

NIA Project Registration and PEA Document

Date of Submission

Sep 2026

Project Reference Number

NIA3_NESO015

Project Registration

Project Title

Industrial Energy Intelligence

Project Reference Number

NIA3_NESO015

Project Licensee(s)

National Energy System Operator

Project Start

October 2026

Project Duration

0 years and 4 months

Nominated Project Contact(s)

innovation@neso.energy

Project Budget

£320,000.00

Summary

The Industrial Energy Intelligence project will develop and test a repeatable methodology for translating industrial decarbonisation intelligence into planning-ready regional assumptions for RESP and future COMIT modelling. The project will produce sector mapping, decarbonisation playbooks, modelling requirements, data architecture, implementation guidance, stakeholder validation processes and industrial intelligence gathering guidance. These outputs will improve the evidence base for industrial demand assumptions, support more robust regional planning, clarify COMIT input requirements and establish a repeatable process for gathering and validating industrial intelligence. Key risks include limited or commercially sensitive data, insufficient evidence to support sector assumptions, challenges in translating technology pathways into time-resolved network demand profiles, and the potential complexity of maintaining the methodology within BAU processes.

Preceding Projects

NIA_UKPN0109 - Indus 2.0

Nominated Contact Email Address(es)

Innovation@neso.energy

Problem Being Solved

The Regional Energy Strategic Plans (RESPs) require a credible, evidence-based understanding of future industrial energy demand

to support regional network planning. Industrial decarbonisation is expected to materially change electricity, natural gas, biomethane and hydrogen demand, as well as peak requirements and flexibility opportunities. However, NESO does not yet have a sufficiently granular, repeatable and validated methodology for translating industrial decarbonisation intelligence into planning-ready regional assumptions.

Existing industrial modelling approaches provide useful national-level insight into industrial demand and decarbonisation pathways. For example, current Future Energy Scenarios modelling can represent industry at an aggregate sector level, where different activities may be assumed to follow broadly similar decarbonisation pathways. This is appropriate for national scenario analysis, but it is not sufficient for RESP, where regional planning decisions need to reflect the specific characteristics of different industrial activities, locations and technologies and their impact on the local network infrastructure. Cement production, food manufacturing, chemicals, paper, steel and other industrial processes have different heat requirements, operating patterns, technology options, transition timings, infrastructure dependencies and flexibility potential. Treating these activities too generically risks producing assumptions that are not robust enough for regional planning.

The problem is therefore a gap between existing industrial decarbonisation modelling and the evidence required to make credible regional network planning decisions. RESP needs to understand where industrial demand is located, which processes drive energy consumption, how and when industries are likely to decarbonise, what technologies may be adopted, and how those choices will affect future electricity demand, gas demand, hydrogen demand, peak network requirements and flexibility opportunities. Without this more detailed industrial intelligence, regional plans may not fully reflect the scale, timing or location of industrial energy system change.

This creates a risk of inefficient network planning and investment. If industrial demand growth, electrification, biomethane/ hydrogen conversion or peak demand impacts are underestimated, network reinforcement may be delayed or insufficient, potentially constraining industrial decarbonisation. If demand is overestimated, there is a risk of inefficient or premature investment and stranded assets, increasing costs for consumers. In both cases, a lack of credible industrial demand evidence reduces confidence in regional planning assumptions and makes it harder for NESO, network companies, regional teams and wider stakeholders to plan effectively for a whole-system transition.

There is also a methodological problem. NESO does not yet have a proven approach for converting industrial decarbonisation pathways into time-resolved network planning assumptions that can be used consistently across RESP regions and future COMIT modelling (COMIT is an industrial decarbonisation model designed to develop industrial pathways based on techno-economic constraints for 16 industrial sectors. As a result, COMIT outputs changes to site annual energy consumption but does not capture peak demand impacts necessary for network impact assessments.). Industrial decarbonisation evidence is often fragmented, sector-specific, incomplete, commercially sensitive or difficult to validate. Data may not exist at the level of sector, process, site or end-use granularity required. Relevant sources may be inconsistent or contradictory, and some assumptions may need to rely on proxies or expert judgement. As a result, it is uncertain whether robust decarbonisation playbooks can be produced for all industrial activities, or whether a consistent methodology can be developed across sectors and regions.

