Energy Networks Innovation Process Project Closedown Report Document

Date of Submission: 26/07/2023

Project Closedown Report Document

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Project Title (*This cannot be changed once registered*)
Decarbonising Utility Transport using Whole System Thinking

Project Reference
NIA_SSEN_0057

Funding Licensee(s)
Scottish Hydro Electric Power Distribution (SHEPD), Southern Electric Power Distribution (SEPD)

Project Start Date
February 2022

Project Duration
9 Months

Year
2023

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

1. Scope

The aim of the project is to report on the extent to which utilities are on the decarbonisation journey of their vehicle fleets

Key outputs include:

- Report on the present-day composition of utility fleet vehicles (mixture of electricity and gas network operators).
- Report on vehicle decarbonisation challenges, needs, global logistic trends and options for on-road and off-road vehicles.
- Create a roadmap, including a gap analysis and assessment of intervention options to support utility fleet decarbonisation between now and 2050.
- Roadmap will show what vehicles should be decarbonised and the optimum time to decarbonise them. Decarbonisation options e.g. electric vehicles vs hydrogen vehicles and cost estimates will also be investigated in order to identify least cost options that meet fleet requirements.

In Scope:
Stage 1 Gap Analysis: Desktop Research & Stakeholder engagement
TRL at start of stage: 2
TRL at end of stage: 4

Stage 2 Roadmap Development
TRL at start of stage: 2
TRL at end of stage: 4

Out of scope:

- Vehicle types not owned and operated by utility companies
- Developing a technical solution to address the gaps identified
- Research of areas outside transport and logistics operations

Net benefits to consumers and other utilities such as financial, environmental, etc. will be estimated in Stage 2 (Roadmap Development) as part of the final report.

2. Objective(s)

Stage 1

Objective 1: Report on utility fleet decarbonisation progress and collate best practice and data from partners and stakeholders based on global examples of utility fleet decarbonisation.

- Data scope communicated to partners ahead of kick-off.
- Minimum data scope (tbc) includes:
- Current fleet make up (vehicle category, powertrain, age), operation profile (vehicle use, used for critical operations, duty cycle, base location, annual mileage), parking locations and site-specific data (where do vehicles get parked overnight, what other operations are at the site, site locations), existing plans for decarbonising fleet.
- Interviews held with partners and minimum data scope captured.
- Form for data submission provided to partners after kick-off.

Objective 2: Capture and validation of stakeholder challenges.

- Workshop: Data and views from wider stakeholder group captured.

Objective 3: Synthesis of outputs from stakeholder engagement and research to establish current state of play and to develop a gap analysis on current progress, challenges, opportunities, barriers.

- All key areas and key stakeholder views included in Gap Analysis Report.
- Signed off by SSEN

Stage 2

Objective 4: Identify areas of innovation and decarbonisation options that might be developed but are not commercially available yet.

- Agreement of roadmap information architecture/figures of merit

Objective 5: Understand and quantify the potential carbon reduction of decarbonisation options which still meet operational and resilience requirements, cost implications and timelines

- Quantification of key intervention impacts via modelling outputs.

Objective 6: Synthesise all findings and propose least regret options and key milestones and decision points.

- Key areas, key stakeholder, key interventions and key areas of impacts covered.

Objective 7: Develop a roadmap that captures and visualises the appropriate interventions, impacts, timelines, stakeholders and cost implications.

- Roadmap: Key interventions, impacts decision points and timeline captured.
- Signed off by SSEN

3. Success Criteria

Success criteria 1: Collect data from project partners and inputs from stakeholders

- Key areas and subsectors addressed,
- Key stakeholders included
- Minimum data scope covered.

Success criteria 2: Identify current state of play and existing research and work in utility fleet decarbonisation

- Key areas/subsectors addressed
- Gap analysis report

Success criteria 3: Current trends and methodologies validated by key stakeholders

- Hold workshop with stakeholders
- Attendance of key stakeholders

Success criteria 4: Roadmap of potential future work, timescales and cost.

