Energy Networks Innovation Process

Project Closedown Report Document

Date of Submission: 26/07/2023

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Notes on Completion: Please refer to the NIA Governance Document to assist in the completion of this form. Please use the default font (Calibri font size 10) in your submission. Please ensure all content is contained within the boundaries of the text areas.

Project Title (*This cannot be changed once registered*)
TraDER

Project Reference
NIA_SSEN_0047

Funding Licensee(s)
Scottish & Southern Electricity Networks

Project Start Date
March 2020

Project Duration
3 years 0 months

Year
2023

Nominated Project Contact(s)
Tim Sammon, Innovation Programme Delivery Manager at SSEN
FNP.PMO@sse.com

1. Scope

Electron, a UK based Entech company, have been appointed by the Department for Business, Energy & Industrial Strategy (BEIS) to lead a consortium to develop a neutral, multi-product flexibility exchange as part of its FleX competition.

The consortium, named TraDER, brings together CGI, EdF Energy, Elexon, Energy Systems Catapult, Kaluza [an OVO company] and SSEN, alongside other key players in the emerging flexibility arena. It is looking to deliver a single access point to multiple energy services such as balancing, stability and network capacity.

SSEN's input to TraDER is funded via NIA rather than BEIS. SSEN will act as a facilitator to TraDER by enabling access to the Active Network Management (ANM) scheme currently operating in Orkney.

2. Objective(s)

SSEN will act as a facilitator to TraDER by:
Delivering data from the ANM system currently operating in Orkney.
Enabling changes to the ANM system in order to execute trades created by the TraDER platform.

In return, TraDER will deliver outputs which will allow SSEN to assess the impact of –
How trades can be implemented on the ANM scheme eg. changes to Last In First Out (LIFO) connection order, and associated costs to SSEN.
Scale of the market to ensure implementation costs can be recovered by SSEN.
Allows SSEN to assess the preferred Neutral Market Facilitator (NMF) model of 3rd parties. This assessment can feed into wider DSO related projects being undertaken by SSEN.

3. Success Criteria

The NIA project will be deemed as successful if all items in the objectives are met and provides effective support to the delivery of the larger TraDER BEIS project.

4. Performance compared to the original project aims, objectives and success criteria

Details of how the Project is investigating/solving the issue described in the NIA Project Registration Pro-forma. Details of how the Project is performing/performed relative to its aims, objectives and success criteria.

1. How trades can be implemented on the Active Network Management (ANM) scheme e.g. changes to Last In First Out (LIFO) connection order, and associated costs to SSEN.

   The project has successfully delivered an active link from SSEN's Centralised ANM system in which ANM data can be captured and transmitted to Electron in near real-time. It was agreed that enabling a connection to the Centralised ANM, rather than the Orkney ANM, would futureproof for further projects with aggregators as more data is held on the Centralised ANM. The works to enable the real-time link from SSEN's Centralised ANM to Electron's market platform have been fully implemented.

   During the development work it was identified that LIFO stack trading was not a priority, due to most ANM connected assets being of the same generator type (Wind). LIFO stack trading would be more attractive where an ANM has a more diverse generation mix e.g. wind/solar etc. Furthermore, LIFO stack trading could not be implemented without costly modification to the fundamental operation of the ANM system. Electron identified that maximum value could be gained from ANM headroom data being sent from SSEN to Electron. This variation in approach has been documented in the BEIS reporting that Electron undertakes. As the NIA project was created to support the larger BEIS project, the deliverables were changed to support the delivery of the ANM headroom data.

2. Scale of the market to ensure implementation costs can be recovered by SSEN.

   Implementation costs to SSEN have been covered via NIA funding and the design implemented will keep future data link costs to a minimum. SSEN have developed a standardised approach to enable repeatability of this data link implementation with a view to reducing timescales and costs of future requests. Ongoing projects, such as Bi-Trader, are continuing to expand the development of new market trading opportunities. Implementation costs for future projects will be on a case-by-case basis depending on the level of implementation complexity. These costs to SSEN would be recovered via a commercial contract between SSEN and the requesting party.

3. Allows SSEN to assess the preferred Neutral Market Facilitator (NFM) model of 3rd parties.

   TraDER has given SSEN a detailed insight into the types of data that will be requested both now and in the near future. These requirements have been captured and shared with larger Distribution System Operator (DSO) related projects such as during the project closedown of the TRANSITION Project. TraDER has also given Electron learnings on the processes required to be undertaken to integrate with systems that form part of Critical National Infrastructure. These learnings have been reported as part of the BEIS project.