This uncertainty is the central issue the project is aiming to solve. RESP cannot currently answer with confidence whether industrial demand can be characterised at the required level of granularity, whether sector decarbonisation pathways can be translated into credible planning assumptions, whether the resulting outputs can be incorporated into COMIT, and whether regional teams can practically validate and maintain the methodology over future planning cycles. These are innovation questions rather than business-as-usual delivery questions, because the feasibility, data requirements, repeatability and value of the approach have not yet been proven.

The project is also needed to avoid prematurely embedding an untested methodology into BAU systems and processes. If the evidence is insufficient, if some industrial activities cannot be represented robustly, or if the methodology proves too complex or resource-intensive for consistent regional use, those findings will still be valuable. They will define the limits of current industrial decarbonisation knowledge and identify where further data, engagement or methodology development is needed before future implementation. This will help NESO make informed decisions about whether and how to invest in industrial intelligence capability for RESP and COMIT.

In summary, the project seeks to solve the lack of a credible, repeatable and scalable methodology for translating industrial decarbonisation intelligence into regional planning assumptions. Addressing this problem will improve confidence in industrial demand projections, support more consistent regional planning, strengthen the evidence base for future network investment decisions, and help

NESO understand what capability is needed to represent industrial decarbonisation effectively in future RESP cycles.

Method(s)

This project will be delivered through five work packages designed to test whether industrial decarbonisation intelligence can be translated into credible, repeatable and planning-ready assumptions for RESP and future COMIT modelling.

WP1: Innovation Projects Review

Description: This work package will review relevant innovation projects, industrial decarbonisation models and published evidence to identify learning that can be reused for RESP. The review will consider projects such as Indus 2.0, NZIP, and other relevant industrial decarbonisation initiatives, focusing on modelling methods, data sources, treatment of uncertainty, demand profiles, flexibility assumptions and network impact assessment approaches.

Methods / approach: Desk-based literature review, assessment of up to five relevant innovation projects or models, comparison of modelling approaches, identification of data sources and evidence gaps, and review of lessons that could be applied to RESP.

Output: Literature review of relevant recent innovation projects and initiatives.

Expected outcome: This will ensure the project builds on existing innovation learning and does not duplicate previous work. It will identify reusable methods, best practice and evidence gaps that inform the later work packages.

WP2: Industrial Demand Characterisation

Description: This work package will develop a methodology for characterising industrial demand by sector, site type and end use. It will assess how CaRB3 site classifications map to other industrial classification systems, such as SIC codes, and to available datasets on industrial energy use. Current industrial activity and thermal demand will be used as a transparent baseline rather than assumed to represent future demand. The work will prioritise industrial sectors covering around 80% of UK industrial thermal demand and develop end-use breakdowns for priority sectors.

Methods / approach: Data review, sector classification mapping, thermal demand analysis, comparison of internal NESO datasets and publicly available sources such as ECUK, use of literature evidence and the partner's industrial energy expertise, and confidence rating of data quality. The methodology will also define how the baseline can be adjusted for future sector growth or contraction, new sites, closures, relocation and emerging industrial activities, with assumptions documented for different planning years and scenarios. Output: CaRB3 sector mapping outcomes and sector thermal energy/end-use breakdowns, including at least 10 additional sector end-use breakdowns where evidence is available, together with a documented baseline year, future-adjustment methodology and data-refresh requirements.

Expected outcome: This will provide the foundation for more granular and enduring industrial demand assumptions, enabling RESP to move beyond generic industrial demand treatment while retaining the ability to update assumptions as industrial activity changes.

WP3: Sector Decarbonisation Playbooks

Description: This work package will develop grouped sector decarbonisation playbooks for priority industrial sectors identified in WP2. The playbooks will use the current demand baseline to develop a techno-economic evidence base that translates sector-specific decarbonisation pathways into future energy-system impacts. They will cover technology options, adoption timing, sector growth or contraction, energy-efficiency change, demand profiles, flexibility opportunities and uncertainty, including future electricity, gas, biomethane and hydrogen demand across relevant RESP planning years and scenarios.

