

Project Progress Report 2020



Document Control

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Executive Summary

Overview of RaaS

The Resilience as a Service - RaaS - innovation project seeks to improve the operational resilience of electricity distribution networks in remote areas.

The aim is to develop and trial a new market-based solution which can swiftly, automatically, restore supply to customers in the event of a fault, using services procured from a local Battery Energy Storage System together with local Distributed Energy Resources.

The key benefits of this approach in providing cost effective, local network resilience will include an improved service to customers, together with a lower carbon solution than the conventional option of transporting a temporary diesel generator to site.

The project is a partnership between Scottish and Southern Electricity Networks (SSEN), E.ON and Costain, and has been awarded funding of £10.9m through Ofgem's Network Innovation Competition (NIC).

In addition to demonstrating the technical concept, the work will develop the commercial framework for RaaS - evaluating the financial case from a DNO perspective and assessing the investment case for RaaS service providers with options for revenue stacking in other flexibility services markets.

The first phase of the project focuses on site selection, system design for the chosen demonstration site, and refinement of the business case for RaaS. This stage will validate whether the concept is technically feasible and financially viable, to inform a decision during 2021 on whether to proceed with the deployment and operation of a RaaS system at the chosen site for a trial period of up to two years.

Overall Project Progress

The project commenced in early 2020 and this document covers the first reporting period to December 2020. Whilst the impacts of the Covid-19 pandemic became apparent during the early stages of the project, good progress has been made through the move to alternative ways of working and use of remote working technologies. One impact of the travel restrictions associated with Covid-19 public health measures, however, has been to delay the planned site visits required to select the primary substation to be taken forward to the RaaS design stage and potential trial. In response to this, the project team closely monitored the guidance issued by governments and the partner organisations, and were able to complete two rounds of site surveys in August and September 2020. In line with this, the project programme was reassessed to reflect the changes, and resulting shifts to the submission dates for the Project Deliverables were communicated with and accepted by Ofgem. None of the changes represents a 'Material Change' as defined within the NIC project governance¹.

Key achievements in this reporting period are as follows:

- Project initiation
- Developing insights regarding the RaaS concept and broader flexibility markets, including:
 - understanding existing and potential future flexibility markets
 - determining RaaS product design scenarios to be assessed within the Investor Business Case and operational optimisation analysis
 - holding interviews with other electricity network stakeholders to explore their perceptions of the application of RaaS within the wider flexibility markets
 - Development of a Conceptual Engineering Design for RaaS
- Evaluating and shortlisting potential trial sites, with site surveys held to allow the trial site to be selected

¹ the definition of a Material Change requiring Ofgem's approval is provided in Appendix 1 and associated Section 8.23 of Ofgem's 'Electricity Network Innovation Competition Governance Document v.3.0', 30 June 2017

- Commencing development of the Front End Engineering Design (FEED) for the chosen trial site
- Developing a methodology for future assessment of the Investor Business Case for RaaS
- Establishing and holding the first meeting of the project's Stakeholder Advisory Board
- Stakeholder engagement activities with local communities, governments, academia, consultancies and interested Industrial & Commercial (I&C) organisations
- Identifying relevant innovation projects and initiatives from across the industry which have relevance to RaaS, and engagement with DNOs, National Grid ESO and other organisations to introduce the project, discuss points of reciprocated interest and establish working relationships for sharing learning
- Creation of a logo, website and designated email address for the RaaS project
- Commencement of the procurement process for support with key aspects of SSEN's project activities
- Commencement of a Request for Information (RFI) process with potential providers of the Battery Energy Storage System (BESS)

Learning and Dissemination

In addition to the formal Project Deliverables set out in the Project Direction, the project team have defined a suite of intervening deliverables which each contribute to the project objectives. As these are completed, they will also be published on the project website - www.project-raas.co.uk - and made available to all interested parties.

Following initiation of the project, a wide range of dissemination activities have been undertaken to raise awareness of the programme plans and benefits of a RaaS. The range of stakeholders contacted has included:

- all GB DNOs
- National Grid ESO
- members of the Stakeholder Advisory Board for RaaS - currently comprises BEIS, Citizens Advice, ENA, National Grid ESO, Northern Powergrid, Ofgem, Scottish Government, Sustainability First
- project teams from a wide range of other relevant electricity network innovation projects and initiatives
- local community groups including the Highlands Council and Community Councils local to the shortlisted potential trial sites
- SSEN BAU colleagues
- Academic institutions, aggregators, consultancies and other regional governments.

Project Manager's Report

Project Summary

The Resilience as a Service (RaaS) Network Innovation Project seeks to improve the operational resilience of electricity distribution networks in remote areas. The aim is to develop and trial a new market-based solution which uses services provided by a Battery Energy Storage System (BESS) together with local Distributed Energy Resources (DER) to swiftly, automatically, restore power to customers in the event of a fault (illustrated in Figure 1). Through temporary operation of the network in islanded mode, RaaS bridges the period of time required for a DNO to repair the fault or to dispatch a conventional diesel generator to site for a longer term issue.

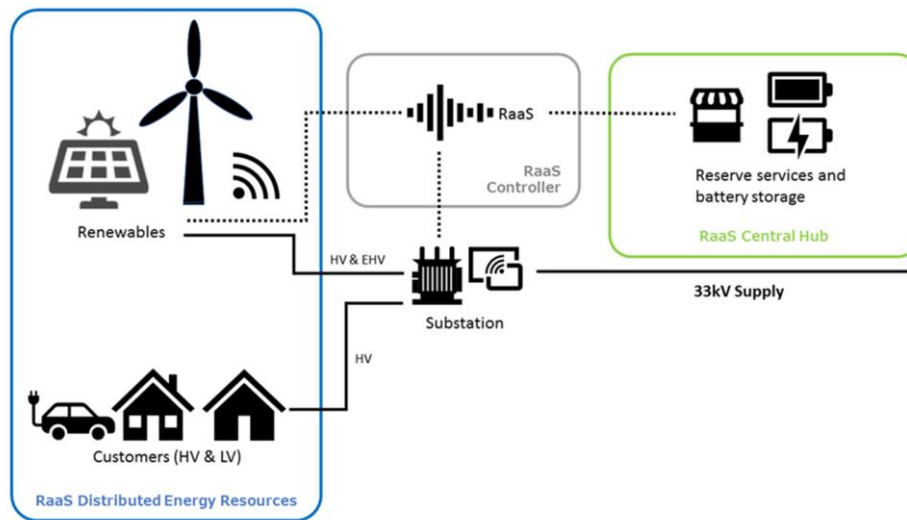


Figure 1. Topology of the Primary RaaS solution

The RaaS concept would deliver low carbon, cost effective network resilience to improve security of supply for communities in areas susceptible to power outages, supporting the UK's transition to Net Zero. The project is a partnership between SSEN, E.ON and Costain, and has been awarded funding through Ofgem's Network Innovation Competition (NIC).

In addition to demonstrating the technical concept, the work will develop the commercial framework for RaaS - evaluating the financial case from a DNO perspective and assessing the investment case for RaaS service providers with options for revenue stacking in other flexibility services markets.

