

Strategic Innovation Fund – Alpha

Rossendale Valley Energy End of Phase Report: 25th March 2024



Fairer Warmth Admin

- Dashboard
- KPI Monitoring
- Manage Champions
- Property Data
- Property Map
- Campaigns
- Events
- Notifications
- Support Requests

Support Options

Project Specific Support Options

Below is a list of support options that have been tailored for this project.

 Request a Champion in Rossendale Receive FREE in-person energy advice	 Net Zero Terrace Street Affordable Energy and Healthy, Warm Homes	 Home Upgrade Grant in Rossendale Funding For Energy Efficiency Improvements	 ECO4 Grant In Rossendale Energy Efficiency Funding From Energy Suppliers
Learn More	Learn More	Learn More	Learn More

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Introduction

Rossendale Valley Energy is a Community Benefit Society with the objective to create a Net Zero Terrace Streets model to bring ‘affordable, low carbon energy, healthy warm homes at no upfront cost to the householder, so no one gets left behind in the energy transition’.

The Net Zero Terrace (NZE) solution we identified in earlier work is a Smart Local Energy System (SLES) which will comprise ambient loop ground source heat pumps (GSHPs), community EV car clubs, community provided storage and solar PV and local peer-to-peer Power Purchase Agreements (PPAs) controlled by optimisation software. The benefits case of the system can simply be summarised that it would reduce bills and peak network capacity by up to 80% compared to the counterfactual of direct electric heating in individual homes. Other benefits include rapidly accelerating the transition of millions of homes through mitigating against electricity grid constraints and developing local energy economies that enable the fair distribution of energy into areas where it is needed. This system relies however on novel arrangements between a variety of stakeholders, including the local authority, community energy organisations, residents’ groups, supply chain, energy suppliers, aggregators and the local distribution network operator.

Its value-led objectives include:

- A collective community ‘one touch’ approach to decarbonise;
- Overcoming barriers to entry for consumers who could not otherwise afford to decarbonise;
- Protecting consumers from fuel poverty through reduced/affordable bills;
- Accelerating decarbonisation through enabling participation and uptake;
- Creation of a replicable model that is scalable and deployable GB-wide.

SIF Alpha

This project has multiple partners with a shared vision and a clear objective to deliver the Net Zero Terrace Street solution. The work being done to date is reverse engineered from the outputs required to deliver the solution, namely:

- No upfront cost to householders, where debt is levered on to the infrastructure in a financeable model attractive to institutional investors. This is then paid back via a single standing charge from the householder, with clear investor co-benefits such as carbon savings, social and health impacts, and supply chain development and markets for insulation, solar and heat pump technologies;
- The spark gap is addressed by subsidising the price of power through a SLES, local energy generation and local energy market;
- Consumer demand is created through a trusted and transparent offer and non-extractive finance model and delivered in a community centric, co-productive way utilising a [supported] digital consumer pathway.

The SIF Alpha project scope of work is pushing forward to unlock the above outputs. Rossendale Valley Energy (RVE) has been spearheading the project taking a holistic, whole systems solution approach,

rather than the single-measure approaches to retrofit or heat decarbonisation that are more common. The work RVE has undertaken in SIF goes beyond the work packages to ensure that the overarching vision is maintained, and that work undertaken is defined and refined to meet the above outcomes.

Work package 2 Community Engagement

Milestone 1: evaluation and impact assessment of engagement methodology

Why do we need an engagement approach?

The key to deploying the NZT model, is gaining buy in from the community and approximately 30% sign-up across a street is needed to enable commercially viable deployment. Uptake will align with the technology take up curve statistics:

- Innovators 2.5%
- Early adopters 13.5%
- Early Majority 34%
- Late Majority 34%
- Laggards 16%

However, these are ‘new technology’ uptake statistics. By contrast, the NZT physical infrastructure is proven and will be installed at no upfront cost and provides additional customer benefits such as affordable energy bills, home upgrades, support from local energy champions and membership of a local energy club in addition to the peace-of-mind of having the works organised and coordinated by a trusted local provider with a focus on community participation. These figures do not include other carrots or sticks, such as private rented landlords being required to meet EPC C when there is a change of tenant, by 2028.

The engagement methodology is based on a trusted and transparent offer and non-extractive model, delivered in a community centric, co-productive way supported by a digital consumer pathway.

Why does it need testing?

If we are to secure investment and achieve scale up, we need to show that we can approach different communities through a suite of engagement campaigns and outreach within the methodology and feel confident (and investors can feel confident) that we can achieve buy-in.

Work done under SIF alpha

RVE has developed a model of community engagement for NZT: REACH- ENGAGE-RETAIN. The logic is that local Energy Champions/Advisers REACH out to households in the local area, offering energy advice and home energy assessments. Interested households are invited to ENGAGE with the ‘Fairer Warmth App’, developed by the Centre for Energy Equality, which provides energy efficiency advice and signposting to relevant Government support, and easy energy savings activities, while also collecting monitoring data. The Fairer Warmth App aims to provide an ongoing energy advice service and community-building activities, that will RETAIN some of these households going forward, de-risking the process of identifying potential NZT customers in target streets. The concept is that NZT services will eventually be offered to App users living in streets suitable for NZTS, where a critical mass of interested households has been recruited.

Until there is a funded or investable pathway for the community to attain the NZT output, only soft market testing can be done. The REACH-ENGAGE-RETAIN logic model is illustrated in the diagram below.

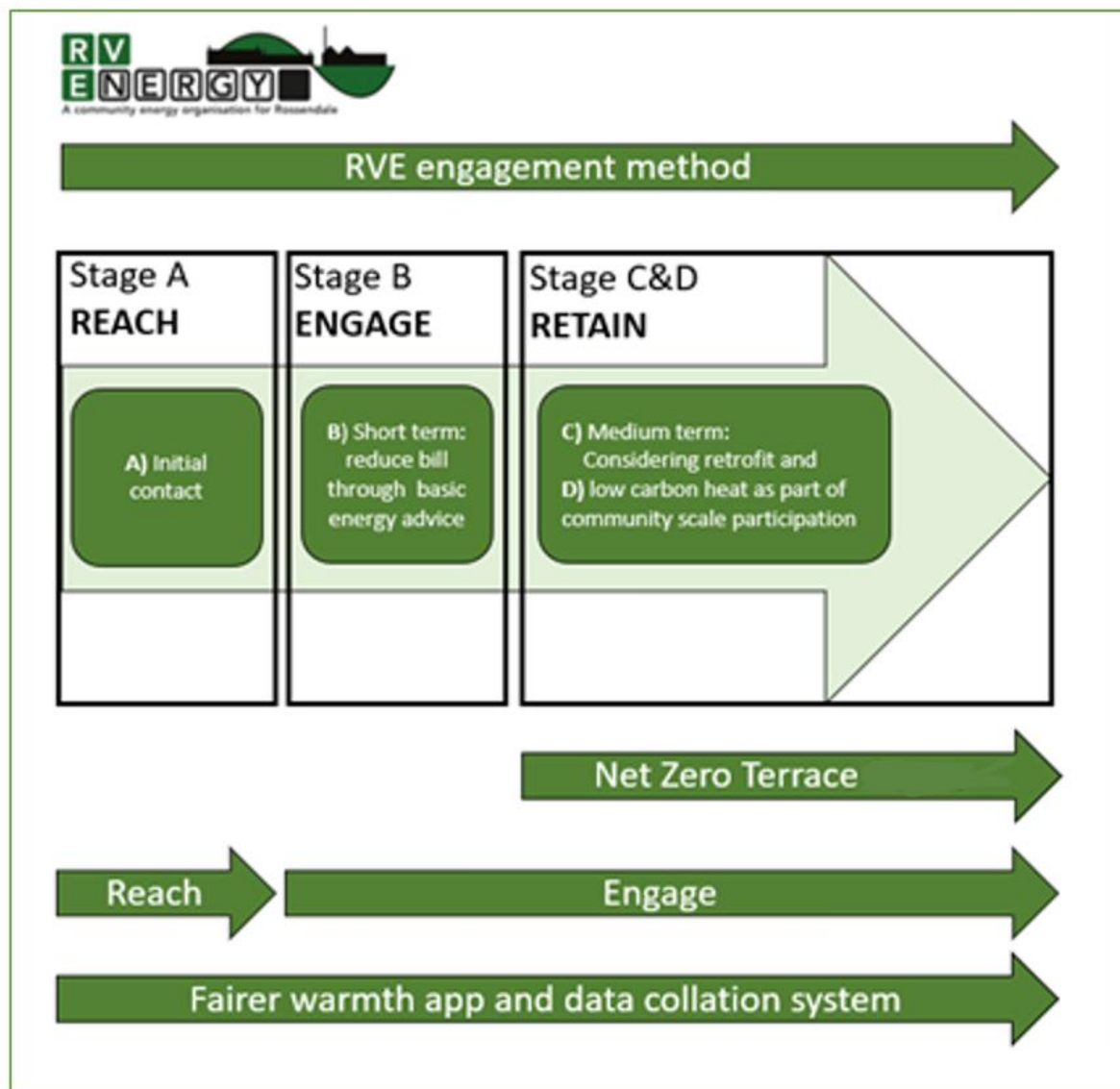


Figure 1: Reach, Engage, Retain – taking householders all the way to healthy warm homes.

Reach

Initial outreach and engagement activities around energy efficiency, linked to the Fairer Warmth App, are being undertaken by RVE in Rossendale under SIF alpha and also the Local Energy Advice Demonstrator (LEAD) project. The LEAD project is funded by the Department for Energy Security and Net Zero, running from autumn 2023 to March 2025. As well as directly helping households in the Rossendale area, this project aims to build up visibility and trust in the RVE energy advice team and

to develop a cohort of engaged local households that would be potential customers for eventual NZT services.

Stakeholder and community mapping

As set out in Discovery, stakeholder and community mapping was undertaken around organisations and entities that we could engage and work with.

Development of campaigns

Eight campaigns for Reach were set up and within each campaign, activities and media or communications channels to enable 'Reach' were considered, these were:

1. Community groups – contacting leaders and arranging drop ins and events
2. Health – working with the local medical centres
3. Food banks
4. Faith groups
5. Retail locations
6. Events
7. Doorstep
8. Schools – Energy Heroes

How we can test Reach by using the Fairer Warmth platform

The Fairer Warmth platform is being co-developed by Centre for Energy Equality (CEE) and the RVE team to ensure that the platform has the functionality that RVE (and others) require to collate information, keep people informed and eventually allow them to be part of the NZT deployment and the local energy club. The Fairer Warmth platform comprises an App with a customer-facing interface and an administrator interface used by our energy advisors and energy champions. This allows energy champions to sign people up using the App if they are digitally excluded or do not want to input data directly.