Methods / approach: Sector pathway and scenario analysis; evidence synthesis from published literature and previous innovation projects; application of existing industrial decarbonisation methodologies; and development of configurable assumptions for technology uptake, transition timing, efficiency, production change, site openings, closures and relocation. The playbooks will test alternative pathways and timing ranges rather than produce a single deterministic forecast, and will distinguish between baseline evidence, scenario assumptions and regional intelligence. Available GB and non-GB sources will also be reviewed for industrial profiles and thermal demand patterns where direct data is unavailable. Each playbook will document its applicable planning years, uncertainty ranges, indicators that would trigger an update, and the evidence and ownership needed for periodic refresh.

Output: Grouped sector decarbonisation playbooks for priority industrial sectors, including configurable future pathways, planning-year assumptions, uncertainty ranges and refresh guidance.

Expected outcome: This will provide RESP with a structured and repeatable way to translate current industrial evidence into future-facing planning assumptions, improving understanding of future load, peak demand and flexibility impacts while allowing the outputs to be updated as technology, policy, costs and industrial activity evolve.

WP4: COMIT Model Requirements and Data Architecture

Description: This work package will define how industrial intelligence outputs could feed into COMIT and future RESP modelling. It will assess COMIT's current modelling methodology, data inputs, output granularity and limitations, and identify what updates or additional

requirements may be needed to represent changing industrial demand across multiple planning years and scenarios.

Methods / approach: Technical requirements analysis, review of current COMIT methodology and inputs, assessment of spatial and temporal modelling needs, identification of missing data sources, data architecture design, engagement with DD&T and RESP teams, and development of implementation guidance and assurance guardrails. Requirements will include versioning of baseline and scenario assumptions, configurable forecast years, treatment of uncertainty, data lineage, refresh cycles and governance so that updated industrial intelligence can be incorporated without rebuilding the methodology.

Output: RESP COMIT functional requirements and modelling methodology, RESP COMIT data architecture, and COMIT implementation guidance, including requirements for scenario configuration, assumption versioning and future data refresh.

Expected outcome: This will provide a clear route for future implementation by defining what COMIT would need to consume, process and output to support enduring RESP industrial modelling. It will also help DD&T understand the future build, assurance, maintenance and governance requirements.

WP5: Sector Playbook Validation and Regional Insights

Description: This work package will develop a validation framework, intelligence-gathering process and guidance pack for use by RESP Regional teams. It will test the proposed approach with two RESP Regional teams and refine the process based on their feedback. Validation will consider both the credibility of the current baseline and the plausibility of future assumptions, including regional industrial developments, closures, investment pipelines and emerging activities. The project will not undertake direct validation with industrial stakeholders in this phase.

Methods / approach: Development of validation criteria, evidence requirements, confidence assessment, regional intelligence templates and guidance; structured review with RESP Regional teams; feedback analysis; and refinement of the validation framework and guidance materials. The process will define how regional intelligence should challenge or update national assumptions, how material changes are recorded, and when playbooks should be refreshed between RESP cycles.

Output: Playbook validation framework and process, industrial intelligence-gathering guidance pack, regional team review/refinement outputs, and recommended ownership and refresh triggers for enduring use.

Expected outcome: This will help ensure the methodology can be used consistently and kept current across future RESP cycles, while identifying what further validation, engagement, evidence or governance may be needed before BAU adoption.

Measurement Quality Statement

Project outcomes will be measured through analysis of the outputs produced under each work package and their ability to meet agreed success criteria. The main measurement methods will include evidence review, data mapping, modelling requirements analysis, sector pathway and scenario analysis, internal assurance and structured feedback from RESP Regional teams. Outputs will be assessed against criteria such as completeness of CaRB3-to-SIC mapping; coverage of priority industrial-demand sectors; number and quality of sector end-use breakdowns; clarity of the baseline year; ability to apply alternative future growth, technology-adoption and decarbonisation assumptions across multiple planning years; transparency of uncertainty ranges; consistency and usability of sector playbooks; clarity of COMIT input, architecture and versioning requirements; and practicality of the validation, ownership and refresh process for regional teams.

Validation will be carried out through NESO stakeholder review including technology teams assurance input for COMIT-related deliverables, and testing of the validation framework with two RESP Regional teams. The project will also apply confidence ratings to data sources and assumptions where appropriate. Known limitations include the absence of direct validation with industrial stakeholders during this phase, the possibility that some sectors may lack sufficient data for robust playbook development, and uncertainty over whether all outputs can be translated into time-resolved demand assumptions suitable for future modelling. These limitations are part of the innovation risk the project is designed to test.

