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## NIA Project Registration and PEA Document

### Date of Submission

Feb 2022

### Project Reference Number

NIA\_UKPN0077

## Project Registration

### Project Title

Emerge

### Project Reference Number

NIA\_UKPN0077

### Project Licensee(s)

UK Power Networks

### Project Start

February 2022

### Project Duration

1 year and 7 months

### Nominated Project Contact(s)

Cameron Scott

### Project Budget

£730,733.00

## Summary

To facilitate the increased uptake of low carbon heating it is critical that Distribution Network Operators (DNOs) improve the customer journey process for domestic supply upgrades. The Emerge Project aims to enhance customer satisfaction for domestic supply upgrades in response to distress or emergency upgrade events by partnering with third party meter operator organisations to streamline the customer journeys, remove bottlenecks, and accelerate the timeframes in which customers could switch to low carbon heating.

### Nominated Contact Email Address(es)

innovation@ukpowernetworks.co.uk

## Problem Being Solved

It is critical that DNOs improve the customer journey process for domestic supply upgrades for low carbon heating. The decarbonisation of domestic heating systems remains a key focus in the transition to Net Zero with less than 2% of UK domestic households using some form of low carbon heating system [1]. Demand for heat pumps in the UK will likely be accelerated over the RII0-ED2 period following the UK Government's Heat & Buildings Strategy publication, which targets a 25-50% cost reduction by 2025 – bringing heat pumps to cost parity with boilers [2].

DNOs are at risk of being a barrier to the uptake of heat pumps with their installation highly dependent on the successful upgrade of domestic supplies. This challenge is further compounded as almost all domestic boiler replacements occur at the point of failure; presenting a very narrow once in 15-year opportunity for a domestic household to upgrade to a low carbon alternative. DNOs are under increasing pressure from customers to upgrade domestic supplies in a timely manner which will likely reach a critical point during RII0-ED2 when we forecast the number of installations in our region could grow by up to 440,000 per year (an annual growth rate of 59%). Proactive solutions must be developed that address this challenge, particularly around heat, for DNOs to remain an advocate and facilitator of Net Zero.

[1] - <https://energysavingtrust.org.uk/path-net-zero-energy-saving-trust/>

[2] - [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1026507/heat-buildings-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1026507/heat-buildings-strategy.pdf)

## Method(s)

The Emerge Project, in partnership with Octopus Energy, enhances the customer journey for domestic supply upgrades in response to distress or emergency upgrade events by identifying and testing interventions necessary to reduce supply upgrade delivery time through partnership with third party meter operator organisations, provision of training and a digital product to streamline and automate the customer journeys.

To help rapidly reduce delivery times for domestic supply upgrades Emerge will focus on interventions needed to address barriers for low carbon heating upgrades by developing and trialling digital products to automate and streamline the application and approval needed for project partner interventions needed to hasten supply upgrades triggered by the events described. This could accelerate low carbon heating uptake, strengthen DNO's position to facilitate Net Zero, improve customer satisfaction, and develop collaborative relationships between DNOs, meter operators, and suppliers.

## Scope

Phase 1: Focuses on training project partner and conducting first set of network trials by:

- Investigating the operational and training requirements of the project partner, the barriers, ownership responsibilities, and liabilities. A trial strategy will also be defined during this phase.
- The creation of a bespoke training program for the project partner ahead of trials.
- Trialling third party (Meter Operator) interventions at residential properties with approval from UK Power Networks following a robust trial strategy.

Phase 2: Scoping, creation, development, and trialling of the digital tool with second set of network trials by:

- Exploring the customer journeys, user stories, product requirements, barriers, and development strategy
- Investigating processes and procedures required for deployment of Emerge as BaU
- Development of the Emerge digital product and creation of a strategy to integrate the product into trials
- Trialling third parties (Meter Operator) interventions using the Emerge digital product to coordinate at domestic properties
- Dissemination of the project supported by a detailed engagement plan

Phase 3: Exploration of a training and accreditation program accessible for eligible third parties to undertake aspects of supply upgrades during BaU and investigation of a supply register to capture rating & equipment information for domestic properties by:

- Engagement with relevant internal and external stakeholders to explore the creation of a training, certification, and accreditation program to stimulate market growth and increase third party participation post-project completion
- Exploration of user stories, requirements, and customer journey pathways to understand the value of developing a dedicated supply register to capture domestic supply equipment information and ratings of domestic properties
- Investigation of how the supply register if developed could be trialled as part of the project

## Objective(s)

The objectives of the Emerge project are to:

1. Develop a digital product to automate assessment and approval/rejection of a third-party undertaking aspects of domestic supply upgrades in response to distress boiler breakdown events with bespoke journeys for vulnerable customers to ensure adequate and timely measures could be developed.
2. Understand the experience, training, and certification requirements to partner with DNOs as part of BaU.
3. Explore the requirements of a training program for third parties to complete to be deemed qualified to undertake aspects of domestic supply upgrades.
4. Investigate the value of a supply register to capture domestic supply rating and equipment information and develop the register if the value is proven.
5. Trial the project partner, a meter operator who is a third party, to undertake interventions in the domestic supply upgrade customer journey in UK Power Networks' licence areas.
6. Identify processes and procedures required for deployment of Emerge as BaU and opportunities to scale the solution beyond UK Power Networks license areas

## Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

Not Applicable

### Success Criteria

The delivery of the following outcomes will be considered when assessing whether the project has been successful:

1. The project partner has successfully conducted a number of domestic supply upgrade interventions during trials to demonstrate their capabilities and that there are no adverse operational or reputational impacts.
2. Completed testing of a digital product that third parties have used to automate approval/rejection of supply upgrade intervention requests.
3. Completion of project partner trials enabled by the digital product, with sufficient volume of customer sites to prove that all customer journeys have been identified and tested.
4. Proven that under certain circumstances customer satisfaction and supply upgrade delivery times can be improved through the solution.
5. Clear path to the introduction of processes and procedures to facilitate BaU operation.
6. Roadmap to further improve the customer journey, develop the digital product, and roll out the solution more widely

### Project Partners and External Funding

Octopus Energy are a project partner and are providing project management, solution design and engagement support as and when necessary.

### Potential for New Learning

The project will generate learnings on the role third parties could have in supporting DNOs to provide exceptional customer services for domestic supply upgrades and improved delivery times for low carbon heating. It will capture learning of the barriers, limitations, and opportunities for third parties to conduct supply upgrade interventions while understanding the processes needed to deploy the solution.

The real-world trials will be the first in GB to demonstrate third parties undertaking supply upgrade interventions and could demonstrate the value of deploying this operational practice at significant scale. It will also gain an understanding of the use of digital products to improve the customer journey pertaining to supply upgrades.

These learnings will be disseminated through different channels including:

- Publication of clear and accessible reports on findings and new approaches developed;
- Events with relevant stakeholders e.g. other DNOs and local authorities to share learnings; and,
- Publication of relevant and accessible information for third parties to get involved

### Scale of Project

This project will deliver a digital product to a control group of users with mobile devices and will be trialled on a representative sample group of customers by the project partner. It will trial a third party (the project partner) conducting domestic supply upgrade interventions at select customer sites that meet the eligibility criteria outline in the trial strategy. The volume of customer sites visited and interventions performed will be determined by the number of customer journeys and scenarios that are identified and require testing.

### Technology Readiness at Start

TRL3 Proof of Concept

### Technology Readiness at End

TRL7 Inactive Commissioning

### Geographical Area

The project will cover all of UK Power Networks' licence areas; Eastern Power Networks plc (EPN); London Power Networks plc (LPN); and, South Eastern Power Networks plc (SPN).

### Revenue Allowed for the RIIO Settlement

No revenue has been allowed in the RIIO-ED1 settlement, this technology was not expected to enter the UK market at the time of the RIIO-ED1 business plan submission.

## Indicative Total NIA Project Expenditure

The total expenditure that UK Power Networks expects to incur for this project is £730,733, of which 90% will be recovered from NIA.

## Project Eligibility Assessment Part 1

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

### Requirement 1

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

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

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

Not applicable as RIIO-ED1 Project

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

Not applicable as RIIO-ED1 Project

### Requirement 2 / 2b

Has the potential to deliver net benefits to consumers

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

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

This project has the potential to deliver substantial benefits to customers and society through greatly reduced times for domestic supply upgrades to accelerate the uptake of low carbon heating, develop a collaborative partnership framework with meter operators and suppliers to deliver top tier customer service, and strengthen DNOs positions to facilitate Net Zero.

This could generate £5.4m (NPV) of societal benefits through Social Return on Investment (SROI).

#### Please provide a calculation of the expected benefits the Solution

**£5.45m (NPV) over the RIIO-ED2 period where Societal Benefits = Environmental + Reduced Interactions**

- **£6.1m (PV) - Environmental - CO2 reductions due to enabled LCT uptake**

*Volume of HP x Carbon savings delivered from HP instead of gas boiler (tCO2e) x Traded carbon price (£/tCO2e) x Benefit attribution (% – UK Power Networks Benefit Attribution)*

- **£11.77k (PV) - Reduced Interactions - Digital channels reduce face time required for customers to interact with DNO**

*We have estimated the portion of customers receiving this benefit using data from our Smart Connect portal*

- o *45% of domestic LCT applications have been automatically approved*

- o *The response time is 4-6 days faster for jobs which are auto-approved*

- o *Installers get visibility of the possible work required ~4-6 days faster for jobs which require further assessment. This includes instant referral for a fuse upgrade.*

- o *Installers save between 2-4 email interactions for all jobs (auto-approved and those which require further assessment)*

*Based on the above, we have assumed that installers will benefit from a 2 hour reduction per interaction time with UK Power Networks due to the automated process, for a benefit of £8.21\*2 = £16.42 per fuse upgrade.*

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

The project could be deployed across all of GB and could be adopted by all DNOs.