The first phase of the project focuses on site selection, system design for the chosen demonstration site, and refinement of the business case for RaaS. This stage will validate whether the concept is technically feasible and financially viable, to inform a decision during 2021 on whether to proceed with the deployment and operation of a RaaS system at the chosen site for a trial period of up to two years.

Project Management

In addition to regular discussions regarding individual project activities, monthly Project Delivery Board (PDB) meetings take place with the key project staff from SSEN, E.ON and Costain to evaluate progress, review risks and discuss upcoming tasks and deliverables. The PDB then reports to the Project Steering Board (PSB) comprising senior managers from SSEN, E.ON and Costain, which sits quarterly.

During this reporting period several documents have been created for active use in developing project activities and supporting collaboration between project partners. These include:

- a Stakeholder Engagement and Communications Plan

- a ‘relevant projects for RaaS review’ log - a list of other projects and initiatives that the project team have identified as being relevant to RaaS, and continue to develop useful working relationships with to share learning which will compliment and build on individual project activities
- a ‘RaaS - additional considerations’ log - a log of ideas and points for consideration across a range of themes, which have become apparent through ongoing project activities, to ensure that these are incorporated into project plans and addressed fully

These documents are kept on the project’s collaboratively managed secure file share system along with regular project management documents including:

- the Project Programme
- the Risk and Opportunities Register
- an Actions Log
- a Stakeholder Engagement and Communications Log

Stakeholder Advisory Board

The Stakeholder Advisory Board (SAB) for RaaS was established following project initiation and sat for the first time in September 2020. The role of the SAB is to provide strategic oversight, ensuring that the project:

- Remains relevant to strategic direction of the GB electricity sector
- Considers relevant learnings from other innovation projects
- Flexes according to changes in regulation and to new market trends
- Delivers learning outcomes relevant to all GB DNOs

The board represents a range of stakeholder perspectives, with participation from the following organisations: BEIS, Citizens Advice, ENA, National Grid ESO, Northern Powergrid, Ofgem, Scottish Government, Sustainability First. As the potential trial site has now been selected, the project team have invited the local Community Council to join the board providing an additional key perspective on the RaaS concept and project proposals.

Key Issues

The primary issue during this reporting period relates to the broad impacts of the Covid-19 pandemic. The move to alternative ways of working and use of remote working technologies has allowed good progress to be made, however travel restrictions resulted in delays to the planned site visits. Though the surveys have now been completed, the impact of travel restrictions has had an impact on the project timeframes, and therefore the associated dates for planned submission of the Project Deliverables. In response to this, the project programme has been closely reviewed and reassessed to reflect the ongoing changes, and the resulting shifts to the submission dates for the Project Deliverables have been communicated with and accepted by Ofgem. The changes in Project Deliverable dates are presented in Figure 2, and more information is given in the Project Deliverables section of this report.

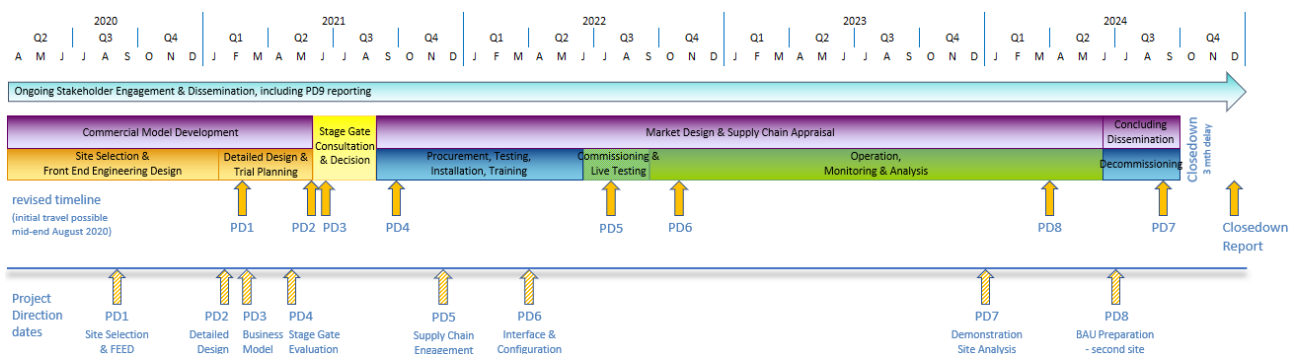


Figure 2. Project timeline with original and revised deliverable submission dates

The ongoing Covid-19 pandemic continues to represent a key risk to the project timeframes.

RaaS Work Packages

The project has been divided into 8 Work Packages (WP) which are summarised in Table 1. A brief description of each Work Package is given below together with an update on the progress of each to date. A fuller description of the tasks performed to date can be found in the Progress Against Plan section of this report.

Table 1 - Overview of the RaaS Work Packages

Work Package	Title	Lead Project Partner
WP1	Project Coordination	Costain
WP2	Front End Engineering Design	E.ON
WP3	Detailed Design	E.ON
WP4	Planning for Operational Commercial Optimisation	E.ON
WP5	Business Model	E.ON
WP6	Supply Chain Engagement	Costain
WP7	Demonstration Site Construction and Operation	SSEN
WP8	Dissemination	Costain

WP1 - Project Coordination

WP1 covers all core project management activities carried out by each partner. To date, the team have set up and held regular monthly review meetings which cover discussion on progress against plan, potential risks, upcoming tasks and any additional points identified over the course of the month. The Project has also held two quarterly Project Steering Board meetings, and hosted the first Stakeholder Advisory Board meeting.

WP2 - Front End Engineering Design (FEED)

WP2 consists of the initial design phase for the proposed method forming the foundations on which the detailed design for the demonstrator should be built. This includes defining the wider potential use cases for a RaaS asset, identifying the trial site for the project, and developing specification of the RaaS System and the RaaS Service, including definition of key protection and earthing arrangements, interfaces and responsibilities between the RaaS Provider and the DNO as well as analysis and initial discussion of required operational processes. To date, the demonstration site for the project has been selected, the initial concept design has been developed, and work on the FEED has commenced.

WP3 - Detailed Design

WP3 develops the technical design for the proposed solution. This will include detail regarding the BESS and associated Energy Management System (EMS), the interfaces with existing substation assets, the required comms requirements and information exchanges, the network protection systems, and the associated roles & responsibilities. Potential equipment suppliers will also be identified, and during this reporting period a Request for Information has been issued to a longlist of potential suppliers. The majority of this work will be completed within the next reporting period.

WP4 - Planning for Operational Commercial Optimisation

WP4 will develop the operational schedules for the BESS which optimise provision of RaaS and participation in other flexibility markets. This will include defining scenarios for the design of the RaaS product, modelling the

future flexibility landscape and market analysis to understand stakeholders' perceptions of RaaS and how it can integrate with other flexibility markets at DSO and TSO level. To date, activities have taken place to understand the current GB flexibility markets, and stakeholders' opinions of RaaS and flexibility (based on engagement activities with all DNOs, National Grid ESO and the ENA). Furthermore, product design scenarios have been developed. These scenarios will be modelled with regards to potential flexibility revenue streams, which will be used for the business modelling activities within WP5.