Data Quality Statement

The project will use a publicly available industrial energy datasets, published literature, outputs from previous innovation projects and the partner's industrial energy expertise. Potential data sources may include CaRB3 classifications, SIC mappings, ECUK data, published industrial decarbonisation studies, previous innovation project outputs and available evidence on industrial thermal demand, technology pathways and demand profiles.

Data quality is expected to vary by sector and activity. Some sectors may have well-established evidence on energy use and decarbonisation options, while others may have limited, inconsistent or commercially sensitive data. Data may not always be available at the level of sector, process, site or end-use granularity required for regional planning. Where data is incomplete, the project may need to use proxies, expert judgement or confidence ratings. These assumptions and limitations will be documented so that RESP teams can understand where outputs are robust, where they are indicative, and where further evidence or validation would be required before BAU implementation.

ENIP Risk Rating

In line with the ENA's ENIP document, the risk rating is scored 6, which indicates a low innovation risk project.

TRL Steps = 2, based on a starting TRL of 3 and target ending TRL of 6.

Cost = 1 based on total project cost of £320,000.

Suppliers = 1, based on one main external supplier

Data Assumptions = 2, reflecting material data uncertainty because industrial demand data may be incomplete, inconsistent, commercially sensitive or insufficiently granular.

Total = 6, low risk.

Scope

This project will develop and test a repeatable industrial intelligence methodology for RESP, focused on translating industrial decarbonisation evidence into planning-ready regional assumptions and future COMIT requirements.

The project will include review of relevant industrial decarbonisation innovation projects, models and published evidence; mapping of CaRB3 industrial activity classifications to relevant sector classifications and available industrial energy datasets; development of a methodology for characterising industrial demand by sector, site type and end use; and prioritisation of sectors that represent the majority of UK industrial thermal demand.

The project will also develop sector thermal end-use breakdowns and grouped sector decarbonisation playbooks for priority industrial sectors. These will translate sector decarbonisation pathways into future energy demand assumptions, including electricity, gas, hydrogen, peak demand, flexibility potential, transition timing and uncertainty.

The project will define COMIT model requirements, data inputs, modelling methodology, data architecture and implementation guidance needed to align industrial intelligence outputs with future RESP modelling. It will also develop a validation framework, intelligence gathering guidance and templates for RESP Regional teams, and test and refine the validation approach with two RESP Regional teams.

The main project deliverables will include an evidence review, CaRB3 sector mapping outputs, sector thermal end-use breakdowns, grouped sector decarbonisation playbooks, COMIT requirements and architecture, implementation guidance, a validation framework, industrial intelligence gathering guidance and regional insights outputs. Delivery will be undertaken by the partner with input and review from relevant NESO teams, including RESP modelling, RESP Regional teams, and other internal subject matter experts as required.

The project will not include BAU roll-out or operational implementation of the methodology across all RESP regions; development, build or implementation of new COMIT functionality, data pipelines, dashboards or operational systems.

The extent of this project is therefore limited to developing, testing and documenting the methodology, evidence base, playbooks, validation approach and future implementation requirements. Any future COMIT build, BAU adoption, national roll-out, ongoing operation or further stakeholder validation would be outside the scope of this NIA project and would require separate approval, funding and governance.

Objective(s)

The objective of this project is:

- Build and deliver a repeatable approach for turning industrial decarbonisation evidence into regional planning assumptions that can be used by RESP.
- Improve the level of detail in industrial demand modelling by reflecting sector, site-type and end-use differences, rather than relying on broad national assumptions.
- Produce sector decarbonisation playbooks for priority industrial sectors, showing how different technology pathways could affect future electricity, gas, hydrogen, peak demand and flexibility needs.
- Define the data, modelling and architecture requirements needed for industrial intelligence to be incorporated into COMIT and future RESP modelling.
- Create a practical validation and intelligence-gathering process for RESP Regional teams, including guidance on evidence quality, uncertainty, data gaps and where further development is needed before any BAU roll-out.

Consumer Vulnerability Impact Assessment

This project is not expected to have a direct impact on consumers in vulnerable situations during the project, as it is a modelling and methodology development project rather than a consumer-facing trial or operational change.

