Innovate UK

Driving Innovation

COMPETITION: STRATEGIC INNOVATION FUND: ROUND THREE - ALPHA

PROJECT TITLE
Rural Energy And Community Heat (REACH)
Project No:
10125526

Periodic Report

Period: Q1

COMMERCIAL RESTRICTED

Date: 14/03/2025

Ref: *???*
Vs: 1.0

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Circulation: All Project Partners
Monitoring Database

Project Report

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Overall Progress and Key Achievements

Provide an assessment of the composite project achievements (lead and partners contributions) since the last progress report. Detail the project key achievements during the reporting period. Highlight any exceptions and provide recommendations to Monitoring Officer/Innovate UK as necessary.
During the first quarter of our Alpha Phase work, progress has been made across both workstreams of the project. Engagement with our partner community energy groups, and the subsequent analysis has re-confirmed the need for further work to derive solutions that accelerate the electrification, and resulting decarbonisation of rural communities. **Energy Centre Development** **Selection for detailed feasibility** Regen's work liaising with our partner communities has highlighted the desire to adopt technologies such as electric vehicle charging stations, heat pumps, and local battery storage. Parallel work by NGED and SGC has explored the extent of network overload which could be expected from such developments. Across all 7 communities, network reinforcement would be required by the end of the RIIO-ED3 price control period to accommodate the forecasted load growth. In many cases, the supplying network is heavily loaded already, and requires significant capacity upgrades to the HV and LV networks, at costs ranging from £300k - £1.5m. Once network constraint and reinforcement information was understood, community engagement via interviews allowed VEPOD to evaluate a range of potential energy centre sites across the 7 community groups. Each community was then critically assessed against the following parameters: 1. Electricity Demand Growth and Reinforcement Requirements 2. Energy Centre location suitability 3. Air source heat pump suitability 4. Community interest 5. Community experience. NGED led the evaluation against criteria 1, VEPOD criteria 2, Passiv criteria 3, and Regen criteria 4 and 5. Following scoring, a workshop to decide which communities to take forward arrived at Amel Awen Tawe and Bigbury Net Zero as the most closely aligned communities in February. Decarbonisation suggestions and network reinforcement information was drafted, and will be provided to all community energy groups shortly. **Detailed Feasibility Studies** Following selection, site visits have been organised for the 18th and 19th of March where energy centre locations will be inspected, and face to face engagement with the communities made. **Carbon Accounting Methodology** Cranfield University has undertaken a comprehensive literature review, aimed at understanding the counterfactual question: what is the difference in carbon emissions

today between communities in rural environments and their urban counterparts? As well as providing recommendations on the extent of carbon reduction likely as a result of using particular low carbon technologies, considering their life cycle emissions. Remaining work will assess the extent to which the REACH energy centre can assist this goal, making recommendations which can be incorporated into the options assessment tool.

Cost benefit analysis and commercial model development

Frontier Economics are leading the Cost benefit analysis and commercial model development which is due to commence in April. Regulatory changes will be explored, to understand the potential role of Distribution Networks in the deployment and operation of REACH energy centres.

Option Assessment Tool Development

In addition to considering the BAU approaches to delivering this capacity, an international literature review in combination with expert stakeholder workshops has considered a range of alternative delivery methods. Ranging from market based local flexibility incentives currently being trialled for a national balancing context, to secondary substations with on-load tap changer that manage voltage constraints more effectively than current approaches – the solutions have been grouped into three categories: cheap network interventions, smarter network management, market based approaches. Work in the next quarter will continue to assess the REACH energy centre against these and make recommendations on where each may be best suited for deployment.

The feasibility assessments underway for the energy centre design, heat demand reduction, and electrical network load flow assessment have highlighted a range of data sources required by any options assessment tool, and work is currently underway to categorise these data streams and consider whether community energy groups are able to provide data themselves.

The majority of the architecture diagram work is upcoming.

Exceptions

During the course of the first quarter, two exceptions have materialised:

1. During the course of the project, the use-case for how the energy centre may be deployed has shifted somewhat. Initially, we did not expect DNO ownership to materialise, due to the regulatory barriers preventing ownership of storage assets. However, more recently recommendations to consider Ofgem's regulatory sandbox has allowed us to consider a use-case whereby Network Operators deploy energy centres as a means to manage local network constraints whilst network reinforcement activity is carried out. In addition, use-cases where community groups self elect to deploy energy centres may be limited due to the high capital cost of deployment. For this reason, development of the Options Assessment Tool has developed into considering how best to support Community Energy Groups through a DNO led deployment.
2. Site visits were originally scheduled to take place with all communities during the beginning of the project. However, when completing the initial high level feasibility assessments and selection process, the project team realised all required information was available either from public

databases, or online interview sessions. For that reason, site visits were only held with the two communities taken forward to detailed feasibility.

Recommendations

Investigate use of Ofgem's regulatory sandbox during Beta phase development and planning.

Technical Progress

Provide a summary of the technical progress achieved in the period against the Second Level Plan on a work package by work package basis for each active work package.

Highlight deviations from the Second Level Plan, add reasons and actions to recover the situation.

Repeat for each active work package:

Work Package: WPA1 – Community Requirements
Actual Starting month : 1 **Predicted / Actual End month : 6**
Work Package Objectives: Deep dive into partner communities' requirements, feasibility analysis for 2-3 communities most aligned with REACH goals, wider community engagement to better understand broader support requirements and development of user requirements and guidance for options support tool
Description of work this period The work in this period can be categorised into two distinct areas: • Direct engagement with the selected communities • Wider cohort engagement Direct engagement with the selected communities During this period, we have re-engaged the seven communities and supported the selection of two to continue with. A kick-off meeting was held with the seven communities to bring them up to speed with the Alpha project plan and get them on board as subcontractors. Regen then led a process to enable the project team to learn about the seven communities and ultimately select two to continue with into the latter half of the Alpha phase and potentially into the Beta phase. To select communities, Regen led a data collection and scoring process and hosted a selection meeting. Data collection included desktop research using public data sets, and interviews with each of the seven communities. National Grid analysed the communities local grid infrastructure to identify which matched the issue REACH is addressing. VEPOD analysed the sites that communities selected to identify which would be most appropriate for the energy centre. Regen gathered and analysed each community's interest in and ability to engage with the REACH project. The project team agreed on which two communities to select through this process.

The selected communities have signed subcontracts to continue into the latter half of the Alpha phase. Planning is underway for in-person project team site visits in the two communities.

The communities that were not selected have been informed and will shortly receive short reports indicating why they were not selected and providing some possible next steps for them to advance their ambitions.

Wider cohort engagement

During this period, we held an event to reengage the cohort of 70+ community energy stakeholders who engaged with the project in the Discovery phase. We have also planned interviews to gather community energy stakeholder insights on the options assessment tool.

The event, which took place on 11 February, was attended by 60 community energy stakeholders. Regen introduced the project and set it into the broader context of rural community decarbonisation. National Grid explained the network's interest in the project and highlighted our plans for Alpha. Passiv and VEPOD indicated how their respective technologies relate to the project. SGC introduced the concept of the Options Tool. A quarter of the session was dedicated to taking questions from the audience, which led to a lively and productive discussion.

We are currently arranging interviews to gather insights from 10 community energy stakeholders on the options assessment tool, which will occur between 12 and 21 March. Developing the interview protocol involved significant collaboration between project partners to determine the questions needed.