Within the SIF alpha the Fairer Warmth platform enables us to monitor sign ups and see activity within the platform. It has also allowed us to monitor which campaign has effectively reached someone and led to them signing up. This is incredibly useful in enabling us to understand where our resource is best spent to increase sign up. This is a feature that will allow us to see if other communities have different preferences for engagement or if different types of campaign and media channels differ across other geographies or demographics.

Engagement towards NZT

What are the next steps of that engagement process?

Until there is funding in place to allow the NZT service to 'go live' we will remain in the 'pump priming' phase of engagement. Getting RVE known as a trusted brand and delivering energy advice and testing effectiveness of engagement methods has been core to SIF alpha activities.

When there is a route to funding to allow people to reach the end point of being part of a NZT solution, we can escalate the engagement up to include the 'offer' of the NZT Streets solution.

As seen in the sections below, we have successfully tested our reach and engage methodology through our engagement campaigns. Deeper and continuous engagement is needed to spread the word about the NZT solution, embed trusted energy champions within the community and for RVE to become a trusted brand.

This will require deployment of more energy champions to form a network across the area and the introduction of a neighbour to neighbour approach using a feature of the app whereby people can see how many people in their street have expressed interest. As with 'collective switch' this may encourage people signed up to encourage others to join as it will unlock a better deal for themselves. The importance of 'block leaders' or neighbourhood voices has been documented as important to delivering area based home energy efficiency schemes.

Retain

Testing RVE's ability to retain interest requires a longer time period and can be tested across SIF Beta. The key is to have funding, then investment in place so the deployment solution can be offered, providing a clear pathway for householders towards the outcome of NZT.

As we move forward with Pathfinder 2, and the 3 demonstrator houses, including a show home, this will be a key engagement tool for people to see the pathway and the outcome.

Next steps: getting to 30%

We need to continue to test engagement in the area and widen the testing to include the delivery of the NZT solution and actual uptake achieved.

We also need to test the engagement methodology undertaken in Rossendale and Lancashire in different areas, with different 'use cases'. We simultaneously need to work towards a funded deployable solution.

For example:

- Bacup – trial area where we need to secure 10 house living lab
- Bridgend where we are also working on the Pathfinder project and potential for external capital funding through Ynni Cymru or UKIB partnership
- Lancaster – where there is significant community and Local Authority support, and we can test the ability to lever in UKIB investment
- Chipping – rural, off gas grid.

Different communities will have different needs and motivations. There are different starting points for a NZT solution. NZT in some communities may be initiated through the community itself, Local Authority led, or DNO led (due to constraints on the network and the need for NZT as a solution). We will need to adapt the methodology according to the type of community we are approaching for example:

- Cold start approach – where the community is not engaged to date and has no on-the-ground local agent.
- Fast followers – where we have been approached by a community or Local Authority with an area that they wish to progress, perhaps due to
 - Green/environmental or climate change motivation
 - Locally set climate change targets
 - Fuel poverty and health imperatives
 - Regeneration opportunities
 - It fits with another programme being undertaken such as an area based or place-based investment scheme that includes terraced homes
 - There is significant need that is being addressed.

The methodology for engagement, supported through the Fairer Warmth App and platform needs to be packaged in a way that can be utilised and effective with each new community.

Milestone 2: User testing and data led approach trial

The engagement process is made up of two strands.

1. The Energy Champions, providing in person advice and support to householders and becoming trusted messengers for a trusted brand.
2. The Fairer Warmth App is an enabler and a tool to increase efficiency of the Energy Champions by being a case management and customer relationship management tool, but also to increase reach and allow those that need less support to begin their net zero path as part of a local energy club.

The Fairer Warmth App will eventually be the interface and window to the Smart Local Energy System for each community and will link people together into a local energy club.

Both strands are needed to achieve the NZT solution, and it is expected that in different geographies and demographics, one may be more heavily used than the other.

In Rossendale, the evidence to date is showing that the in person contact and advice is more effective for sign up and advice provision by people in Bacup and Rossendale than uptake of the Fairer Warmth App without that support. This finding is consistent with other innovation projects in more deprived communities with people living in fuel poverty or with health conditions, such as those in the Warm Home Prescriptions pilot schemes carried out by Energy Systems Catapult.

Developing the Fairer Warmth platform

RVE have been carrying out iterative work with CEE in a dynamic process to support CEE to adapt the Fairer Warmth platform to meet the needs of the Energy Champions and the community members they are working with. This iterative testing, trialling and feedback process has been key to developing the App to date. This process is key if we are to create a digital pathway that is useable, useful and survives contact with reality.

The Fairer Warmth platform needs to be a digital net zero pathway for each householder, the energy efficiency advice is the hook, not the end goal. Energy efficiency advice will only ever deliver small impacts, whereas the NZT journey will deliver significant and enduring impacts for home energy efficiency and home improvements and achieve the end goal of entirely decarbonising homes.

Early testing of the Fairer Warmth platform

At the beginning of the project work was underway to onboard the Energy Champions and work with the CEE team to set out the requirements for the Fairer Warmth App to suit the project needs.

Work was done to test the platform with RVE members as part of initial small group user testing. This testing and significant revision continued with the RVE team until they were happy that the Fairer Warmth App could go live in early December 2023. The Platform has been live since then and being used in the community, mainly by the Energy Champions rather than individuals, but with continuous iterations and improvements to meet the practical requirements of the RVE team. Insights gained as different campaign types (see above) went live, enabled the RVE team to understand how people engaged with the offer of energy advice and how they responded to the QR codes and methods to

get in touch or sign up to the Fairer Warmth App. For example, the team found that they needed people to input their telephone number so Energy Champions could easily get in touch with them, due to lower than expected numbers of people using or responding to emails.

The second stage of app development carried out under SIF alpha has been to incorporate the NZT consumer journey within the platform. Work was undertaken with CEE to map this journey and enable the new aspects of the Fairer Warmth App to be discussed and planned as additions to meet the requirements of the RVE team. This further functionality has been listed and will be developed as part of a Beta programme.

Testing in the community

The RVE team have been working in the community since early December delivering the campaigns and using the Fairer Warmth Platform.

The Fairer Warmth Platform has many key uses that are currently and potentially enabling for both RVE and community members:

- For RVE:
 - Offers a pathway outside the more labour-intensive Energy; Champion support – however our advisors have found that in person engagement and supported sign up by Energy Champions is more popular and effective in the Rossendale area with the demographics currently targeted (this includes rarely reached/hard to reach people);
 - Maps and clusters interest – this can be seen through sign ups in geographical locations during / after events;
 - Acts as a Customer Relationship Management and case management tool
 - Acts as a reporting tool for LEAD funding activity reports;
 - Allows activity to be monitored to assess interaction and interest in energy advice and action planning towards a decarbonisation pathway.
- For community users:
 - Offers a supplement to the in-person energy advice;
 - Shows what potential funding routes there are for energy efficiency measures;
 - Is a non-threatening, non-judgemental tool to give energy advice and map route to NZT
 - Can be used at the user's convenience. For the RVE team monitoring and logging data and helping evaluate impact is easy with the following visual dashboards:

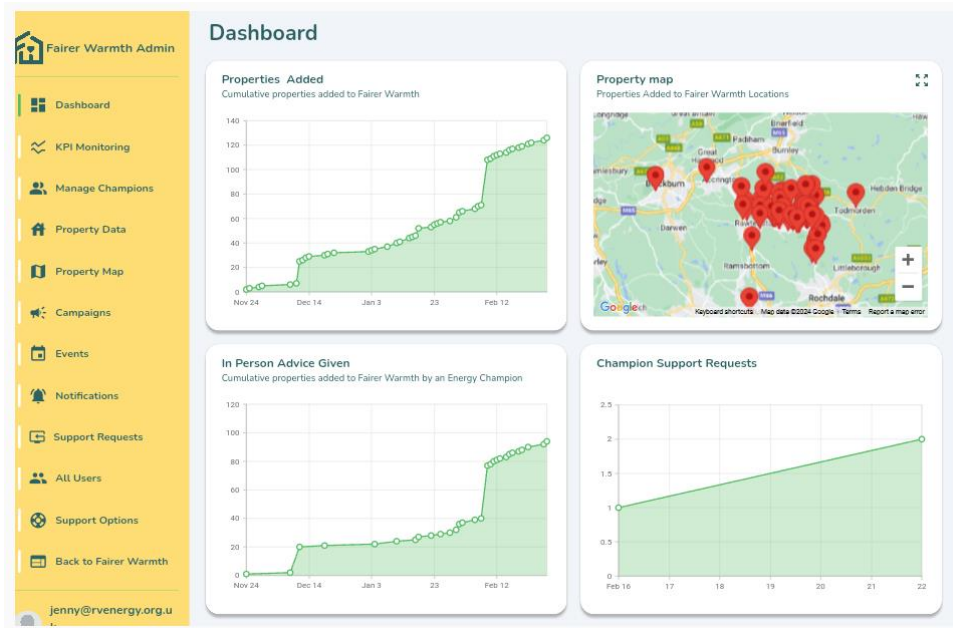


Figure 2: Statistics from the Fairer Warmth Platform dashboard enabling the team to monitor progress at a glance

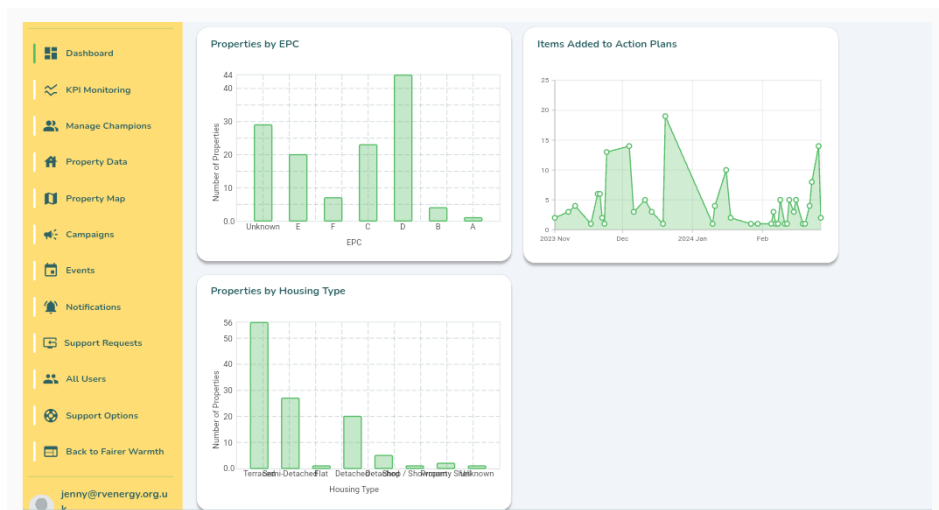


Figure 3: The team can use these statistics for easy monitoring reporting on the concurrent LEAD project.