The project may provide indirect benefits by improving the quality of regional energy planning for industrial decarbonisation. Better industrial demand assumptions can help reduce the risk of inefficient network investment, which is important because consumers in vulnerable situations may be more exposed to affordability impacts from unnecessary or poorly timed system costs.

Success Criteria

Project key output and success criteria:

- **Industrial evidence base and gap assessment:** The project will be successful if it identifies relevant industrial decarbonisation evidence, previous innovation learning, datasets and modelling approaches, and clearly explains what can be reused for RESP, what gaps remain, and where assumptions are uncertain.
- **Repeatable demand characterisation methodology:** The project will be successful if it produces a clear, reusable method for characterising industrial demand by sector, site type and end use, including CaRB3 mapping and prioritisation of high-demand sectors. The methodology should be understandable, challengeable and suitable for future RESP development.
- **Sector decarbonisation playbooks:** The project will be successful if the playbooks translate industrial decarbonisation pathways into practical planning assumptions, including technology options, timing, electricity, gas and hydrogen demand impacts, peak demand implications and confidence levels.
- **Implementation, validation and future adoption guidance:** The project will be successful if it defines the data inputs, modelling requirements, spatial and temporal resolution, architecture considerations and implementation guardrails needed to incorporate industrial intelligence into COMIT and future RESP modelling, and provides a practical validation and intelligence-gathering approach that can be tested with RESP Regional teams, refined using feedback, and used to identify further evidence, governance or development needed before any future BAU roll-out.

Project Partners and External Funding

The project will be led and funded by NESO through NIA.

1 partner: Guidehouse

No external funding

Potential for New Learning

This project will create new learning on whether industrial decarbonisation evidence can be translated into credible, repeatable regional planning assumptions for RESP. It will develop learning on sector-level industrial demand characterisation, CaRB3 mapping, thermal end-use breakdowns, sector decarbonisation playbooks, COMIT data and modelling requirements, and the evidence gaps that limit confidence in future industrial demand assumptions.

The project will also generate learning on how RESP Regional teams can gather, validate and apply industrial intelligence consistently across future planning cycles. This will help NESO and wider industry understand where industrial demand assumptions are robust, where further evidence is needed, and what would be required before any future BAU implementation.

Learning will be shared through project deliverables, internal NESO and stakeholder review sessions, and publication of project outputs and recommended next steps on the ENA Smarter Networks Portal at project close.

Scale of Project

This is a focused development project delivered over approximately three months. It will be limited to developing and testing the industrial intelligence methodology, producing priority sector outputs, defining COMIT/RESP requirements and testing the validation approach with two RESP Regional teams.

The project is not a full national rollout or BAU implementation. It will not cover every industrial activity, validate directly with all industrial stakeholders, or build new COMIT functionality. The scale is proportionate to test feasibility, evidence quality and repeatability before any future wider implementation is considered.

Technology Readiness at Start

TRL3 Proof of Concept

Technology Readiness at End

TRL6 Large Scale

Geographical Area

This project is relevant to Great Britain, as RESP will support regional energy planning across GB. The project will develop a methodology that can be applied across future RESP regions, while testing and refining the approach with selected RESP Regional teams during this project phase.

Revenue Allowed for the RIIO Settlement

n/a

Indicative Total NIA Project Expenditure

Project spent broken down by work package:

- WP1 – Innovation Projects Review - £29,500
- WP2 – Industrial Demand Characterisation - £54,500
- WP3 – Sector Decarbonisation Playbooks - £99,500
- WP4 – COMMIT Model Requirements and Data Architecture - £84,500
- WP5 – Sector Playbook Validation and Regional Insights - £49,500

Total estimated project cost: £320,000

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:

The RESPs require a credible understanding of future industrial demand to inform regional network planning. Existing modelling approaches provide useful national-level insight into industrial decarbonisation pathways, but they do not provide the level of sector, process, site and regional granularity needed for RESP decisions. Current approaches can treat very different industrial activities, such as cement production and food manufacturing, as following broadly similar decarbonisation pathways. This is reasonable for national scenario analysis but insufficient for regional planning, where network requirements depend on local industrial processes, heat requirements, operating patterns, infrastructure dependencies, technology choices and flexibility potential. The project will therefore test whether NESO can develop a credible, repeatable and scalable methodology for converting industrial decarbonisation evidence into planning-ready regional assumptions, reducing the risk of under- or over-investment and improving confidence in future network planning.

