NIA Project Annual Progress Report Document

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. Network Licensees must publish the required Project Progress information on the Smarter Networks Portal by 31st July 2014 and each year thereafter. The Network Licensee(s) must publish Project Progress information for each NIA Project that has developed new learning in the preceding relevant year.

Date of Submission

Jul 2023

Project Reference Number

NIA2_NGESO026

Project Progress

Project Title

Consumer Building Blocks

Project Reference Number

NIA2_NGESO026

Funding Licensee(s)

NGET - National Grid Electricity Transmission

Project Start Date

November 2022

Project Duration

0 years and 9 months

Nominated Project Contact(s)

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Scope

The project will last approximately nine months with two project partners. CSE will develop archetypes for the domestic sector, while Element Energy will develop archetypes for the I&C sector. This division of labour fits well with the expertise and experience of both organisations.

Objectives

This project is split across multiple working packages, with an initial scoping phase followed by data analysis and archetype development. The objectives are as follows:

- Create two distinct sets of consumer archetypes for the domestic and non-domestic sectors to be used in modelling future energy scenarios on the GB energy system. This will include the raw data as well as archetypes descriptions.

- Create a written report which documents the methodologies, how the archetypes can be applied and how they can be updated for the future.

- Provide a user guidance manual and training for the ESO, networks and other potential users.

Success Criteria

The following will be considered when assessing whether the project is successful:

- The archetypes developed can be applied directly to the FES modelling process

- Relevant stakeholders and project partners from external organisations have received training on how to interpret the archetypes, how to apply them and how to keep them up to date.

- The archetypes will be developed in such a way that they can be easily and quickly adopted within multiple organisations (e.g., via accessible datasets, training and user guidance.

- The project will improve the ESO's and partner organisations' understanding of the types of consumers and the characteristics that drive their behaviour and what this means for their consumption, propensity for change, adoption rates of technology and ability and propensity to engage with time of use tariffs.

Performance Compared to the Original Project Aims, Objectives and Success Criteria

Project Overview

The Consumer Building Blocks project was initiated to deliver a set of standard archetypes for GB consumers. Both domestic and non-domestic consumers are being considered and the archetypes are to be used to enable the ESO and network operators to understand both current consumer behaviour and how this behaviour could change into the future. This will enable a more detailed understanding of energy system requirements and could be used as a direct input into Future Energy Scenario (FES) development. The aim is for this to become a common language across network operators so there is a shared understanding in how to define consumer behaviour and how this understanding is applied to network development.

Project Plan and Project Activities

WP0: Project coordination & stakeholder liaison

Aim: The ESO and project partner, CSE to work in partnership to ensure a coordinated approach to stakeholder engagement and delivery of outputs. The stakeholder engagement is key to ensuring the successful delivery of the project allowing the scope to be managed and the engagement aligned with other ESO programmes. The stakeholders will be grouped in relation to their use of the (FES (e.g., architects, primary users, secondary users) and will include transmission owners and Networks across gas and electricity as well as suppliers. Each engagement activity will have clearly defined objectives and will be targeted for the appropriate groups. The engagement will be led by the ESO to ensure integration with existing FES stakeholder engagement activities and other stakeholder engagement processes being run simultaneously by the ESO for different programmes. This requires close co-ordination between the ESO project lead, CSE and Element Energy teams.

WP0 Outputs:

- Monthly consortium meetings
- Quarterly external project updates for stakeholders

WP1: Scoping

Aim: Scope relevant existing work, identify key users, use-cases and modelling into which the archetypes will need to integrate –and use this to identify relevant dimensions on which to define archetypes. The scoping work helps to futureproof the archetypes by engaging future users in determining current and planned uses of the archetypes, as well as feeding their insights into the characterisation of how the energy system is expected to change. The social and system change characterisation produced in WP1.3 will provide a clear summary of the current assumptions and how these have been integrated into the archetypes' trajectories. This provides a way to update the archetypes' trajectories in the future when opinions and behaviours change.

WP1 Outputs:

- Review of existing archetypes research and segmentation methods to inform stakeholder engagement strategy and WP2 data curation & WP3 archetype development - **Completed**
- Documented user needs - **Completed**
- System and social change characterisation (with stakeholder support) - **Completed**
- Technical specification for archetypes format - **Completed**
- Outline of potential changes to FES (reflecting discussions with ESO) - **Completed**

WP2: Data analysis & curation
Aim: Review suitability of existing datasets, identify and, where possible, address gaps to create robust datasets as inputs to segmentation. Obtain stakeholder input to dataset curation/creation.