Deliverable 6: Engaging households

As can be seen in the table below, RVE have reached the specified target for SIF alpha of engaging 300 households. Further statistics around who has been reached can be seen in the data analysis section above.

Table 1: RVE engagement to date

Who we've reaching	
People Reached at Events	245
People Given In Person Advice	58
Details of who we're reaching	
Owner Occupiers	32
Private Tenants	16

Hard to Treat Homes	39
Hard to Reach Consumers	33

Deliverable 7: Engagement methodologies evaluation

A key part of this project is to test different engagement methodologies and understand what the most impactful ways are to engage people within the community. This is not only important in terms of Reach and Engage but will also be key to understanding how to Retain people.

Through using different QR codes and by using the Fairer Warmth platform, the RVE team have been able to log where people are interacting with the programme.

As can be seen in the data below, different campaigns are achieving different success rates. In SIF Beta, and with work CEE are doing with other communities, it will be interesting to understand whether outcomes are different.



Figure 4: Statistics from the FW platform showing campaign results

Some of the campaigns are significantly more impactful than others and as can be seen, the most successful to date is the Health campaign. This is incredibly useful to understand where RVE are most impactful and to target resources where it’s going to count.

1. Community groups

This has involved contacting community leaders and arranging drop ins and events

Community Groups & Events

- **5 advice info hubs** - 3 libraries, Carers Link Info hub and Bacup Family Centre held weekly
- 2 advice sessions per week for RBC employees and elected councillors
- First Choice Credit Union - starting next week twice monthly
- Family Hub in partnership with Bacup Family Centre @ Whitworth Library weekly

Community Groups

- Shine - this combines community, food and faith as it's a large group (70+) that provides a meal for people in a church. Attend weekly
- Trinity Baptist Breakfast Club - as above - large group attend fortnightly
- Haslingden Community Link - various groups taking place including toddler group, yoga and men's shed - attend weekly
- Bacup Crafters - AB&D
- Whitewell Bottom Breakfast Club
- Whitewell Bottom Make Do And Mend
- Lunch Club AB&D
- Knit & Natter Group - Weir
- Ow Do - Rawtenstall group to combat isolation -proving quite successful - attending weekly

2. Health

This has been a very impactful campaign that has involved working with medical centres and engaging with health professionals to explain the NZT project and the benefits of energy efficiency advice. RVE has built this relationship which has resulted in the health centres sending out an information text to highlight the benefits of getting in touch with RVE to organise energy efficiency advice. This led to a large spike in community members viewing and downloading the app and then requesting energy advice or 1-2-1s with the energy champions.

Health is a long term engagement strategy throughout the funding period to raise awareness about the importance of warm homes and the link with improved health outcomes. RVE are now working with 3 large health centres, and another is looking to engage.

3. Food banks

RVE are working with the Unity Fridge Rawtenstall and have approached RAFT (main emergency food provider in Rossendale) to put a flier in every food parcel they deliver. RVE are currently awaiting a decision from their Board.

4. Faith groups

Work at SHINE, Trinity Baptist and St Annes church who are all very community focussed and are hoping to engage one of the church members as a volunteer energy champ to get congregation and members of some of their community groups to download the app to be followed up with 1-2-1 advice from advisers.

5. Retail

RVE have done two pop ups at Tesco with reasonable success.

Although the local community champion in Morrisons is welcoming, the instruction from head office is that we are not allowed to hold any pop ups there, this is something that RVE are working on.

6. Doorstep

Doorstep work has not been undertaken yet, with a more focused approach being to follow up on leads created through other campaigns. When there's an improvement in the weather a doorstep campaign will be enacted.

7. Schools

Energy Heroes: The RVE team worked with the Energy hero's charity to deliver the Energy Heroes schools program in Water primary school. This was an initial visit and should be the start of building a relationship between RVE and the school. RVE will be working with towards the school becoming a 'Super Saver School'. We are working towards delivering Energy Heroes in more schools across Rossendale. See more in the Appendix D about Energy Heroes.

8. Events

- Age of Inspiration for over 50's
- WhiteHorse Youth Project Community Event
- Haslingden Community Link - Family Hub Launch Day
- Fire and Rescue Service - community coffee morning

Deliverable 5: Leaflets

2,500 leaflets were ordered (See Appendix B) and approx. 2,000 have now been distributed, with a number still likely to be used at events and sessions across the rest of March. As can be seen from the results, there is very little impact from leaflets. This could be down to several factors particularly that people don't use QR codes. This may be because people are not familiar with digital tools, could be due to digital exclusion, a preference for written or face to face contact and may be different with other demographics/ geographies. This will also be tested in Bridgend in Pathfinder 2 and other communities in SIF Beta

Other reasons for muted interest could be energy efficiency scams, adverse media coverage of energy efficiency schemes and anti-net zero sentiment in social media or mainstream media.

Energy efficiency scammers and adverse media coverage

There is a reportedly high level of mistrust of energy efficiency schemes, especially across Lancashire with a considerable amount of news attention given to a failed energy efficiency scheme in the region, the subsequent fall out for householders trying to seek remedial measures and ending up with large bills after a legal firm went into administration: [Lancashire homeowners demand action over huge legal bills - BBC News this may have affected wider levels of trust in council or government led schemes.](#)

Additionally, many people are currently receiving cold calls from 'Energy Advisors' creating a mistrust and instant aversion to anyone offering 'free' advice. Such advice and potential scams are also common on social media platforms such as Facebook.

Anti Net Zero sentiment

Although we are careful to ensure this project is about ‘healthy warm homes’ and ‘energy equality’ there is a toxic narrative around Net Zero from some quarters which is seeping into daily discourse and likely to have a negative impact on some people’s willingness to engage.

As a result of this, the RVE team are recording people’s motivations for seeking energy advice with the main motivation being to save money on their energy bills.

Deliverable 8: Recommendations for successful engagement

RVE reviewed engagement carried out in other schemes in order to build on successful practice and lessons. These included some schemes that relied on reaching a critical mass of sign-ups to be able to go ahead and works carried out across a small local area by centrally procured contractors, rather than schemes that relied on the homeowner to locate their own suppliers having received advice.

- Holbeck Group Repair Scheme
- Craghead Regeneration
- Stithians Kensa Heat the Streets
- B4RN community broadband
- Solar Together
- Area based schemes in Scotland
- Carbon Coop led schemes in Levenshulme and Green Deal Communities
- Warm Home Prescriptions (pilot).

Through interviews and literature research RVE summarised success factors for these schemes to inform the NZT service design and customer journeys.

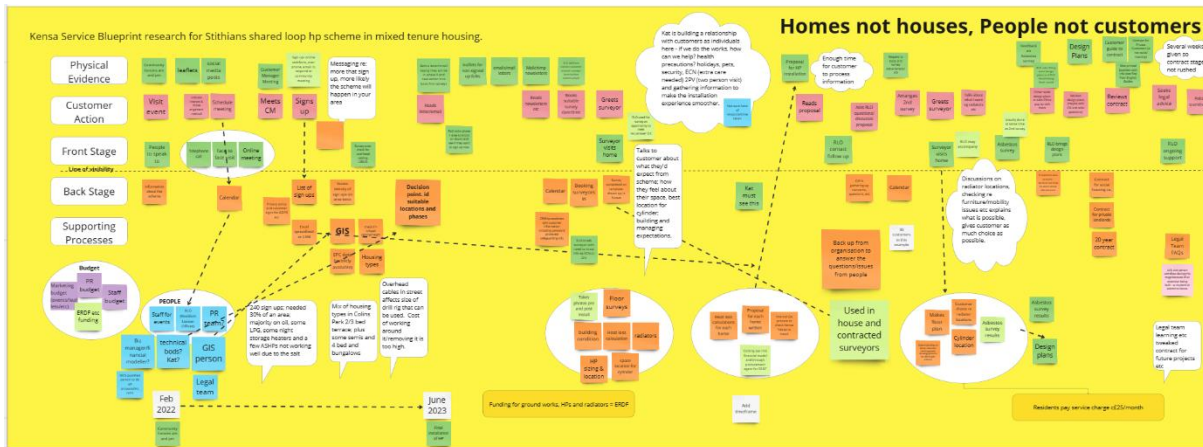


Figure 5: Service Blueprint for Kensa Heat the Streets

Case studies: Solar Together



- Area wide group purchase of solar PV (& battery) for Able-to-solar
- Contracted by local authorities
- Communications and marketing sent out
- Registration
- Reverse auction for supplier saving 10 – 25%
- Recommendation
- Agreement
- Installations

Case studies: Craghead area-retrofit



- Designed and planned ahead before communications sent
- Simple, clear householder communications
- Retrofit design PAS 2035
- Strong customer relationships and site managers
- Local builders and ongoing innovation
- Very high quality no complaints

Figure 6: Review of successful case deployment

Attributes of successful engagement include:

- Simple, clear communications from trusted organisations often using a range of media including letters, posters, leaflets, social media and local events;
- Community based organisations leading on communications, for example, the NHS;
- A clear payment or costing structure;
- A named individual householders can contact – in some cases, local energy champions or energy friends or for schemes focusing on health, a social prescriber;
- Careful pacing of the scheme, not too fast and not too slow;
- Plain English shortened explainers for example, of contracts;
- A level of choice for people within the possible parameters of the scheme;
- Very high-quality design and installation of works with strong quality assurance;
- A local hands-on clerk of works to tackle local complaints or issues fast;
- Very strong personal customer care, particularly for disruptive works like retrofit;
- Support post-works being installed so that people know how to use and live with their new technologies.

To date, RVE's Energy Advisors report that text messages from GP clinics/Health centres have produced the highest level of engagement and building up face-to-face trust through attendance and participation at local events is producing acceptance and then increased engagement with the advisors. This aligns with findings from above that face-to-face, local, trusted people and introductions from other trusted sources such as the local health centre, food bank or community centres are particularly effective.