WP5 - Business Model

WP5 will bring together the technical design, the product design, optimised operational schedules and stakeholder input to form the business model for potential RaaS suppliers. To date, the methodology for the Investor Business Case has been developed to outline the structure and methodologies that will be used and applied in the RaaS Business Model report. Furthermore, initial scoping has begun to determine the approach for developing the Investor Risk Matrix. The risk matrix and the business model will be finalised in the next reporting period.

WP6 - Supply Chain Engagement

WP6 will include supply chain engagement activities and the investigation into the GB RaaS market and its commercial risks for new participants. This will include investigation into the full potential of RaaS across GB and the development of an enterprise model design for the future RaaS market. To date, work has begun mapping the participants of the RaaS market, and engagement for this WP will increase during the next reporting period.

WP7 - Demonstration Site Construction and Optimisation

WP7 will see the procurement, construction, installation and commissioning of a RaaS system at the selected trial site, with detailed testing and a live operational period of ~2 years, based upon the detailed design created through WP3. This WP will begin during Phase 2 of the project.

WP8 - Dissemination

WP8 comprises all project dissemination activities, including conferences, presentations, webinars, and attendance at other relevant events. To date, a RaaS logo and website has been created and the project team have been engaging with all GB DNOs, National Grid ESO, government organisations, aggregators, consultancies, universities, local communities and other interested organisations to promote the project.

Outlook for Next Reporting Period

Following the successful start to the project and this year's activities, we look forward to sharing more of the project's learnings over the next reporting period. In total, there are four Project Deliverables that will be published in the next reporting year, these are:

PD1 - Front End Engineering Design (February 2021)

PD2 - Detailed Design (June 2021)

PD3 - Business Model for Potential RaaS Suppliers (June 2021)

PD4 - Stakeholder Feedback Event (Stage Gate) (September 2021)

Pending a successful stage gate approval, the project will move into Phase 2 and trial implementation of RaaS. The project team will continue to monitor restrictions related to the ongoing Covid-19 pandemic, and identify opportunities to maintain progress using alternative ways of working. Any implications with regard to project timeframes will be communicated to senior managers, the Project Steering Board and Stakeholder Advisory Board, and Ofgem at the earliest opportunity.

Business Case Update

No changes have been made to the RaaS Business Case as presented within the NIC Full Submission Document. The Business Case for RaaS will be reviewed and verified during future reporting periods.

Progress Against Plan

Summary of Progress

The project commenced in early 2020 and this document covers the first reporting period to December 2020. The Covid-19 pandemic has impacted the project but despite this, the team have adapted and developed alternative ways of working making the most of remote working technologies. As a result, good progress has been made by the project team with the majority of key tasks progressing well, as summarised below. However, the public health measures and travel restriction related to Covid-19 have resulted in delays to the site visits required to select the primary substation taken forward to the RaaS design stage and potential trial. The original project programme scheduled these to take place in April/May 2020, subsequently in compliance with guidance in place by both governments and partner organisations, the project team were able to successfully complete two rounds of site visits in August and September 2020. This shift has resulted in changes to the project programme, with associated implications for the submission dates of the Project Deliverables set out in the Project Direction. These changes have been communicated to and accepted by Ofgem, and the project timeline indicating the original and updated Project Deliverable dates is shown in Appendix 1, with the dates presented in the Project Deliverables section of this report.

Focus of this Reporting Period

Key achievements during this reporting period are as follows:

- Project initiation
- Developing insights regarding the RaaS concept and broader flexibility markets, including:
 - understanding existing and potential future flexibility markets
 - determining RaaS product design scenarios to be assessed within the Investor Business Case and operational optimisation analysis
 - holding interviews with other electricity network stakeholders to explore their perceptions of the application of RaaS within the wider flexibility markets
- Development of a Conceptual Engineering Design for RaaS
- Evaluating and shortlisting potential trial sites, with site surveys held to allow the trial site to be selected
- Commencing development of the FEED for the chosen trial site
- Developing a methodology for future assessment of the Investor Business Case for RaaS
- Establishing and holding the first meeting of the project's Stakeholder Advisory Board
- Stakeholder engagement activities with local communities, governments, academia, consultancies and interested Industrial & Commercial (I&C) organisations
- Identifying relevant innovation projects and initiatives from across the industry which have relevance to RaaS, and engagement with DNOs, National Grid ESO and other organisations to introduce the project, discuss points of reciprocated interest and establish working relationships for sharing learning
- Creation of a logo, website and project specific email address for RaaS
- Commencement of the procurement process for support with key aspects of SSEN's project activities
- Commencement of a Request for Information (RFI) process with potential providers of the BESS system

Key Activities for the Next Reporting Period

Activities in the next reporting period include:

- Finalising the FEED and circulating this for peer review
- Creating detailed system designs, including completion of tender for equipment suppliers
- Developing the Investor Business Case
- Completing the DNO Business Case
- Developing Heads of Terms for BAU application
- Amending the Collaboration Agreement for Phase 2 of the project
- Ongoing stakeholder engagement and feedback
- the Stage Gate decision process, including stakeholder consultation
- Commencement of Phase 2 of project (*subject to the Stage Gate decision*)
- Submission of Project Deliverables 1-4 (more details in Project Deliverables section below)

Additional Considerations

Over the course of the project to date, internal discussions and engagement with stakeholders have highlighted a range of factors that it will be important to consider and address within the project. These items complement the original project plans by ensuring that thoughts triggered by ongoing project activities and stakeholder engagement inform the project work and development of the RaaS solution.

Themes thus far range from technical design to community engagement, and a 'RaaS - additional considerations' log has been developed to capture these thoughts so the project delivery team can plan for how these will be incorporated into project activities. This will also ensure that suitable feedback is given to the stakeholders who raised the consideration.

Progress Against Budget

Table 2 below details expenditure to date against each line in the Project Budget and compares this with planned expenditure to date. Commentary is also provided below for projected variances greater than 5%.

Table 2 - Summary of Project Budget

Cost Category	Total Budget (Project Direction)	Expenditure to Date	Expected Expenditure (original budget)	Variance	
Labour	£1,489,316	£168,477	£340,810	£182,201	52%
Equipment	£3,308,967	£0.00	£205,000	£211,560	100%
Contractors	£5,262,815	£135,154	£1,988,016	£1,915,519	93%
Travel and Expenses	£513,671	£1,326	£102,630	£104,268	99%
Decommissioning	£356,338	£0.00	£0	£0	-
Total	£10,931,107	£304,957	£2,636,456	£ 2,413,547	89%

Comments around variance

The primary cause of the project underspend relates to the shift in project timeframes necessary in response to the Covid-19 pandemic, as presented in the Project Manager's Report section of this report. This has resulted in a change to expected payment milestones, however no significant change to the overall expenditure on Labour, Equipment, Contractors or Decommissioning is anticipated at present.

The 'Travel and Expenses' cost category has experienced significant efficiencies resulting in cost savings which will continue to be reflected in project expenditure for this line item. Whilst the project has been able to complete site surveys in full compliance with governmental public health measures and business guidance, alternative ways of working and use of remote working technologies have shown a range of benefits with regard to efficiency, cost savings and carbon emissions. It is expected that these will continue to influence expenditure on this cost category over the course of the RaaS project.

Project Bank Account

A copy of the current project bank account statement is provided in Appendix 2 (confidential).

