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NIA Project Annual Progress Report Document

Date of Submission

Jul 2026

Project Reference Number

NIA_UKPN0109

Project Progress

Project Title

Indus 2.0

Project Reference Number

NIA_UKPN0109

Funding Licensee(s)

NESO - National Energy System Operator

Project Start Date

April 2025

Project Duration

1 year and 2 months

Nominated Project Contact(s)

Sarah Golobish

Scope

The scope of the project will include the following work packages as described below:

Work Package 0: Project Management

Conducting a kick-off meeting, holding regular check-ins, and ensuring compliance with governance standards to manage project scope, milestones, and risks.

Work Package 1: Data Discovery

Identifying, and documenting required energy consumption data from industrial users, exploring existing data sources and mapping data storage structures across network operators.

Work Package 2: Data Sharing Agreements

Developing and finalising data sharing agreements between UK Power Networks, SGN, and NESO, ensuring compliance with legal and regulatory requirements.

Work Package 3: Data Sharing Architecture Design and Infrastructure

Establishing a data sharing infrastructure, designing blueprints for enduring solutions, and aligning data sharing practices.

Work Package 4: Data Cleansing and Mapping

Cleansing and mapping shared data between UK Power Networks and SGN, ensuring data quality and alignment of project outputs so they can be used to inform the inputs for forecasting models.

Work Package 5: Decarbonisation Routes and Forecasting

Developing industrial decarbonisation routes and guidebooks, aligning with Future Energy Scenarios to enhance network forecasting processes.

Work Package 6: Reports and Handover

Compiling comprehensive reports, producing a cost benefit analysis, conducting final dissemination activities, and developing an implementation roadmap and handover pack for project outcomes.

Objectives

The project will set out to achieve the following objectives:

- Identify available data sources on industrial customers within UK Power Networks and SGN plus other external datasets.
- Develop data sharing agreements between UK Power Networks, SGN and NESO ensuring compliance with relevant regulations.
- Establish and test a data sharing infrastructure between UK Power Networks, SGN and NESO in a selected trial region.
- Develop industrial potential decarbonisation routes for the high impact industries.
- Industrial customer engagement and validation of decarbonisation routes.
- Improve forecasting approach for future energy demands of industrial customers (subject to the findings of the project).

Success Criteria

The success of the project will be evaluated by reviewing progress against the following criteria:

- Data sharing agreement developed and implemented between project partners.
- Data sharing infrastructure implemented and Industrial customer data is shared between SGN, UK Power Networks and NESO.
- Decarbonisation routes for a range of relevant industrial sectors are developed and approved by network operator subject matter experts (SMEs).
- Completed stakeholder engagement for validation of data and decarbonisation routes with industrial customers.

Performance Compared to the Original Project Aims, Objectives and Success Criteria

In terms of performance against the objectives set out in the project – over the reporting period the project has completed the below. Additionally, the project has delivered five of the six work packages over the reporting period with final reporting and project handover to be completed in the next regulatory period.

Identify available data sources on industrial customers within UK Power Networks and SGN plus other external datasets.

Teams at SGN and UK Power Networks compiled a list of the data held by each network, including an assessment of the quality of the data source. The project team did additionally consider the potential to use public or external datasets relevant to industrials such as the National Atmospheric Emissions Inventory (NAEI) which lists large point source emissions in the UK. Ultimately, we concluded that the data from project partners was sufficient for the analysis.

Develop data sharing agreements between UK Power Networks, SGN and NESO ensuring compliance with relevant regulations.

As part of Work Package 2, all three funding partners signed a data sharing agreement. Compliance with relevant regulations and engagement around that was a significant focus of this work package.

Establish and test a data sharing infrastructure between UK Power Networks, SGN and NESO in a selected trial region.

The project has established a short-term method of sharing data between UK Power Networks and SGN. We did not, however, design a bespoke infrastructure to manage this exchange as engagement with the project partners suggested that there was limited appetite to establish a stand-alone solution given the uncertainty around data sharing and storage for the Regional Energy Strategic Planning (RESP) process and the development of the industry-wide Data Sharing Infrastructure (DSI). Instead, data was hosted on UK Power Networks' existing data storage platform, Databricks.

Develop industrial potential decarbonisation routes for the high impact industries.

As part of Work Package 5, the project developed a set of decarbonisation playbooks which describe the potential decarbonisation options for each sector. These options were then mapped to the pathways used in NESO's Future Energy Scenarios (FES) where the energy prices and scenario world for each pathway determined the optimal route for each site.

Industrial customer engagement and validation of decarbonisation routes.

The project team engaged with a range of industrial stakeholders (industrial customers, equipment manufacturers, subject matter experts) to support the creation of the decarbonisation routes. This was achieved in a series of five one-on-one interviews and additional engagement with industrial decarbonisation experts at NESO.