Work Package achievements and highlights

Direct engagement with the selected communities

- Kick-off meeting with seven communities
- Arranging sub-contracts for community partners
- Data collection on seven communities
- Selection process and meeting
- Arranging sub-contracts for selected community partners
- Arranging site visits with selected communities

Wider cohort engagement

- Knowledge sharing event
- Organising interviews with community stakeholders

Progress towards the Deliverables for this Work Package

Completed:

- WPA1 M1 Kick-off meeting held with partner communities (due 20 Dec)
- WPA1 M3 Selection for feasibility (due 28 Feb)
- WPA1 D1 Briefing note on community selection (due 7 Mar)

Underway

- WPA1 M4 Interviews completed (due 21 March)
- WPA1 D4 User requirement report for options assessment tool (due 4 April)
- WPA1 M2 Site visits completed (due 24 April)

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPA1 M1 - Kick off meeting with communities	20/12/2024	N/A	Completed
Milestone	WPA1 M3 - Selection for Feasibility	10/02/2025	12/02/2025	Completed
Milestone	WPA1 M6a - Event One held	12/02/2025	11/02/2025	Completed
Milestone	WPA1 M5 - High Level Feasibility Studies Completed	24/02/2025	07/03/2025	Completed
Milestone	WPA1 D1 - Briefing note on Community Selection	07/03/2025	N/A	Completed
Milestone	WPA1 D4 - User Requirement Report for Options Assessment Tool	21/03/2025	04/04/2025	In progress
Milestone	WPA1 M2 - Site visits complete	24/04/2025	N/A	In progress
Milestone	WPA1 M9 - Site visits Subject Matter Expert Support complete	24/04/2025	N/A	In progress
Milestone	WPA1 M6b Second Knowledge Sharing Event	28/04/2025	N/A	Not started
Milestone	WPA1 M6- Knowledge Sharing Events Complete	09/05/2025	N/A	Not started
Milestone	WPA1 D2 - Briefing Note on Knowledge Sharing Events	15/05/2025	N/A	Not started
Milestone	WPA1 M7 Summary of Feasibility Process Produced	15/05/2025	N/A	Not started
Milestone	WPA1 D3 Summary report on insights from detailed community engagement	15/05/2025	N/A	Not started
Milestone	WPA1 M8 Report on user requirements for tool development	16/05/2025	N/A	Not started

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

WPA1 M2 ‘site visits completed’ was moved from January to April. It was decided that we did not need to conduct site visits for the seven communities, as the data could be collected in other ways. We’re now holding the site visits ahead of the revised schedule to allow ample time for follow-up data collection and analysis.

WPA1 D4 ‘User requirement report for options assessment tool’ is scheduled to be delivered 2 weeks after the original date to allow more time to write up results from the interviews. This does not have an impact on dependent deliverables.

Description of planned activity for next quarter

Activities in the next quarter will focus on:

- Outline community interview results to inform the Options Tool user requirements (WPA1 D4)
- Working collaboratively to gather further data on the two communities following the site visits and provide reports to the communities based on the teams’ analysis. Then summarise this process and its outputs (WPA1 M7, WPA1 D3)
- Organise the second event to engage the wider cohort of community energy stakeholders. (WPA1 M6, WPA1 D2)
- Summarise findings from detailed and wider engagement, to inform the design of the REACH solution and Options Tool (WPA1 M8)

Work Package: WPA2 – Capability Led Network Assessment

Actual Starting month : 1
Predicted / Actual End month : 6

Work Package Objectives:
Understand where rural networks are likely to be overloaded and develop operational scenarios for where REACH energy centre would provide benefit over Counterfactual

Work Package achievements and highlights

What we have learned

- In rural communities the impact of load growth can be acute and difficult to forecast as the factors behind it can result from household decisions such as when to change car or heating system.
- Community initiatives or simply neighbourly discussions could potentially lead to clustering and unexpectedly rapid demand increases
- The nature of the risk potentially requires DNOs to take a more pessimistic energy growth scenario
- The more pessimistic scenario aligns well with the original assumptions during Discovery, that upgrades are more costly than initially expected, but more significantly the lead times can be multi-year

Description of work this period
Analysis has been carried out on the previously identified communities that have been engaged as stakeholders from the Discovery phase to establish whether any of the concerns put forward in the hypothesis around acute rural demand growth can be observed.

Progress towards the Deliverables for this Work Package

The analysis requires additional reviewing and checks of the underlying data to ensure that it is correct and appropriately interpreted as there are already some potential overloads in some scenarios based on maximum demand which could lead to potential issues if actual demand starts to show long duration demand peaks.

SGC producing draft report for review and discussion.

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPA2 D1 & M1 - Rural Network Overload Report	20/01/2025	14/03/25	In Progress
Milestone	WPA2 D2 & M2 - Existing resolutions, costs, and timescales report	04/04/2025	N/A	In progress
Milestone	WPA2 D3 & M3 - Second release of D2 as D2.1	23/05/2025	N/A	In progress

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

Key subject matter expert required an extended hospital stay so the timescales required to shift the starting date. Scheduled completion is near the end of the March and due to limited dependencies, it has not had a wider significant impact.

Description of planned activity for next quarter

The planned activity involves producing a comprehensive report on existing resolutions, costs, and timescales for community energy projects. Working in conjunction with detailed feasibility studies, the objective is to outline how these projects would be executed using current network connection procedures from the Distribution Network Operator (DNO). This includes defining the costs and timescales necessary for implementation.

In addition, a gap analysis will be conducted, resulting in the production of an addendum to the D2 report, identified as D2.1. This second release will include alternative metrics specific to the energy centre.

Key activities will include:

- Defining a spectrum of interventions ranging from small-scale solutions, such as single Pole Mounted Transformers (PMTs), to large-scale primary reinforcements.
- Identifying the costs and timescales associated with network upgrades across various case studies.
- Establishing price ceilings for potential uses of the REACH energy centre.
- Conducting quantitative analyses to determine a range of costs and timescales, supplemented by relevant qualitative evidence related to M2.

Work Package: WPA3 – Energy System breakpoints

Actual starting month: 4
Predicted / Actual end month: 6

Work Package Objectives:

Establish a process diagram for communities to follow when initiating community energy projects. Community guidance document authored, mapping likely conventional network interventions and barriers for rural community energy projects

Work Package achievements and highlights

- The primary mechanism to redress demand constraints is reinforcement as there is an absence of smart alternatives
- A two-stage approach is likely where a constraint is imminent so that a temporary module can resolve the constraint, without negotiations for an enduring energy centre creating avoidable delays.
- A draft flow diagram has been authored that sets out process to identify and engage communities that could benefit from the temporary module to address imminent constraints that ensures no restrictions to the community while reinforcement waited.
- From the better understanding of the 'customer journey' for communities we are refining the proposition of how and when the communities will be engaged and the questions we will ask of them to determine the

Description of work this period

Working with actual data we are carrying out network analysis to better understand at what stage a constraint may be identified, what options may be available for redress. Utilising only conventional methods we have determined what limitations they need to work with in terms of the 'customer journey' for customers seeking access to LCT installs. We initially want to understand what the current 'status-quo' will be if the network is deemed to be at capacity and what impacts this may have on customers who want to install EV charging, Electrified Heat or Storage capabilities at a household level. What limitations may customers experience, how widespread this issue could be and whether a temporary energy module will be viable mitigations to the limitations. One of the key concerns that has been identified relates to any significant restrictions that result in customers having to wait before being able to install charging or heating.

Progress towards the Deliverables for this Work Package

Consultations with NGED planners and associated departments tested the hypothesis within the work package and verified potential issues. We met with network representatives and produced two short videos outlining the challenge and REACH project's solution approach. The discussions incorporated 'Horizon Scanning' objectives for alternative REACH options to avoid duplication and inclusion in the 'Options Tool' design. Positive feedback and interest in the alpha phase's findings has led to the project team progressing a Beta phase application.

Understanding the likely trigger event as a community constraint, we adopted a 2-stage customer journey approach. The first stage is a rapid deployment of a temporary module to manage the issue until upgrades. This is quick, simple, and feeds into the second stage. To specify an energy

centre for a commercial opportunity, a complex engagement is needed, which the option tool (WPA5) will primarily focus on. Through community interviews and site visits, we're identifying variables impacting specifications assessment and community questions. Regen has conducted many engagement events and interviews, with site visits scheduled. Cranfield and Frontier have identified essential data requirements.

A first draft of the process flow diagrams outlining the 2-stage approach has been socialised within the team. Revisions may be needed based on community engagements or data requirements from (WPA5).

