Rural Energy and Community Heat (REACH)

Closedown Report

August 2025

Electricity Distribution

nationalgrid

Contents

Executive Summary

REACH set out to test whether re-deployable modular energy centres (MECs—battery plus back-up HVO generation) combined with coordinated heat-pump control could provide a pragmatic route to rural decarbonisation while managing emerging LV & HV network constraints. Across Discovery/Alpha the consortium (NGED, Smart Grid Consultancy, Regen, VEPOD, Frontier Economics, Cranfield University, Passiv) delivered against the plan: seven rural communities were engaged, with Awel Aman Tawe and Bigbury Net Zero taken through detailed feasibility, network studies characterised intact and abnormal-running constraints; VEPOD produced site-specific MEC designs, Passiv demonstrated the effectiveness of coordinated heat control, Cranfield built a replicable carbon-assessment tool, and Smart Grid Consultancy defined a data-driven Options Assessment Tool to support “which option, when?” decisions. Two open dissemination events led by Regen (≈50 attendees on 11 Feb 2025; ≈70 on 13 May 2025), plus interviews and community reports, ensured transparent challenge and sector learning.

Economic analysis by Frontier Economics concluded MECs are capital-intensive and only achieve positive NPVs when value can be stacked from flexibility market participation and/or household flexibility revenues; network-only cases remain negative in most scenarios. Parallel policy and commercial work showed that an NGED-owned Beta would rely on regulatory derogations/sandboxing and still face enduring licence limits on market activity, while investable third-party ownership constructs were not yet contract-ready. Taken together—with residual RED risks concentrated in route-to-market, ownership/financing, and economic-case robustness—the project’s gating tests were not met. NGED has therefore decided not to progress to Beta. Key learning is that MECs would only offer a tactical role where intact-network constraints arise and reinforcement is delayed, but they are not a routine substitute for reinforcement under current rules. Network studies undertaken by NGED during the project failed to identify any intact network constraints. The project leaves the sector with community evidence, carbon and options-tool architectures, and a transparent CBA/commercial baseline—so that future initiatives can target (i) a confirmed regulatory pathway (e.g., Category-C or durable third-party models), (ii) bankable access to market revenues, and (iii) early, community-centred engagement that de-risks siting, visual impact and local acceptance.

Project Summary

Project Details

Project Number: 10125526

Project Title: Rural Energy and Community Heat (REACH)

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Overall Progress and Key Achievements

REACH Alpha Phase demonstrated strong delivery across all workstreams. Led by National Grid Electricity Distribution (NGED) and Smart Grid Consultancy (SGC), with contributions from Regen, VEPOD, Frontier Economics, Cranfield University, and Passiv, the consortium has collectively advanced the technical, commercial, and community engagement components of the project.

Community Engagement and Feasibility Selection

Regen successfully re-engaged seven rural communities, ultimately selecting Awel Aman Tawe and Bigbury Net Zero for detailed feasibility. These two communities were chosen based on a structured scoring approach against technical, locational, and engagement criteria. Site visits, interviews, and feedback loops ensured that community-specific concerns and aspirations were addressed.

Key outcomes:

- Community-facing reports to inform broader learning.
- Two stakeholder dissemination events attended by over 70 participants.
- A recommended engagement pathway for future phases.

Technical Feasibility and Network Constraints

NGED, SGC and, VEPOD delivered detailed load flow and reinforcement analysis across all seven communities. The work confirmed that while current network conditions are generally stable, abnormal running conditions or rapid low-carbon technology (LCT) uptake could lead to significant headroom constraints.

Key outcomes:

- High sensitivity of rural networks to EV and heat pump uptake.
- Increasing nighttime peak demand due to EV charging.
- The potential value of energy centres in fault scenarios or areas with reinforcement delays.

Energy Centre Design and Load Management

VEPOD developed energy centre designs for both selected communities, incorporating battery sizing, genset capacity, and network export strategies. Passiv's modelling demonstrated the effectiveness of coordinated heat pump control in mitigating peak loads without compromising comfort—outperforming simple turn-down strategies.

Carbon Impact and Emissions Modelling

Cranfield University's literature review and modelling revealed significantly higher per capita emissions in rural areas due to off-grid heating and older housing stock. Their Excel-based tool now enables estimation of emissions at both household and community scale.

Key outcomes:

- Scope 1 emissions were 10–20x higher than Scope 2 in rural communities.
- Priority identified for replacing oil and coal-based heating systems.
- EV adoption potential quantified with associated emissions reductions.