Deliverable 9: Customer panel

There have been four different stages within the customer testing panels:

1. Pre-launch of the Fairer Warmth platform – RVE family and friends signed up to the app to test functionality. This was an iterative process that took three weeks ahead of the launch of the app in early December and as expected, identified a range of issues that needed alterations and revisions
2. The app has subsequently been trialled at drop in sessions and events, with Energy Champions to assist people in navigating their way through the App and checking for glitches
3. The RVE team have continued to work with CEE through weekly meetings and emails to create updates and provide increased functionality and improve both the user experience and the administration of the Fairer Warmth Platform. This continues and is ongoing, for example, a telephone number field has been added prior to a new text message being sent out by the Health Centre to ensure that Energy Champions can contact new participants on the App and carry out follow up advice and gather additional data.
4. The NZT addition to the app. A focus group was organised by RVE, and testing was carried out by CEE in February. This aimed to test the proposed householder pathway for the Net Zero

Terrace Streets option within the Fairer Warmth App. Please see the CEE report in the Appendix for the details.

Please see the appendix C for the evaluation of the Peer testing of the NZT section of the app.

Work package 2: Energy

Deliverable 1: workshop service design and blueprint mapping

In January 2024, RVE conducted a Service Blueprint Workshop to carry out research and stakeholder engagement with a range of experts to inform the service design, service model and customer journey. This used a well-established Service Blueprint approach – a graphical approach showing several ‘swim lanes’ to represent:

- Physical artefacts (e.g. leaflets, website, letters, objects)
- Customer actions (e.g. attending an event, reading a letter, welcoming a surveyor, signing a contract etc)
- Front stage (e.g. action undertaken by a visible person: an Energy Champion, Advisor, Surveyor or installer)
- Back stage (e.g. an action carried out behind the ‘line of visibility’ ie an automated email, someone checking diaries to make an appointment with a ‘front stage’ named person, a person processing information that has been received eg designing a retrofit scheme for a home)
- Supporting Processes (e.g. the Customer Relationship Management (CRM) system, Fairer Warmth App, Energy model, investment model, personnel required, quality management system, Monitoring, evaluation and learning framework etc) these are the main elements of focus in much of the Pathfinder 2 work, not forgetting to refer back to the all-important customer actions and journey which must remain smooth and high quality, and inclusive.



Figure 7: 1 day workshop in Bacup

The workshop was held in Bacup (see photo above) and included Rossendale Valley Energy (Directors and Energy Advice team), Buro Happold, CEE, Rossendale Borough Council, Rossendale Valley Heritage, University of Salford, Urban Chain, Almond tree Consulting Group and Electricity North West plus new partners such as Abundance who will be joining the project to advise on investment in Pathfinder 2, and IOT Horizon also joining Pathfinder 2. We also welcomed Kensa's Customer Care Manager, who provided a presentation on their Service Blueprint steps and key lessons, and a representative from Net Zero Communities who provided information on the Craghead retrofit schemes in County Durham. Other participants included investors, PNZ Carbon, Citizens Advice Bureau, Cosy Homes in Lancashire, Together Housing Group, Net Zero Hub, two Calderdale householders and two academics from University College London, one of whom is also working with Nesta.

Despite this wide range of stakeholders there were some key 'missing' stakeholders: lawyers, heating engineers/building suppliers, surveyors, insurance, landlords, Bacup local residents (beyond those in the project team). These were missing due to cost, not wanting to raise early expectations, and time/money lost for contractors in attending an all-day session. Subsequent co-production sessions will be held with these groups and lawyers have been engaged for more focused work in Pathfinder 2.

We kicked off with a warm-up exercise on Key Attributes of a Great Service. This included:

- Timing and choice
- Options for communication (ie in person, digital, email, phone etc)
- The 'No Brainer Offer' an offer that just makes great sense
- Single point of contact
- Respect
- Different options – you can have all or some
- Durability and long term
- Skills legacy – creating skills for local people
- Expertise
- Minimal disruption
- Resident training and support
- Clear, honest expectations
- Fair across different standards of homes.

Acronym Buster	
• DNO - distribution network operator (ie local electricity grid or gas grid operator)	
• TEM - techno-economic model	
• RVE - Rossendale Valley Energy	
• CRM - customer relationship management system	
• SLES - smart local energy system	
• PAS - 'publicly available specification'	
• PAS2030 - retrofit installation standard	
• PAS2035 - retrofit process standard	
• CAPEX - capital expenditure, ie ££ on kit (not wages) = revenue expenditure	
• OPEX - operating expenditure = wages, tax, rent, accountants, insurance, equipment	
• REPEX - replacement expenditure	
• PV - solar - photovoltaic panels	
• HEMS - home energy management system	
• DSO - distribution system operator	
• DSR - demand side response - reducing energy use by customers	
• CBA - cost benefit analysis	
• Flexible Services - reducing/using electricity as a paid for service to help balance electricity grid	
• MVHR - mechanical/ventilation heat recovery	
• RTPI - royal town planning institute	
• ASHP - air source heat pump	
• LEAD - local energy advice demonstrator	
• SIF - strategic innovation fund	
• EPC - energy performance certificate	
• SPV - special purpose vehicle (a company)	
• COP - coefficient of performance - unit of energy in + unit of heat out	
• CEMS - community energy management system	
• SAP - standard assessment procedure	
• MEL - monitoring, evaluation and learning	

This will inform the design of the service and ensure it's one designed around the customers.

The workshop included a set of presentations on NZT, the LEAD energy advice programme, the Fairer Warmth App and the energy and techno-economic model. With opportunities for Questions and Answers, adding actions or points to the Service Blueprint version 1 model (based on work done in the June 2023 Service Blueprint workshop and added to on Miro over the subsequent six months). We also noted additional questions or issues to pick up later and developed an 'Acronym Buster' (see left) and a 'Jargon Buster' to ensure that specialist terminology was understandable for everyone.

We broke into four smaller groups to discuss a range of 'deep dive' issues and report back. Originally this section was

intended for more detailed work on key elements of the Support Processes such as the Service Model or Investment Model, however, the inclusion of people almost entirely new to the project precluded this level of detailed workshopping, requiring greater detailed knowledge. This is a lesson from the workshop feedback – it was necessarily higher-level and dealing with discussion rather than developing more detailed delivery solutions at this stage.

The smaller group sessions covered:

- The 'No-brainer' offer
- What do we want from the digital journey?
- Bringing together retrofit and heat pump deployment
- What is fair now and in the future?

The 'No-brainer' offer

The group discussed issues including:

- Development of tailored offers for different homeowners/residents along a street: Different journeys, same message for:
 - Homeowner
 - House value increased, area-wide upgrade/regeneration, heating and fabric upgrades organised by RVE, better quality, warmer home, ability to heat properly and reduced risk of damp, condensation and mould.
 - Landlords
 - House value increased, great offer as no upfront cost and service charge paid by renter, heating and fabric upgrades organised by RVE, better quality home for renting, renters' energy bills affordable, reduced risk of damp, condensation and mould forming, EPC C compliant (for future regulation) – however, commitment not to increase the rent would be required.
 - Private renters (in combination with Landlord offer)
 - Benefits of warmer home, better health, better quality home, reassurance about bills not rising, agreement rent will not increase due to the works being installed.

- Social Housing
- Social Housing resident (in combination with Social Housing offer)
 - This would be led by RVE using the same contractors as those delivering the scheme along the rest of the street
 - Communications would be developed in partnership with the social housing provider

The scheme should be an 'Opt In' model, providing evidence of the health and cost benefits using case studies and opportunity to visit the show home (this is being developed as part of the three home demonstrator under Pathfinder 2). Energy champions and on-site liaison officer/s will be on hand to take people through the process. Visitor fatigue can be mitigated (for those choosing it) via the use of the Fairer Warmth app.

Clarity about who is delivering the scheme is needed: The RVE brand, mission and values, its roots in Rossendale Valley Heritage. Learning from other trusted brands, such as M&S. Communications need to be mindful of scams and recent failures in schemes. RVE is providing a simple guaranteed offer, a 'promise' that is there for the long term, providing price stability, affordability, good value through local scale and local generation.

Using a one-pager letter or visual, a shop front and the Fairer Warmth app, RVE will keep people up to date on their journey towards Net Zero Terrace.

Insights from retrofit and installing shared ground source heat pumps in Together Housing were:

- Solar and storage capped at 21p/kWh with an aim to the cost
- Liaison officer is informed of any change in the tariff – which can only go down in cost (this is written in the contract)
- If the gas boiler fails, Together Housing will swap it out and connect to new scheme
- Issues encountered were:
 - 20% refusal rate
 - Disruption perceived to be greater than any advantages
 - Medical conditions

What do we want from the digital offer?

The group produced a mind map (see below) but in summary listed:

- The ability to see progress and what is happening next in the 'real life' NZT journey
- Access to billing information
- Ability to improve energy performance and reduce costs
- Benchmark against neighbours or other communities
- Look at video content
- Receive 'push' notifications

There was discussion of understanding the householder's motivations for participation – such as money saving, carbon saving, community benefits or even planting more trees. With links perhaps to community events and schemes.

