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

Oct 2026

Project Reference Number

NIA3_NESO013

Project Registration

Project Title

Whole-system evaluation of distribution stability service assets

Project Reference Number

NIA3_NESO013

Project Licensee(s)

National Energy System Operator

Project Start

November 2026

Project Duration

0 years and 6 months

Nominated Project Contact(s)

Innovation@neso.energy

Project Budget

£220,000.00

Summary

This project will assess the potential for assets connected to distribution networks at or below 132 kV to provide stability services to the transmission system and participate in future NESO Stability Markets. It will engage DNOs and industry stakeholders to identify suitable asset types, operational constraints and data requirements. An integrated RMS/EMT modelling approach will assess contributions to inertia and short-circuit strength and compare performance with existing transmission-connected providers. Outputs will include a technical benchmark, capability map and evidence base identifying where these assets could provide effective stability services, suitable conditions and potential barriers. Findings will inform future service design, eligibility criteria, procurement approaches and potential trials. Key risks include data availability, model integration, protection, voltage, congestion and curtailment.

Nominated Contact Email Address(es)

Innovation@neso.energy

Problem Being Solved

NESO currently has limited evidence on whether stability services provided by assets connected below 132 kilovolts (kV) can deliver the same level of effective system support as transmission-connected or embedded 132 kV providers. Stability Markets have therefore remained focused on transmission connected participants because the value, reliability and operational impact of lower voltage distribution connected assets has not yet been demonstrated.

The core problem is that NESO does not yet have a whole system benchmark showing how inertia and short-circuit strength from distribution connected assets propagates through distribution networks and are seen at transmission level. The technical effectiveness

of these assets may vary significantly by location, voltage level, asset configuration and local network conditions. Without a consistent evidence base, it is difficult to determine the contribution that distribution connected solutions may make towards the transmission system requirements.

There are also important distribution network dependencies that are not fully understood in the context of future Stability Market participation. These include protection settings and coordination, congestion and curtailment management, telemetry requirements, data availability, model compatibility and operational coordination between NESO and Distribution Network Operators (DNOs). These issues could materially affect whether capability that appears technically available at asset level can be relied upon as a system service at transmission level during the conditions in which stability support is most valuable.

This creates risk in both directions. If NESO opens participation to lower voltage assets without robust evidence, it could procure services that are not available, effective or operable under critical system conditions, creating operability, protection and consumer value risks. Conversely, if NESO delays or restricts access without testing the potential of these assets, capable providers may be excluded from Stability Markets, competition may remain lower than necessary, and consumers may face avoidable long term costs through continued reliance on a narrower pool of higher cost solutions.

Business as usual planning and connection studies do not resolve this problem because they are typically focused on individual assets, local networks, connection impacts or specific operational studies. They do not provide a consistent GB wide comparison of transmission connected and distribution connected stability service provision across voltage levels, locations, operating levels and technology types. A coordinated whole-system study is therefore needed to establish whether lower voltage assets can provide reliable stability value, what constraints must be managed, and what evidence is required to support future service definitions, eligibility criteria, procurement design and targeted follow-on trials.

Method(s)

This project will be delivered through three Work Packages (WP). The method combines stakeholder-led study definition with integrated transmission-distribution modelling, Root Mean Square / Electromagnetic Transient (RMS/EMT) analysis, technical benchmarking and translation of results into practical recommendations for future Stability Market design.

WP1: Stakeholder engagement, requirements definition and data request pack

Description and methods / approach: This work package will confirm the candidate asset types and the practical constraints that need to be reflected in the analysis. NESO, DNOs, OEMs, aggregators and asset developers will be engaged through structured workshops and targeted data requests. The work will define candidate asset ratings, operating characteristics, relevant voltage levels, data requirements, study scenarios, model interfaces and known operational barriers, including protection coordination, telemetry and data-governance constraints.

Output and expected outcome: The output will be a stakeholder evidence pack, agreed study assumptions and a defined set of representative networks, asset types and scenarios. This enables the project to address the key knowledge gap using realistic industry inputs and ensures that the resulting evidence is relevant to future Stability Market design, eligibility and procurement decisions.