Project Deliverables

The RaaS Project Direction defines nine Project Deliverables, as presented in Table 3.





As described within the Progress Against Plan

section, the impact of restrictions related to Covid-19 public health measures has had an impact on the project timeframes, and therefore the associated dates for planned submission of the Project Deliverables. In line with the response across SSEN's portfolio of innovation projects, the project programme has been closely reviewed and reassessed to reflect the ongoing changes, and the resulting shifts to the submission dates for the Project Deliverables have been communicated with and accepted by Ofgem. The first four Project Deliverables are now due in the next reporting period, and none of the changes presented in Table 3 represents a 'Material Change' as defined within the NIC project governance². Ongoing travel restrictions have led to it taking longer to confirm the site selection than the revised programme accounted for and as such, a slight delay is expected to Project Deliverable 1 which has been communicated to Ofgem.

Table 3 - RaaS Project Deliverables

Deliverable	Description	Due	Evidence	Status
1	Front End Engineering Design (FEED) (WP2)	Project Direction: 31/08/20 Revised: 25/02/21	<ul style="list-style-type: none"> Report detailing the selected site for demonstration and proposed Use case(s) for the RaaS demonstration. External peer review of FEED. 	On target for revised dates.
2	Detailed Design (WP3)	Project Direction: 29/01/21 Revised: 04/06/21	<ul style="list-style-type: none"> Detailed design of controls, electrical integration, available DER and the BESS complete. Publish Trial Programme on SSEN RaaS webpage. 	On target for revised dates.
3	Business Model for potential RaaS suppliers (WP5)	Project Direction: 26/02/21 Revised: 18/06/21	<ul style="list-style-type: none"> Construct investment business case for RaaS supplier. Produce draft Heads of Terms for RaaS method. 	On target for revised dates.
4	Stakeholder Feedback Event (Stage Gate)	Project Direction: 30/04/21 Revised: 24/09/21	<ul style="list-style-type: none"> Stakeholder feedback event to disseminate and gather feedback on outputs. 	On target for revised dates.

² the definition of a Material Change requiring Ofgem's approval is provided in Appendix 1 and associated Section 8.23 of Ofgem's 'Electricity Network Innovation Competition Governance Document v.3.0', 30 June 2017

Deliverable	Description	Due	Evidence	Status	
5	Supply Chain Engagement (WP6)	Project Direction: 31/11/21 Revised: 22/07/22	<ul style="list-style-type: none"> Publish Commercial Strategy on SSEN RaaS webpage. Present Enterprise design for Resilience as a Service on SSEN website 	On target for revised dates.	
6	Network Adaptation and Acceptance Testing (WP7)	Project Direction: 31/03/22 Revised: 28/10/22	<ul style="list-style-type: none"> Produce interface and configuration specifications and commissioning reports. 	On target for revised dates.	
7	Trial 1 - Demonstration at first site complete (WP7)	Project Direction: 29/12/23 Revised: 06/09/24	<ul style="list-style-type: none"> Publish Demonstration analysis results on SSEN RaaS webpage covering both technical and commercial aspects. Stakeholder dissemination event showcasing learnings. 	On target for revised dates.	
8	BAU Preparation	Project Direction: 28/06/24 Revised: 24/05/24	<ul style="list-style-type: none"> Technical design to support second demonstration site. Consultation with potential RaaS market for second demonstration site. 	On target for revised dates.	
9	Comply with knowledge transfer requirements of the Governance Document.	End of project	<ul style="list-style-type: none"> Annual Project Progress Reports which comply with the requirements of the Governance Document. Completed Close Down Report which complies with the requirements of the Governance Document. Evidence of attendance and participation in the Annual Conference as described in the Governance Document. 	2020 Project Progress Report on schedule for submission in December 2020.	
Key					
	Completed (Deliverable met)		Emerging issue, remains on target		Deliverable completed late
	On target		Unresolved issue, off target		Not completed and late

As may be expected, the key challenge over the next reporting period relates to the ongoing Covid-19 situation, and its potential impact on both the timing of project activities and the availability of individual members of the project team, colleagues and consultants. Other key challenges are within the normal scope of NIC project management activities.

Data Access Details

Data obtained over the course of the RaaS project will be available to interested parties through appropriate channels, such as published project reports and deliverables available via the project website. This information will be provided in accordance with the SSEN Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) Data Sharing Procedure, reference PR-NET-ENG-020, Revision 1.00³.

For further information please email future.networks@sse.com.

³ this link will download the PR-NET-ENG-020 document from the SSEN website - www.ssen.co.uk/WorkArea/DownloadAsset.aspx?id=14258

Learning Outcomes

The learning outcomes defined for the RaaS Project are as follows:

- 1) Understand how resilience can be supplied as a service
- 2) Demonstrate that the system components for the provision of resilience can be integrated into the network, with clarity on the division of scope of supply between the DNO and resilience supplier
- 3) Confirm that storage technology providing resilience is capable of achieving the expected revenue streams to minimise the cost of the resilience service
- 4) Develop an understanding of the optimum relationship between the resilience services that could be provided, whilst ensuring commercial viability for all participants
- 5) Develop supply chain models for the provision of resilience, and understand how the service can be procured in the most cost effective way
- 6) Disseminate Project results within the industry

A summary of the progress against these objectives is given below, together with information on associated dissemination activities.

Understand how resilience can be supplied as a service

This aim covers an understanding of both the technical and commercial aspects of how resilience can be supplied as a service.

Technical aspects

The definition of resilience requirements is key for a successful implementation of a RaaS product. When procuring resilience as a service, an exact understanding of the requirements with regards to resilience is required to enable high market participation. This includes but is not limited to factors such as duration and frequency of potential faults, and demand levels and duration of time to be covered by a RaaS solution. The project will investigate these requirements in further detail in the coming months.

Commercial aspects

When providing resilience as a service, commercial optimisation is an important aspect for potential market participants. The work undertaken in WP4 and WP5 so far illustrates the significance of RaaS product design (i.e. definition of the DNO requirements) in allowing potential investors in a RaaS asset to assess payback and return opportunities in the context of participation in wider flexibility markets. Research activities and stakeholder engagement indicate that RaaS provision can be stacked with other flexibility services, however, careful service design of RaaS will be needed to ensure that the commercial incentives for the RaaS operator are aligned with local (and potentially national) outcomes that most benefit electricity customers. For example, the design of RaaS and distributed black start services should provide clarity on whether the Battery Energy Storage System (BESS) is optimised to keep local users on supply, or to support national system recovery.

Demonstrate that the system components for the provision of resilience can be integrated into the network, with clarity on the division of scope of supply between the DNO and resilience supplier

The RaaS concept is intended to cost effectively improve service to customers in areas where traditional reinforcement or use of DNO owned standby generation to provide network resilience would be prohibitively costly. The use of a flexible solution is expected to benefit the customer, DNO, and third party service provider, however a key technical question relates to the integration of the new BESS system and associated Energy Management System (EMS) with the existing DNO assets whilst maintaining clear technical, communications and data security boundaries. The Conceptual Engineering Design created during this reporting period is being used for requirements capture to inform the ongoing development of the Front End Engineering Design (FEED), and

the FEED will be circulated for external peer review to inform development of the detailed system design during the next reporting period.