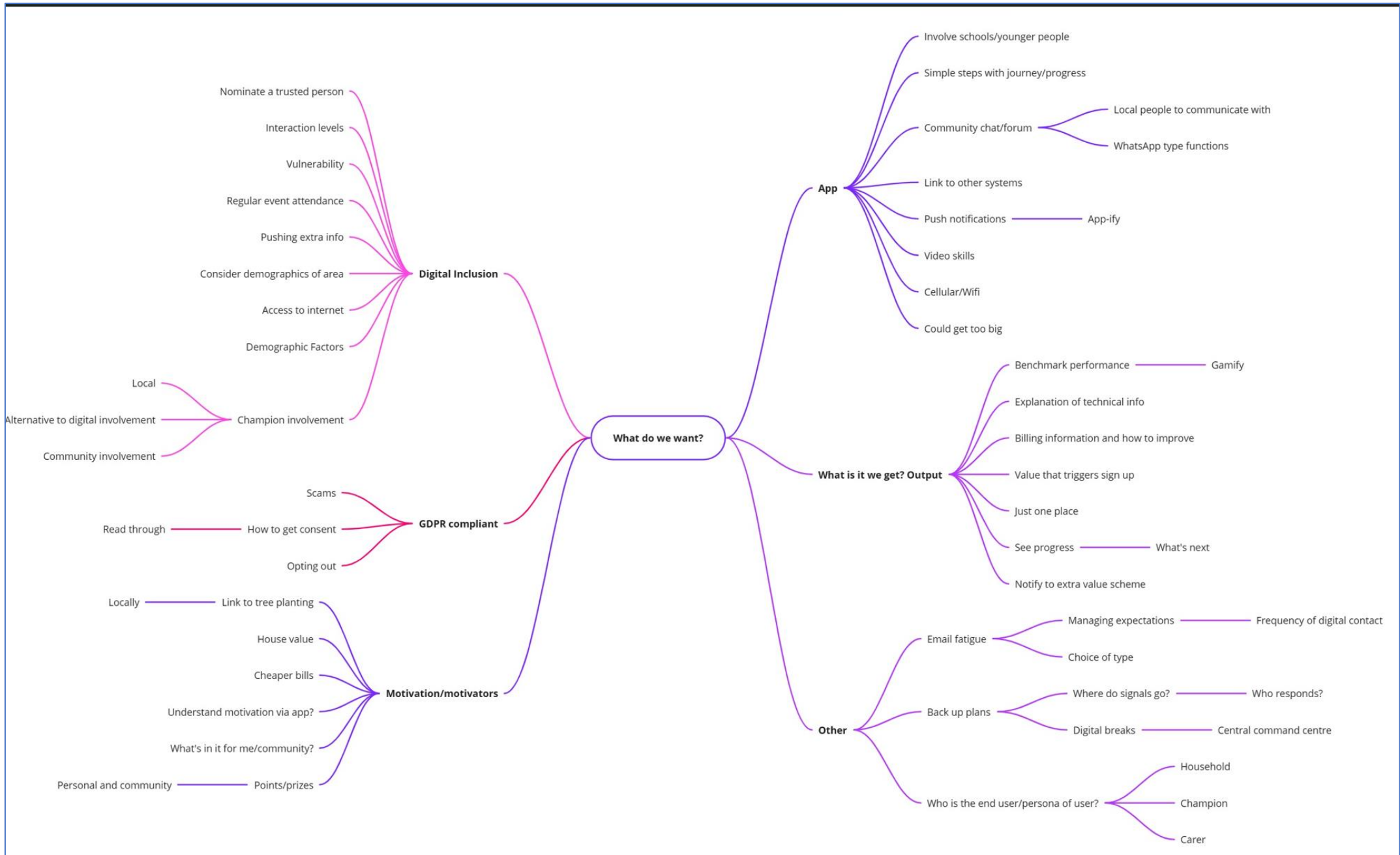


Figure 8: Mind map from 1 group at the workshop

Bringing together retrofit and heat pump deployment

The group covered a range of issues relating to standards and requirements of investors. Discussions raised the points below;

Using PAS35 standard is key to delivering reliable forecasting and roll out of deployment at scale.

PAS35 Pro's

Enables fully warranted (25-year guarantee) installs with certification following a detailed process from qualified experts including:

- Design – list measures (fabric first, then more costly ones, but should be able to find minimum viable measures to make project work). Note the retrofit design needs to link in with the heat pump design.
- Procurement
- Installation (also gives homeowner comfort over the quality of the installation)

PAS35 Con's

- Extra cost
- Time consideration as needs post installation verification etc

There are other standards such as Passivhaus but likely not necessary to use these. Trustmark is one standard specific for internal wall insulation and enables insurance backed guarantees.

Carbon credit creation needs standards too, including estimates and post installation measurements (we will discuss with PNZ Carbon). This is also useful for the sell to homeowners.

Before the EPC and PAS process, to canvas a lot of homes to see heat pump readiness of area (this is what the Planning Process provides). To include assessment process, detailed surveying etc. Need to make sure the homes will maintain the contract because the energy bill savings compared to not having it are real.

The group also discussed the **Finance / investor perspective** as it included two finance experts as well as others experienced in project financing. The issues covered here were:

We need a clear business plan explaining clear proposition and what the risks are at each stage (deployment risk, technology / operational risk, multiple contractual arrangements and revenues / project cashflows).

Project lifecycle and expected deployment timings to consider for appropriate type and amount of funding at each stage (ie. proof of concept, scaling up, commercialisation); this will be taken forward through Pathfinder 2 working with Abundance Investment.

Certainty of cashflows:

- Supporting information and data for all estimates from deployment, revenues, costs
- Contractually strong arrangements
- Counterparty strength
- Good ongoing reporting from initial test cases.

Other considerations raised by the group were:

- Could incorporate sinking fund (using default assumptions from Urban Chain) into homeowner bills
- Understanding of all revenue streams, including flexibility and carbon credits, and their risks and underlying assumptions
- Understanding of grants available to install measures which could bring down capex requirement as eligible. May need some detailed analysis.
- Understanding of deployment pace and expected funding / timing requirements
- Contract and counterparty risks understood
- Carbon credits can potentially be sold upfront too
- Policy barriers to be understood and de-risked where possible (ie. around heat networks)

What is Fair now and in the Future?

The group discussed issues including:

- Who decides what is fair
- Fairness across the community
- The level of the service charge and outlining what that covers – for example if a house needed more works on it and another needed less, or a home suitable for PV and another home unsuitable. Why is the service charge the same across the whole street?
- How to explain a relatively complicated system that shares the benefits across the whole energy community – the ‘Fair Share’ model
- Same service charge but different energy usage from home to home is handled through them having a separate electricity bill
- The possibility of two levels of service charge – one for homes receiving retrofit and one for a home simply connecting to the heat system
- The need for upfront and transparent conversations
- What could happen in the future in terms of ‘fairness’ and how we avoid locking in potential future disparities
- How grant funding now and in the future may affect ‘fairness’ or missing out – how do we ensure communities and households get their share of government grants
- A note that people do not perhaps currently understand how their standing charges, levies on bills and access to grants work at the moment
- Ensuring we get the non-technical, more vulnerable people engaged.
- How to provide interim services for ‘waiting communities’ ie communities or streets waiting to receive the NZT service – what happens to them in the meantime?

Outstanding questions to pick up beyond the session, some of these originate from householders, and may come up in questions from residents and included:

- Please determine the minimum distance between lines of boreholes in multiple streets that can work together without long-term competition for the ground surface needed to fully recover the heat extracted from the boreholes.
[there is a concern this distance is greater than adjacent terraced streets. The answer may lead us towards more energy efficient retrofits to reduce the energy demand on the ground loops, and therefore that minimum distance.]
- Will the optionality available to residents allow opting in to the Community Energy element whilst opting out of the Retrofit and Heating element, or vice versa? (we suspect not, because a whole street standard approach is needed to optimise the system?)

- Heat Regulation and social housing needs to be considered; regulations on district heating are forthcoming; connections to individual houses/social housing is a grey area?
- Is it worth each home getting an EPC first then a new one after the works?
- How do we tackle connectivity for smart meters in homes with thick stone walls where Wi-Fi and mobile signals do not reach?
- How does this work for people who are renting houses? Eg if you have a one year lease you might be less interested as there is lots of disruption – would you need to contact the landlord? Would the landlord put the rent up if the value of the home increases?
- Is it a single contract for the retrofit works plus the standing charge and energy tariff?
- Ethics – how do we avoid a ‘Horizon Post Office’ type scandal as we rely on ‘smart’ systems?
- There may be a lack of historic data for some technologies installed/methods installed – warranties vary in time terms and cost across a range of years.
- Carbon credits – differing financial models are required for different tenures
- Retrofit – if it suggests does not need insulation are the quality of the installs (already in place) considered? Eg Cavity wall insulation – does it need an extract and refill? (very unlikely that cavity wall insulation will have been installed in pre 1900 / 1910 terraces we are targeting, but this may arise in other areas)
- Fairness: how do we recognise works already paid for?

The last session of the day was an introduction to the development of the Monitoring Evaluation and Learning (MEL) framework, with groups having an input to the indicators and approach taken. The MEL is covered NZT report *PWP2M2 Monitoring Evaluation Learning Framework*

Finally, feedback was taken to inform the design of future workshop:

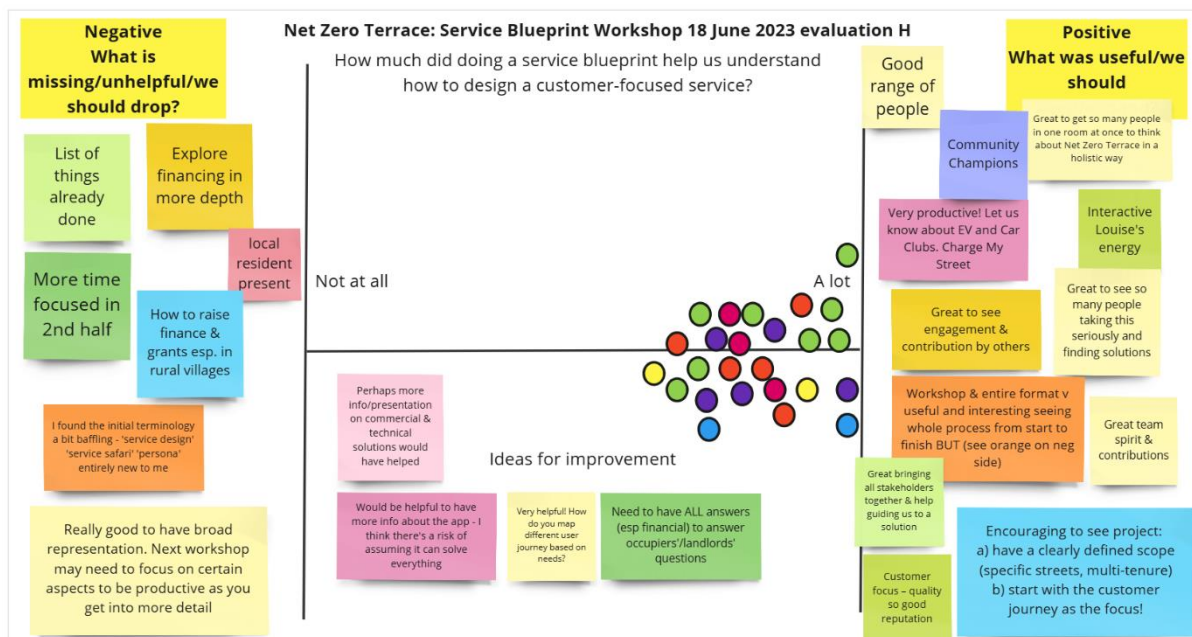


Figure 9 Evaluation for Service Blueprint Workshop 23 January 2024

Deliverable 2: Service design

The findings of the workshop will inform and guide us through future phases of the project.

The workshop further developed the existing Service Blueprint including the customer actions and touch points. During SIF alpha the supporting processes have been developed as detailed above and

will continue to be developed adding new elements including governance of the overall Net Zero Terrace organisation which will enable replication in other areas, the governance of the local Special Purpose Vehicle (including its members/organisational members, legal structure, investment approaches, procurement, contracts & warranties, customer care, insurances, billing etc.). Early thinking on measures to be installed, standards and issues of permits (Section 50 for street works permission from Highways Authority) and planning consents (if measures fall outside Permitted Development) have also been explored and will be further developed in Pathfinder 2.