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPA3 D1 & M1 - Community Process Guidance Document	23/05/2025	N/A	In progress

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

Initially, the options tool was anticipated to be introduced earlier due to regulatory restrictions on DNOs owning certain assets and the requirement for community funding. However, gaining knowledge and experience led to a two-stage process. If a demand capacity issue arises, it is prioritised for resolution, while 'community energy projects' are decoupled and pursued at an appropriate pace. This change has altered the anticipated learning outcomes and outputs, but it is not considered a recovery plan. It has also increased the complexity of the proposal and the questions raised during Regen's community interviews, but this has not resulted in any adjustments to project deliverables.

Description of planned activity for next quarter

In our ongoing efforts, we will continue gathering intelligence within communities to relay any material impacts back to NGED. This ensures that the development and documentation process we are responsible for aligns with the requirements of both parties involved. The initial draft of the flow diagram will undergo revisions to incorporate changes and to enhance detail regarding activities and dependencies at each stage.

Key activities include:

- Determining the status community energy projects must achieve to initiate the connections process.
- Authoring a report that describes the network connection challenges faced by communities, outlining the processes, steps, and contact details necessary to overcome these challenges. The report will include outputs from the network assessment, such as examples of potential network challenges like thermal overload and voltage issues, and provide context on the reasons behind timeline delays.
- Developing process diagrams for community energy projects in rural areas.

Work Package: WPA4 – Review of alternative delivery options

Actual Starting month :3
Predicted / Actual End month : 6

Work Package Objectives:

Establish alternative delivery options for community energy developments according to key network parameters and provide to the monitoring officer by the end of the Alpha Phase comparisons with other innovative approaches to support rural communities in accelerating connection time.

Work Package achievements and highlights

During this period WPA4 has focused on identifying and describing categories of alternative delivery options through horizon scanning activities. Initial activities relied on internet searches to identify preliminary options, drawing on both innovation projects and technology development.

Findings from online searches were then curated into alternative delivery option categories, including: (1) low-cost network reinforcement (e.g., HTLS conductors, pop up networks), (2) smarter network management (e.g. dynamic line rating, smart grid enhancements, smart transformers), (3) flexible connections (e.g., ANM, market based), (4) flexibility procurement, (5) community scale assets, (6) demand side flexibility, and (7) community microgrids.

Work this period then shifted to analysing the alternative delivery options; this began in February, and will continue through March through analysis of existing projects/technologies, as well as via a workshop with NGED key teams scheduled for March 11th

Description of work this period

Work completed during this period includes:

1. Initial horizon scanning of alternative delivery options completed.
2. Alternative delivery option categories finalised, and innovation projects/technologies mapped to each.
3. Workshop with NGED key staff organised, attendees invited, and agenda finalised.

Progress towards the Deliverables for this Work Package

WP deliverables and progress include:
D1 – Workshop agenda. Due March 7th. This has been delivered ahead of time and finalised with NGED.
M1 – Run workshop. Due March 21st. This has been organised and is scheduled for March 11th.
M2 – Summary report (WPA4 M2). Due March 28th. Progress has begun on the summary report, and we anticipate deliver on or ahead of schedule.

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPA4 M3 - Horizon Scanning Report Complete	07/02/2025	07/03/2025	Complete
Document	WPA4 D1 - Workshop Agenda	07/03/2025	N/A	Complete
Milestone	WPA4 M1 - Workshop with SGC and NGED	21/03/2025	N/A	Complete
Milestone	WPA4 M2 - Summary Report on Delivery Options	28/03/2025	N/A	In progress

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

The main variation was in reversing the order of the horizon scanning activities and the workshop. Initially we assumed the workshop would occur first and provide high level input to guide the horizon scanning. However, once we began the project, we realised that we would make more effective use of stakeholder time by conducting high level horizon scanning prior to the workshop, to help shape the agenda and input from key NGED teams. Despite this alteration, milestones and deliverables remain on track.

Description of planned activity for next quarter

Activities next quarter will focus on:

- Holding the workshop with NGED teams – this will help explore some of the alternative delivery options in greater detail.
- Continued analysis of alternative delivery options.
- Finalisation of WPA4 summary report.

Work Package: WPA5 – Community Low Carbon Options Assessment Tool

Actual Starting month : 2
Predicted / Actual End month : 6

Work Package Objectives:

Provide a structured framework specifying the calculations, interconnections, and dependencies for the community decision-making tool to be built during the REACH Beta phase.

Description of work this period

In order to create a tool to help guide communities through the early engagement with NGED we have outlined the process in the previous work package (WPA3) This determined the likely process flow from initiation to an end point where it should be possible for communities to make a determination on whether they would like to pursue detailed discussions on installing an energy centre. This initial engagement is highly complex due to the number of variables resulting from the modular options and sheer diversity of communities that may wish to use it.

The work to date has therefore been focussed in identifying all the data that can assist in marshalling it into a process that allows user to play around with scenarios and iteratively refine the results as they define their requirements. Initial activities across all the partners have identified the data fields they wish and ranked them from essential through to helpful. By mapping the requester, type, source and importance we can start to establish the relationships and an architecture that will underpin the process flow through the options tool.

Progress towards the Deliverables for this Work Package

This piece of work has several dependencies based on the outcome of other work packages. For example, the interviews with communities will investigate the difficulty that they may have in providing forecasts of EV ownership growth or subjective factors such as aesthetics. As these results are available, they will advise the ongoing process of setting out the questions in an intuitive order that focusses on giving the communities the information and confidence without the need for professional support.

As well as the questions that will be asked of the residents, there is also the information that the partners will require in order to provide cost, financing potential and carbon impact in the options outputs. The initial requirements have all been captured through engagements that were initiated at the very start of the project.

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPA5 M1 - High Level Architecture Diagram	09/05/2025	N/A	In Progress

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary

There haven't been any significant variations. The work package is currently running to plan, as most of the work so far has been preparatory. The biggest challenge at this stage is determining the most effective method to present the findings of the intricate relationship between the customer journey and the data flows from various sources.

Description of planned activity for next quarter

The project involves a phased approach, where the initial part focuses on gathering necessary information for designing a structured framework. This framework will culminate in the creation of a high-level architecture, which will eventually be developed into software for community access.

Key activities include:

- Participate in surveys and interviews led by Regen to understand user requirements.
- Develop a MoSCoW prioritisation to categorise user requirements.
- Develop the decision tree architecture based on input requirements and calculations.
- Present the architecture diagram as a detailed flowchart, accompanied by a report and method statement for construction in future project phases.

Work Package: WPB1 – REACH Energy Centre – Technical design – VEPod

Actual Starting month : 2
Predicted / Actual End month : 6

Work Package Objectives:

Reach Energy Centre – Technical design and Perform high level & detailed feasibility studies.

Description of work this period

VEPOD Ltd first identified twelve criteria to assess the suitability of a REACH energy centre in a rural community. Held numerous discussions with REGEN to understand the data requirements from the community's and network's perspectives. These activities were completed in advance and formed the basis for WPB1 M1, with data requirements passed to REGEN prior to site visits.

Data for ten of the criteria were gathered through REGEN community interviews or VEPOD's desktop research. However, two criteria—distance to the HV connection point and the likely scale of the centre, linked to network capacity—proved more complex. Consequently, these two were set aside for detailed feasibility studies, while the remaining ten were used to evaluate 43 identified sites across seven communities. The combined scores helped decide which sites to pursue further. VEPOD also produced a report for each community to aid REGEN's high-level feasibility reports (WPB1 D2 & M2).

VEPOD completed a Visio-based data map showing data sources, types, and interrelationships needed to size the energy centre. An Excel model was built, ready to be populated with half-hourly data from NGED, DFES data, and energy centre EV charger forecasts, to calculate the size requirements for the energy storage module. This sizing will determine the genset size, if necessary, as well as the footprint and cost of the proposed solution. Outline cost data has been compiled for future phases and shared with SGC as part of WPB1 D3 & M3. A current challenge being addressed between VEPOD and NGED is determining an artificial network capacity value for the community, a crucial factor as power demand variation affects the energy storage unit sizing.