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

The project is expected to deliver benefits by improving the quality and consistency of industrial demand assumptions used in RESP planning. By developing a repeatable methodology, sector playbooks and COMIT/RESP requirements, NESO will be better able to understand where industrial demand may grow, how different sectors may decarbonise, and what this means for electricity, gas, hydrogen, peak demand and flexibility.

The direct benefit is improved knowledge and planning confidence. The project will produce measurable outputs including CaRB3 sector mapping, priority sector thermal end-use breakdowns, decarbonisation playbooks, COMIT requirements, data architecture guidance and a validation framework tested with two RESP Regional teams.

The wider benefit is more efficient future network planning. Better industrial demand assumptions could reduce the risk of under-investment, which may delay industrial decarbonisation, and over-investment, which may increase consumer costs.

These benefits are indicative at this stage because the project is focused on methodology development and evidence testing rather than BAU implementation. Full consumer benefits would depend on future integration into COMIT and RESP processes, ongoing ownership, data governance and use in future planning cycles.

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

The method is expected to be highly replicable across GB because it is designed as a repeatable RESP methodology rather than a region-specific study. The core approach; evidence review, sector mapping, demand characterisation, sector decarbonisation playbooks, COMIT requirements and regional validation guidance can be applied consistently across future RESP regions.

Replicability is expected to be strongest where good-quality industrial demand data and regional insight are available. Some adaptation will be needed to reflect local industrial clusters, network characteristics, data availability and regional stakeholder input. The project will support replication by documenting data sources, assumptions, confidence levels, evidence gaps and validation steps, so future users can understand what can be reused directly and where further regional evidence is needed. Overall, the method is expected to be broadly replicable across GB, with regional tailoring required for sector mix, local data quality and network planning context.

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

Outline of costs for rolling out the Method across GB

Rolling out the method across GB would require further BAU or follow-on project funding after this NIA project. The main cost areas would be:

- COMIT / digital implementation: development or update of COMIT workflows, data pipelines, interfaces, dashboards and testing.
- Data governance and integration: confirming data sources, ownership, refresh cycles, data quality standards and controls.
- Regional roll-out: applying the methodology across all RESP regions, including regional data collection, validation and stakeholder engagement.
- Sector playbook expansion and maintenance: developing additional sector playbooks beyond the priority sectors covered in this project and maintaining assumptions over time.
- Training and change management: preparing RESP Regional teams and modelling teams to use the methodology consistently.
- Ongoing assurance and governance: maintaining quality controls, evidence updates, review cycles and ownership arrangements.

At this stage, the cost of GB-wide roll-out cannot be fully quantified because it depends on the outcomes of this project, the extent of COMIT changes required, data availability, and the number of sectors and regions included in future implementation.

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

Relevant Network Licensees could use the learning to improve how industrial decarbonisation is reflected in future regional network planning. The project will provide reusable evidence, methodology, sector assumptions, confidence ratings and data requirements that can support more consistent assessment of future industrial electricity, gas and hydrogen demand.

Electricity and gas network licensees could use the outputs to better understand where industrial demand may change, which sectors are likely to drive network impacts, and where assumptions are uncertain or require further validation. This could support future investment planning, reinforcement decisions, whole-system coordination, regional engagement and scenario development.

The learning will also help Network Licensees understand what data, modelling capability and stakeholder validation may be needed before industrial intelligence can be embedded into enduring planning processes. This should reduce duplication, improve consistency across regions and support better-informed decisions in future RESP cycles.

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.

This project will not create unnecessary duplication because it builds on existing industrial decarbonisation innovation activity rather than repeating it. Relevant previous work, including Indus 2.0 (NIA_UKPN0109), has generated useful learning on industrial decarbonisation and energy demand, but it does not provide a RESP-specific methodology for translating industrial intelligence into regional planning assumptions, CaRB3 mapping, COMIT requirements, validation guidance and repeatable sector playbooks.

The project will review relevant previous innovation projects, models and published evidence at the start of delivery to identify what can be reused, what should not be duplicated, and where genuine evidence or methodology gaps remain. This includes using existing learning as an input to the methodology rather than recreating previous studies.