Confirm that storage technology providing resilience is capable of achieving the expected revenue streams to minimise the cost of the resilience service

To date, work has been done to explore the different revenue streams available to a RaaS service provider and develop scenarios that can be tested to inform the Investor Business Case. Stakeholder feedback has indicated a good potential to stack RaaS with other revenue streams at present, and the project will continue to consider the emerging maturity of DNO flexibility markets, planned changes to National Grid ESO markets, and future possibilities such as peer-to-peer trading. These factors will be further analysed through WP4 and presented in Project Deliverable 3 'Business Case for potential RaaS suppliers'.

Develop an understanding of the optimum relationship between the resilience services that could be provided, whilst ensuring commercial viability for all participants

This objective recognises the need to be pragmatic about establishing an acceptable balance between a system which provides a full capability resilience service and a system which provides an economic level of security based on anticipated costs and benefits for market participants.

The project will develop an understanding of the range of factors that will influence the duration required for supply via a RaaS service, with consideration to both local demand patterns, DG and future Demand Side Response (DSR) integration, and will undertake cost benefit analysis from both the DNO and RaaS service provider perspectives. This has commenced with consideration of the battery sizing for RaaS, and the work underway regarding the range of further flexibility markets that a RaaS BESS asset could participate in.

Develop supply chain models for the provision of resilience, and understand how the service can be procured in the most cost effective way

This learning outcome will be explored in greater detail during the next reporting period through the Supply Chain Engagement activities within WP6. The findings from this will be presented in Project Deliverable 5 'Supply Chain Engagement'.

Disseminate Project results within the industry

Press releases were created and disseminated soon after project initiation. These were picked up by several media outlets including Power Magazine, Smart Energy International and Handelsblatt. Reports and associated project material will be shared on the project website - www.project-raas.co.uk. Initial dissemination of results to date has been through:

- discussions with teams identified within the 'relevant projects for RaaS review' log (as mentioned in the Project Manager's Report section)
- the Stakeholder Advisory Board for RaaS
- stakeholder interviews with other DNOs and National Grid ESO
- discussions with other interested parties who have made contact with the project team in response to coverage following a press release - this includes engagement with all other DNOs, National Grid ESO, ENA, aggregators, local communities, local governments, NGOs, academia and consultancies

IPR

No relevant IPR has been generated or registered during this reporting period, with none anticipated to be generated or registered during the next reporting period.

Risk Management

Risk Management Plan

When preparing the Full Submission for RaaS, the team identified key project risks and defined strategic mitigation measures, as presented in Appendix 13 to the RaaS Full Submission Pro-forma.

Following the successful NIC award and initiation of the RaaS project in early 2020, a workshop was held between key individuals from all project partners to define the risks and mitigation measures in more detail. This resulted in the creation of a detailed risk register which is now used as a live document for reviewing and addressing project risks on an ongoing basis, including review during the monthly Project Delivery Board meetings.

Where necessary, significant risks are escalated to the Project Steering Board, to seek views and support as required.

The refined RaaS project risk register categorises risks as follows:

- Project Management
- Site Selection
- FEED
- Detailed Design
- Phase 1 Conclusions
- Market Design & Supply Chain Appraisal
- Trial Deployment
- Monitoring & Analysis of Trial Sites
- Knowledge Dissemination

In addition to promoting a clear understanding of risks from the differing perspectives of the project partners, the ongoing consideration of project risks and opportunities supported the swift adoption of effective alternative ways of working in response to the Covid-19 public health measures, which have ensured the project could continue to make good progress over this reporting period.

The original Full Submission risk register is included as Appendix 3, and a snap shot of the refined risk register which is now used for ongoing project management is provided as Appendix 4.

Material Change Information

In accordance with Ofgem's 'Electricity Network Innovation Competition Governance Document v.3.0', the project confirms that no Material Change has occurred within the reporting period.

Accuracy Assurance Statement

PPR Preparation Steps

The following steps have been used to prepare and ensure the accuracy of this report:

- Initial preparation and drafting by Costain as the Programme Manager for RaaS
- Review by the Project Delivery Board members
- Review by the Project Steering Board
- Standard SSEN internal review process, including Senior Managers and the Data Assurance and Regulation teams
- Approval by the SSEN Senior Manager responsible for the project

Sign-off

As the senior manager responsible for the RaaS Project, I confirm that the processes in place and the steps taken to prepare this PPR are sufficiently robust and that the information provided is accurate and complete.



Stewart A Reid

Head of Future Networks

Scottish and Southern Electricity Networks

Date 17/12/2020

Appendices

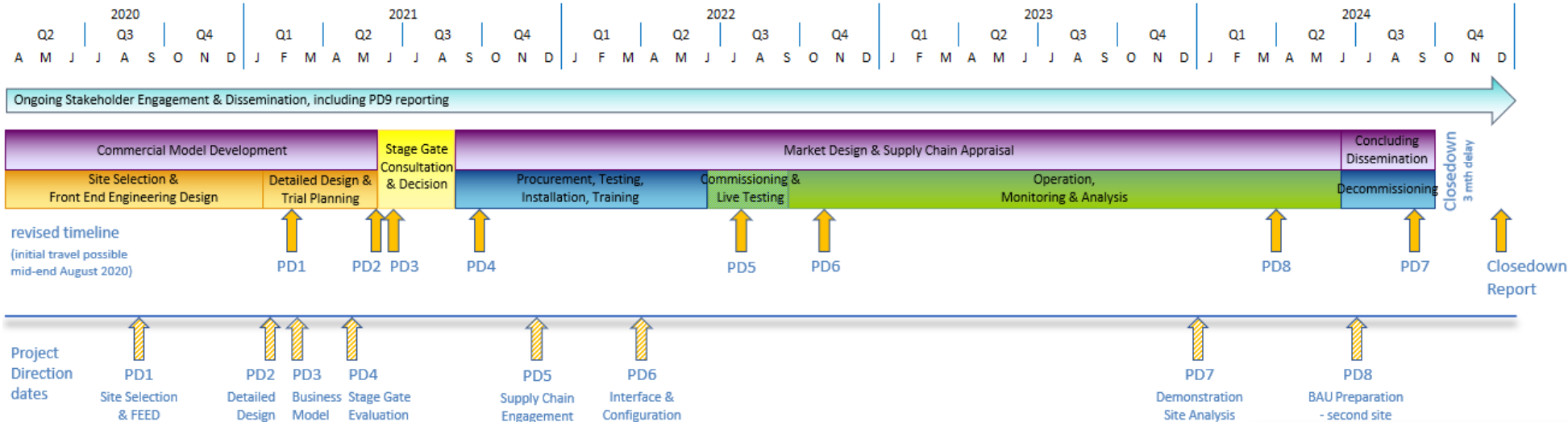
Appendix 1 - Revised Project Timeline

Appendix 2 - Project Bank Account (confidential)

Appendix 3 - Original Risk Register

Appendix 4 - Revised Risk Register

Appendix 1 - Revised Project Timeline



Appendix 2 - Project Bank Account

Please see accompanying file (confidential).