WP2: Integrated root mean square screening model and scenario set and Targeted electromagnetic transient assessment and technical benchmarking

Description and methods / approach: This work package will develop the integrated modelling basis for the technical assessment. A reduced GB transmission model will be combined with representative 132 kilovolt (kV), 33 kV and 11 kV distribution networks. RMS studies will be used to screen the whole system across the agreed zones, voltage levels, technology types and operating levels. The modelling will assess how stability contributions from distribution-connected assets propagate to transmission level and will identify the locations, network conditions and asset configurations that require more detailed study. This work package will also undertake targeted EMT assessment for priority cases identified through RMS screening. The analysis will test the technical behaviour of selected assets, locations and network configurations in greater detail, including inertia, short circuit strength and interactions with protection, voltage and operational constraints. Results will be benchmarked against transmission connected stability solutions to assess where distribution connected provision can substitute, complement or is unsuitable for future market participation.

Output and expected outcome: The output will be an integrated RMS screening model, agreed scenario set, documented assumptions and a shortlist of priority cases for EMT assessment. This enables efficient targeting of detailed technical analysis and supports the knowledge benefit by showing where lower-voltage assets are most likely to provide system value. The output of the EMT analysis will be a technical benchmark of distribution connected stability service capability across relevant voltage levels, locations, operating levels and asset types. This will directly address the project objective by clarifying whether lower voltage assets can provide reliable stability contribution at transmission level and what technical constraints need to be managed.

WP3: Strategic insights, capability map and handover recommendations

Description and methods / approach: This work package will translate the modelling and benchmarking results into practical

outputs for future decision making. The project team will develop a technology agnostic capability map showing which asset types, sizes, configurations and network contexts can provide effective stability services below 132 kV. The work will also identify data requirements, operational dependencies, DNO coordination needs, eligibility considerations and potential follow-on trials or market design activity.
Output and expected outcome: The output will be a final evidence report, capability map, model assumptions log, results databook and stakeholder handover session. This enables NESO to make better-informed decisions on future Stability Market specifications and eligibility criteria.

Measurement Quality Statement
Project outcomes will be measured through modelling, simulation, comparative technical analysis and stakeholder review. RMS studies will screen the whole system and identify areas of interest; targeted EMT studies will provide deeper assessment of selected priority cases. Key measures will include inertia and short-circuit strength contribution, propagation of benefit across voltage levels, sensitivity to operating level, and the effect of network constraints such as protection, voltage, congestion and curtailment. Results will be validated through review with NESO subject matter experts, consistency checks against agreed assumptions, comparison between RMS and EMT findings where applicable, and transparent documentation of model limitations. Known limitations include the use of representative rather than exhaustive distribution networks, reliance on available data from stakeholders, and the fact that modelling outputs will inform but not replace future live trials or procurement readiness assessment.

Data Quality Statement
The project will use data from NESO, DNOs, OEMs, aggregators, asset developers and supplier-provided modelling environments where possible. Expected data includes candidate distribution-connected asset ratings and configurations, operating levels, representative distribution network models, GB transmission model inputs, congestion and curtailment assumptions, protection interactions, telemetry requirements and agreed study scenarios. Data quality will be assessed during WP2 by confirming ownership, completeness, format, model compatibility, sharing permissions and any anonymisation or data-governance requirements. Where data is incomplete or unavailable, the project will use agreed representative assumptions and will record these clearly in the assumptions log. The main limitations are that results will depend on the completeness and quality of stakeholder data, the representativeness of selected networks and the extent to which model assumptions reflect future operating conditions.

ENIP-aligned risk rating
In line with the Energy Networks Innovation Process (ENIP) risk rating approach, the project is scored as 5, which indicates a lower-complexity research project with limited delivery risk but material technical and data uncertainty.
Technology Readiness Level (TRL) Steps = 1 (Low)
Cost = 1 (Low)
Suppliers = 1 (Low)
Data Assumptions = 2 (Medium)
Total = 5. Overall, the project is assessed as lower delivery risk

Scope

This project includes the following scope areas:

- Stakeholder engagement with NESO, DNOs, OEMs, aggregators and asset developers to define candidate asset types, data requirements, operating assumptions, representative network scenarios and known constraints. This engagement will cover areas such as protection coordination, congestion, curtailment, telemetry, data governance and operational coordination.
- The development of an integrated transmission-distribution modelling approach using a reduced Great Britain (GB) transmission model and representative 132 kV, 33 kV and 11 kV distribution networks. Root mean square (RMS) studies will be used for system-wide screening across agreed zones, voltage levels, technologies and operating levels. Targeted EMT assessments will then be undertaken for priority cases where greater technical detail is required.