The distinct contribution of this project is its focus on RESP application: converting industrial decarbonisation evidence into planning-ready regional assumptions that can support future COMIT and RESP modelling. It will also identify data quality limitations, confidence levels and areas where further validation is needed before any BAU adoption.

No unnecessary duplication is expected because the project scope is limited to developing, testing and documenting a new RESP-focused methodology and implementation requirements. Where existing evidence is sufficient, it will be reused; where evidence is incomplete or not suitable for RESP, the project will document the gap and define what further work is needed.

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

The project is innovative because it tests a new RESP-focused approach for converting industrial decarbonisation evidence into regional planning assumptions. Existing modelling provides useful national-level insight, but it does not yet provide a repeatable method for characterising industrial demand by sector, site type and end use, translating pathways into regional electricity, gas, hydrogen, peak demand and flexibility assumptions, or defining the related COMIT requirements.

The project has not been tried before in this form because it brings together CaRB3 mapping, sector thermal end-use analysis, grouped sector decarbonisation playbooks, COMIT data and modelling requirements, and regional validation guidance into one methodology designed specifically for RESP. Previous projects such as Indus 2.0 provide useful evidence and learning, but they do not deliver a planning-ready RESP methodology or implementation requirements for future COMIT integration.

The innovation risk is that it is not yet known whether the available evidence is sufficiently granular, consistent or robust to support defensible sector-level and regional assumptions. The project may find that some sectors cannot be modelled with confidence, that assumptions vary significantly by region, or that further data and validation are needed before BAU adoption. This uncertainty is why the project is appropriate for NIA: it will test the feasibility, usefulness and limitations of the method before any future implementation or roll-out.

Relevant Foreground IPR

Final project report and learning summary which will include:

- Industrial demand characterisation methodology
- Grouped sector decarbonisation playbooks
- COMIT/RESP requirements and implementation guidance
- Validation framework and industrial intelligence gathering guidance
- Summary of assumptions, data quality limitations and recommended next steps

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:

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.

Via our Innovation website at <https://www.neso.energy/about/innovation>

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 its business and usual activities

Network Licensees would not fund this project through BAU because the method, evidence base and implementation route are not yet proven. BAU funding is appropriate once a methodology or delivery approach is sufficiently understood and the main activity is implementation. This project sits earlier in the development lifecycle and is intended to test whether industrial decarbonisation evidence can be translated into credible, repeatable RESP planning assumptions.

There is material uncertainty around the quality, availability and granularity of industrial demand data; whether sector decarbonisation pathways can be converted into robust electricity, gas, hydrogen, peak demand and flexibility assumptions; and whether the resulting methodology can be applied consistently across RESP regions and future COMIT modelling.

If funded through BAU now, there would be a risk of committing delivery funding to an approach that may not be feasible, scalable or sufficiently robust. NIA funding is therefore appropriate because the project will reduce uncertainty, test the methodology, identify evidence gaps and define what further development would be needed before any future BAU implementation or wider roll-out.

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 can only be undertaken with NIA support because it is testing an uncertain methodology and evidence base rather than delivering a proven BAU process. The project involves specific technical, data, operational, implementation and regulatory/planning risks that need to be resolved before any future BAU adoption or wider roll-out.

- Technical risk: It is not yet proven that industrial decarbonisation pathways can be translated into robust regional planning assumptions for electricity, gas, hydrogen, peak demand and flexibility.
- Data risk: Industrial demand data may be incomplete, inconsistent, commercially sensitive or not available at the level of sector, process, site or end-use granularity needed for RESP.

- Operational risk: The methodology may prove too complex, resource-heavy or difficult for RESP Regional teams to validate and maintain consistently across regions.
- Implementation risk: COMMIT requirements, data architecture and future modelling dependencies are not yet sufficiently defined to justify BAU delivery funding.
- Regulatory/planning risk: Embedding unproven assumptions into regional planning could lead to under- or over-investment, reducing confidence in future network planning decisions.

NIA support is appropriate because the project will reduce these uncertainties in a controlled way, test whether the approach is feasible and repeatable, identify evidence gaps and define what would be required before any future BAU implementation, COMMIT build or wider roll-out.

This project has been approved by a senior member of staff

☒ Yes