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

The solution could be deployed in any licence area providing the DNO implements processes and systems to facilitate collaboration with meter operators and suppliers.

## Requirement 3 / 1

Involve Research, Development or Demonstration

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

- A specific piece of new (i.e. unproven in GB, or where a method has been trialled outside GB the Network Licensee must justify repeating it as part of a project) equipment (including control and communications system software).
- A specific novel arrangement or application of existing licensee equipment (including control and/or communications systems and/or software)
- A specific novel operational practice directly related to the operation of the Network Licensees system
- A specific novel commercial arrangement

RIIO-2 Projects

- A specific piece of new equipment (including monitoring, control and communications systems and software)
- A specific piece of new technology (including analysis and modelling systems or software), in relation to which the Method is unproven
- A new methodology (including the identification of specific new procedures or techniques used to identify, select, process, and analyse information)
- A specific novel arrangement or application of existing gas transportation, electricity transmission or electricity distribution equipment, technology or methodology
- A specific novel operational practice directly related to the operation of the GB Gas Transportation System, electricity transmission or electricity distribution
- A specific novel commercial arrangement

## Specific Requirements 4 / 2a

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

All electricity networks across GB are under increasingly pressure from customers to upgrade domestic supplies which will likely reach a critical point during RIIO-ED2 when we forecast the number of installations in our region could grow by up to 440,000 per year (an annual growth rate of 59%).

The Emerge project could realise the opportunity for third parties to intervene in the domestic supply upgrade journey reducing delivery times and reducing barriers to low carbon heat uptake. These learnings will be beneficial for all electricity networks to help DNOs remain an advocate and facilitator of Net Zero. The project could also create a robust training program that could be used to fast-track the upskilling of meter operators across GB to intervene in domestic supply upgrades.

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

Not applicable as above has been answered.

### Is the default IPR position being applied?

- Yes

## Project Eligibility Assessment Part 2

### Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects

already registered, being carried out or completed.

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

The project's real world trials will be the first in GB to demonstrate third parties partnering with DNOs to facilitate and improve the customer journey for domestic supply upgrades. This product, which has never been previously created or deployed, allows new learnings to be created and develops an understanding of how digital products could be used with third parties to realise high levels of customer satisfaction during the domestic supply upgrade process.

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

Not applicable

## **Additional Governance And Document Upload**

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

GB DNOs are under increasingly more pressure to provide high levels of customer satisfaction while facilitating domestic supply upgrades which will likely reach a critical point during RII0-ED2 when we forecast the number of installations in our region could grow by up to 440,000 per year (an annual growth rate of 59%). This project allows DNOs to remain an advocate and facilitator of Net Zero by fully understanding the customer journeys and working with meter operators to deliver a world class customer service.

The project's real world trials will be the first in GB to demonstrate the role third parties could take in undertaking supply upgrades under circumstances described. The project will see the creation of digital procedures and tools for third parties to coordinate domestic supply upgrades with DNOs. These digital tools, which have never been previously created or deployed, allow new learnings to be created and develop an understanding of how digital products could be used with third parties to realise high levels of customer satisfaction and reduced delivery time through domestic supply upgrades.

### **Relevant Foreground IPR**

The default IPR position will be applied. The Relevant Foreground IPR generated in the project will be the digital product and training program for the network trials. Both these outputs will require the use of existing UK Power Networks Background IPR.

### **Data Access Details**

The project team will support the sharing of data with interested parties where appropriate on request. This may not be appropriate in some cases and exceptions will be made where customer personal data is involved or where sensitive commercial information may be interpreted. The approach will be consistent across the UK Power Networks project team and the project partner Octopus Energy.

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

In section 3.2 of the NIA Governance document, the DNOs are encouraged to pursue different types of methods and solutions to meet challenges affecting customers and network operators. This project seeks to provide a solution that could meaningfully increase customer satisfaction while accelerating the transition to low carbon heating.

These activities would not form part of business as usual activities due to the low TRL and inherent risk of the project given the unproven benefits across UK Power Networks' licence areas. NIA project funding is therefore required to progress the innovative nature of the project and the inherent risk that it carries for its implementation.

### **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**

As this technology has not been previously used for networks applications there are both commercial and technical risks, and the project could only be undertaken with the support of NIA. In addition, the project will undertake the first ever GB trials of third-party meter operators intervening in the domestic supply upgrade customer journey. As noted in the NIA Guidance, certain projects are speculative in nature and yield unproven commercial returns.

### **This project has been approved by a senior member of staff**

Yes