Progress towards the Deliverables for this Work Package

Completed

- WPB1 M1 - Data requirements passed to Regen ahead of site visits
- WPB1 D2 & M2 - High Level feasibility studies undertaken for 7 communities

Underway

- WPB1 D4 & M4 - Energy Centre design specification report for 2-3 selected communities
- WPB1 D3 & M3 - Community Support Tool Data

Not yet started

- WPB1 M5 - Technical Support for network connection module

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPB1 M1 - Data requirements passed to Regen ahead of site visits	06/01/2025	N/A	Completed
Document	WPB1 D2 & M2 - High Level feasibility studies undertaken for 7 communities	24/02/2025	N/A	Completed

Milestone	WPB1 D4 & M4 - Energy Centre design specification report for 2-3 selected communities	27/03/2025	N/A	In Progress
Milestone	WPB1 D3 & M3 - Community Support Tool Data	21/04/2025	N/A	In Progress
Milestone	WPB1 M5 - Technical Support for network connection module	08/05/2025	N/A	Not started

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

- There is no variation from the second level plan.

Description of planned activity for next quarter

- **WPB1 D4 & M4** - Energy Centre design specification report for 2-3 selected communities
  - Population of the Excel model with data to determine the energy centre module capacity and sizing
  - Determination of cost and physical footprint of the energy centre in the two identified location sites
  - Production of the technical drawings including sizing of each module, architecture of control system software and interfaces to each module and the technical parameters required for effective connection of the switchgear module to the HV network. (This will also assist with **WPB1 M5** - Technical Support for network connection module)
  - Write up of the required detailed feasibility report for each community
- **WPB1 D3 & M3** - Community Support Tool Data
  - VEPOD will continue to work closely with SGC to provide energy centre specific data for the community support tool.

Work Package: WPB2 – Heat Network – Feasibility assessment

Actual Starting month : 3
Predicted / Actual End month : 6

Work Package Objectives:

Support the selection of sites where a shared heating solution is proposed; establish the techno-economic feasibility of a shared heating solution at each site; determine a high level technical solution enabling central coordination of distributed heat pumps to minimise network load.

Description of work this period

- Assist project partners in selecting two communities
- Define data requirements for the two shortlisted communities
- Compile a short report on residential heat decarbonisation pathways
- Simulate annual, half-hourly power load profiles from mass heat pump adoption in the two shortlisted communities
- Simulate solutions to coordinate distributed heat pumps to minimise network load
- Share modelling data and present findings to partners

Progress towards the Deliverables for this Work Package

- Two communities shortlisted
- Data requirements for the two shortlisted communities defined
- Short report on residential heat decarbonisation pathways completed
- Community heat pump power load simulation modelling work – in progress, partner updates scheduled.
- Comparison of community heat load management solutions – on track

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

- There are no variations from the Second Level Plan

Description of planned activity for next quarter

- Simulation of community heat load management solutions
- Data sharing and presentation of findings with partners

Work Package: WPB3 – Commercial Model

Actual Starting month : 4
Predicted / Actual End month : 6

Work Package Objectives:

Generate commercial and ownership models for the REACH energy centre and produce a CBA workbook to evaluate its economic feasibility.

Description of work this period

The work package hasn't officially commenced yet. However, strategic discussions with project partners have laid the groundwork, setting the foundation for a successful implementation.

Progress towards the Deliverables for this Work Package

Type	Description	Due Date	Status
Milestone	WPB3 M1 Commercial Model Report	15/05/2025	
Milestone	WPB3 M2 SIF CBA workbook	22/05/2025	

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

The work package has not commenced at this time, but preliminary discussions have not revealed any anticipated modifications to the original plan or the deliverables we have outlined.

Description of planned activity for next quarter

WPB3.1 Define intervention and counterfactual - Intervention: What will the energy centre involve (expecting to draw on B1 and B2 WPs for archetypical energy centre designs)? Counterfactual: What would each entity (e.g., DNO, consumers) do without the energy centre?

WPB3.2 Generate commercial/ownership model - Develop and shortlist models considering asset ownership, payment flows, and contract structures and evaluate models based on predefined criteria to select the preferred one.

WPB3.3 Illustrative model demonstrating financial flows - Does the illustrative model mapping financial flows between parties in the commercial model stack up financially?

WPB3.4 CBA modelling - CBA using SIF framework, building on B3.3 outputs, with two key purposes: overall test on value provided by business model and preparation for Beta application.

Deliverables: WPB3 M1 Commercial Model Report & WPB3 M2 SIF CBA workbook

Work Package: WPB4 – Carbon Accounting

Actual Starting month : 3
Predicted / Actual End month : 6

Work Package Objectives:

Develop methodology for a carbon assessment decision support tool to assess and compare carbon impacts of the baseline case and the proposed solutions.

Description of work this period

This work package has officially commenced and is progressing as planned. The first milestone has been successfully delivered, which involved providing a comprehensive report on the literature assessment of the impacts of low-carbon technologies in both urban and rural environments.

A systematic literature review was conducted using Scopus as the primary database, focusing on identifying relevant peer-reviewed studies, and prioritised those utilising Life Cycle Assessment (LCA) to evaluate the environmental impact of low-carbon technologies. Additionally, a rapid literature search targeted grey literature, including governmental websites such as ONS, Census, and DESNZ, as well as research reports, employing key terms like direct household emissions, UK energy consumption, and off-grid heating, to ensure a comprehensive analysis incorporating both academic and policy-related sources. The search strategy was structured around three key categories: methodological approach, technologies, and geographical context. Studies were selected that prioritised LCA to assess technologies such as heat pumps, electric vehicles (EVs), heat storage, large-scale battery storage, and hydrotreated vegetable oil (HVO), examining both urban and rural environments to understand the deployment of these technologies across different settings.

Literature Review Report Conclusions for Rural Areas

1. **Energy Consumption and Emissions**:
   - 1.1. Rural households consume more electricity than urban ones due to larger property sizes and greater reliance on electric heating in off-grid areas.
   - 1.2. Rural areas exhibit higher per capita emissions compared to urban areas, primarily due to the reliance on fossil fuels for heating and transportation.
2. **Heating and Fuel Poverty**:
   - 2.1. Many rural areas lack gas grid infrastructure, leading to a higher dependence on oil heating, which is more carbon-intensive and costly.
   - 2.2. Off-grid households face deeper levels of fuel poverty, requiring an additional £568 per year on average to escape fuel poverty.
   - 2.3. Older rural homes are significantly less energy-efficient than modern constructions, contributing to higher emissions and energy costs.
3. **Impact of Low-Carbon Technologies**:
   - 3.1. **Heat Pumps**: Effective in reducing CO_2 emissions, particularly in regions with lower grid carbon intensity. However, their deployment in rural areas is challenged by the need for significant infrastructure investment.
   - 3.2. **Thermal Energy Storage (TES)**: Offers superior carbon efficiency and sustainability advantages over battery storage. TES systems can reduce localised emissions but may lead to higher overall energy demand due to lower coefficients of performance (COP).
   - 3.3. **Electric Vehicles (EVs)**: Adoption in rural areas is hindered by limited charging infrastructure and higher upfront costs. The environmental benefits of EVs in rural areas depend on the electricity grid mix, with renewable energy sources providing the greatest emissions reductions.
   - 3.4. **Hydrotreated Vegetable Oil (HVO)**: Presents a viable lower-emission alternative to fossil diesel, particularly for hybrid buses and other transport applications. Its sustainability depends on the choice of feedstock, with waste-derived HVO offering the greatest environmental benefits.

4. **Regional Disparities**:
   4.1. Emissions are unevenly distributed across the UK, with rural areas often experiencing higher per capita emissions due to reliance on fossil fuels and less efficient heating systems.

Progress towards the Deliverables for this Work Package

Type	Description	Due Date	Revised Due Date	Status
Milestone	WPB4 M1 - Report on literature assessment of impacts of low carbon technologies in Urban environments APPROVED	Fri 28/02/2025	14/03/2025	Complete
Milestone	WPB4 M2 - Report on BAU environmental assessment for scope 1 and scope 2 emissions of the selected communities APPROVED	Fri 18/04/2025	N/A	In Progress
Milestone	WPB4 M4: Development of framework for a stand-alone tool (potentially running in Microsoft Excel) that can be disseminated via Ofgem	Fri 30/05/2025	N/A	Not started
Milestone	WPB4 M3 - Report on environmental impacts of alternative LCT scenarios and their assessment in terms of hot spots, key uncertainties and sensitivities	Fri 30/05/2025	N/A	Not started

Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary.