Appendix 3 - Original Risk Register

Risk ID	Risk Category	Date Raised	Risk Description	Impact	Probability of Risk Occurring	Project Impact if Risk Occurs	Expected Value for Each Risk
RRaaS001	Technical	01 July 2019	The project fails to deliver the expected financial and technical benefits expected.	Lower than expected value delivered	4	5	20
RRaaS002	Technical	01 July 2019	Significant involvement for single supplier of RaaS creates an uncompetitive market post-project.	After project is completed, the supply chain is not able to respond to the call for tender.	4	5	20
RRaaS003	Technical	01 July 2019	The project requirements and deliverables are ambiguous.	Requirements creep and loss of confidence will occur.	3	4	12
RRaaS004	Technical	03 June 2019	Circuits that require resilience are constrained such that the storage system providing resilience can't operate in different markets.	Cost of resilience can't be reduced to economically viable levels and traditional reinforcement is more economically viable.	3	7	21
RRaaS005	Technical	01 July 2019	The revenue generated from other markets by the RaaS provider fail to reduce the cost of resilience to an economical level.	The learning outcome that provision of market revenues and resilience are mutually exclusive.	3	5	15
RRaaS005 (sic)	Social	01 July 2019	Stakeholders develop inaccurate expectations.	Stakeholders will lose confidence in and support to project.	3	5	15
RRaaS006	Technical	01 July 2019	The RaaS solution, its design and implementation are more complex than first thought.	Application of RaaS is not feasible and project stops.	5	5	25
RRaaS007	Technical	01 July 2019	Suitable sites for the trials prove inadequate or are not available.	Costs increase, confidence lost and the project is delayed.	3	5	15
RRaaS008	Technical	01 July 2019	Integration of equipment and systems not achievable or takes longer than planned.	Costs increase and alternative funds required for the completion of the project.	4	5	20

Risk ID	Risk Category	Date Raised	Risk Description	Impact	Probability of Risk Occurring	Project Impact if Risk Occurs	Expected Value for Each Risk
RRaaS009	Political	01 July 2019	UK legislation changes forces project mandate, deliverables and requirements to change.	Project will be delayed or require re-scoping.	1	3	3
RRaaS010	Social	03 June 2019	Risk of outage during project demonstration is deemed unacceptably high.	If sensitive loads that can be not tolerated the demonstrations can't be carried out	1	5	5
RRaaS011	Economic	01 July 2019	Non-BAU technology proves to be more expensive than previously expected.	Project overspend requiring additional partner contribution or request to Ofgem for additional funding.	4	5	20
RRaaS012	Economic	01 July 2019	Lack of business support from partner organisations.	Intra organisational tensions increase causing delays or withdrawal from the project.	3	4	12
RRaaS007	Technical	01 July 2019	Suitable sites for the trials prove inadequate or are not available.	Costs increase, confidence lost and the project is delayed.	3	5	15

Appendix 4 - Revised Risk Register

Risk ID	Risk Item	Potential Impact	Probability of Risk Occurring	Impact if Risk Occurs	Risk Rating	Mitigation / Contingency
Project Management						
01	Delays in agreeing and/or signing the RaaS Collaboration Agreement	A prolonged process for agreeing and/or signing off the CA leads to delays in commencing work and/or appointing external parties in line with the timeframes set out in the project programme.	4	-3	-12	<p>All project partners to work with their internal colleagues to allow the CA to be signed as swiftly as possible.</p> <p>In the event of delays, review the project programme to identify how work can be rescheduled to meet the (revised) PD dates presented to Ofgem.</p> <p>In the event of potential delays to the PD dates, communicate these with Ofgem in a timely manner.</p>
02	Difficulties resourcing the RaaS project internally within the SSEN Future Networks team	Lack of sufficient input to the project results in the design & implementation of a system which does not fulfil the objectives of the RaaS concept, and/or results in the production of poor quality deliverables.	2	-3	-6	<p>An SSEN Project Manager and Project Engineer have been assigned to the project.</p> <p>Detailed introduction and/or handover processes to be used to ensure continuity & consistency where new individuals join the project team.</p>
03	Difficulties resourcing the RaaS project or ensuring consistency internally within Costain	Key members of the RaaS project team move on from Costain leaving knowledge gaps within the organisation.	2	-3	-6	<p>Project team members will be expected to develop a broader understanding of the whole project rather than just their own role to ensure knowledge should one member leave.</p> <p>Detailed introduction and/or handover processes to be used to ensure continuity & consistency where new individuals join the project team.</p>

04	Difficulties resourcing the RaaS project or ensuring consistency internally within E.ON	Lack of key resources assigned to the project or key personnel changing rapidly leads to discontinuity of E.ON's work, delays and/or poor quality.	2	-3	-6	<p>Project sponsored and support by Senior Management of each involved E.ON entity to ensure focus and consistency, with support committed via Collaboration Agreement.</p> <p>Management focus on continuity and detailed handover in case of changes in personnel, with internal documentation and knowledge management.</p>
05	Difficulties with consultant/supplier recruitment for development & implementation of the DNO-side system architecture and control platform	The absence of a consultant/supplier with sufficient knowledge & expertise results in the design & implementation of a system which does not fulfil the objectives of the RaaS concept.	2	-4	-8	<p>Early engagement with potential consultants/suppliers to raise awareness of the project and potential opportunities.</p> <p>Develop tender documents which detail all aspects of the work but set out the requirements in defined work packages, allowing different suppliers to express an interest in different elements and ensure that the most appropriate mix of skills, expertise and experience can be drawn on.</p> <p>Standard SSEN procurement processes.</p>
06	Difficulties with supplier recruitment for the BESS & EMS system architecture and control platform	Inability to find suitable suppliers or to obtain quotes within budget results in delays, budget overruns and eventually the need to stop the project.	2	-4	-8	<p>Early engagement with potential suppliers to raise awareness of the project and potential opportunities. Use of E.ON's wide network and long-term partnerships with a broad variety of potential suppliers. Early start of procurement process with RFI, RFP, RFQ phases.</p>
07	Difficulties in obtaining support from SSEN resources in other areas of the business	Lack of support from relevant teams within SSEN results in the design of a system which does not adequately meet business requirements, or prevents/results in delays to implementation of the trial scheme.	3	-3	-9	<p>Early engagement with the associated departments is critical to make them aware of the project, the requirements and the potential additional workload.</p> <p>Allowance has been made within the bid submission project budget to cover internal SSEN resourcing costs.</p>
08	Lack of budget to complete project and/or individual deliverables or over spend on budget	Over spend early in the project during Phase 1 could lead to a lack of funds in Phase 2 of the project to complete to the desired time and standards.	3	-5	-15	<p>Regular review by the project partners of expected costs and expenditure against forecast to identify and understand any differences.</p> <p>Careful procurement processes to ensure quotes are acceptable against budget, inc. maintaining the distinction between Phase 1 and Phase 2 budgets.</p> <p>Work closely with project suppliers to identify any issues and avoid potential overspend.</p>