The key aim is to make the pace of the service delivery and the interactions with each customer clear, simple and bespoke while keeping overall costs down since higher cost processes mean higher bills for the customer yet delivering this without cutting any corners or compromising on quality. Customer satisfaction and a willingness to recommend the service to others is the key to a successful, replicable service.

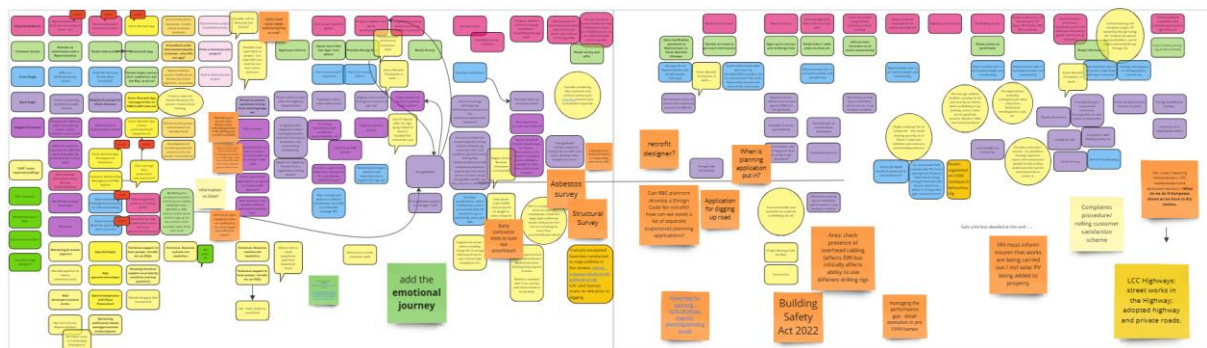


Figure 10: Example of NZT service blueprint development

Key customer facing elements at each phase relating to supporting processes are shown in a *very simplified* form below.

Future phases will see us producing a manual with an overview, but with sections on the customer touchpoints and materials, and the supporting actions as steps, with templates, checklists, a starting point for specifications for works etc.

Table 2: Customer facing elements for NZT model

Marketing – Reach, engage, retain method	Sign up & critical mass	Deployment	Operational
<p>Customer Marketing materials and face to face engagement & Fairer Warmth App Awareness and trust-building Gathering of more refined accurate data via engagement process to inform NZT development</p>	<p>NZT offer made – tailored to each of the 5 household personas (owners, landlords, social housing and renters) Events, meetings, written materials and Energy Champions gathering additional data for thoughtful deployment Progress in street sign up is shared</p>	<p>Systems go: the street has sufficient sign up to deploy NZT (plus headroom in case people change their mind) Information on measures, contracts and final sign up is provided. Instructions/prompts plus handholding for householders and homeowners provided and supported. Surveys carried out on homes to inform final design and identify any repairs or asbestos issues to tackle prior to main works. Timetable is provided. On site liaison officer along with Energy Champions are on hand.</p>	<p>Systems and installations checked quality assured and commissioned; registered with MCS (Microgeneration Certification Scheme) Payment systems set up eg direct debits Handbook/handover and onsite support provided by Energy Champions to householders Warranties etc Householders get used to their new heating and energy systems Home Energy Management System and Community Energy Management System live on the Fairer Warmth App or paper based information provided Ongoing support as required with Energy Champion check ins Helpdesk/Phone line live Maintenance checks and repairs provided as required</p>
<p>Support processes Planning Process to identify NZT possible target areas Fairer Warmth App Energy Champions Formation/SPV in place for local delivery (governance processes)</p>	<p>Fairer Warmth Platform case management system for householder data for thoughtful deployment Techno economic model; Energy Model; sample retrofit & heat pump surveys; Investor due diligence Procurement process underway (supported by contract, warranties and insurances templates and checklists) Early planning and street permits applications made</p>	<p>Fairer Warmth Platform case management system; Retrofit designs and heating system designs finalised post surveys; Call down of contractors (procurement process and contracts) Call down of development finance from investor/s Project and contract managers and liaison officer scheduling of works Quality assurance and onsite liaison to tackle issues arising.</p>	<p>Handover of operations and maintenance schedule, helpdesk/helpline up and running; Energy Champions on hand and briefed to provide support; Remote monitoring of temperatures and energy use to assure system integration operating correctly; Bugs and faults repaired; Billing system and payment monitoring in place; Payments to investors in place. Updates for App and paper-based community energy reporting; Community benefits underway.</p>

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Deliverable 3: Service model interfaces

The Service model

There are various interdependencies that need to be described to enable clarification of the service model at its interfaces.

1) NZT Mothership: There is a need for an SPV to align project goals with community ownership and community benefit outcomes, where community ownership is prioritised over profit extraction. This SPV needs to have all 'collateral outputs' sat within and consideration of IP, liability, risk, quality assurance and insurance. The 'collateral outputs' will then be socially franchised to the local deployment vehicle.

This is the tool kit under development and there needs to be a manual developed on how to apply the tool kit to replica projects.

- Collateral outputs:
 - Deployment Planning process (inc DNO, community and planning process)
 - Service delivery plan
 - Physical infrastructure delivery: planning tools, contracting & procurement
 - Virtual infrastructure delivery: Smart system architecture and outputs
 - Engagement package,
 - Community engagement
 - Energy Champions
 - 8 campaigns
 - Fairer warmth app
 - Wider engagement and Comms package
 - Councillors
 - Supply chain and Colleges
 - Community
 - Fast followers
 - Stakeholders
 - Building Energy Model (BEM), Techno-Economic Model (TEM), Finance Model (FM),
 - MEL
 - The Service model – framework for delivery
 - Customer contracts – Standing charge
 - Energy supplier contracts
 - Smart system
 - Service provider Contracts
 - Procurement
 - Legal templates
 - Supply chain mapping format
 - Retrofit plan/ borehole deployment

- 2) Operational Governance and the service model** – This is a description of what, how and who. What will take place within the NZT delivery, how it will take place and by whom. This will be a framework or consortium model for service contracts to balance costs and competition. This is what we will need to create for delivery within local areas
- 3) The local deployment vehicle** – This is the local organisation that will allow replication within local areas. We need to create MOUs and social licensing/ franchising agreements emphasizing collaboration, Governance, IP and project management.

Organisational Governance

Organisational structure, defines roles and responsibilities and relationships to deliver the service model:

- Develop overarching organisational structure and legal governance to enable local service model delivery. (overarching organisation)

As seen in the diagram, there is a requirement to set up an overarching organisation that will develop and hold the Tool kit and manual to use the tool.

- Establish NZT Ltd. This will form the basis of overarching Governance and will set out agreements to enable deployment and replication through local development vehicles.
 - The NZT tool kit and manual will be finalised under NZT Ltd and to enable exploitation, agreements will need to be signed between the various delivery partners.
- Develop local organisational structure and legal governance to deliver service model (Local specific)

These will be individual SPVs to replicate and deploy NZT in different areas. To do this there will need to be an agreement between:

- 4) NZT Ltd -& Local Delivery Vehicle template creation – starting with an MOU which will then be developed into a service agreement or social franchise licence. This will oblige all users to access all the NZT tools and use as intended within the MEL framework, protect nonprofit extract model, QA methodology, IP, co-production etc.

The diagram below shows the relationships between the different organizations working on the delivery of the NZT.

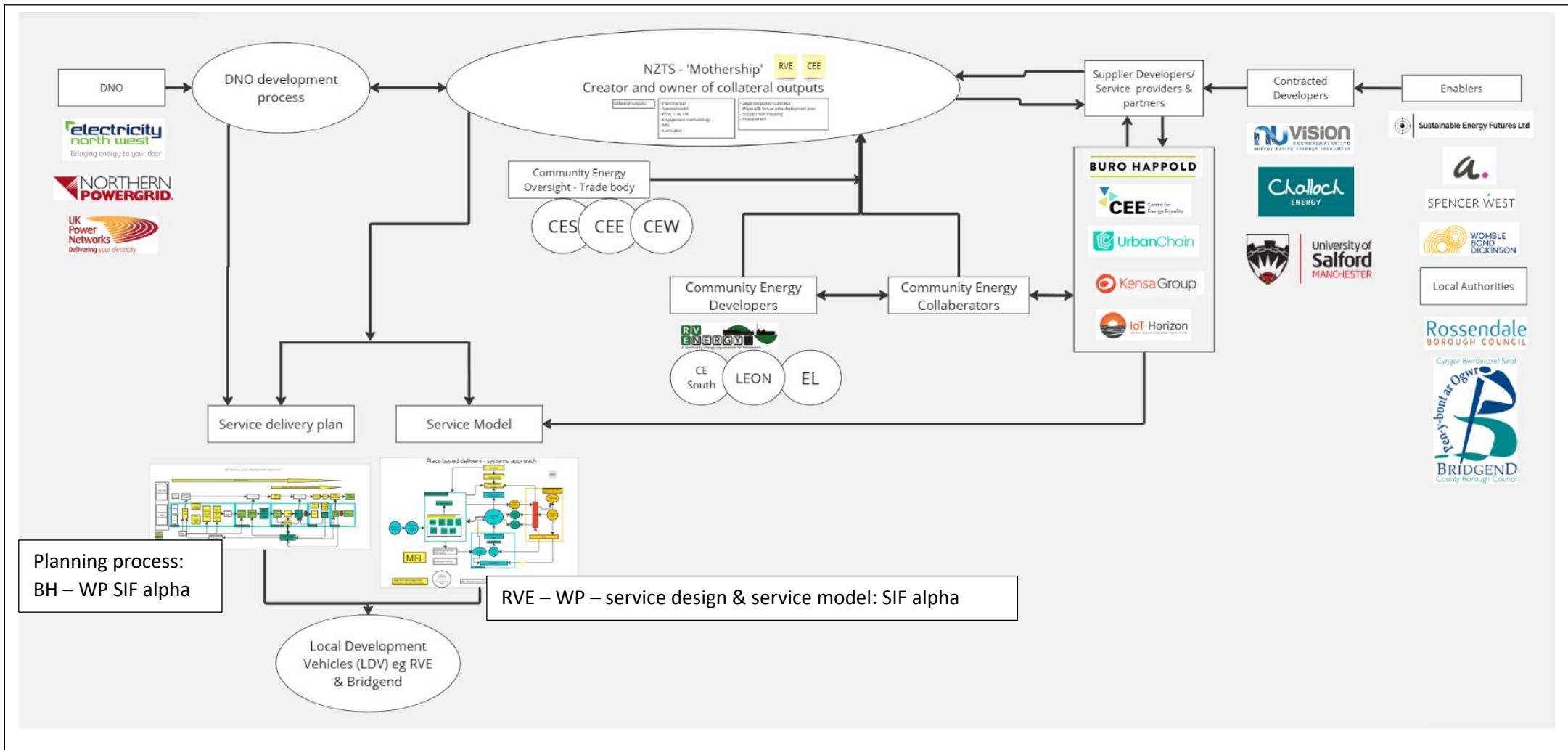


Figure 11: Organisational Governance

Define roles and responsibilities of actors

- 1) Finalising the development and creation of the NZT tool kit and manual. The overriding development will be finalised within the NZT Ltd.
 - Supplier developers, e.g.
 - Buro Happold
 - Urban Chain
 - Kensa
 - Service provider developers, e.g.
 - Centre for Energy Equality
 - IOT Horizons
 - Contracted developers, e.g.
 - NUVision
 - Challoch Energy
 - University of Salford
 - Enablers: those who offering a service to help develop the model, e.g.
 - Sustainable energy futures
 - Abundance investment
 - Spencer West
 - Womble Bond Dickenson
 - RBC
 - Bridgend Council

- 2) Delivery of service model – this will be done by the local delivery vehicle.

