SIF Round 3 Project Registration

Date of Submission

May 2024

Project Reference Number

10061351

Initial Project Details

Project Title

Community Led Integrated Planning (CLIP)

Project Contact

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Challenge Area

Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout

Strategy Theme

Consumer vulnerability

Lead Sector

Electricity Distribution

Project Start Date

01/03/2024

Project Duration (Months)

3

Lead Funding Licensee

UKPN - South Eastern Power Networks Plc

Funding Mechanism

SIF Discovery - Round 3

Collaborating Networks

UK Power Networks

Technology Areas

Asset Management

Heat Pumps

Carbon Emission Reduction Technologies

Low Carbon Generation

Community Schemes

LV & 11kV Networks

Modelling

Digital Network

Electric Vehicles

Energy Storage

Environmental

Stakeholder Engagement

Substations

Project Summary

CLIP is pioneering a community-led Net Zero planning approach for multiple clusters of communities. By using an innovative circular digital planning process, it addresses existing gaps in local area energy planning, enabling collaboration between communities, DNOs, and local authorities to develop unique and tailored decarbonisation plans for communities.

CLIP includes a traffic light system, highlighting the alignment between community readiness and DNO asset planning, underpinned by credible and actionable plans. This forward-thinking approach empowers communities and optimises low carbon solutions to be deployed. It prioritises communities ready to go so networks can ensure capacity is available when needed.

Add Third Party Collaborator(s)

Buro Happold

Community Energy South

Project Budget

£136,919.00

SIF Funding

£122,833.00

Project Approaches and Desired Outcomes

Problem statement

Unlocking the potential of low carbon technologies (LCTs) and achieving Net Zero targets requires inspiring consumers' confidence to install LCTs – whether it be in their homes or in their neighbourhoods.

Local Area Energy Planning (LAEP) attempts to support this by enabling the development of local authority focused regional plans, creating a low carbon roadmap zone by zone. LAEPs have their limitations as the methodology does not incorporate:

· Community level planning therefore not considering localised aspects or plans tailored to individual consumer and building needs.

· Community energy solutions, local energy market structures, systems such as ambient loops for providing community heat or embed flexibility into its evaluation process to mitigate for network capacity issues.

· Live network data to optimise at a granular level on connection and asset sizing strategies.

The outcome is a major gap in planning which does not give the right solutions for communities, nor the DNO visibility of where and when deployment should occur based on community readiness. Simultaneously, communities miss out on holistic, systems-based approaches that could significantly reduce bills.

Community Led Integrated Planning (CLIP) tackles these challenges, by developing a fully digitalised and circular approach to community-led planning. It will seamlessly integrate with DNO planning processes, catering to target users such as community groups, local authorities, and DNO/DSOs. It clusters communities by area and electrical boundary to deliver a scaled approach whilst still being granular enough to service individual consumer needs.

It addresses Challenge 1, Theme 4 by introducing a new approach for whole systems planning encompassing heat, power and transport. The unique aspect is the community-led approach, ensuring plans are directly informed by consumer choices and tailored place-based solutions. These choices and community plans support decision making by DNOs, GDNs and local authorities.

A key feature will be a traffic light approach to clearly show where:

· Communities are ripe for transition based on alignment with their needs and DNO asset planning – triggering community engagement.

· Communities are already active and need a boost of support to transition.

· Barriers such as network capacity challenges that require solutions like flexibility or asset reinforcement to overcome them.

The process will be designed align to the LAEP framework so community plans can seamlessly integrate and enhance the LAEP process.

Learning supporting this project includes working on innovative projects such as Heat Pump Ready, CommuniHeat and CLEO; all of which demonstrate the value of integrated planning and stakeholder engagement.

Video Description

https://youtu.be/6w3Meopscxo?si=LZKhOPRc1xozYNjP

Innovation justification

CLIP is a community-led planning approach that will unlock and optimise the transition to Net Zero for thousands of customers. This innovative approach addresses the gaps seen in LAEP and supports DNOs with asset planning. CLIP will empower communities in decision making, stimulating demand for low carbon solutions.

