

NIA Project Registration and PEA Document

Date of Submission

Nov 2020

Project Reference Number

NIA_SSEN_0050

Project Registration

Project Title

Near Real-time Data Access (NeRDA)

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NIA_SSEN_0050

Project Licensee(s)

Scottish and Southern Electricity Networks Distribution

Project Start

November 2020

Project Duration

3 years and 5 months

Nominated Project Contact(s)

Tim Sammon

Project Budget

£1,001,207.00

Summary

This is a small scale demonstrator project which will make near real-time data available to stakeholders. This will be tested by engaging with stakeholders including those already involved in ongoing Local energy innovation projects.

Nominated Contact Email Address(es)

fnp.pmo@sse.com

Problem Being Solved

There is growing evidence, including the recommendations from the Energy Data Taskforce[1], that making near real-time data accessible from distribution networks is essential to help facilitate economic and efficient development and operations in the transition to a low carbon economy.

Access to this information will help connection of low carbon technologies, further the development of emerging flexibility services and support the development of new products for consumers by supporting both the identification of need for flexibility and ongoing efficient operation. The spring consultation carried out by Electralink[2] for the Flexr project found that 69% of respondents agree that access to near real-time data would be either extremely or very useful to their business.

An energy data sharing platform, Flexr, is being developed by Electralink on behalf of GB DNOs. Its initial phase, known as the Minimum Viable Product (MVP), will draw on available records of DER along with early asset data extracts from SSEN and another DNO (known as Pathfinders). NeRDA is focused on providing access to near real-time data. The future development of Flexr may extend to real-time data access as informed by NeRDA experience and stakeholder feedback.

There are already a number of ongoing industry initiatives that are looking to make Distribution Network Operator (DNO) data more accessible; These focus on relatively static data sets associated with planning and investment timescales. For example, each DNO has published an initial Embedded Capacity Register aiming to help stakeholders and customers identify opportunities to connect and areas of constraints, so they can make informed and efficient decisions. The register details all generation, storage and flexible demand resources that are equal to or greater than 1MW and are connected to or accepted to connect to DNOs' networks. Similarly, each DNO has published a Digitalisation Strategy which includes further information on how it plans to make network data available to stakeholders.

NeRDA will enhance and add to these initiatives by developing a better understanding of how near real-time network data can be made available, and whether improved access to this data can help stakeholders, supplier, customers and aggregators identify opportunities to connect or develop and offer services. It will also allow the project to assess the value of providing this data to our stakeholders and identify any wider issues that have not yet been considered and may need to be addressed.

[1] <https://es.catapult.org.uk/wp-content/uploads/2019/06/Catapult-Energy-Data-Taskforce-Report-A4-v4AW-Digital.pdf>

[2] <https://www.electralink.co.uk/wp-content/uploads/2020/09/Flexr-consultation-response.pdf>

Method(s)

This is a small scale demonstrator project which will make near real-time data available to stakeholders. This will be tested by engaging with stakeholders including those already involved in ongoing Local energy innovation projects (such as the SSEN led LEO project and the established Flexr User Group).

The project will look to implement a technology solution for DNO near real-time data sourced for locations within the SEPD and SHEPD licence area using Application Protocol Interface (API) technologies or similar. While the data will be made available to all stakeholders the testing will be focused in the Oxfordshire, as well as areas receiving LV monitoring through separate programmes such as Green Recovery funding.

The project will include a stage gate at the end of the design phase to ensure it will deliver the anticipated outcomes before proceeding to the demonstration stage.

Subject to stage gate, the data for Oxfordshire area will be made available to stakeholders to develop their plans, products and/or services. In addition, the project will look to leverage SSEN's involvement in the development of the Flexr platform, as one of the avenues to assess the value of near real-time data access exchange using a standardised data service.

Scope

The project scope is limited to the works needed to make near real-time data available. This real-time data will be trialled in select local areas including Oxfordshire and the LEO project. The scope of the project has been extended so that in addition to real time data, NeRDA will make available Long Term Development Strategy (LTDS) data, network connectivity data and data from SSEN's load model. The project will provide data via APIs, and improved dashboards giving the user a rich source of connectivity and schematic data of the SSEN networks to help them unlock the value of real-time data.

The geographical scope of the project will also be extended to include areas receiving LV monitoring through separate programmes such as the Green Recovery funding. This will extend the scope of the stakeholder engagement allowing for greater and more diverse feedback that will help to increase the applicability of the project findings across GB. This will add minimal extra cost to the project.

Objective(s)

The project will make near real-time data for the Oxfordshire area available to stakeholders and will assess its usefulness to them.

This will be enabled through the implementation of a technology solution for near real-time DNO data within the SEPD licence area to enable its collation and presentation through an Application Protocol Interface (API).

The project will assess the usability of the data through this API with stakeholder groups such as local community energy action initiatives Local Energy Oxford (LEO) and Flexr Beta User Group (BUG).