This will include:

- Engaging to enable a critical mass of 30% - Local Delivery Vehicle
 - Building Energy Model (BEM), Techno-Economic Model (TEM), Finance Model (FM) - Local Delivery Vehicle
 - Working through the planning process to ensure the DNOs and others are on track
 - Supply chain mapping
 - Retrofit planning
 - Deployment plan
-
- 3) Deployment – who does the work
 - Financial and investor Due Diligence and contracting – local provider
 - Boreholes – manufacturer
 - Retrofit delivery – local contractors through procurement framework led by LDV
 - MEL – LDV
 - Virtual infrastructure
 - architecture and framework enabled by NZT Ltd
 - Energy Supplier & flexibility

- 4) Enabling development for replication (helping those groups to set up)
 - a. Financing for the NZT Ltd to become the support and development organisation
 - b. Funding for services for establishment of local deployment vehicles
 - i. Costs for start up
 - ii. Defined area for LDV
 - c. Short term project establishment – delivery and financing
 - i. Costs for delivery
 - ii. Scale of delivery
 - iii. Financing for delivery

Deliverable 4: Financing

The NZT model is made up of different elements that need to be coordinated and deployed simultaneously to ensure affordability for the householder to drive and enable community scale demand for the service. This is one of the key reasons people will sign up – along with other reasons such as a relatively hassle-free service that is organised for them across their street.

This complexity arises from the need to achieve affordability, which is in part driven by the ‘spark gap’ i.e. the disparity in prices between gas and electricity. Moving people from gas heating to electrical heating (even the most efficient heating via a heat pump) means there is a risk of increasing energy bills. It is also caused by the simple fact that the upfront capital costs of installing boreholes, the ambient ground source shared loop, heat pumps, sufficient retrofit and solar is not going to provide sufficient energy savings to the customer to provide a direct pay-back for the capital investment. The NZT solution puts in place a standing charge over the long term, so that eventually the capital is repaid, and ongoing operation and maintenance is covered. This will be a long-term investment in infrastructure, not a quick win for investors. The standing charge must be affordable for customers.

Therefore to overcome this affordability issue, we must mobilise additional elements to reduce the overall annual energy bill (inclusive of the standing charge). These are:

- Savings derived from fabric retrofit which lower the heat load of the house – this is not a deep retrofit which suffers from diminishing returns, but a ‘sweet spot’ that bridges affordability and impact; energy efficiency measures will be installed to affordably heat the home with a 6kW heat pump and provide hot water.
- Savings from the economies of scale that a collective, street by street approach provides
- Savings from a reduced overhead brought forward by a model that can be replicated with the handbook, set up instructions, governance models, legal templates, investment models and due diligence proformas already in place, that can be reused
- A non-profit extractive model where returns are used to push down the householder bills and do not leave as excessive profit
- Local energy generation – from roof top solar where appropriate, but also from other local generation fed into a local energy market model to subsidise the price of power
- The SLES, optimising and balancing giving the potential to sell on value as flexibility, which is in turn returned to the community system to drive down the householder energy bill.
- The SLES is automated to enable householders to use surplus available locally generated energy to charge hot water tanks, storage or to use appliances at low cost, high generation times

- The lowest cost of capital achievable: which will be crucial in delivering an affordable standing charge; developing a proven system that becomes an Asset Class and is attractive and reliable for patient capital, eg pension and insurance funds; having been proven through investment demonstrated by impact investors, or government investment eg UKIB in the first five year period of operation.

The financial model must also ideally be non-grant dependent if speed and scale of deployment is to be achieved. In the short term, the model may need support from government until the costs are reduced through greater scale. However, our modelling is assuming no grants at this stage to test a 'clean' model. The standing charge has to be able to repay the debt of the 'Physical infrastructure'. Repayment of debt via the standing charge could also potentially be 'topped up' by other cost benefits:

- % share of flexibility benefits;
- Aggregated carbon benefits;
- Social Return on Investment value through the social and health benefit impacts if these can be monetised;
- Community benefit fund from community owned renewable energy generation assets.
- Reduction in standing charge to gas connection (notwithstanding the possible disconnection fee and cost of providing a cooking alternative to gas) in addition, the cost of decommissioning the gas network should also be factored into the need for an equitable model such as NZT [Who will pay for gas network decline and decommissioning? - Regen](#)

The diagram below shows how the physical infrastructure and virtual infrastructure interlinked with the local company (SPV) that delivers the demand creation and brings in the investment required.

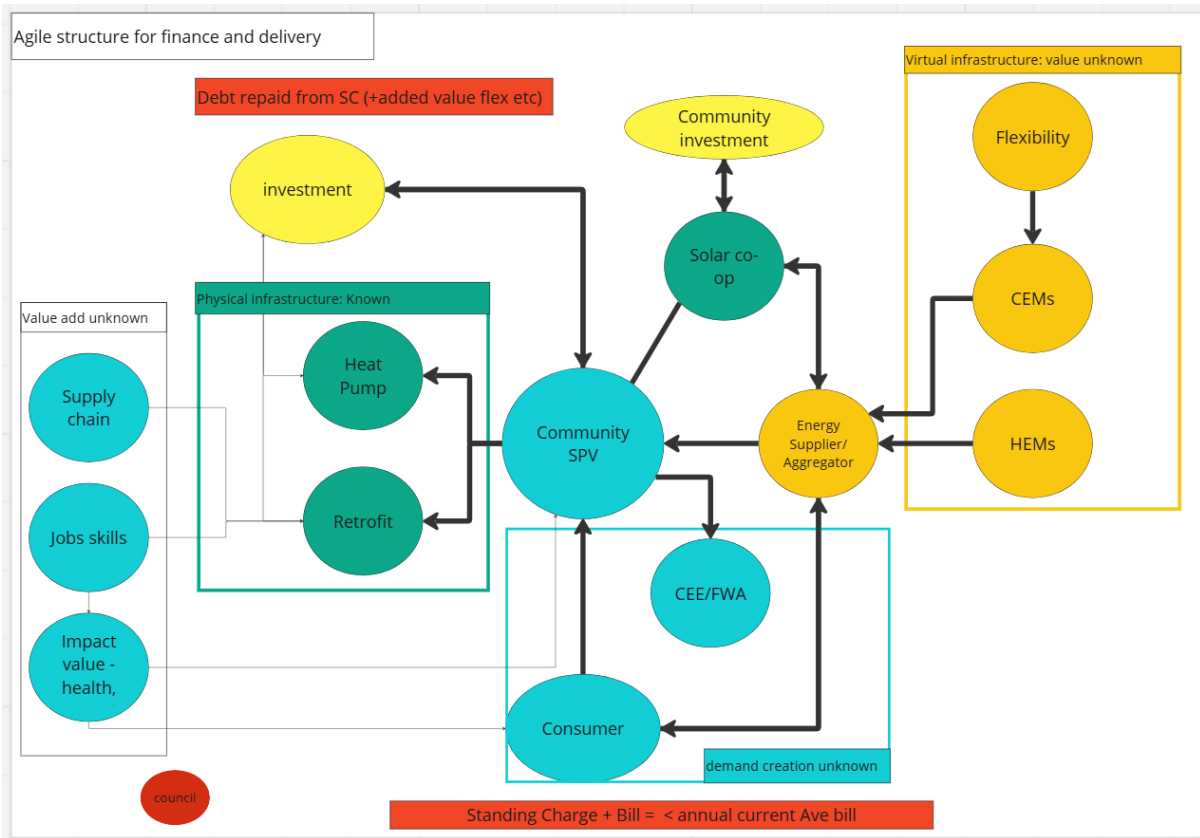


Figure 12: Infrastructure ownership structure

The diagram below shows where the investment comes in and flows into the model and where the blue repayment strands can be seen.