CLIP, an integrated digital planning solution, is a collaborative tool utilised by communities, DNOs and local authorities. CLIP will identify and tailor the right decarbonisation solutions for communities, at the right time and place. This approach will stimulate consumer demand at scale and Beta will focus on over 100 communities, leading to savings in bills, carbon, and asset costs. CLIP's tools, guidance and governance bring to life community-led plans across the UK-wide.

This is accomplished through the creation of a planning capability and methodology capturing the unique needs of each community. It surpasses conventional planning, creating a community-specific opportunity pipeline integrated into a digital plan. What sets this apart is the active involvement of the community and consumers in a co-development journey, ensuring a fully endorsed decarbonisation plan. It feeds into the LAEP process and corresponding DNO and DSO planning process ensuring alignment. The DSO interface considers where flexibility should be planned and how much can be leveraged from the community solution. This reduces interventions required and optimises asset planning, permitting multiple connections.

To contextualise, current LAEP practice takes a regional zoning approach but does not directly design solutions that are deployable at a community level and developed in collaboration with the community. Various technologies and commercial solutions will be considered down to building and street level including small-scale community solar schemes, smart local energy systems delivering flexibility in areas of constraint, tailored retrofit packages and local energy market structures for fair distribution of local energy.

TRL/CRL is 6 with 'subsystem' components existing around DNO planning, community engagement and LAEP. Discovery will seek to understand how to increase this through Alpha and Beta to full commercial deployment.

CLIP directly addresses the SIF challenge as it's a whole system multi-vector planning approach aligning regional planning with customer choice and integrating DNO planning to deliver efficiencies in network asset deployment. This close alignment to the SIF challenge and need for a largescale demonstration makes the project suited for the SIF. Due to the high-risk and uncertain nature in developing and testing the tools, this cannot be funded as part of BAU.

Impacts and benefits selection (not scored)

Financial - future reductions in the cost of operating the network

Financial - cost savings per annum on energy bills for consumers

Environmental - carbon reduction – direct CO2 savings per annum

Revenues - improved access to revenues for users of network services

New to market – processes

Impacts and benefits description

Financial - future reductions in the cost of operating the network

The cost of operating the network will be significantly reduced by ensuring targeted deployment of assets when and where needed and using flexibility embedded into deployed solutions planned in from the outset. NIA project CommuniHeat estimated a £1.5m saving for just 600 homes. Our clustered approach will target over 100 communities likely saving many millions in reinforcement whilst introducing far more efficient consumer led solutions to reduce overall energy consumption. This will be validated through the network asset planning approach model.

Financial - cost savings per annum on energy bills for consumers

Previous project experience suggests an average 25% reduction in bills can be achieved with significantly higher savings for those homes limited to electric boilers without a community energy option. The modelling built into the planning approach will consider the counterfactual scenarios and resulting efficiency and energy tariffs by household to evaluate the saving.

Environmental - carbon reduction – direct CO2 savings per annum

The average home uses between 2-3 tons CO2 per annum from fossil fuel heating. For Beta we are targeting 100 communities, potentially saving over one million tons per year. However, we believe the planned approach will accelerate homes as they will not move without this support saving an additional carbon for every year we accelerate them.

Revenues - improved access to revenues for users of network services

The inclusion of, community generation, heat systems and flexibility provision into the project approach enables increased revenues by providers that benefit consumer and network. The increased uptake will result in many £ millions generated for these schemes. The scheme options can be identified and quantified into the integrated techno-economic evaluation model as part of the planning process. Revenue options equals investment opportunity so we expect to see many millions of private investments into network assets e.g. crowdfunding community solar.

New to market – processes

The process of community-led planning is novel and not done currently – the project will unlock stranded homes and communities, and provide a mechanism to co- plan with local authorities, communities and DNOs. The project team consists of representative stakeholders from all these areas to ensure success and a measured approach as it is deployed in practice.

Teams and resources

CLIP brings together four partners for Discovery - All partners have experience of successful delivery on previous network innovation-funded projects, putting them in an expert position to deliver the high quality and ambitious outcomes expected.

UK Power Networks– UK's largest electricity distributor delivering power to 8.5 million homes and businesses. UKPN has developed a LAEP capability under its Net Zero Hub and previously worked with Buro Happold Ltd (BH) and Community Energy South (CES) on CommuniHeat for which BH developed the digital solution and business model.

