NIA Project Annual Progress Report Document

Date of Submission

Jul 2023

Project Reference Number

NIA2_NGESO024

Project Progress

Project Title

REVEAL

Project Reference Number

NIA2_NGESO024

Project Start Date

September 2022

Project Duration

0 years and 11 months

Nominated Project Contact(s)

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Scope

The purpose of this project is to investigate the feasibility of, and develop, a proof of concept (POC) for an ESO hosted, digitally ringfenced, balancing and constraint market which enables the ESO (supported by groups of energy sector service providers) to act autonomously in building innovative concepts, services and solutions to accelerate the ESO's Markets Roadmap and drive to net zero.

Throughout the project we will engage key SMEs internally and externally to gather their views on the development of such a system. Activities will include:

- Conduct markets scan and review of Future Market Reform
- Run a "future vision" event with Industry Innovators on user requirements
- Event output/documentation review and brainstorming session, validate hypothesis
- Review tie-in with the ESO's Single Markets Platform and the Digital Engagement Platform
- Development and delivery of a high-level business case, risk/barrier assessment and scoping document
- Development and delivery of a pilot fit/gap analysis and estimated costs and feasibility study

Objectives

1. Deliver a vision statement, agreed ESO and market stakeholder purposes and a regulatory position statement
2. Through engagement with internal and external stakeholders identify, and answer, key questions
3. Produce a high-level POC design
4. Map requirements to business capabilities and present a fit/gap analysis
5. Propose how the system could be piloted and funded

Success Criteria

The project will be deemed a success with delivery of a:

- High-level business case and risk barrier assessment
- PoC and scoping document
- Pilot fit/gap analysis and estimated costs and feasibility study

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

Project Overview and Activities:

The aim of the first 2 phases of the REVEAL project, which ran from September 2022 to December 2022 was to investigate the feasibility of an ESO hosted digitally ringfenced environment(s) which can enable the ESO and industry to collaboratively build and trial innovative concepts, services, and solutions, to drive towards Net Zero and enable more competitive markets.

Phase 1 (Complete):
The objective of Phase 1 was to gather views from across industry and the ESO on the future vision and purpose of REVEAL, identify further problems that REVEAL can address, and review tie-in with existing ESO platforms.
This was done by carrying out extensive workshopping with ESO and industry stakeholders, including a Future Vision event with innovators, and by analysing documentation to ensure alignment with existing platforms and initiatives.

 Phase 1 Deliverables:
Validated vision, purpose, and problem statements for REVEAL. Stakeholder log to be built on in next phases of REVEAL. Breakdown of tie-in with existing ESO platforms.

Phase 2 (Complete):
The objective of Phase 2 was to define the desired capabilities of REVEAL technical solutions, develop the benefits case, and conduct a full technical and regulatory feasibility assessment, outlining risks and mitigations. This was done by creating potential solution options, defining REVEAL's value with our stakeholders, reviewing technical and regulatory feasibility, and creating short- and long-term options for solution implementations.

Phase 2 Deliverables:
Technical and regulatory feasibility study (high-level business case) including: proposed and alternative solutions with detailed capability mappings, initial benefits case, outcomes of market scan and analysis of Market's Roadmap and Net Zero Market Reform, regulatory impact analysis and outcomes from industry sandbox research, risks and mitigations, funding and costing options, and recommendations for next steps (for a pilot or PoC post detailed solution design).

The outputs from Phases 1 and 2 of the REVEAL project led to a recommendation of a continuation of the project into a Phase 3. This phase will focus on what would be required for the development of an ESO-hosted Live Trial Environment and Trial Management Platform to enable the ESO and industry to trial innovative concepts, services, and solutions more easily and quickly, to drive towards Net Zero and enable more competitive markets. Specifically, the Live Trial Environment will be a dedicated and configurable environment for the execution of live trials, and the Trial Management Platform will be a web-based set of tools for the communication, planning, analysis, and information sharing of trials.

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

As a result of the outputs of Phases 1 and 2 it was identified that there was merit in continuing the project into a further phase, Phase 3 which started in January 2023:

The REVEAL project was extended by four months, at an additional cost of £800k, to further define solution requirements and explore the full range of required features to enable the REVEAL concept to deliver the most value. The key aims of Phase 3 were to increase organisational readiness and further define technical designs, through developing and prioritising use cases to inform solutions, completing high-level designs and architectures for each solution to move towards future development work, conducting user research to understand user needs, and supporting workstreams with extensive stakeholder engagement to inform final solution designs.

In total, the REVEAL project team worked through 110 total Phase 3 engagements (comprising of 90 ESO stakeholder calls and workshops and 20 external calls and user research sessions) to inform solution designs. The user research sessions highlighted 6 key themes and 20 key findings which allowed for validation of comments, viewpoints, and pain points expressed by SMEs during fact-finding. This helped build the use case backlog to understand how potential users would want to use REVEAL, and which features were most important to prioritise for our designs. This was followed by the creation of Epics (technical work packages) and Epic Specifications (requirements for each Epic) for our core solutions, which a development team could use to implement and build REVEAL.