09	External contractors and/or equipment is more expensive than expected	If equipment is more expensive than expected, project may not be in a sufficient place to continue with plans.	3	-5	-15	Develop a procurement plan that will allow equipment, specialist consultancy and additional support resources to be sourced in a cost effective way. Compare and review all quotes received in detail considering both capabilities/functionalities and costs.
10	Legislative, regulatory or trading issues are identified which present barriers to the application of RaaS	Legislation, regulatory or trading requirements or changes have practical, technical or cost implications for the application of RaaS in different locations.	1	-3	-3	Monitor any proposed legislative changes, assess the potential impacts, and provide input into any associated consultations. Review the project scope if necessary, and communicate issues to Ofgem.
11	Delays to project activities due to Covid-19	The ongoing Covid-19 situation results in delays to project activities and deliverables by one project partner, which then have implications for the completion of deliverables by other project partners or submission of PDs to Ofgem.	3	-4	-12	Costain to track project progress closely to ensure early identification & assessment of the impacts of any potential delays on any aspect of the project programme, communicating these to the RaaS Project Delivery Board in a timely manner to maintain awareness and allow potential issues to be resolved in an acceptable way. RaaS Project Delivery Board to communicate issues to the Project Steering Board/Stakeholder Advisory Group as appropriate. SSEN Project Manager to communicate issues to Ofgem.
12	Changes to the political landscape (e.g. Brexit, trade deals)	Political changes may have implications for an international project consortium.	1	-3	-3	Costain will monitor political landscape to ensure the project team are informed on any news which may impact the project team.
13	Issues in agreeing the amendments to the Collaboration Agreement prior to the commencement of Phase 2	Without appropriate revisions to the CA, the project cannot proceed to Phase 2.	3	-4	-12	The project programme includes activities relating to both the Heads of Terms for a generic RaaS contract and the CA revisions required for the project trial.

Site Selection						
14	Inadequate data for assessing and shortlisting potential RaaS trial sites	Lack of sufficient information prohibits the creation of a shortlist of sites suitable for the potential trial application of RaaS.	2	-3	-6	<p>SSEN hold relevant data within central systems or as part of system planning requirements.</p> <p>SSEN Project Engineer to engage with other areas of the business to obtain and validate additional data required to assess the sites.</p>
15	Delays to initial site visits due to e.g. Covid-19 travel restrictions	Delays to initial site visits prevent a timely decision on the preferred trial site to be taken forward for the FEED and Detailed Design stages.	3	-4	-12	<p>Costain to track project progress closely to ensure early identification & assessment of the impacts of any potential delays on any aspect of the project programme, communicating these to the RaaS Project Delivery Board in a timely manner to maintain awareness and allow potential issues to be resolved in an acceptable way.</p> <p>RaaS Project Delivery Board to communicate issues to the Project Steering Board/Stakeholder Advisory Group as appropriate.</p> <p>SSEN Project Manager to communicate issues to Ofgem.</p>
16	Inadequate data for identifying the preferred RaaS trial site in the required timeframe	Lack of sufficient information means that issues are identified late into the design or trial planning stages which prevent deployment at the planned site, or required significant re-work of the system design.	2	-4	-8	<p>E.ON's analysis of the shortlisted sites will provide additional data to inform the decision and to establish what needs to be considered or obtained during the site visits.</p> <p>Site surveys to be undertaken at each of the shortlisted sites.</p>
FEED						
17	Relevant DNO roles are not sufficiently consulted during development of the FEED and plans for system control and operation	A re-design is required resulting in delays and higher costs.	2	-4	-8	<p>SSEN to engage with all relevant roles to promote a clear understanding of project plans and seek feedback and approval as required.</p> <p>External Peer Review of the FEED as part of PD1.</p>

18	FEED report contains insufficient information to support substantial peer review to subsequently inform the detailed design	Lack of detail diminishes the opportunity for valuable feedback in the initial system design, or impacts the development of robust costing information.	2	-3	-6	Obtain input from multiple experts within E.ON, SSEN, and external consultants during development of the FEED. Provide early visibility of the planned content of the FEED report and include a review process of draft reports from relevant parties prior to completion of the final report.
Detailed Design						
19	Change of site or large changes to topology/demand of site	A re-design is required resulting in delays and higher costs.	2	-3	-6	Site selection process to work alongside clear selection criteria, taking into account future developments. Backup sites identified to switch quickly.
20	Project partners don't accept design	A re-design is required resulting in delays and higher costs.	3	-3	-9	Detailed Design not being done in isolation but in close collaboration with Project Partners and Suppliers
21	During design, certain parts of FEED are no longer relevant	A re-design is required resulting in delays and higher costs.	3	-3	-9	Clearly identify responsibilities for each part of FEED to identify party that needs to change design. FEED already developed in close collaboration with SSEN team and external experts to ensure high quality.
Phase 1 Conclusions						
22	Initial learning from Phase 1 indicates that the benefits of RaaS (including both improved resilience for the DNO and revenue stacking for the RaaS service provider) will be too low, or that the costs or risks will be too high	The project does not progress to the trial stage.	2	-5	-10	The project programme includes a Stage Gate decision process prior to proceeding to the trial stage such that if the learning concludes that there is not a sufficient balance of benefits, costs & risks, the project can be halted to avoid further expenditure.
23	The BAU commercial model for RaaS is not sufficient to attract a supply chain for wider deployment across GB	The project does not progress to the trial stage.	2	-5	-10	The project programme includes a Stage Gate decision process prior to proceeding to the trial stage such that if the learning concludes that there is not a sufficient balance of benefits, costs & risks, the project can be halted to avoid further expenditure.

24	Support not obtained from external stakeholders for the project to proceed to Phase 2	The project does not progress to the trial stage.	2	-5	-10	The project team will present the findings from Phase 1 and proposals for Phase 2 to external stakeholders as part of the Stage Gate decision process, and allow discussion to ensure a good understanding to address any potential concerns.
Market Design & Supply Chain Appraisal						
25	The MBSE system model and Project 13 enterprise design do not provide the expected insight to draw up a commercial strategy and market/value propositions.	Project design could be impacted which would impact the roll out of RaaS as business as usual.	2	-3	-6	The project team will conduct a thorough review of how a system wide approach and Project 13 principles can be used for the market design. This will include gathering learning from other projects where Project 13 has been implemented. We will engage with a broad selection of stakeholders to ensure the insights captured are representative and sufficient to give the level of detail required for the commercial strategy and market/value propositions.
Trial Deployment						
26	Delays in obtaining all permits / licenses / authorisations required for construction (inc. civils)	Not possible to commence construction within the timeframes set out in the project programme.	3	-3	-9	Costain will monitor and report to the PSB any effects on the programme.
27	Delays in meeting regulatory obligations / legislative requirements for construction (inc. civils)	Not possible to commence construction within the timeframes set out in the project programme.	3	-3	-9	Costain will monitor and report to the PSB any effects on the programme.
28	Ecology surveys identify protected species, e.g. badgers, bats, great crested newts, etc.	Not possible to commence construction within the timeframes set out in the project programme.	3	-3	-9	Costain will monitor and report to the PSB any effects on the programme.
29	Third parties (e.g. the local Fire Service) raise concerns regarding fire safety related to the BESS	Not possible to commence construction or operation within the timeframes set out in the project programme.	3	-3	-9	Costain will monitor and report to the PSB any effects on the programme.