The following is out of scope for this project:

- Building or productionising a new operational system, market platform, control system or information technology solution.
- Procuring, installing or operating distribution-connected assets
- Undertaking commercial contracting with individual asset owners.
- Completing exhaustive EMT assessment of every GB zone, distribution network or asset configuration
- Making final policy or market rule decisions

Objective(s)

- Assess whether distribution-connected assets below 132 kilovolts (kV) can provide effective stability services at transmission level, including inertia and short-circuit strength.

- Identify the technical, operational and network conditions that influence the effectiveness of stability services from assets connected at 132 kV, 33 kV and 11 kV.
- Develop a whole-system evidence base using integrated transmission-distribution modelling, root mean square (RMS) screening and targeted electromagnetic transient (EMT) assessment.
- Compare distribution-connected stability service provision against established transmission-connected solutions to understand where lower-voltage assets can substitute, complement or are unsuitable for future service provision.
- Identify key barriers, constraints and dependencies, including protection coordination, congestion, curtailment, telemetry, data availability and operational coordination with Distribution Network Operators (DNOs).
- Produce a technology-agnostic capability map showing the asset types, sizes, configurations, voltage levels, operating levels and network contexts that may be suitable for future Stability Market participation.

Consumer Vulnerability Impact Assessment

This project is not expected to have any direct adverse impact on consumers in vulnerable situations during the project period because it is a research and modelling project only.

Success Criteria

Project key output and success criteria:

1. Stakeholder evidence pack and data request pack. This output will define the candidate asset types, data needs, operational constraints, study scenarios and practical issues that must be reflected in the modelling. Success will be assessed by whether the pack captures input from the relevant National Energy System Operator (NESO), Distribution Network Operator (DNO), Original Equipment Manufacturer (OEM), aggregator and developer stakeholders; whether it identifies the minimum viable data needed for the study; whether assumptions and data gaps are clearly recorded; and whether NESO subject matter experts agree that the scope is realistic and relevant to future Stability Market decisions.
This work package will also explore other relevant issues for the procurement of inertia and system strength from distributed networks, including protection coordination issues and other operational considerations.

2. Agreed modelling assumptions and representative network/scenario set. This output will set out the transmission and distribution networks, voltage levels, operating levels, asset configurations and system conditions to be assessed. Success will be assessed by whether the assumptions are transparent, traceable and approved for use by the project team; whether the selected scenarios are broad enough to test the key uncertainties around inertia and short-circuit strength; and whether the representative networks provide a credible basis for assessing distribution-connected stability services without implying exhaustive coverage of every Great Britain (GB) network configuration.

3. Integrated root mean square screening assessment. This output will use root mean square (RMS) analysis to screen the agreed whole-system scenarios and identify where assets connected below 132 kilovolts (kV) may provide stability value at transmission level. Success will be assessed by whether the assessment produces comparable results across voltage levels, locations, asset types and operating levels; whether it clearly identifies priority cases for more detailed electromagnetic transient (EMT) assessment; and whether it provides evidence that can distinguish likely suitable, unsuitable and uncertain cases for future market consideration.

4. Targeted electromagnetic transient assessment and technical benchmark. This output will provide detailed technical assessment of selected priority cases identified through RMS screening and will benchmark distribution-connected provision against transmission-connected stability solutions. Success will be assessed by whether the EMT analysis provides additional technical insight beyond the RMS screening; whether it clarifies the conditions under which lower voltage assets can substitute for, complement or fail to provide equivalent stability support; and whether the findings are robust enough to inform future eligibility criteria, service definitions and targeted follow on trials.

5. Technology-agnostic capability map. This output will summarise which asset types, sizes, configurations, voltage levels, operating levels and network contexts appear capable of providing effective stability services below 132 kV. Success will be assessed by whether the map is clear enough for NESO to understand where capability is likely to exist; whether it identifies constraints and dependencies rather than presenting capability as universally available; and whether it provides a practical basis for deciding where further trials, data collection or market development activity should be prioritised.

6. Final evidence report, results databook and assumptions log. This output will consolidate the modelling results, stakeholder evidence, data limitations, assumptions, constraints, technical findings and recommendations. Success will be assessed by whether the report provides a clear answer to the project objective; whether the results are traceable back to agreed assumptions and data sources; whether uncertainties and limitations are explained transparently; and whether the outputs are suitable for sharing with relevant industry stakeholders and for supporting future governance, procurement or trial decisions.

