesh AI) delivering the work.

Technology Readiness at Start

TRL1 Basic Principles

Technology Readiness at End

TRL4 Bench Scale Research

Geographical Area

This project will be conducted within GB.

Revenue Allowed for the RIIO Settlement

N/A

Indicative Total NIA Project Expenditure

£425,000

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:

By digitalising the assessment and response process associated with prospective regulatory changes, the project has the potential to demonstrate a faster and more effective way to consume and respond to emerging regulatory requirements. This agility is crucial for supporting the transition to a more sustainable and resilient energy system.

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

Demonstrating the successful development and testing of the Regulation Navigator tool indirectly benefits consumers in vulnerable situations by testing that responses to regulatory changes that may impact energy affordability and accessibility include this perspective and apply it rigorously.

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)

Not Applicable

Please provide a calculation of the expected benefits the Solution

Not Applicable - research project

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

The method from this project is designed for broad applicability across Great Britain, making it suitable for a wide range of network licensees involved in regulatory consultation processes.

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

The costs of methodology in future projects will depend on the time and resources required. At this given time we are unable to prove an outline of the costs as this is desk-based research project.

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

Network licensees who also participate in the regulatory change process can use the learning generated by this project to apply to AI technologies they are considering for their long-form responses or digitalisation of manual response processes reliant on input from valuable subject matter expert resource.

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.

This project has been scoped to complement, rather than duplicate existing AI/LLM initiatives within NESO's Generative AI Discovery project. It builds on foundational insights from the Generative AI Discovery project, while targeting a distinct use case and implementation pathway. Learnings from prior projects such as model evaluation frameworks, risk mitigation strategies, and stakeholder engagement approaches are being actively incorporated to inform delivery. Coordination with related workstreams ensures alignment and avoids overlap, enabling efficient reuse of knowledge and resources.

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

Not Applicable

Additional Governance And Document Upload

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

This project is innovative as it is using a multi-agent framework to generate long-form responses. It also seeks to demonstrate the ability to handle context through the employment of a chunking strategy supporting retrieval-augmented generation. It is novel technology, and the project will seek to demonstrate the potential for deployment of a technical build.

Relevant Foreground IPR

- Development of Regulation Navigator tool

- A final executive summary report will be produced.

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@neso.energy

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 https://www.neso.energy/document/168191/download

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

The nature of this project has not been trialled within NESO and having researched the wider industry's approach to the use of AI LLMs for this kind of long-form output, it appears that this is relatively innovative for a wide range of users. Conducting this project with NIA funding will ensure that the project findings can be shared more widely with other interested network licensees.

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

The use of such AI technologies is developmental and emerging. The use of NIA funding is needed to provide support with the technical AI expertise required to construct the test case for complex contextualisation and long-form output. The findings can also be disseminated amongst the wider energy community for learning across the sector.

This project has been approved by a senior member of staff

☑ Yes