Options Assessment Tool Development

Smart Grid Consultancy conceptualised a modular Options Assessment Tool to support community decision-making. This tool will allow users to explore different deployment scenarios and determine the suitability of energy centre adoption.

Key outcomes:

- A data-driven architecture categorised by requester, source, and relevance.
- Scenario modelling for battery sizing and community energy demand.
- Logic filters to narrow options based on specific rural challenges.

Commercial Model and Cost-Benefit Analysis

Frontier Economics developed a commercial model and SIF-aligned CBA workbook that evaluated deployment pathways. While DNO-led models appear more viable under current regulations, the potential for long-term community participation was also examined.

Key outcomes:

- Counterfactual scenarios were defined to assess relative value.
- Ownership models mapped against regulatory and financial barriers.
- Illustrative financial flows developed to inform stakeholder discussions.

Refinement of the REACH Deployment Use-Case

A key shift during the Alpha phase has been the refined positioning of REACH modular energy centres. Originally envisaged as a proactive solution to normal operating constraints, they are now more appropriately deployed as a tactical response only relevant to communities witnessing constraints in intact network conditions.

Exceptions and Variations

Two notable variations were recorded:

1. **Refined Use-Case:** Shift towards tactical deployment due to findings from technical assessments.
2. Site Visit Reduction: Full visits were not required for all communities due to adequate remote data access.

Both deviations were justified and did not impact the delivery of project outcomes.

Conclusion

The REACH project has made substantial and strategic progress in its Alpha Phase. All major deliverables have been completed to a high standard, and partner collaboration has been strong. A clear understanding of where energy centres could provide value has been established, for communities witnessing constraints in intact network conditions.

User Needs

The REACH project has prioritised three main user groups: rural communities, Distribution Network Operators (DNOs), and wider energy system stakeholders. Each has distinct needs, which have shaped the project's design and requirements.

For rural communities, the need is twofold: access to low-carbon technologies without undue delay from network constraints, and confidence in the social, financial, and aesthetic acceptability of local energy infrastructure. Our direct engagement with seven communities, and detailed feasibility with Awel Aman Tawe and Bigbury Net Zero, confirmed that communities value transparency on costs and ownership, visual impact, and practical deployment considerations. To reflect this, we embedded tailored engagement, co-designed reports, and an Options Assessment Tool that allows communities to explore scenarios and understand the trade-offs of different solutions. We also recognised that community time and expertise is a resource requiring fair compensation, and have integrated this principle into the Beta phase plan.

For DNOs, the primary need is an agile mechanism to manage rural constraints while reinforcing networks. Analysis showed that most intact networks remain stable, but constraints emerge under abnormal running or with accelerated low-carbon technology uptake. DNOs therefore require temporary, tactical solutions that avoid costly delays to customer connections. This informed our reframed scope: REACH energy centres were later positioned as tactical interventions for specific, constrained contexts, not a routine measure. We tested these assumptions through iterative modelling, community feedback, and alignment with NGED's planning processes, ensuring relevance and proportionality.

The wider energy sector—including regulators, policymakers, and third-party investors—requires clarity on delivery models, financial flows, and carbon benefits. Frontier Economics' commercial model and Cranfield University's carbon framework addressed these needs by evaluating ownership options, quantifying costs and benefits, and enabling scalability. By considering both DNO-led and community-led pathways, we minimised duplication and designed outputs that can integrate with Local Area Energy Planning and flexibility markets.

Scope boundaries were set by prioritising communities with realistic prospects of deployment—defined by network analysis and community capacity—while ensuring broader lessons could still be drawn. This balance between depth (two detailed feasibility studies) and breadth (seven community assessments, wider stakeholder engagement) ensured outputs are both practical and generalisable.

To make the user journey work as smoothly as possible, we clarified roles between DNO and community actors, reduced technical and financial complexity through tool development, and provided clear process maps for engagement. This approach minimised burdens, avoided duplication, and ensured that REACH's outputs complement existing services rather than compete with them, supporting a coherent journey for rural decarbonisation.

Impacts and Benefits

The REACH intervention combined a re-deployable Modular Energy Centre (MEC—BESS + HVO genset) with coordinated heat-pump control (Passiv Smart Thermostat, PST). Frontier's Alpha-stage CBA (plus a populated SIF CBA Excel model) assessed social, environmental and financial impacts for two representative communities—Awel Aman Tawe (AAT) and Bigbury Net Zero (BNZ).