Project Partners and External Funding

1 Project Partner – WSP
No external funding

Potential for New Learning

The project will generate new learning on whether distribution-connected assets below 132 kilovolts (kV) can provide effective stability services towards the transmission system, and under what conditions they may be suitable for future Stability Market participation. The key learning is expected to be technical, operational and market design focused.

The project will develop new knowledge on how inertia and short-circuit strength from lower voltage assets propagate through distribution networks and are seen at transmission level. It will also test how effectiveness varies by voltage level, location, asset type, configuration, operating level and local network conditions. This is important because current business as usual studies do not provide a Great Britain (GB) wide benchmark for comparing transmission-connected and distribution-connected stability service provision.

The innovation in the method is the proportionate combination of stakeholder-led study definition, integrated transmission-distribution modelling, root mean square / electromagnetic transient (RMS/EMT) analysis and technology-agnostic capability mapping. Root mean square studies will be used to screen the wider system and identify priority cases, while targeted electromagnetic transient studies will provide additional technical depth where needed. This approach is intended to create practical learning without requiring exhaustive detailed assessment of every asset, network or scenario.

The project will also generate learning on the operational and data requirements needed to support any future use of distribution connected stability services. This includes evidence on Distribution Network Operator (DNO) coordination, protection interactions, voltage constraints, congestion, curtailment, telemetry, model compatibility, data availability and governance. The findings will help clarify whether future service definitions and eligibility criteria need to vary by location, voltage tier, asset type or operational context.

The learning will be shared through a final evidence report, results databook, model assumptions log, technology-agnostic capability map and stakeholder handover session. The project team will also share findings with relevant National Energy System Operator (NESO), DNO, market design, operability, planning and procurement stakeholders through workshops or review sessions during and at the end of the project. Where appropriate, learning will be made suitable for wider industry audiences so that it can inform future trials, service design and procurement development across network licensees and wider market participants.

At the end of the project, the project learning, including recommended next steps, will be made available on the Energy Networks Association Smarter Networks Portal. The project outputs will identify what has been learned, what remains uncertain, what further evidence or trials may be required, and how the learning could be used by relevant network licensees and industry stakeholders.

Scale of Project

This is a medium-scale research and modelling project with a total funded project cost of £220,000 with an expected delivery period from October 2026 to March 2027.

Technology Readiness at Start

TRL2 Invention and Research

Technology Readiness at End

TRL3 Proof of Concept

Geographical Area

The project will cover Great Britain.

Revenue Allowed for the RIIO Settlement

None

Indicative Total NIA Project Expenditure

Project spent broken down by work package:

WP1 – Stakeholder engagement, requirements definition and data request pack - £40,000
WP2 – Integrated RMS screening model, targeted EMT assessment and technical benchmarking - £140,000
WP3 – Strategic insights, capability map and handover recommendations - £40,000

Total cost £220,000

The costs presented by work package reflect the direct project delivery activities. In accordance with the NIA Governance and Licence Condition requirements (including the provision for up to 25% of project costs for internal expenditure), the total reported project cost may differ from the sum of work package costs outlined above. All costs are reported to Ofgem in full through formal regulatory reporting at the end of each financial year.

Project Eligibility Assessment Part 1

Requirement 1

Facilitate the energy system transition and/or benefit consumers in vulnerable situations

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

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

This project supports the energy system transition by enabling National Energy System Operator (NESO) to understand whether distribution-connected assets below 132 kilovolts (kV) can provide effective stability services at transmission level. As more low-carbon and distributed assets connect to the system, traditional sources of inertia and short-circuit strength are reducing, so new sources of stability support need to be assessed.

By creating evidence on where lower-voltage assets can provide reliable value, the project could support more inclusive and efficient Stability Market design, widen the pool of potential providers and reduce reliance on a narrower set of transmission-connected solutions. This may help maintain system operability while supporting decarbonisation, competition and whole-system efficiency.

The project does not deliver the transition directly, but it provides the evidence needed to inform future service definitions, eligibility criteria, procurement design and targeted trials that could enable distributed and low-carbon assets to contribute safely and effectively to system stability.

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

N/A

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

n/a

Please provide a calculation and/or description of the expected benefits of the solution

Research project – N/A

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

The method is expected to be highly replicable across Great Britain (GB) because it is based on a structured assessment approach rather than a location-specific asset trial. The core method stakeholder-led study definition, agreed data request, representative network modelling, root mean square (RMS) screening, targeted electromagnetic transient (EMT) assessment and capability mapping can be repeated for other regions, voltage levels, asset classes or future stability service questions.