5. Required modifications to the planned approach during the course of the project

The Network Licensee should state any changes to its planned methodology and describe why the planned approach proved to be inappropriate. Please confirm if no changes were required

A change was made to move away from LIFO stack trading within the TraDER project to support Electron's response to market demand for ANM headroom data. This has been further documented by Electron within the BEIS reporting.

The original plan was to integrate the TraDER platform with Orkney's ANM system however it was agreed that a more robust and futureproof design would be to integrate with the centralised ANM system. Integrating with the centralised ANM system will give greater potential for future development of the TraDER market, and the design has been adapted to be more standardised for other potential market participants, to allow a more streamlined design process for future projects. In order to achieve this, the system integration has been aligned with the Orkney ANM upgrade works and the NIA project was extended to 36 months.

6. Lessons learnt for future projects

Describe how the project (methodology, stakeholder engagement etc.) changed, or provided opportunities, from your expectation at the start of the project and therefore could be useful for a future project. In addition, please discuss the effectiveness of the research development or demonstration undertaken.

Future projects, such as Bi-TraDER, are already expanding on the learning from the TraDER BEIS and NIA projects. The TraDER project has successfully demonstrated sufficient market potential to warrant further development with a larger NIC project.

The lesson learnt from the NIA project is the challenge when integrating with systems that form part of critical national infrastructure. To enable this integration and data sharing a significant amount of planning and system design is required to ensure security levels are maintained. This should be clearly communicated with potential future project partners to fully understand the timescales required for such implementation. The TraDER project has provided SSEN as a baseline methodology to adopt for any similar data integration requests.

Lessons learnt have documented by the project partners within the BEIS reporting and can be viewed here – https://es.catapult.org.uk/report/project-trader/

7. The outcomes of the project

When available, comprehensive details of the Project's outcomes are to be reported. Where quantitative data is available to describe these outcomes it should be included in the report. Wherever possible, the performance improvement attributable to the Project should be described. If the TRL of the Method has changed as a result of the Project this should be reported. The Network Licensee should highlight any opportunities for future Projects to develop learning further.

The project achieved the following key outcomes, as reported during the BEIS TraDER project closedown:

- TraDER is a first working example of a Distribution Network Operator (DNO)/DSO-enabled market that was operated by a neutral market facilitator and not a DNO/DSO.
- The project provided a first example of a DNO operating an ANM system enabling a market by providing network security against flexibility non-delivery (as an alternative to prevention of market participation due to exclusion of ANM-located DER for some ESO products/markets).
- Through the development of the Demand Turn Up (DTU) local constraint product, TraDER has successfully demonstrated trialling of a trading platform hosting a real-time peer-to-peer market trading physical energy.
- TraDER has proved that the alleviation of constraints can be handled by market solutions via trading platforms.
- TraDER has shown that trading platforms can increase access to revenue streams for distributed energy resources.
- The TraDER project has increased the TRL of market platforms. The project has improved the knowledge and understanding of how these may operate in the future, the value they could add and the current barriers to their operation.
- The TraDER market platform has helped minimise the administrative and technical burdens of participation for flexibility services, particularly for smaller market participants.

  This learning will be further developed via the Bi-TraDER Network Innovation Competition (NIC) project.

8. Data Access & Quality Details

A description of how any network or consumption data (anonymised where necessary) gathered in the course of the Project can be requested by interested parties. Please include a link to the publicly available data policy.

For information how to request data gathered in the course of this project, see Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) Data Sharing Procedure at https://ssen-innovation.co.uk/innovation-strategy/.

9. Foreground IPR

A description of any foreground IPR that have been developed by the project and how this will be owned.

No foreground IPR has been created during the project.

10. Planned implementation, recommendations or next steps

Please describe the next steps to implement this innovation project. What policies and standards need to be updated or created as part of this implementation.

This project formed a technical demonstration and will not be adopted in BAU at this stage. Further market development work is required from the market participants via ongoing project such as Bi-Trader to commercialise the solution. The methodology SSEN implemented during this project will be relevant for any future projects.

11. Other comments

N/A

12. Standards Documents

Identify any industry standards that may require updating due to the outcomes or understanding developed from this innovation project. If no standards will need to be updated, please state - not applicable

N/A