Up to now there were no major modifications to the original plan or the deliverables we have outlined

Description of planned activity for next quarter

WPB4.2: This work package will focus on developing a baseline carbon assessment model for two selected communities. Key tasks include:

i) Establishing a Business-As-Usual (BAU) energy and environmental impact assessment model.

ii) Assessing the carbon impacts of alternative REACH Low Carbon Technology (LCT) scenarios.

The key deliverable will be a report on the BAU environmental assessment, covering Scope 1 and Scope 2 emissions.

WPB4.3: This work package will focus on conducting an environmental impact assessment of alternative REACH LCT scenarios to identify key uncertainties, hot spots, and sensitivities (e.g., changes in rural travel patterns and energy demand). The main deliverable will be a report on the environmental impacts of alternative LCT scenarios, highlighting hot spots, key uncertainties, and sensitivities.

WPB4.4: This work package will focus on developing a framework for a standalone assessment tool. The objective is to create a tool that can be used by the energy industry and communities for future environmental and carbon impact assessments and the main deliverable will be a standalone framework

Work Package: Title – Project Management
Actual Starting month : 1 **Predicted / Actual End month : 6**
Work Package Objectives: Perform Project Management tasks, author a detailed project plan and outputs for subsequent Beta phase including detailed budget requirements.
Description of work this period Weekly project meetings have been conducted, with detailed minutes recorded to ensure comprehensive documentation of discussions and decisions. The governance documentation, encompassing the Action Log, Key Operational Milestones, Risks, and Learning Logs, has been meticulously updated on a weekly basis or as necessitated by project developments. During these meetings, partners are routinely challenged to provide a detailed account of the work undertaken in the preceding week as well as outline the actions planned for the upcoming week. The assurance of accountability and foresight keeps the project aligned with its objectives.
Progress towards the Deliverables for this Work Package The deliverables for this specific work package are scheduled to be submitted on a monthly basis, with all deliverables for the first quarter being completed and submitted on time as planned.
Summarise any variations from the Second Level Plan, giving reasons and action to recover situation if necessary. No Variations required
Description of planned activity for next quarter Weekly project meetings will continue to be held, ensuring that detailed minutes and comprehensive governance documentation are maintained, aligning with the specific requirements of the project. As the project approaches its final stages, the emphasis will shift towards the development and completion of the BETA application, preparing for its imminent launch.

Planned Activities/Dissemination During the Next Reporting Period

Figure 1 illustrates the dependencies between project work, a summary is provided in Table 1: Dependency summary.

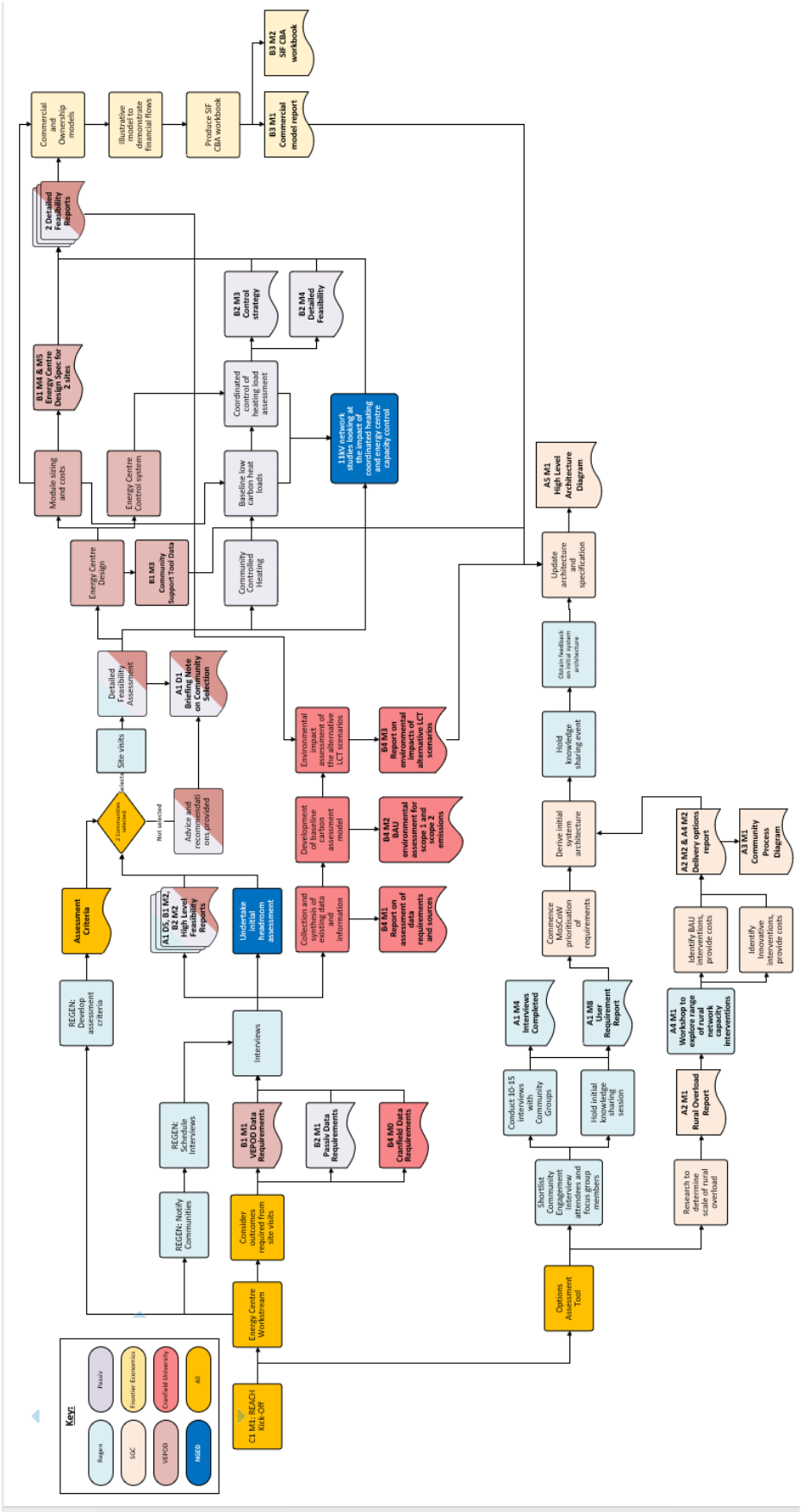


Figure 1: Process flow diagram

Table 1: Dependency summary

Work Package	Planned Activity	Dependence on other Participants	Description of Dependency	Comment on Impact, etc.
WPA1	Site visits to community groups	WPB1, WPB2, Detailed feasibility	Data and information from site visit required for feasibility work	Data required
WPB1	Detailed feasibility, Module sizing and costing	WPB4 – Carbon Accounting	Information on modules required to undertake carbon assessment of energy centre	Data required
WPB1	Detailed feasibility, Module sizing and costing	WPB3 – CBA and Commercial model	Module costs required to undertake CBA	Data required
WPA1	Interviews with community energy groups about Options Assessment Tool	WPA5	User requirements needed	User requirements needed to construct system architecture
WPB2	Heat profiles generated	WPB2 – load flow studies	Heat profiles required to undertake revised load flow studies	Load profiles required

Project Management and Realisation

Detail developments to the project realisation plan, market understanding or commercial opportunities made this quarter.
As part of the horizon scanning activities across the wider industry, we have carried out extensive research to find any other projects that are identifying similar risk scenarios and or solutions. This was extended internationally after not being able to locate anything within the UK searches. We also engaged directly with all of the GB DNOs & DSOs to ensure that there wasn't anything that didn't have in the public domain. This served as an opportunity to engage on understanding the potential for the REACH solution nationally, with very positive feedback.