Replicability will depend on the availability and quality of local Distribution Network Operator (DNO) data, representative network models, asset information and agreed assumptions. The project will therefore document the modelling approach, assumptions, data requirements, limitations and decision logic so that other network licensees can understand how to reuse or adapt the method. The technical findings themselves may vary by location, but the process for assessing suitability should be transferable across GB.

Overall, the method is considered highly replicable, with moderate adaptation required for local network data, asset mix, operational constraints and service design context. The output will support wider replication by providing a technology-agnostic capability map, assumptions log, results databook and recommendations that can inform future GB-wide assessments or targeted regional trials.

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

As this is a research project, the purpose of the work is to determine whether implementation is feasible and justified; therefore, future rollout costs will depend on the project findings, implementation approach, and any additional validation, trial or market development activities that may be required.

Requirement 3 / 1

Involve Research, Development or Demonstration

Projects 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

Involve Research, Development or Demonstration - Please select all that apply

☐ 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 learning could be used by relevant Network Licensees to understand whether distribution-connected assets below 132 kilovolts (kV) can provide effective stability services and what technical, data and operational conditions would need to be met. This could help licensees assess local asset capability, identify constraints such as protection, voltage or data availability, and inform future service design, eligibility criteria, targeted trials or coordination processes. The outputs will support consistent decision-making across Great Britain (GB) without requiring each licensee to repeat the full assessment from first principles.

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. Networks must explicitly mention similar projects that they have considered and how these differ.

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

NESO has considered relevant previous and adjacent Network Innovation Allowance (NIA) and industry projects before progressing this project. These include Stability Market Design (NIA2_NGESO005), Strength to Connect (NIA2_NGESO020), Grid Forming Modelling and Stability (NGET0036), COMPASS (NIA2_NESO122), Operational Application of Inertia Measurement Techniques (NIA2_NESO111), Assurance of Stability (NIA2_NESO100–104), Reactive Power Projections (NIA2_NESO116), GFM Interaction

(NIA2_NESO088), FDNE / Hybrid Frequency Domain Assessment (NIA2_NESO125), ANM–balancing coordination (NIA_NGSO0035) and TDI 2.0 (NGET_UKPN_TDI2.0).

These projects provide relevant learning on stability market design, system strength, inertia measurement, converter modelling, stability risk assessment, reactive power, impedance-based modelling and coordination of distributed energy resources. This project will reuse relevant definitions, metrics, assumptions and lessons from those activities where appropriate.

However, the project does not unnecessarily duplicate those activities because it addresses a different unresolved question: whether assets connected below 132 kilovolts (kV) can provide effective stability services at transmission level, and what technical, operational and data conditions are needed before they could be considered for future Stability Market participation. Existing projects have not provided a consistent Great Britain (GB)-wide, technology-agnostic benchmark comparing distribution-connected and transmission-connected stability service provision across voltage levels, asset types, operating levels and distribution-network constraints.

This project is therefore complementary to existing work. It will avoid duplication by building on prior learning, engaging relevant National Energy System Operator (NESO), Distribution Network Operator (DNO) and industry stakeholders, documenting assumptions and related-project links, and focusing only on the evidence gap that remains: the whole-system suitability, limitations and potential eligibility of lower-voltage assets for stability services. The outputs will identify where existing learning is reused and where genuinely new evidence has been generated.

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 applies a whole-system, technology-agnostic method to assess whether distribution-connected assets below 132 kilovolts (kV) can provide effective stability services to the transmission system. While previous projects have considered stability market design, system strength, inertia measurement, converter modelling and distributed energy resource coordination, they have not provided a consistent Great Britain (GB)-wide evidence base for comparing lower-voltage distribution-connected assets with established transmission-connected stability service provision.

The novel element is not the creation of a new physical technology or market platform, but the way existing modelling methods, network data and stakeholder evidence are brought together. The project combines stakeholder-led study definition, integrated transmission-distribution modelling, root mean square / electromagnetic transient (RMS/EMT) analysis and capability mapping to test how inertia and short-circuit strength from lower-voltage assets propagate to the transmission system.