- Report including roadmap and analysis.
- Modelling evidence provided on key areas of impact from key interventions

Success criteria 5: Identify Quick wins and least-regret decisions

- Clearly stated recommendations

Success criteria 6: Identify work already in progress in UK and North America.

- Specific examples given

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.

Performance against objectives

Stage 1

Objective 1: Report on utility fleet decarbonisation progress and collate best practice and data from partners and stakeholders based on global examples of utility fleet decarbonisation.

The requirements for this objective were met.

Objective 2: Capture and validation of stakeholder challenges.

The requirements for this objective were met.

Objective 3: Synthesis of outputs from stakeholder engagement and research to establish current state of play and to develop a gap analysis on current progress, challenges, opportunities, barriers.

The requirements for this objective were met.

Stage 2

Objective 4: Identify areas of innovation and decarbonisation options that might be developed but are not commercially available yet.

The requirements for this objective were met.

Objective 5: Understand and quantify the potential carbon reduction of decarbonisation options which still meet operational and resilience requirements, cost implications and timelines

This objective was not fully met. Insufficient detail was provided on cost implications and timelines for value to be derived for utilities. As a result carbon reduction figures were not derived.

Objective 6: Synthesise all findings and propose least regret options and key milestones and decision points.

This objective was not fully met. Insufficient analysis was done to provide least regret analysis and detail decision points for utilities to derive value. Analysis was done at too high a level for the outputs to be used by utilities to make decisions.

Objective 7: Develop a roadmap that captures and visualises the appropriate interventions, impacts, timelines, stakeholders and cost implications.

The requirements for this objective were met.

Performance against success criteria

Success criteria 1: Collect data from project partners and inputs from stakeholders

This success criteria was not fully achieved. Insufficient data was gathered from stakeholders to produce valuable modelling outputs. The data that was derived was not detailed enough to produce outputs that could be actioned by utility companies.

Success criteria 2: Identify current state of play and existing research and work in utility fleet decarbonisation

The requirements for this objective were met.

Success criteria 3: Current trends and methodologies validated by key stakeholders

The requirements for this objective were met.

Success criteria 4: Roadmap of potential future work, timescales and cost.

This success criteria was not fully achieved. Insufficient data was gathered from stakeholders to produce a Roadmap with detailed timelines and costs. Although a Roadmap was produced it was focussed more on education material rather than actionable content for utilities.

Success criteria 5: Identify Quick wins and least-regret decisions

The requirements for this objective were met.

Success criteria 6: Identify work already in progress in UK and North America.

The requirements for this objective were met.

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

N/A

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.

There was a clear difference in what the contractors wanted to achieve as part of the project and what the utilities wanted to achieve. In this case, Utilities wanted a Roadmap that was detailed enough to assist in future planning and investment activities. The contractors wanted a high-level general Roadmap. This project should have had more hold points to ensure stakeholders were satisfied with the scope, prior to the project starting. The project deliverables should have been clearly defined and agreed upon at the beginning of the project with all partners signing off i.e. more time should have been spent on the project output goals at the start of the project.

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.

Although most of the objectives and success criteria were met, they were only achieved at a minimal level. The report did not produce enough detail to inform the utilities in future planning and investment decisions as expected. Potentially, other industries might be able to make use of the report, but it is out with the scope of this project to determine. No significant learning outcome was created that was not already available in the public domain. However, potentially for policy makers, the report does provide a good overview of the issues impacting decarbonisation of transport, as well as potential solutions. If targeted at the right audience, the reports created from this project could inform and educate.

There were two key outputs:

1) Roadmap: This contains a high-level view on timelines for the United Kingdom to decarbonise transport.
2) Gap analysis: This contains a high-level view on how the United Kingdom can decarbonise transport.

Both reports are available upon request.

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.

N/A

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.

No further follow on projects are planned. SSEN are exploring the option to create their own decarbonisation Roadmap internally.

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