Summarise any management concerns and activities to recover the situation.
The only significant management concern is the availability of some key personnel due to health. Mitigating personnel have been made available where possible and appropriate.

Detail any liaison activities with other projects and with the wider programme activities.
External engagement has featured heavily in the first part of the project and for that purpose we have produced two videos to provide a simplified explanation of the Alpha phase projects goals and energy centre functionality. These have been shared with the other DNOs and can be used to provide a consistent message among the many communities who have expressed an interest in REACH. Through direct engagement with the other networks and a previous ad-hoc check-in with UKRI there have been a couple of other projects and potentially a regulatory workshop that present opportunities for further collaboration.

Detail any publication or other dissemination activity.
Publication: Project reports will be published on National Grid's REACH project webpage when available, as well as on ENA's Smarter Network Portal. **Dissemination:** Our first, online, dissemination session was held on the 11th of February, facilitated by Regen. A second dissemination session is planned towards the end of the project, as detailed in the WP-A1 section.

Milestone and Deliverable Status

Summarise the composite project progress against all project milestones and deliverables, noting any discrepancies against the Second Level Plan and action to recover situation if necessary.

Use **Green** text for completed, **Red** for late and **Blue** for items due in the next quarter.

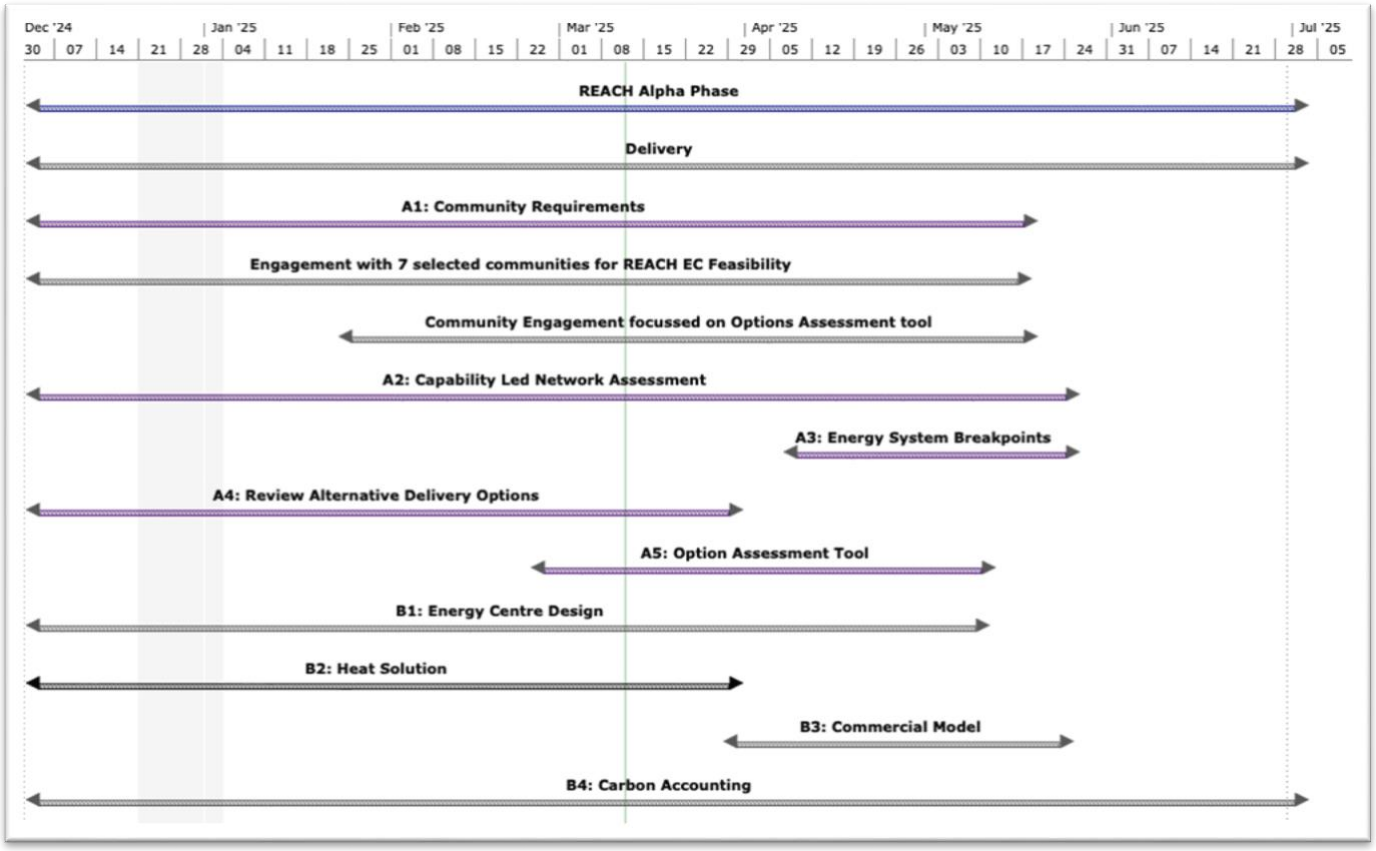
Title	Responsibility	Due Date	Actual Date	Comments/ Status
WPC1 M1: Kick Off Meeting	SGC	02/12/2024	02/12/2024	Completed
WPA1 M1 - Kick off meeting with communities	REGEN	20/12/2024	20/12/2024	Completed
WPB1 M1 - Data requirements passed to Regen ahead of site visits	VEPod	06/01/2025	06/01/2025	Completed
WPB2 M1 - Data requirements for tool captured	Passiv	06/01/2025	06/01/2025	Completed
WPA1 M3 - Selection for Feasibility	REGEN	10/02/2025	07/02/2025	Completed
WPA1 M6a - Event One held	REGEN	12/02/2025	11/02/2025	Completed
WPB1 D2 & M2 - High Level feasibility studies undertaken for 7 communities	VEPod	24/02/2025	24/02/2025	Completed
WPB2 M2 - High level feasibility studies complete	Passiv	24/02/2025	14/03/2025	Completed
WPA2 D1 & M1 - Rural Network Overload Report	SGC	21/01/2025	14/03/2025	In Progress
WPA1 M5 - High Level Feasibility Studies Completed	REGEN	24/02/2025	14/03/2025	Completed
WPB4 M1 - Report on literature assessment of impacts of low carbon technologies in Urban environments APPROVED	Cranfield	28/02/2025	14/03/2025	Completed
WPA1 D1 - Briefing note on Community Selection	REGEN	07/03/2025	07/03/2025	Completed
WPA4 D1 - Workshop Agenda	REGEN	07/03/2025	07/03/2025	Completed

Title	Responsibility	Due Date	Actual Date	Comments/ Status
WPA1 M4 - Interviews completed	REGEN	21/03/2025		In Progress
WPB1 D4 & M4 - Energy Centre design specification report for 2-3 selected communities	VEPod	27/03/2025		In Progress
WPB2 M4 Refined techno-economic feasibility report for 2-3 chosen communities	Passiv	27/03/2025		In Progress
WPA4 M2 - Summary Report on Delivery Options	REGEN	28/03/2025		In Progress
WPB2 - M3 Summary report explaining control strategy	VEPod	28/03/2025		In Progress
WPA1 D4 - User Requirement Report for Options Assessment Tool	REGEN	04/04/2025		In Progress
WPA2 D2 & M2 - Existing resolutions, costs, and timescales report	SGC	04/04/2025		In Progress
WPB4 M2 - BAU environmental assessment for scope 1 and scope 2 emissions of the selected communities	Cranfield	18/04/2025		In Progress
WPB1 D3 & M3 - Community Support Tool Data	VEPod	21/04/2025		
WPA1 M2 - Site visits complete	REGEN	24/04/2025		
WPA1 M9 - Site visits Subject Matter Expert Support complete	REGEN	24/04/2025		
WPA1 M6b Second Knowledge Sharing Event	REGEN	28/04/2025		
WPB1 M5 - Technical Support for network connection module	VEPod	08/05/2025		
WPA1 M6- Knowledge Sharing Events Complete	REGEN	09/05/2025		
WPA5 M1 - High Level Architecture Diagram	SGC	09/05/2025		
WPA1 D2 - Briefing Note on Knowledge Sharing Events	REGEN	15/05/2025		
WPA1 M7 Summary of Feasibility Process Produced	REGEN	15/05/2025		
WPA1 D3 Summary report on insights from detailed community engagement	REGEN	15/05/2025		
WPB3 M1 Commercial Model Report	Frontier	15/05/2025		
WPA1 M8 Report on user requirements for tool development	REGEN	16/05/2025		
WPB3 M2 SIF CBA workbook	Frontier	22/05/2025		
WPA2 D3 & M3 - Second release of D2 as D2.1	SGC	23/05/2025		
WPA3 D1 & M1 - Community Process Guidance Document	SGC	23/05/2025		
WPB4 M3 - Report on environmental impacts of alternative LCT scenarios and their assessment in terms of hot spots, key uncertainties and sensitivities	Cranfield	30/05/2025		
WPB4 M4: Development of a stand-alone tool (potentially running in Microsoft Excel) that can be disseminated via Ofgem	Cranfield	30/05/2025		