Improve forecasting approach for future energy demands of industrial customers (subject to the findings of the project).

Through this project we have improved our understanding of industrial decarbonisation across the project specific geography. As part

of Work Package 6 we are evaluating the ability to integrate and scale the insights from this work into DNO/GDN/RESP forecasting.

Further, as it relates to the project success criteria the project has achieved the below.

Data sharing agreement developed and implemented between project partners.

Achieved – All funding partners signed a data sharing agreement which was developed as part of Work Package 2.

Data sharing infrastructure implemented and Industrial customer data is shared between SGN, UK Power Networks and NESO.

Achieved – As described above, the project made use of UK Power Networks' existing Databricks platform to store and share data as part of this project. Project partners decided that a bespoke solution was not needed and would be a duplication of ongoing data sharing work for both the DSI and RESP programme.

Decarbonisation routes for a range of relevant industrial sectors are developed and approved by network operator subject matter experts (SMEs).

Achieved – Work Package 5 delivered a set of decarbonisation roadmaps for nine industrial sectors. The roadmaps consider a range of decarbonisation options for each sector and are broadly aligned with the pathways used in NESO's FES.

Completed stakeholder engagement for validation of data and decarbonisation routes with industrial customers.

Achieved – To build the decarbonisation roadmaps, the project team engaged with a mixture of subject matter experts and industrial customers across five one-on-one interviews. This engagement shed light on the likely technology mix and constraints most relevant for decarbonising particular sectors

Required Modifications to the Planned Approach During the Course of the Project

No changes to the planned methodology have been required during this reporting period.

Lessons Learnt for Future Projects

Engagement with key subject matter experts from industrial sector is difficult as contacts are difficult to find and often cannot be sourced from internal contacts given GDPR constraints.

NESO's new responsibilities under the Energy Act 2023 may unlock access to wider data sharing across the sector.

Similar future data exchange may be best facilitated by Xoserve/Electralink rather than through bilateral agreements between network operators.

Note: The following sections are only required for those projects which have been completed since 1st April 2013, or since the previous Project Progress information was reported.

The Outcomes of the Project

Publicly available data does not capture the range of industrial sectors or the scale of emissions located within the overlapping area studied in Indus 2.0 – smaller non-point source emissions are not captured in other datasets such as the NAEI dataset which is commonly used.

There are 65 industrial sites from the nine sectors studied in the overlapping SGN/UK Power Networks licence areas. These sites represent 80% of the gas demand in the overlapping area (exclusive of power plants/sites which are solely used for power generation).

Across scenarios, 131-771 MW of additional electrical load is expected from industrial decarbonisation in the overlapping SGN/UK Power Networks licence areas. This suggests that dispersed sites are still a meaningful source of load which may come online because of industrial decarbonisation.

In hydrogen-focused pathways, there is up to 2.5 TWh of hydrogen demand by 2050 which is predominantly concentrated in three clusters. This demand is driven by sectors with high-temperature or direct-fire processes which are difficult to electrify (paper, bricks, building materials/gypsum).

Across the sectors assessed, technology choices vary significantly depending on the underlying process, heat requirements and the wider assumptions embedded in the FES pathways.

Data Access

Any data gathered during the project such as trial data and analysis, technical feasibility notes, and use case documentation will be stored securely within UK Power Networks' internal systems.

Where appropriate, de-sensitised data and non-confidential findings will be made available to interested parties in alignment with our Data Sharing Policy. UK Power Networks recognises that Innovation projects may produce network and consumption data, and that this data may be useful to others. This may be shared with interested parties, whenever it is practicable and legal to do so, and it is in

the interest of GB electricity customers. In accordance with the Innovation Data Sharing Policy, UK Power Networks aims to make available all non-personal, non-confidential-sensitive data on request, so that interested parties can benefit from this data.

To view UK Power Networks' Innovation Data Sharing Policy, please access it through our innovation microsite:

<https://d1oyzg0jo3ox9g.cloudfront.net/app/uploads/2025/11/UKPN-Innovation-Data-Sharing-Policy.pdf>

Foreground IPR

To date we have developed the below foreground IP which we have started to share at industry events:

Principles and legal rationale underpinning the Data Sharing Agreement which allowed compliant and secure transfer of site-level data pertaining to industrial energy consumption between GDNs, DNOs and NESO.

Technology and sector specific assumptions behind the decarbonisation routes used to estimate future electricity and gas demand for industrial sites. This includes how the sites might decarbonise and the resulting impact on energy demand.

A detailed description of the Foreground IPR and its ownership is being developed as part of the final project work package due to be completed in May 2026.