Role: UKPN will be responsible for overall project management and will lead WP4 around DNO/DSO integration.

Buro Happold - global practice of engineer, designers and advisers, has developed digital planning solutions and supported UKPN in developing LAEP capability as well as being a practitioner of LAEPs. Through its work on the SIF funded Net Zero Terrace project, it developed an approach to utilising smart local energy systems and share ground loops to deliver lower cost heating even in constrained areas of the network.

BH will subcontract SmartDCC who will assist in unlocking opportunities to use smart metering data to better assess energy efficiency measures and system sizing for homes as well as post installation monitoring.

Role: BH will lead WP1 (understanding gaps and requirements) and WP3 (identifying new approaches to community led planning)

Community Energy South - has pioneered its Kickstart and Pathways project approach to stimulating communities and establishing community energy groups. It has been instrumental in pushing the boundaries of community energy solutions including exploring new models for deployment.

CES will subcontract and consult with:

- Ovesco CIC –community energy experts operating in the Sussex region.
- Lewes District Council : to provide insight into their LAEP approach using UKPN's Net Zero Hub
- Essex County Council : to provide ongoing support on a zero-cost basis due to keen interest

Role: CSE will lead WP2 to prepare community engagement.

At Discovery we will not need any specific materials as the work will be done as a 'desk based' study.

We will be consulting with a wider network than the partners including active members of the target communities we have identified. In addition to Lewes, we have letters of support from Essex County Council and will be working with them on identifying clusters of communities as well as discussing their approach to LAEP.

Project Plans and Milestones

Project management and delivery

For Discovery, we propose to deliver four work packages

WP 1 - Understanding gaps and requirements (BH)

- Aims: Focussing on the assessment of current practices and identifying gaps; informing the other work packages on scope.
- Milestone: Gap assessment complete and recommendations fed into subsequent work packages

WP 2 - How to unlock communities (CES)

- Aims: Developing an outline community-based approach to engaging with communities, cold starting, considering community-based solutions and new models that can be included in the planning approach.
- Milestone: Community needs outline strategy defined sufficient for Alpha

WP 3 - Identifying new approaches to community-led planning (BH)

- Aims: Outline for a community-led digitised planning approach that can integrate with LAEP and DNO planning and incorporates new methods for using actual measured data, provisioning for flexibility and community as well as individual home solutions.
- Milestone: Community led planning approach outline completed for further development in Alpha

WP 4 - DNO/DSO integration (UKPN)

- Aims: A packaged specifically looking at DNO/DSO internal processes, how they should be developed to include for community-led planning and the benefits. This will directly tie into UKPN's CELO project and Net Zero Hub development work.
- Milestone: DNO/DSO integration requirements outlined

WP5 – Project Management (UKPN)

- Aims: Ensuring the project is delivered to time, budget and specification
- Milestones: project kick-off, mid-end point, project closure

Project management will be led by UKPN using standard best practice methods and tools, including fortnightly management

meetings and status reporting. UKPN has highly effective innovation governance procedures. The project has progressed through UKPN's internal Innovation and Project Governance and Control Governance processes and will continue to be managed under this governance.

The Gantt Chart breaks down the activities into four WPs made up of individual subtasks and dependencies have been clearly laid out in the document.

Our risk management approach will regularly review risks and mitigations. We have included high level risks in the PMT. The main risks to be explored in Discovery centre around data protection and GDPR for increased community and consumer level intervention compared to LAEP. All partners have significant experience in this area as part of the mitigation.

Based on our current investigation we see no issues on policy or regulatory items but will continue to explore this through Discovery. There is no risk to network customers under this phase of work as we will not be deploying under Discovery

Key outputs and dissemination

Outcomes

The outcome of Discovery will be to outline the development requirements and strategy for a community-led planning approach which is innovative and delivers value to consumers and networks by:

· understanding how to consider community and consumer requirements in the planning process.

· how to engage with multiple communities, secure their needs and develop offerings through a planned approach at the scale needed.

· how to cluster multiple communities to deliver the volume needed to hit carbon targets,

· how to integrate new approaches to planning ahead for flexibility, leveraging the capability and value community solutions could offer e.g., storage, heat pump aggregation and hot water storage.