WP2 Outputs :

- Domestic consumer archetype input datasets - **Completed**
- I&C archetype input datasets - **Completed**

WP3: Segmentation & Archetype development
Aim: Develop robust segmentation methods, archetypes and archetype change trajectories that integrate into current FES modelling. Develop the archetypes in dialogue with stakeholders. Test the archetypes rigorously with ESO teams and relevant stakeholders that cover both domestic and I&C sectors. Liaise with teams running relevant projects (e.g., CrowdFlex).

WP3 Outputs:

- I&C archetype technical specification & descriptions (review version) - **Completed**
- Domestic archetype technical specification & descriptions (review version) - **Completed**
- Stakeholder workshops - **Completed**
- ESO workshops - **Completed**

WP4: Outputs, User Guidance & training
Aim: Sign off final versions of all outputs, produce a guidance manual to accompany the release of the archetypes dataset and provide training and support to the ESO, network company teams and other potential users (including how the archetypes should – and shouldn't – be used) and enable them to explain the archetypes to their own wider stakeholders.

WP4 Outputs:

- I&C Archetype descriptions (final version) - **Completed**
- I&C Archetype datasets - **Completed**
- Project report & presentation (I&C focus) - **Completed**
- User Guidance manual & training **-To be finalised**
- Scoping document on future FES directions reflecting on project outputs and stakeholder engagement outcomes - **To be finalised**
- Domestic Archetype descriptions (final version) -**To be finalised**
- Domestic consumer archetype dataset - **To be finalised**
- Project report & presentation (Domestic focus) - **To be finalised**
- User Guidance manual & training for ESO, networks & other potential users - **To be finalised**

Required Modifications to the Planned Approach During the Course of the Project

No modifications required to the project approach to date.

Lessons Learnt for Future Projects

Learning points from the technical analysis phase of the project:

- Different approaches have been used to develop the domestic and non-domestic archetypes due to both the nature of the consumers and also due to the different datasets that are available. Data for large industrial users was difficult to obtain.
- The main source used for the domestic consumers was the SERL (Smart Energy Research Lab) – due to the restricted nature of this data it has been challenging both to access the data and perform analysis on it.

Note: The following sections are only required for those projects which have been completed since 1st April 2013, or since the previous Project Progress information was reported.

The Outcomes of the Project

The project has developed understanding of the following, which could be used and applied in future projects:

- The types of consumers and the characteristics that drive their behaviour;
- What this means for their consumption, appetite for change, adoption rates of technology and ability and propensity to engage with time of use tariffs;

- Whether their engagement will be proactive or passive;
- The boundaries within which they would find flexing their demand acceptable;
- Their needs and what drives their decision making (whether it be financial reward or engagement in climate change).
- The level of trust consumers have with different organisations in energy as well as more broadly around technology;
- The proportions that make up each consumer archetype and how this varies geographically;
- How they may engage and with whom;
- What would cause a consumer to move between archetypes.

Review of benefits case

The following were identified as success criteria for the completion of the project. These are anticipated to still be met upon completion of the project.

- The archetypes developed can be applied directly to the FES modelling process
- Relevant stakeholders and project partners from external organisations have received training on how to interpret the archetypes, how to apply them and how to keep them up to date.
- The archetypes will be developed in such a way that they can be easily and quickly adopted within multiple organisations (e.g., via accessible datasets, training and user guidance.)
- The project will improve the ESO's and partner organisations' understanding of the types of consumers and the characteristics that drive their behaviour and what this means for their consumption, propensity for change, adoption rates of technology and ability and propensity to engage with time of use tariffs

Next steps

- Finalising the archetypes, their descriptions and the data that will be used in modelling in future iterations of the Future Energy Scenarios
- Training and guidance provided to National Grid ESO and partner organisations
- Plan to keep the archetypes up to date and how to apply them directly to future modelling

Dissemination

Three expert group sessions have been held with relevant stakeholders across industry representing gas and electricity network companies, Ofgem, DESNZ and industrial & commercial consumers via Energy UK. The session materials have been disseminated and recordings shared. Further sessions are planned to finalise the domestic archetypes and to deliver training to partner organisations.

Data Access

Details on how network or consumption data arising in the course of NIA funded projects can be requested by interested parties, and the terms on which such data will be made available by National Grid can be found in our publicly available "Data sharing policy related to NIC/NIA projects" and www.nationalgrideso.com/innovation.

National Grid Electricity System Operator already publishes much of the data arising from our NIC/NIA/SIF projects on the Smarter Networks Portal (www.smarternetworks.org) and National Grid ESO Data Portal (data.nationalgrideso.com). You may wish to check these websites before making an application under this policy, in case the data which you are seeking has already been published.

Foreground IPR

The following Foreground IPR will be generated from the project:

- Archetype descriptions
- Archetype datasets
- Project report & presentation
- User Guidance manual & training
- Scoping document on future FES directions reflecting on project outputs and stakeholder engagement outcomes