Alongside this, an operating model was developed to define new to-be trialling processes and trial prioritisation approaches with supporting RACIs and personas to instruct new process steps, and a trial team design exercise was completed to show what roles would be needed to operate REVEAL in the future. A regulatory model was also created to support on defining a policy-led environment, and to explain how the current derogation processes could be streamlined for trials. A detailed business case was made to provide full justifications for REVEAL to guide future decision-making, and realistic implementation roadmaps were created to show step by step how REVEAL solutions could be implemented through Epic work packages and agile development.

Phase 3 Deliverables:
Technical Design Deliverables (Complete):
Full suite of high-level solution architectures (including as-is and to-be architectures), scoping reports for Phase 3 solutions, internal and external user research reports, Epics backlog of solution technical work packages, Epic Specifications for each Epic, next phase plans, and high-level design documentation for the final two core solutions including systems context, non-functional requirements, security considerations, and integration approaches
Organisational Readiness Deliverables (Complete):
Stakeholder plan, map, and reports from Phase 3 engagements, use case backlog and prioritised use cases, operating and regulatory model covering the dimensions of process, organisational design, governance, and systems, next phase implementation roadmaps, and a full business case including scoping, benefits analysis, and next phase costs, risks, and resourcing requirements, with a supporting change impact assessment.

 The main outputs from Phases 1-3 of REVEAL will be shared in an interim summary report on the Smarter Networks Portal.

Lessons Learnt for Future Projects

The project provides insights into many areas, both within the trials space but more widely as well within the ESO and industry. Some of the key lessons have been documented below:

- Feasibility for a Trials Environment and Platform – The building of an environment dedicated to trials and a supporting platform to enable said trials was found to be feasible during this project.

- ESO Stakeholder Pain Points – Through our many internal engagements sessions with ESO stakeholders we have captured many pain points that could be addressed by future projects. These have been captured in the Phase 1 and Phase 2 Feasibility Study, and in the Phase 3 Engagement Report.

- Use Case Backlog – Through the work we have completed in our use Case backlog, we collated several use cases which are currently out of scope for REVEAL. These are interesting ideas to have in the parking lot for future REVEAL iterations or other projects.

- Wider Access API (WA API) Report – As part of the API & System Integration workstream, a WA API report was created which explained the problems, potential solutions, and improvement suggestions for the WA API. This has been shared with the relevant ESO teams to take forward outside of REVEAL and trials.

- As-is Process Maps – As part of the Operating Model deliverable, the as-is process was mapped for the current ESO trial processes using best practices. This could be applied to other processes in the ESO to support current process mapping initiatives.

- Metrics and KPIs – As part of the Operating Model deliverable, quantitative and qualitative metrics and KPIs for REVEAL success were determined. Many of these metrics align to business priorities and could be leveraged elsewhere in ESO innovation.

- Control Room Systems – As part of the Live Trial Environment reports and scoping exercises, information that was not previously

known to ESO innovation about ESO systems were uncovered. These can stand as useful terms of reference for future innovation projects in National Control.

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

Key Outcomes from Phase 1:

- Buy-in was generated from both industry and ESO stakeholders towards REVEAL's fundamental concepts, meaning there is a strong potential for widespread future adoption.
- Key problem statements were identified which REVEAL can address, linked to wider energy sector challenges, which positions the project as an impactful initiative.
- Key vision and purpose statements were synthesized with stakeholders to ensure the project is grounded in the collective input and aspirations of those involved, enhancing its credibility.
- We also began to define the core capabilities for our REVEAL solutions, aligning with existing ESO digital projects, in order to gain a solid foundation for future integration with existing platforms.

Key Outcomes from Phase 2:

- The Feasibility Study concluded that REVEAL and its concepts are feasible, with certain caveats and conditions attached.
- The technology needed to build REVEAL was feasible in time, due to identified ESO dependencies. The business and industry benefits were clear, with near-term and long-term solutions scoped for further design exercises.
- Initial findings uncovered that REVEAL solutions were unlikely to be prohibited by costs in the future.
- Discoveries were made, through engagements with Ofgem, that a trial regulatory sandbox is feasible, but that with current processes it would be unlikely to speed up trials or enable more trials to be conducted.
- A recommendation was made to proceed to an additional Phase 3 to focus on detailed technical designs and refinement, which would be supported by a workstream dedicated to organisational readiness.

Key Outcomes from Phase 3:

- Live Trial Environment and Trial Management Platform concepts and architectures fully designed, and ready to be developed through suggested roadmaps. Additional 'Trials Conditions and Scenarios' module designed as part of the Live Trial Environment to bring further value in later development iterations.
- ESO and industry stakeholders bought in to core solutions and understand the benefits of REVEAL, further enabling proposed developments to go forward.
- Investigation into integration issues related to the Wider Access API in past trials concluded, with the recommendation of initiatives and quick wins to tackle documented issues that are wider than trials.
- Organisational readiness workstream completed, with the outputs and deliverables well positioned to help the ESO develop REVEAL, and then maintain and operate its environments once created.
- Recommendations compiled advising progression to a Phase 4 of work, focused on development of the Live Trial Environment (starting with a Proof of Concept), and the Trial Management Platform (see Planned Implementation for more detail).

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

Summary reports for phases 1-3 of REVEAL will be uploaded to the Smarter Networks Portal when available.