Consumer Vulnerability Impact Assessment (RIIO-2 Projects Only)

n/a

Success Criteria

The NIA project will be deemed successful if the deployed solution enables the sharing of near real-time data, and if we are able to gather appropriate feedback on its usefulness from the stakeholders identified.

Project Partners and External Funding

SSEN will formally engage with ElectraLink to leverage our existing partnership.

Potential for New Learning

The project will develop new learning on how near real-time data can be shared and the value and usability of this data with stakeholder groups.

The project will also develop learning on the challenges facing future data exchange i.e. around the format, granularity, GDPR and architecture of data. The project will produce a series of reports outlining the findings, supported by appropriate dissemination activities such as webinars etc.

Scale of Project

This project is designed to develop learning, the scale of the project is enough to understand the specific issues associated with making near real-time data available and the static data sets that are required to accompany real-time data to allow 3rd parties to understand and drive value from real time data. The project will demonstrate the platform in enough detail to allow stakeholders to assess its suitability and provide feedback to inform the future development of near real-time data sharing platforms.

Technology Readiness at Start

TRL4 Bench Scale Research

Technology Readiness at End

TRL8 Active Commissioning

Geographical Area

This project will be undertaken within the SEPD and SHEPD licence areas

Revenue Allowed for the RIIO Settlement

No revenue was allowed for this activity.

Indicative Total NIA Project Expenditure

The total expenditure expected from the project is £806,207, 90% of which (£725,586) is allowable NIA expenditure.

Project Eligibility Assessment Part 1

There are slightly differing requirements for RII0-1 and RII0-2 NIA projects. This is noted in each case, with the requirement numbers listed for both where they differ (shown as RII0-2 / RII0-1).

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 RII0-2 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 (RII0-1 projects only)

There is a significant body of evidence that a move to a more flexible energy system, targeted investment and greater use of flexibility services is an essential element in the transition to net zero and economic and efficient development and operation of the network. Flexibility services are increasingly being used by DNOs as an alternative to conventional solutions, however, given market immaturity these are still relatively low in number and are looked at on a case by case basis. Further work is required to ensure that frameworks for the wide sharing of data are necessary to help further facilitate development of these approaches.

As identified by the Energy Data Task Force, this must be accompanied by accurate, standardised, and available data across all electricity networks to support greater market efficiency, and benefits to consumers via lower costs and greater system reliability. This aligns well with the Energy Data Taskforce report which finds that a 'smart and flexible system can contribute to cumulative savings of up to £40bn by 2050'. It states that through opening up today's energy system data 'Net system savings (could) increase radically between 2020 and 2050... (with) net annual system benefits (of) around £2bn in 2030, (and) in 2050 we see an increase to over £10bn per year.

The development of the Flexr platform already being progressed by Electralink and GB DNOs will help ensure that network data will be made available.

Please provide a calculation of the expected benefits the Solution

The value of flexibility and increased system efficiency has been estimated to be £17-40 Billion^[1] between 2016 and 2050. Therefore, if standardised use of data accelerates and facilitates the progress of this by adoption of flexibility it will bring significant benefits to the sector. The larger planned Flexr NIC project which looks at all DNOs adopting this approach has estimated nearly £270m of benefits, Local energy is a much smaller sector therefore it is envisaged that the benefits could be between two and five percent of this total.

[1]

https://www.ofgem.gov.uk/system/files/docs/2016/12/smart_flexible_energy_system_a_call_for_evidence.pdf#:~:text=Towards%20a%20smart%2C%20flexible%20energy%20system%201.%20Government,offers%20

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

The findings from this project will be replicable across all DNOs. Learnings will be shared in order to assist with implementation of future Flexr and Flexr type service development.

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

This is a development project, but if successful the project will be able to provide insight into the roll out costs for further refinement.

Requirement 3 / 1

Involve Research, Development or Demonstration

A RII0-1 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

RII0-2 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 project will assess the value of near real-time data sharing. The project learning will be able to be used by other DNOs, the project will specifically consider areas where local energy plans are being developed.

Or, please describe what specific challenge identified in the Network Licensee's innovation strategy that is being addressed by the project (RII0-1 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.

Standardised near real-time data exchanges for DNO data have not yet been established within the UK. This is a first of its kind project.

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 as it focuses on making available near real-time data, which has never been done before. The project looks to understand what the requirements are to ensure that the data shared meets stakeholders' needs. The project will look to see what value can be delivered by sharing near real-time data and to inform if wider spread roll out is appropriate.

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

No allowances have been made for understanding the use of near real-time data sharing in the RIIO-ED1 settlement. SEPD needs to fully understand the value of near real-time data exchange to fully assess the impact of widescale implementation. At the moment there is no clear business case for sharing this real-time data. Ahead of any widespread implementation we want to fully understand the stakeholders' needs around this data.

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 focus on near real-time data is beyond the phase of our current digitalisation strategy.

This project has been approved by a senior member of staff

Yes