Expected net benefits and changes since Application

Alpha results showed net benefits are contingent on market participation ("value stacking") and/or household flexibility revenues. In scenario testing, the MEC alone is negative NPV; with household PST flexibility and market access the totals turn positive (e.g., Scenario 4: BNZ +£155k, AAT +£690k). AAT is also positive with PST benefits without market access (Scenario 2: +£317k), while BNZ remains negative (-£932k). Since Discovery/Application, impacts have been revised by:

- explicitly modelling intact-network deployment even though peak-day usage was derived from abnormal-running analysis—reflecting NGED's expected real-world use case;
- adding explicit scenarios for energy-market revenues; and
- adopting conservative assumptions (no community post-MEC asset benefits; site remediation costs borne by DNO). These changes were necessary to align with SIF CBA guidance and emerging technical evidence.

Cost-Benefit Analysis for rollout

Using SIF rollout rules, Frontier estimated that only scenarios with positive case-study NPVs are deployable: NGED-wide NPV is £0 in Scenarios 1/3; £793k in Scenario 2 (AAT-type only); £134k in Scenario 3a (enhanced, BNZ-type only); and £2.1m in Scenario 4 (both types). GB-wide NPVs scale to £0/£2.8m/£478k/£7.5m respectively. Assumptions include ~25 eligible NGED communities and GB scaling by network length.

Pursuit outside SIF and route to market

Frontier concluded Beta-level investment is hard to justify without clearer quantification of network-only benefits and a regulatory/commercial route that enables value stacking. Third-party (or hybrid) ownership that allows market participation may be the most cost-effective path; a DNO-owned proof-of-concept may require sandbox/Category C arrangements and still struggle on net cost if barred from markets.

Progress vs Discovery benefits and quantitative indicators

Benefits progress includes: avoided voltage drop and thermal overload events; reduced failure risk (CNAIM-based safety/network performance values); wholesale-system benefits from shifted generation; and household flexibility revenue (~£96/customer-year via PST). Social valuation of low-voltage mitigation uses the Guaranteed Standard (£30/customer-year for ~1,000 customers) with VoLL cross-checks; environmental valuation captures carbon via price-inclusive wholesale benefits and net-loss effects.

Government priorities, resilience, consumers (incl. vulnerable)

REACH was conceived to support Net Zero and resilience by bridging unforeseen clusters of LCT uptake until reinforcement, improving power quality and reducing outage/failure risks. Flexibility revenues can lower bills—including for vulnerable customers where PST participation is feasible—while community options post-MEC (re-use of slab/connection) can stimulate local investment and supply-chain activity. Further engineering/economic research is recommended to bound the network-only value drivers and refine site counts.

Risks, Issues, and Constraints

Following Alpha, we have decided **not** to proceed to a Beta phase. While the project produced valuable learning (network headroom assessment, energy-centre sizing, coordinated heat control and carbon methodology), three gating objectives set at the outset of Alpha were not sufficiently satisfied to justify a Beta investment led by NGED:

- a clear, repeatable use-case with adequate market size;
- a cost-competitive ownership/financing model; and
- evidence that the modular energy centre (MEC) would reliably mitigate constraints in practice.

These were the explicit decision tests recorded in the Beta Application Decision note. In parallel, Frontier's Alpha CBA and commercial-model work showed that MECs are **capex-heavy** and only move into positive NPV when value can be stacked from energy-market revenues and (in some cases) coordinated household flexibility; MEC-only cases are negative NPV and even with wholesale participation results are mixed, making a DNO-led route difficult to justify. Critically, a DNO ownership model is constrained by licence rules (generation/storage restrictions): while a time-limited sandbox or Category-C exemption could enable a proof-of-concept, enduring DNO participation in energy markets is unlikely—undermining net benefits in a DNO-owned Beta.

How open risks drove the decision.

The **remaining RED risks** were clustered around **regulatory route-to-market** (need for derogation/sandbox and limits on market participation), **commercial model viability** (no clearly investable, customer-acceptable ownership/financing construct), and **economic case robustness** (positive CBA dependent on market access and specific flexibility/customer-benefit assumptions). Together, these create a high likelihood that a DNO-led Beta would either (a) deliver negative/uncertain NPVs in MEC-only operation, or (b) rely on revenue sources a DNO is not permitted to realise, forcing complex third-party arrangements that are not yet contract-ready. The Alpha CBA (Appendix 1) summarises this dependency: network-only benefits are insufficient; positive societal NPVs arise where market revenues and household flexibility are accessible—conditions that are not reliably available under a DNO-led model. Sensitivity work further indicated that achieving positive CBA without full value stacking would require materially higher failure-risk assumptions than base cases—again reinforcing the decision to stop.