This has not been tried before in this form because business-as-usual studies are usually focused on individual connections, local planning assessments or specific operational issues, rather than a coordinated benchmark across voltage levels, asset types, operating levels and distribution-network constraints. Existing work has not yet resolved whether assets connected at 132 kV, 33 kV or 11 kV can reliably substitute for, or complement, transmission-connected stability solutions under the conditions needed for future Stability Market participation.

The project will therefore create new learning by identifying where lower-voltage assets appear technically suitable, where they are constrained by protection, voltage, congestion, curtailment, telemetry or data issues, and where further trials or regional validation would be required. This will provide National Energy System Operator (NESO), Distribution Network Operators (DNOs) and wider industry stakeholders with evidence that is not currently available through existing market, planning or innovation activity.

Relevant Foreground IPR

Expected foreground Intellectual Property Rights (IPR) generated by the project will comprise one final report that shares the publishable findings from the three Work Packages (WPs).

The final report will be supported by appropriate closure reporting. No new physical asset, software product or operational system is expected to be created as foreground IPR.

Data Access Details

Data for this project and all other projects funded under the Network Innovation Allowance (NIA), or 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 on our website: Data Sharing Approach | National Energy System Operator.

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

Network Licensees would not fund this project as part of business-as-usual activities because it addresses an evidence gap that sits beyond routine planning, connection or operational studies. Business-as-usual work is typically focused on specific assets, local network requirements, connection assessments, procurement activity or established operational processes. It does not normally fund a coordinated whole-system research project to test whether distribution-connected assets below 132 kilovolts (kV) can provide stability services at transmission level across different voltage levels, asset types, operating levels and network conditions.

The project carries technical, data and implementation uncertainty that is not appropriate to recover through routine business-as-usual expenditure before the evidence is available. Key uncertainties include how inertia and short-circuit strength from lower-voltage assets propagate to the transmission system; whether performance varies materially by location, voltage tier, asset type and operating level; and what Distribution Network Operator (DNO) constraints, data requirements and operational coordination arrangements would be needed before any future Stability Market changes could be considered.

Funding the work through the Network Innovation Allowance (NIA) is appropriate because the project is designed to generate new, shareable learning for National Energy System Operator (NESO), Distribution Network Operators and wider industry stakeholders before any live procurement, market rule change or operational rollout is pursued. If the project identifies credible implementation options, any subsequent trials, business-as-usual process changes, market platform development or procurement changes would require separate approval and funding after the innovation evidence has been produced.

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 project can only be undertaken with Network Innovation Allowance (NIA) support because it is a pre-commercial research and modelling project designed to resolve material uncertainty before any business-as-usual investment, market change or operational implementation can be justified. The project will generate shared learning for National Energy System Operator (NESO), Distribution Network Operators (DNOs) and wider industry stakeholders, rather than delivering an immediate operational asset or direct commercial return.

Technical risk: There is currently insufficient evidence on whether assets connected below 132 kilovolts (kV) can provide effective stability services at transmission level. Key uncertainties include how inertia and short-circuit strength propagate through distribution networks, how performance varies by voltage tier, location, asset type and operating level, and whether distribution connected provision can substitute for or complement transmission-connected solutions.

Operational risk: Future use of distribution-connected stability services could be affected by protection coordination, voltage constraints, congestion, curtailment, telemetry, data availability, model compatibility and operational coordination between NESO, DNOs, Original Equipment Manufacturers (OEMs), aggregators and asset developers. These risks need to be understood through controlled analysis before any live service eligibility or procurement decisions are made.

Commercial risk: The project may show that some lower-voltage assets are suitable, unsuitable or only suitable in specific circumstances. This uncertainty means there is no clear business-as-usual investment case or supplier-funded route at this stage. NIA funding is appropriate because the work de-risks future procurement and market design decisions before any commercial arrangements with asset owners or service providers are pursued.

Regulatory risk: Stability Market eligibility and procurement arrangements must be based on robust evidence to avoid creating inefficient, unfair or unreliable market outcomes. The project will provide the evidence needed to inform future regulatory, procurement and governance decisions, but it will not itself change market rules, procure services or implement business-as-usual processes. Any future implementation would require separate approval once the innovation evidence has been assessed.

Without NIA support, the work is unlikely to proceed because the benefits are uncertain, shared across multiple parties and dependent on future decisions that cannot be made until the technical and operational evidence has been generated. NIA support enables the project to test the uncertainty in a controlled, transparent and shareable way before committing consumers to any future market or

operational change.

This project has been approved by a senior member of staff

☑ Yes