Updated Schedule

Provide an updated Gantt chart for the entire project as an attachment if necessary.

Revised Gantt chart:


Dec '24
Jan '25
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30 07 14 21 28 04 11 18 25 01 08 15 22 01 08 15 22 29 05 12 19 26 03 10 17 24 31 07 14 21 28 05
REACH Alpha Phase
Delivery
A1: Community Requirements
Engagement with 7 selected communities for REACH EC Feasibility
Community Engagement focussed on Options Assessment tool
A2: Capability Led Network Assessment
A3: Energy System Breakpoints
A4: Review Alternative Delivery Options
A5: Option Assessment Tool
B1: Energy Centre Design
B2: Heat Solution
B3: Commercial Model
B4: Carbon Accounting

Project Spend Profile

The budgeted, actual, and forecasted spending for the project indicate significant variances in financial allocation across different partners.

1. **Total Budgeted Spend:** £490,017.00

2. **Total Actual Spend:** £76,747.00

Smart Grid Consultancy Ltd had the highest actual spend (£39,684.00), followed by VEPOD (£19,698.00).

Several partners, including National Grid Electricity Distribution, Frontier Economics, and Regen SW, have not recorded any actual spending yet.

3. **Forecasted Remaining Spend:** £413,270.00

• Most spending is expected to happen in May 2025 (£215,271.00) and April 2025 (£115,914.00).

• Regen SW (£154,328.00) and Smart Grid Consultancy Ltd (£82,934.00) have significant forecasted expenditures.

Only 15.7% of the budget has been spent, due to weighting of deliverables towards the end of the project

Table 2: Funding Allocation Per Partner

	Total Project Costs	Project Contribution	SIF Funding requested
National Grid Electricity Distribution	£57,685.00	£6,893.00	£50,792.00
Cranfield University	£57,376.00	£11,475.00	£45,901.00
Frontier Economics	£55,265.00	£5,526.00	£49,739.00
Regen SW	£171,475.00	£17,147.00	£154,328.00
Smart Grid Consultancy Ltd	£206,050.00	£83,432.00	£122,618.00
VEPOD	£36,281.00	£8,994.00	£27,287.00
Passiv UK	£43,725.00	£4,373.00	£39,352.00
Total Cost by Category	£627,857.00	£137,840.00	£490,017.00

Table 3: Budgeted SIF funding profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ 50,792.00	£ 50,792.00
Cranfield University	£ -	£ 17,365.00	£ -	£ 16,635.00	£ 11,901.00	£ -	£ 45,901.00
Frontier Economics	£ -	£ -	£ -	£ 34,817.00	£ -	£ 14,922.00	£ 49,739.00
Regen SW	£ -	£ -	£ 77,792.00	£ -	£ -	£ 76,536.00	£154,328.00
Smart Grid Consultancy Ltd	£ 8,478.00	£ 14,353.00	£ 14,475.00	£ 30,178.00	£ 10,728.00	£ 44,406.00	£122,618.00
VEPOD	£ 7,670.00	£ -	£ 12,028.00		£ 3,149.00	£ 4,440.00	£ 27,287.00
Passiv UK	£ 4,293.00	£ -	£ -	£ 35,059.00	£ -	£ -	£ 39,352.00
Total	£ 20,441.00	£ 31,718.00	£ 104,295.00	£116,689.00	£ 25,778.00	£191,096.00	£490,017.00

Table 4: Actual SIF funding profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Cranfield University	£ -	£ -	£ -	£ 17,365.00	£ -	£ -	£ 17,365.00
Frontier Economics	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Regen SW	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Smart Grid Consultancy Ltd	£ 8,478.00	£ 8,478.00	£ 8,478.00	£ 14,250.00	£ -	£ -	£ 39,684.00
VEPOD	£ -	£ 7,670.00	£ 12,028.00	£ -	£ -	£ -	£ 19,698.00
Passiv UK	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Total	£ 8,478.00	£ 16,148.00	£ 20,506.00	£ 31,615.00	£ -	£ -	£ 76,747.00

Table 5: Forecast SIF funding profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ 50,792.00	£ 50,792.00
Cranfield University	£ -	£ -	£ -	£ -	£ 28,536.00	£ -	£ 28,536.00
Frontier Economics	£ -	£ -	£ -	£ -	£ 34,817.00	£ 14,922.00	£ 49,739.00
Regen SW	£ -	£ -	£ -	£ 77,792.00	£ -	£ 76,536.00	£154,328.00
Smart Grid Consultancy Ltd	£ -	£ -	£ -	£ -	£ 14,353.00	£ 68,581.00	£ 82,934.00
VEPOD	£ -	£ -	£ -	£ -	£ 3,149.00	£ 4,440.00	£ 7,589.00
Passiv UK	£ -	£ -	£ -	£ 4,293.00	£ 35,059.00	£ -	£ 39,352.00
Total	£ -	£ -	£ -	£ 82,085.00	£115,914.00	£215,271.00	£413,270.00

Table 6: Budgeted total cost profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ 57,685.00	£ 57,685.00
Cranfield University	£ -	£ 21,706.16	£ -	£ 20,793.66	£ 14,876.19	£ -	£ 57,376.00
Frontier Economics	£ -	£ -	£ -	£ 38,685.17	£ -	£ 16,579.83	£ 55,265.00
Regen SW	£ -	£ -	£ 86,435.28	£ -	£ -	£ 85,039.72	£171,475.00
Smart Grid Consultancy Ltd	£ 14,246.62	£ 24,119.10	£ 24,324.11	£ 50,711.78	£ 18,027.57	£ 74,620.82	£206,050.00
VEPOD	£ 10,198.09	£ -	£ 15,992.52	£ -	£ 4,186.93	£ 5,903.46	£ 36,281.00
Passiv UK	£ 4,770.06	£ -	£ -	£ 38,954.94	£ -	£ -	£ 43,725.00
Total	£ 29,214.77	£ 45,825.25	£ 126,751.90	£149,145.54	£ 37,090.69	£239,828.84	£627,857.00

Table 7: Actual total cost profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Cranfield University	£ -	£ -	£ -	£ 21,706.16	£ -	£ -	£ 21,706.16
Frontier Economics	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Regen SW	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Smart Grid Consultancy Ltd	£ 14,246.62	£ 14,246.62	£ 14,246.62	£ 23,946.02	£ -	£ -	£ 66,685.87
VEPOD	£ -	£ 10,198.09	£ 15,992.52	£ -	£ -	£ -	£ 26,190.61
Passiv UK	£ -	£ -	£ -	£ -	£ -	£ -	£ -
Total	£ 14,246.62	£ 24,444.71	£ 30,239.14	£ 45,652.17	£ -	£ -	£114,582.64

Table 8: Forecast total cost profile

Partner	December 24	January 25	February 25	March 25	April 25	May 25	Total
National Grid Electricity Distribution	£ -	£ -	£ -	£ -	£ -	£ 57,685.00	£ 57,685.00
Cranfield University	£ -	£ -	£ -	£ -	£ 35,669.84	£ -	£ 35,669.84
Frontier Economics	£ -	£ -	£ -	£ -	£ 38,685.17	£ 16,579.83	£ 55,265.00
Regen SW	£ -	£ -	£ -	£ 86,435.28	£ -	£ 85,039.72	£171,475.00
Smart Grid Consultancy Ltd	£ -	£ -	£ -	£ -	£ 24,119.10	£115,245.03	£139,364.13
VEPOD	£ -	£ -	£ -	£ -	£ 4,186.93	£ 5,903.46	£ 10,090.39
Passiv UK	£ -	£ -	£ -	£ 4,770.06	£ 38,954.94	£ -	£ 43,725.00
Total	£ -	£ -	£ -	£ 91,205.34	£141,615.98	£280,453.04	£513,274.36

Explain the reasons for any deviations in spending from the baseline or previous forecast expenditure.
The only variations between budgeted and forecasted expenditure is the dates which payments are occurring. Additional time for document approval, and variations from the original submitted project plan have delayed the completion of some payment milestones.