Guidance for successors.

Projects pursuing similar goals should:

- **secure the regulatory pathway upfront** (e.g., confirm Category-C conditions or a durable third-party/hybrid model) and treat any sandbox as a time-boxed trial, not an enduring solution;
- **lock a bankable value stack** with clear market-revenue access (wholesale/ESO/DSO) and standard contracts before build;
- **decide ownership early**—a capable third-party operator may be necessary to unlock market revenues and redeployment economics; and
- adopt **hard go/no-go gates** tied to evidenced NPVs across scenarios (with and without household flexibility), rather than network-only benefits. These points flow directly from the commercial-model and CBA conclusions reached at Alpha.

Risk Description	TASK	Risk	Impact	Mitigation	Status
1 - Technical Risks					
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.	Materialised
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	Open
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.	Open
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.	Open

Risk Description	TASK	Risk	Impact	Mitigation	Status
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.	CLOSED
Sickness/absence of key project personnel.	WP-C1	HIgh	Medium	Require backup personnel for all key actors in project contracts.	CLOSED
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.	CLOSED
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.	CLOSED
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.	CLOSED
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.	CLOSED
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.	CLOSED

Risk Description	TASK	Risk	Impact	Mitigation	Status
Energy centre does not mitigate network constraints enough to avoid / defer network reinforcement. For instance, if the LV network is constrained, would coordinated 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.	CLOSED
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	CLOSED
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	CLOSED
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	CLOSED
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	CLOSED
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	CLOSED
Risk that communities do not offer the expected level of engagement due to the level of funding available	WP-A1	Low	High	Regen lead community engagement, providing support through the process and adequate engagement	CLOSED
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	CLOSED
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	CLOSED

Risk Description	TASK	Risk	Impact	Mitigation	Status
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.	CLOSED
Bottom up assessment by VEPOD and Passiv is different to SSPT's primary down assessment of network headroom	WP-B1	Medium	Medium	LH - update	CLOSED
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.	CLOSED
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.	CLOSED
2 - Commercial Risks					
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	High	High	Evaluate progression options at the end of Alpha phase, stop project if required.	Materialised
Identification of acceptable funding models is unsuccessful.	WP-B3	High	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.	Materialised
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	Open
The cost of heat provision, in the absence of direct subsidy, is too expensive for the community energy group / householders, and revenue from network protection is insufficient to 'close the gap'	WP-B2	High	Medium	The project team will draw learnings from the Equinox project regarding value of grid protection; some communities have already expressed interest in other elements that could enhance overall project revenues, such as community-owned solar; waste heat capture, where available, may reduce some capex (e.g. borehole length) of the heat solution	CLOSED
3 - Environmental Risks					

Risk Description	TASK	Risk	Impact	Mitigation	Status
None – A Beta Project may incur environmental risks, but due to the desktop nature of Alpha none were present.					

Working in the open

During Discovery/Alpha we worked in the open by default: we published plain-English reports on National Grid's website and the smarter network portal, ran two open dissemination sessions led by Regen, released short explainer videos, and co-designed methods and tools with external stakeholders.

The two dissemination events (Event 1 on 11 Feb 2025 and Event 2 on 13 May 2025) drew **~50** and **~70** stakeholders respectively across community groups, local authorities, other DNOs, consultants and NGOs; the second used live polling to test—and, where needed, challenge—our assumptions in real time. Alongside this, Regen conducted ten structured interviews with community-energy stakeholders, NGED/partners held site visits in the two feasibility communities, and we kept an open liaison channel with UKRI and other DNOs to avoid duplication and share interim findings. Two short videos were circulated across networks to explain the Alpha goals and the energy-centre concept, further broadening access to the work.

We invited scrutiny at each step. Technical hypotheses (constraint types, energy-centre sizing, coordinated heat control) were exposed to challenge via the open sessions, interviews and planner consultations; commercial and regulatory pathways were socialised with partners and other networks; and we documented options, counterfactuals and delivery models in briefing notes and workshop materials.

Learning was shared promptly: milestone deliverables were completed and disseminated; liaison with other DNOs ensured alignment; and we signposted where to find outputs beyond the ENA portal (e.g., National Grid's REACH webpage for public-facing reports and videos). This transparency extended into internal governance: weekly meetings with recorded minutes, risk/issue logs kept current, and clear dependency mapping so others can reuse our components (e.g., data requirements, modelling interfaces, options-tool logic) rather than start from scratch.