30	Delays in shipping & delivering equipment	Not possible to commence construction within the timeframes set out in the project programme.	3	-3	-9	Costain will monitor and report to the PSB any effects on the programme.
31	Delays in testing, installation or commissioning of each aspect of the RaaS system	Not possible to commence operation within the timeframes set out in the project programme.	3	-4	-12	Costain to track project progress closely to ensure early identification & assessment of the impacts of any potential delays on any aspect of the project programme, communicating these to the RaaS Project Delivery Board in a timely manner to maintain awareness and allow potential issues to be resolved in an acceptable way. RaaS Project Delivery Board to communicate issues to the Project Steering Board/Stakeholder Advisory Group as appropriate. SSEN Project Manager to communicate issues to Ofgem.
32	Issues in scheduling outages in conjunction with the relevant SSEN teams	Delays to scheduling outages for installation & commissioning mean that it is not possible to commence operation within the timeframes set out in the project programme.	3	-3	-9	Existing SSEN processes to request staff / outages via the Control Centre. Long term planning of the tasks required with early engagement to the various departments involved, and backup plans identified should the outages be cancelled due to storms / faults, etc.
33	Issues in arranging a temporary diesel generator to supply power to customers during the commissioning & live testing period	Delays to commissioning mean that it is not possible to commence operation within the timeframes set out in the project programme.	3	-3	-9	Existing SSEN processes to arrange temporary diesel generation. Long term planning of the tasks required with early engagement to the various departments involved, and backup plans identified should the availability of temporary generation be delayed due to storms / faults, etc.
34	Available equipment cannot meet the required specifications	Inability to source equipment suitable for the application of RaaS in accordance with design and specifications impedes full implementation or indicates that RaaS is not a viable solution at present.	3	-4	-12	Two step design process implemented to ensure high quality of design and continuous alignment between SSEN, E.ON and equipment suppliers. Final design specified in cooperation with equipment suppliers to ensure equipment is able to meet specifications. Continuous due diligence from review processes within project partners and wider market.

35	Risk of damaging network assets	Application of the RaaS system results in damage to network assets which has implications for customer supplies, repair costs and/or project delivery.	3	-4	-12	Phase 1 design work must develop a comprehensive understanding of the potential risks to network assets to identify appropriate and cost effective mitigation measures. In the event of a high level of risk, communicate this to inform the Stage Gate decision process and do not proceed to Phase 2 if the risk is unacceptably high.
36	Risk of customer interruptions	Application of the RaaS system results in an unforeseen operational situation which affects customer supplies.	3	-4	-12	Phase 1 design work must develop a comprehensive understanding of the potential risks to security of supply to identify appropriate and cost effective mitigation measures. In the event of a high level of risk, communicate this to inform the Stage Gate decision process and do not proceed to Phase 2 if the risk is unacceptably high.
37	Risk of power quality problems	Application of the RaaS system results in an unforeseen operational situation which affects customer supplies.	3	-4	-12	Phase 1 design work must develop a comprehensive understanding of the potential risks to power quality to identify appropriate and cost effective mitigation measures. In the event of a high level of risk, communicate this to inform the Stage Gate decision process and do not proceed to Phase 2 if the risk is unacceptably high.
38	Operational Safety Processes & Procedures are not understood or complied with	Significant safety implications for staff and contractors.	4	-5	-20	Follow all relevant Operational Safety Processes & Procedures. Ensure appropriate PPE is worn. Ensure that all consultants and contractors involved with the project are aware of SSEN safety requirements. Continue to reinforce the safety message, including: - check that all those on site understand their roles, and the level of supervision required - ensure that all Permits-to-Work are comprehensive, complete, and effectively communicated to the working party - remind the Senior Authorised Person re appropriately challenging the knowledge, understanding and competence of all Persons in the Working Party - remind the members of the Working Party to challenge

						<p>anything they believe to be unsafe and use Operational Safety Rule 1.7 if necessary</p> <ul style="list-style-type: none"> - undertake site audits, including questions about electrical aspects - ask to see safety docs, and ask questions about people's understanding of the material and whether they have any concerns - if it's not safe, we don't do it
39	Operational staff are unfamiliar with new substation/network operating arrangements	Lack of awareness of processes and responsibilities leads to safety risks and/or issues with network operation affecting customer supplies and/or assets.	4	-4	-16	Training and briefings to be provided to all relevant individuals (as identified by senior managers), with new procedures/processes/technical guides created and issued where necessary.
Monitoring & Analysis of Trial Sites						
40	Inconsistent or insufficient data available to complete suitable analysis	Lack of data means that the project cannot draw robust conclusions or make recommendations regarding the wider application of RaaS, resulting in poor quality deliverables submitted to Ofgem and shared with other DNOs.	3	-3	-9	<p>The project will use existing data capture systems and install monitoring equipment as required to capture relevant data.</p> <p>When scoping deliverables and/or commissioning work from external parties, include tasks which focus specifically on monitoring and data collection requirements.</p> <p>Good practice in trial design regarding number of trial events, including the planned ~2 month commissioning period with customers supplied by a diesel genset to allow network faults to be replicated and assess the RaaS response.</p> <p>Data will be reviewed at multiple points throughout the project to ensure suitable data is being captured.</p> <p>Incorporate clauses relating to data monitoring requirements within the revisions to the CA.</p>
41	Monitoring equipment cannot be installed within timeframes that coincide with commencement of the project trials	Delays to data collection capabilities impact the trial schedule and subsequent activities.	3	-3	-9	Early identification of the requirements for monitoring equipment and timely procurement activities, accessing additional resource if necessary.

42	Failure in data management system or loss or corruption of data	Lack of data means that the project cannot draw robust conclusions or make recommendations regarding the wider application of RaaS, resulting in poor quality deliverables submitted to Ofgem and shared with other DNOs.	2	-3	-6	<p>Existing SSEN & E.ON data storage and back up systems.</p> <p>Good practice in trial design regarding data collection and information security.</p> <p>The trials will be designed to include a number of trial events over a suitable period of operation to provide data for analysis even where there is a failure in data collection for some events, and data will be stored via SEPD's existing data storage and security systems and processes or using approved alternative systems.</p> <p>Incorporate clauses relating to data monitoring requirements within the revisions to the CA.</p>
Knowledge Dissemination						
43	Insufficient engagement with external stakeholders	Failure to engage with relevant stakeholders may affect potential market. This could also have repercussions during procurement stages of the project.	2	-3	-6	Identify all relevant stakeholders and create a stakeholder engagement plan which identifies what is relevant to each stakeholder and the best approaches to use when seeking their views.
44	Insufficient project dissemination activities	By failing to disseminate project information the project will not be publicised and the potential impact of the project would be reduced.	2	-3	-6	Identify all suitable routes for disseminating project activities and carefully tailor what's presented to suit the different audiences and hold their interest.
45	Inadequate quality of Project Deliverables, Project Progress Reports or the Closedown Report	Submission of poor quality formal deliverables to Ofgem could harm the reputation of the project partners and may weaken future future funding opportunities.	2	-3	-6	<p>Previous examples of project deliverables to Ofgem, Project Progress Reports and Closedown Reports are available as a guide to what is expected and required.</p> <p>SSEN has established peer review processes for innovation project deliverables to be submitted to Ofgem, which will apply to the RaaS project.</p> <p>Costain will start the process of report writing with enough time to write reports, disseminate to project team for feedback and make changes to provide confidence in final submission.</p>