Updated Project risk register

A joint risk register will be presented at the review meeting and minited.

Updated Project Issue Register (Q1 meeting)

Risk Description	Task	Risk	Impact	Mitigation Actions
1 - Technical Risks				
Technical parameters and local planning requirements impact the ability to deploy a REACH Energy Centre - risk is that no suitable site is identified for a beta trial based on planning constraints.	WP-B1	Medium	High	Project partners Regen experience in local planning to the team. This risk remains as we move into Alpha but is mitigated by the inclusion of more communities than previously stated to build resilience. In Discovery we asked communities specifically mention planning concerns (i.e. AONBs) Heat control would operate separately to energy centre - if Energy Centre size / planning means no suitable site is identified, we may want to opt for a design that is suitable to local planning
Energy Centre feasibility study cannot be achieved in Alpha Phase budget/ timeline restrictions.	WP-B1	Medium	High	A review of the Alpha phase scope has taken place at the end of Discovery, with MoSCoW prioritisation of key features taking place. The design work will focus on the most important features first.
Sickness/absence of key project personnel.	WP-C1	High	Medium	Require backup personnel for all key actors in project contracts.
After reviewing more detailed Community Requirements, we establish that a REACH energy centre would not be suitable for any selected community for other than planning reasons (e.g. network constraints)	WP-B1	Medium	Medium	We are taking 7 communities into Alpha, more than originally planned to reduce the likelihood of no compatible communities. In addition, Regen are able to re-open the community engagement should insufficient engagement is possible. The wider community engagement conducted in Alpha will drive more targeted engagement ahead of Beta if required.
Lack of joined up data across DNOs, local councils, communities, commercial operators means Alpha stage work is delayed	WP-C1	Medium	Medium	Data required for the project is coordinated through a data catalogue that is updated in each weekly PM call. If successful, required data will be gathered prior to Alpha kick-off to expedite the process.

Risk Description	Task	Risk	Impact	Mitigation Actions
Data from communities is unavailable (LAEPs, Planning information, policies in local planning documents	WP-A1	Medium	Low	Bringing the communities onboard as subcontractors within Alpha will provide greater incentive for collaboration. Most community groups are already in partnership with their local council.
Challenges with capturing data from communities to inform the design of the REACH energy centre	WP-A1	Medium	Medium	Plans to remunerate communities for their involvement to support engagement and data capture. In addition, site visits have been discussed with communities during Discovery phase and budgeted for in WP-A1.
Data from DNO - LV monitoring data for selected communities	WP-C1	Low	Medium	Within Alpha, NGED plan to install LV monitoring in selected communities. This will be funded separately to the SIF project through RIIO-ED2 targets. Monitors are only available to ground mounted substations.
There is a risk that the REACH energy centre will require a land footprint larger than available for many communities.	WP-B1	Low	Medium	We will continue to work with the communities to understand the spatial restraints on any selected technology. Updates to the design requirements may require iterative design processes, but this is expected and included in Alpha stage work scope. In Discovery Engagement, we specifically asked communities whether the expected footprint was available for the REACH energy centre.
Communities rely on volunteers, as such may not have the skills capacity or resources available to support the project	WP-A1	Low	Medium	It is planned to remunerate communities for their involvement, and to develop a tool that helps address the concern over skills and capacity. Within REACH, Regen have the resource and responsibility to assist communities.
Energy centre does not mitigate network constraints enough to avoid / defer network reinforcement. For instance, if the LV network is constrained, would coordinate heat control and Energy Centre be effective and cost comparable to LV network reinforcement.	WP-A2, WP-A3, WP-B1	Medium	High	Conduct network studies to identify specific network constraints arising from LCT adoption, and assess the capabilities required from an energy centre to overcome these.
Fail to identify, due to inadequate research, existing innovative methods to deliver electrical capacity to rural communities - failing to meet project direction.	WP-A4	Low	Medium	Workshops, literature review, @Gary please update
Communities do not accept the principles of community heat control - they may wish to retain control over heat provision.	WP-A4, WP-B2	Medium	High	Reconsider alternative heat provision technologies - as part of WP-A4
Carbon assessment work delivered does not capture the possible carbon reduction possible by the REACH project.	WP-B4	Medium	High	NGED/SGCPM provide support through project to ensure scope is properly understood and can deliver on time and budget
Low engagement at community workshops fails to deliver user requirements for options assessment tool development	WP-A1b	Medium	High	Communication plan and workshop dates organised

Risk Description	Task	Risk	Impact	Mitigation Actions
Work carried out by NGED Secondary Network Planning team does not interface with network studies performed by SGC	WP-A2	Medium	Medium	Hold workshop to share learnings and identify network requirements and costs
High level feasibility reports do not meet community expectations -	WP-A1	Medium	Low	Create skeleton report outlining report structure as briefed to communities by regen, outlining the requirements
Insufficient community specific data obtained to establish heat load profiles - both controlled and non-controlled	WP-B2	Medium	High	If community specific data is not available, use generic data from DFES or other measured data
Identification of 'effective rating' required for energy centre sizing is too difficult to identify	WP-B1	Medium	Medium	Half-hourly load flow modelling is currently underway, which will provide a more effective rating from which energy centre sizing and heat profiles can be determined.
Bottom up assessment by VEPOD and Passiv is different to SSPT's primary down assessment of network headroom	WP-B1	Medium	Medium	Half-hourly load flow modelling is currently underway, which will provide a more effective rating from which energy centre sizing and heat profiles can be determined.
Current connections process won't allow BES connections in constrained areas due to current policy	WP-B1	High	High	Work with secondary network planning & connections to evolve bespoke energy centre connection design policy and agreement.
Best community led connection location is not optimal location for network	WP-B1	Medium	Medium	Work iteratively with the network planning & connections team to identify optimal connection location.
Use case for Options Assessment Tool does not materialize during community engagement.	WP-A5	Medium	Medium	Work with project sponsors to ensure project objectives are met with any revised deliverables.
2 - Commercial Risks				
Identification of acceptable funding models is unsuccessful.	WP-B3	Medium	High	A range of potential funding models have already been identified, we have a designated work package to work closely with community groups to establish customer acceptance of known models.
No ownership model offers a positive CBA for either communities to build energy centres themselves, or DNOs to develop within a new regulatory sandbox.	WP-B3	Medium	High	Evaluate progression options at the end of Alpha phase, stop project if required.
Difficulty assessing the DSM requirements for BESS system and Energy centre - quantitative volume of flexibility required is needed to construct the CBA	WP-B3	Medium	Medium	Early engagement with the NGED Flexibility team to determine way forward.
Revised energy centre deployment use case as deployed by NGED would require regulatory change.	WP-B3	High	High	Innovate UK and Ofgem sandbox team engagement to explore required regulatory change
3 - Environmental Risks				
None – Beta Project may incur environmental risks, but due to the desktop nature of Alpha none are present.				

Partner Progress Reports

Attach Minutes of Progress Meetings and other supporting evidence (presentations etc) as appropriate.