Key lessons from this open approach:

1. The **use-case refined materially**—MECs have most value as tactical support where intact-network constraints emerge, not as a routine solution; sharing this early prevented misdirected effort by others.
2. **Engagement quality matters**—accurate visuals, transparent financials, and fair compensation for community time are prerequisites for durable participation.
3. **Network-first selection and clear triggers** (e.g., reinforcement timescales, abnormal-running exposure) cut through optionality and make conversations concrete.
4. **Data gaps** (connect-and-notify visibility, telemetry granularity) impede planning; publishing our data schema and options-tool architecture will help peers converge.
5. **Cross-journey relationships**—with planners, connections, other DNOs, academia and policy—accelerate consensus on what should be trialled next and under which regulatory pathway.

Collectively, the open dissemination events (~120 total attendees), interviews, videos and published materials created a common evidence base others can inspect, reuse and build upon, speeding sector learning while reducing duplication.

Costs and value for money

Fixed cost contracts were used to ensure project spend did not exceed the available SIF funding. Consequently, project partner costs equalled the available SIF funding. Contributions were made by each partner in the form of a reduced day rate, applied to the cost forecasting at the project start. An overall contribution of 22% was made by project partners, to the project.

Table 1: Summary of project finances

Project Partner Name	SIF Funding Requested (£)	Total Actual Project Spend (£)	SIF Funding Used (£)	Total Project Contribution (£)
National Grid Electricity Distribution	£50,792.00	£51,147.00	£46,032.30	£5,114.70
Smart Grid Consultancy	£122,618.00	£206,050.00	£122,618.00	£83,432.00
VEPOD	£27,287.00	£36,281.00	£27,287.00	£8,994.00
Regen SW	£154,328.00	£171,475.00	£154,328.00	£17,147.00
Cranfield University	£45,901.00	£57,376.00	£45,901.00	£11,475.00
Passiv UK Ltd	£39,352.00	£43,725.00	£39,352.00	£4,373.00
Frontier Economics Ltd	£49,739.00	£55,265.00	£49,739.00	£5,526.00
Total	£490,017.00	£621,319.00	£485,257.30	£136,061.70

Special Conditions

The project met the SIF specific condition to “provide a summary of alternative options for rural decarbonisation” through a set of completed, public-facing deliverables that catalogued both what the options are and how they could be delivered.

First, WPA4 – Review of alternative delivery options produced a structured comparison of community-led, DNO-led, third-party and hybrid routes, tied to rural barriers via a SWOT framework; this culminated in the “Summary Report on Delivery Options” (WPA4 M2, completed 02 June 2025), giving a clear, decision-ready map of delivery pathways and their pre-requisites. Complementing delivery models, WPB4 assembled an evidence-based menu of technology pathways and their environmental effects for rural places (e.g., heat pumps, thermal energy storage, EVs, HVO), delivered as: (i) a literature-led synthesis of rural emissions drivers and LCT impacts; (ii) a Scope 1/2 baseline for two case-study communities; (iii) a scenario report quantifying carbon hot-spots and sensitivities; and (iv) a stand-alone Excel tool (M4) designed for Ofgem dissemination so others can interrogate options, assumptions and results. Together, these outputs summarise what “good looks like” for rural decarbonisation choices and make the evidence reusable.

To operationalise the summary, WPA5 set out the Options Assessment Tool architecture and logic (data inputs, filters and scenario blocks) so communities, DNO planners and partners can explore “which option when” against local constraints and user needs. This is reinforced by WPA3 – Community Process Guidance, which maps the end-to-end journey (fast, tactical intervention vs. slower, community-led opportunity), ensuring the alternatives are embedded in a practical process rather than a static list. The condition was also satisfied by testing alternatives in the economics: the Frontier CBA explicitly weighed REACH against counterfactual courses (e.g., accelerated reinforcement; securing DSO flexibility) to show where an energy-centre approach is, and isn’t, justified—again giving stakeholders a comparative view of options.

In short, the SIF requirement is achieved via: (1) a delivery-options summary (WPA4 M2) that sets out viable governance/ownership routes; (2) a technology-options summary (WPB4 M1–M3) with quantified emissions effects; (3) a publishable tool (WPB4 M4) enabling others to reproduce and adapt the analysis; and (4) process and tool architecture (WPA3/WPA5) to take those alternatives into real projects. All of these were completed within Alpha and signposted through the end-of-phase report.

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