· how to integrate community-led plans into a LAEP process

· how to integrate with DNOs to inform and be informed by DNO asset planning and network capacity requirements

Key outputs:

Based on the work packages and the Gantt Chart, the following outputs will be produced in Discovery which can be disseminated through multiple channels:

WP 1 - Understanding gaps and requirements: BH

Gap assessment report appraising current planning and community engagement practices and what needs to change.

WP 2 - How to unlock communities: CES

Community engagement strategy outline report with a suggested approach on how to engage with communities and the information that is needed.

In addition, CES will be developing a map of engaged communities to form the basis of the target 100 communities for the next phases.

WP 3 - Identifying new approaches to community-led planning: Buro Happold

Report describing how current LAEP and DNO planning practices can be adapted to include a digitalised community led planning approach with a summary of the types of information transfer and levels of integration to other systems needed.

WP 4 - DNO/DSO integration: UKPN

Report summarising from DNO and DSO perspectives how current planning practices can be adjusted to include for integration into the community led planning approach.

Knowledge Dissemination

Our project outputs will be uploaded to the Smarter Networks Portal and feature on the UK Power Networks website with specific project learnings being disseminated at the IUK Show & Tell events. UKPN will look to share project successes and discoveries via its social media channels with the possibility of publishing external media where appropriate.

Competitive markets

Our project is designed to create demand and investment opportunities though consumer confidence, unlocking the market rather than competing with it.

Commercials

Intellectual Property Rights (IPR) (not scored)

The parties agree to adopt the default IPR arrangements for this project as set out in Section 9 of the SIF Governance document

Value for money

The total project cost is £136,846 with a SIF funding request of £122,833. UKPN and partners Buro Happold and CES are all making contributions.

This is based on the following breakdown:

UKPN

- Total costs £31,125
- Contribution: £3,113 (10%)
- SIF funding request: £28,012

Buro Happold

- Total costs £67,021
- Contribution: £6,900 (10.3%)
- SIF funding request: £60,121

CES

- Total cost: £38,700
- Contribution: £4,000 (10.34%)
- SIF funding request: £34,700

Buro Happold and CES are applying reduced rates to deliver their respective scopes and meet the 10% contribution requirements.

Buro Happold is subcontracting SmartDCC with an estimated budget of £10,000 to develop an approach to using smart metering data to evaluate building efficiency and network utilisation.

CES is subcontracting Ovesco with a budget of £3,900 to provide specialist input on community energy strategies including connection and planning considerations.

CES is also subcontracting Lewes District Council with a budget of £2,400 to co-develop an approach around Lewes' LAEP process and regional decarbonisation strategy.

CLIP delivers value for money by:

· Leveraging learning from other innovation projects: Whilst no other innovation funding is being used, we will be leveraging learning from other innovation projects that have relevant elements the project partners have been involved with. These include:

· Bristol Heat Pump Ready DESNZ funded (BH)

· Net Zero Terrace SIF funded (BH)

· LEAD Essex, South East Net Zero Hub funded (CES and BH)

· CommuniHeat - NIA funded (UKPN, CES, BH, OVESCO CIC)

· Project CLEO – NIC funded (UKPN)

All organisations will use their existing tools and capabilities to deliver the scope for Discovery phase including digital tool sets where applicable.

The plan for Beta is to develop a deployable tool kit and methodology which can be disseminated widely to others as well as a full regional 'show case' digital twin and deployment plan for UKPNs area which can be maintained and continued to be used by relevant stakeholders. This includes an asset deployment and community engagement strategy and primed communities (targeting over 100 communities in the first instance) during the ED2 period.

Existing evidence suggests this groundbreaking opportunity can unlock millions of pounds in investments for low carbon solutions and mitigate network costs through more efficient measures and reduced DNO interventions. The potential for bill and carbon savings arising from accelerated deployment is also significant. Through Discovery and beyond we will develop an approach to quantifying these benefits in detail.

Supporting documents

File Upload

Project CLIP SIF Discovery Show and Tell (Final).pdf - 830.6 KB
Project CLIP End of Discovery Phase (FInal).pdf - 2.0 MB
SIF Round 3 Project Registration 2024-07-08 10_32 - 64.2 KB
SIF Round 3 Project Registration 2024-05-13 10_31 - 64.1 KB

Documents uploaded where applicable?

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