

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

Dec 2019

### Project Reference Number

NIA\_SPEN\_0049

## Project Registration

### Project Title

iIdentify

### Project Reference Number

NIA\_SPEN\_0049

### Project Licensee(s)

SP Energy Networks Distribution

### Project Start

February 2020

### Project Duration

4 years and 2 months

### Nominated Project Contact(s)

Michael Alexander

### Project Budget

£1,000,000.00

## Summary

Artificial Intelligence and Augmented Reality in conjunction with mobile Apps have the potential to improve asset management and reduce costs within the networks sector. This project will trial initial use-cases.

### Nominated Contact Email Address(es)

innovate@spenergynetworks.co.uk

## Problem Being Solved

- 1) Asset data collection – initially including cut-outs and customer devices e.g. EV chargers. Unknown quantities of customer devices with no straightforward method of data collection. Cut-out types and quantities also unknown without major expenditure to gather information manually
- 2) Aborted calls – SPEN staff sent to site for “check for safety” when issue is BT cabinet, BT pole or customer tripped switches.
- 3) Aging assets and younger workforce – situations where switchgear won't operate as it takes some more experience than the operating manual offers.

## Method(s)

Exploit AI Recognition technology and augmented reality to 1) crowdsource data on SPEN assets and customer devices to update the SPEN asset records, 2) identify 3rd party assets to reduce aborted calls, and 3) offer training, support and guidance to field staff on SPEN assets.

## Scope

Proof of concept – Initial phase of the project is to use AI and camera combination to recognise asset such as a single cutout to prove the technology works in the application

3 Use cases – developed following proof of concept

Use case 1 – Asset data collection – App on phone – return asset data

Use case 2 – Reduce aborted calls – send customer a link to a URL – Information to users and problem solving

Use case 3 – Field Staff Support – app on phone with AI and AR – information to user and problem solving

### Objective(s)

The objective of this project is to create an app that will identify any asset it is trained on, and provide either useful asset data, or problem solving guidance to the user

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

n/a

### Success Criteria

The delivery of the above objectives, within budget and within agreed timelines, as is reasonable depending on the AI and AU technological capabilities.

The project will be managed within SPEN applying due diligence and best practices where appropriate.

### Project Partners and External Funding

While SP Energy Networks have engaged with a supplier for initial costs, SPEN will tender to seek supplier who will provide the AI and AU solution.

This project is also in collaboration with the UKPN project "Is my Cut-Out Net Zero Ready?". The use cases have been agreed between parties, including the LCT working Group.

### Potential for New Learning

SPEN will gain understanding as to whether the combination of AI, AU on mobile devices, and crowdsourcing of information can improve the way asset data is collected and processed, and if it can deliver benefits to customers and employees

### Scale of Project

This project will deliver an app to a control group of users with mobile devices and will be trialed on a representative sample for each use case.

### Technology Readiness at Start

TRL4 Bench Scale Research

### Technology Readiness at End

TRL8 Active Commissioning

### Geographical Area

This project will cover the SPD and SPM Licence areas.

### Revenue Allowed for the RIIO Settlement

£0

### Indicative Total NIA Project Expenditure

£330,000

## Project Eligibility Assessment Part 1

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

### Requirement 1

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

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

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

n/a

#### 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 (RIIO-1 projects only)

The estimated cost for SPEN to visit every cut-out location to obtain asset data is £32m. With a successful crowd source alternative these costs could be avoided.

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

The Base Cost of the use-cases at project scale is estimated to be £500k.

£500k - £330k = £170k

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

The system could be implemented across all LNOs as all LNOs have the same use cases which could be solved by the system.

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

As an estimate, this system would cost £250,000 per DNO to roll out.

### 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

The learnings from this project can be replicated by all LNOs, and the use cases are valid for all LNOs.

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

n/a

- Has the Potential to Develop Learning That Can be Applied by all Relevant Network Licensees

### Is the default IPR position being applied?

- Yes

## Project Eligibility Assessment Part 2

### Not lead to unnecessary duplication

A Project must not lead to unnecessary duplication of any other Project, including but not limited to IFI, LCNF, NIA, NIC or SIF projects already registered, being carried out or completed.

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

This system has not been previously trialled within the UK, and there have been no previous Innovation projects covering this area.

### 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

Whilst AI and AU technology has been applied successfully in other sectors it has not been applied in the networks sector

### Relevant Foreground IPR

n/a

### Data Access Details

n/a

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

This method of asset data capture and analysis is new to the sector – it requires a trial project to de-risk before the business can adopt this.

**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 can only be undertaken with the support of NIA.

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

Yes