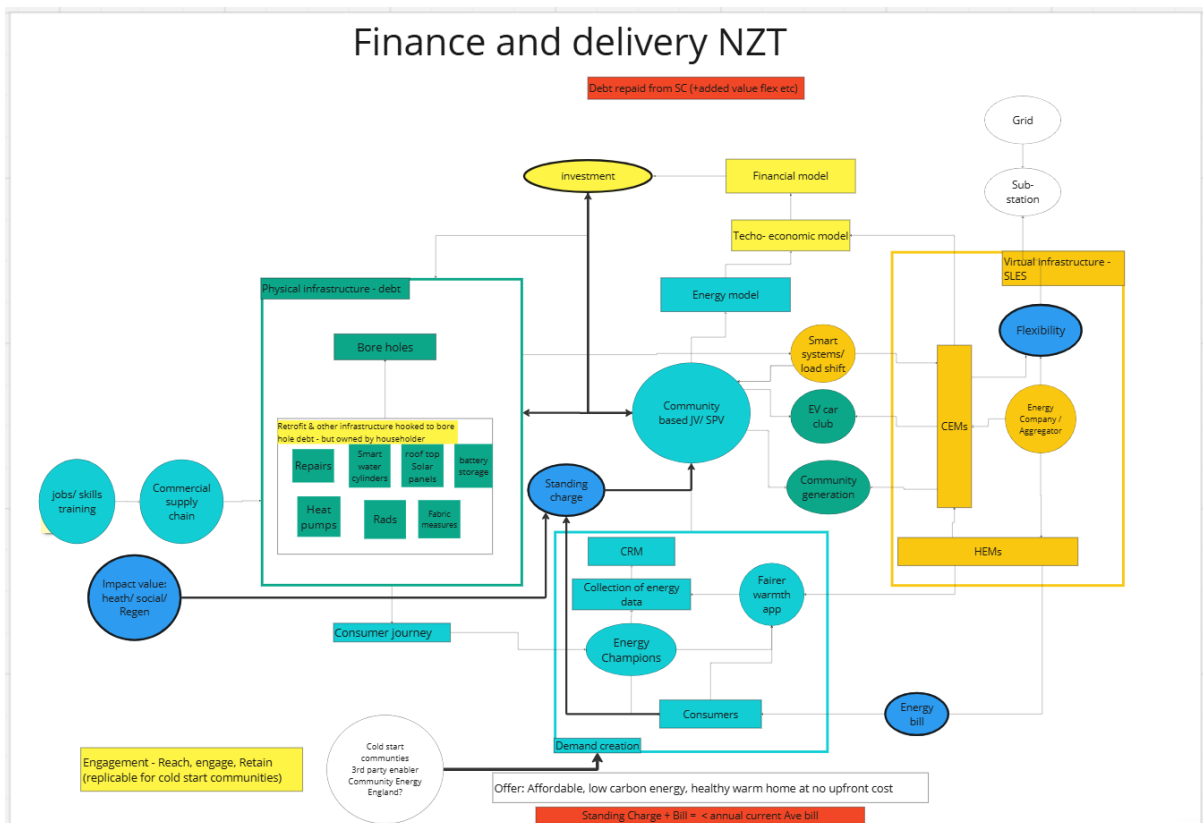


Figure 13: Money flows

The financial model will be design based on inputs from the Techno-Economic Model developed by Buro Happold during the project.

This will be further developed as an investment model working with experts from UKIB and Abundance. Discussions regarding governance, equity investment and loan investments are already being held with the investment community.

The Techno -Economic Model

The Techno-Economic Model (TEM) is a foundational model that will be dynamic within the project and nuanced for other communities. Each new area will require a new iteration; however the TEM should define all the variables that need to be encapsulated.

We have been working to refine the costs and variables within the model and will continue to do this as we undertake future phases.

The model is very sensitive to the multiple parameters and needs to be tested through a proof of concept and a pilot. The model also needs to be tested in a community that is less sensitive to deprivation and is more motivated by a route to decarbonisation than the need to reduce energy bills.

Next steps

Each input cost must be tested within the Techno-Economic Model to understand how to make the financial model viable. The model will be tested at different scales and stages of project maturity. It is more likely to become viable once scale is achieved. Some input costs in the model are very high but can be reduced by delivering them in a single project at street scale. We anticipate retrofit and borehole costs can be reduced by taking a street by street approach and working collaboratively and long term with contractors.

The startup phase of project delivery will need to be grant funded for 'proof of concept' and early pilot stages may also need top up vouchers.

In areas where there is strong green motivation and demand for a clear and organised pathway to decarbonise, there may be value in launching the model the with an offer to control or maintain current energy bills, rather than lower them, but with the aspiration that making homes 'flex ready' will enable capitalisation of future savings.

As set out in the diagram below, the aspiration is that the NZT model moves from proof of concept to pilot to commercial roll out.

Moving to commercial roll out

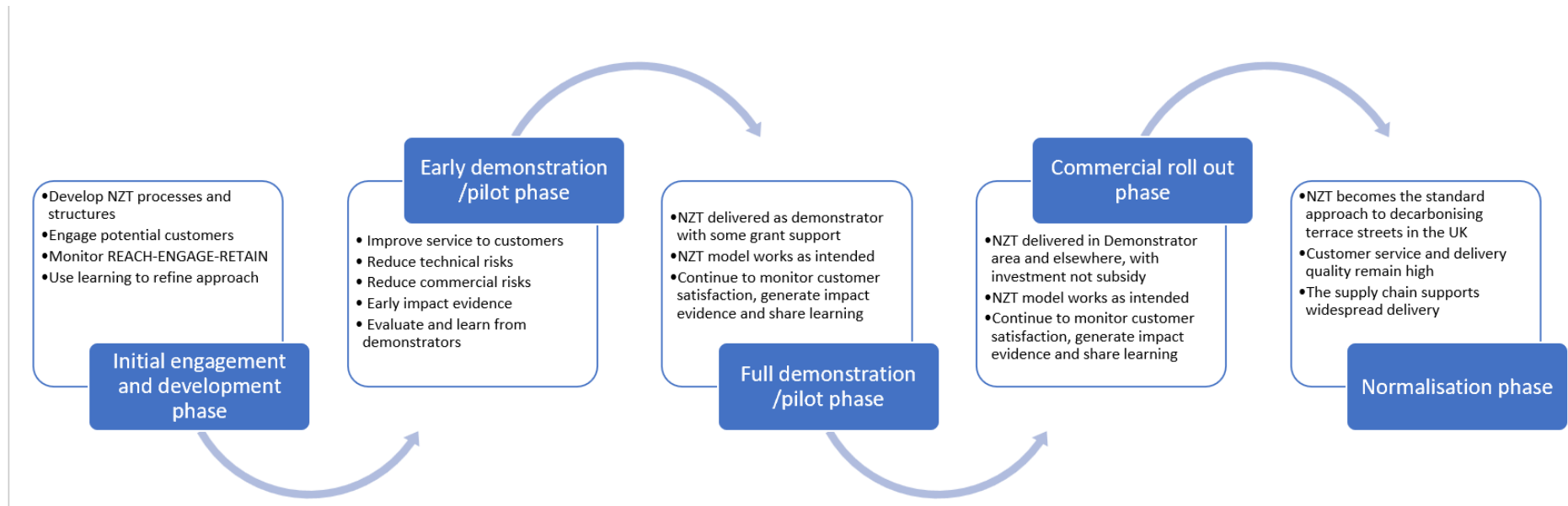


Figure 14: NZT MEL (CAG Consultants) – Desired stage in the NZT model development

Deliverable 10: Monitoring Evaluation and Learning report

In SIF Alpha we developed a framework for social impact, so NZT work could be evaluated, and impact assessed over time. We commissioned this through developing a scope of work and call for proposals, receiving three responses. Following an assessment process, a consultancy was commissioned to develop a Monitoring, Evaluation and Learning (MEL) Framework for Net Zero Terrace.

Through individual meetings and workshops we developed an approach to MEL, which includes short, medium and long term (transformational) indicators, guidance on how to carry out MEL activities and reporting. It takes a Learning Cycle approach, usually an annual process to ensure we manage progress outputs, evaluate outcomes and capture steps towards transformation, and implement learning to improve what we do. Critically, it includes organisational growth and resourcing as well as external facing outputs and outcomes.

The MEL will be incorporated into future processes, and will become an integral part of the replication handbook used by other communities.

Deliverable 11: Local Authority Engagement and Dissemination report

We held a Fast Followers event ‘Preparing for Net Zero Terrace Street’ for local authorities and community groups on 25 January 2024. The two-hour event included presentations and Q&A. 36 people attended the session. It was recorded and shared with those who could not attend.

Feedback included:

“I love the business case, but are we taking on something too big as community energy groups? We will need to resource ourselves and move from volunteers to professionals.”

“I think this could definitely be something for our council for the future – once we get our delivery partner in place maybe this could be progressed through the Community Led Energy Plans, if awareness of the scheme is included in CLEP training and methodology.”

Questions from the Fast Followers session included:

- We have looked at heat pumps before, how is this possible at no cost?
- How does the Heat Zoning consultation relate to this?
- Time spent dealing with government grants and eligibility
- Amount of time investors and suppliers would have to spend on engagement
- How to reach landlords, via tenants or letting agents etc?
- Can NZT address cooling of streets?
- What will the community fund be used for?
- Do boreholes work in city streets where there is a lot of other infrastructure?
- Will the heat pump provide enough hot water for baths and long showers?
- How do we schedule digging up the street if for example, the water company has just /is about to dig it up?
- Is the heat loop size enough to take additional houses connecting later on?
- If you can’t make it stack up, is there any policy in place to help gap-fund it?

These questions were answered in the session and will be written up into a FAQ for interested local authorities or community energy organisations. They will also inform our FAQs for householders and homeowners.

Further meetings have been arranged with several councils to continue the conversation about fast followers and replicating NZT with other places.

NZT has also been shared as a use case/case study at a variety of events including:

- Wakefield Council Responsible Landlords meeting November 2023
- CIPFA/Adept Green Finance Training March 2024
- Connected Places Catapult project meeting Carbon Coop Area based retrofit for Health & Resilience January 2024
- UK100 Parliamentary Reception shared with councillors, SSSE and E3G, resulting in a case study in E3G paper '[Enabling Locally Led Retrofit](#)'.
- Participation in Nesta's 2024 project: Clean heat: coordinating the switch street by street

As part of other research, we will develop a 'NZT readiness' checklist and process to build awareness, capacity and sign up for fast follower areas. This replication readiness will be tested first in Bridgend, and during the dissemination and engagement sessions delivered by Community Energy England. Many presentations have been given to share learning to date:

1. DESNZ – Local Energy Team learning lunch Presentation
 - Follow up meeting with Clean Heat policy lead
2. Regional Net Zero Hubs winter conference
3. Community Hydro Morvern – Scotland rural community
4. Lochaber Energy Group – Scotland rural community
5. Rural Scotland and Islands Parliament
6. Fforwm Datblygu
7. LANCSscan – Lancashire climate partnership
8. Trawden community group
9. Ynni Teg - Cardiff
10. Calderdale Council
11. Blackpool Council
12. Salford Council
13. Leeds University
14. Keele University
15. Cambridge University
16. NW Net Zero Conference
17. Energy Innovation Summit
18. Responsible Landlords Climate event, Wakefield Council
19. Durham Council and Zero Carbon Communities

Conclusion and next steps

Moving forward there are some clear next steps which will need to be taken including:

- 1) The Smart Local Energy System: to develop and test the Virtual infrastructure alongside the physical infrastructure in a safe and secure way,

- 2) Develop and deploy: to continue to test the NZT model with the communities through a 3 house demonstrator. To draw out and package the collateral to enable this to be shared and adapted for other communities.
- 3) To test the application of the NZT methodology with different 'use cases' to ensure it is agile and can be adapted and applied to ensure the model has the ability to replicate and scale.



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Need help with your energy bills? We can help!



We can provide free, impartial advice to cut your energy bills and make your home warmer

Find out how to get involved by scanning this QR code.



We will **never** ask you for money



Text RVE to 88802



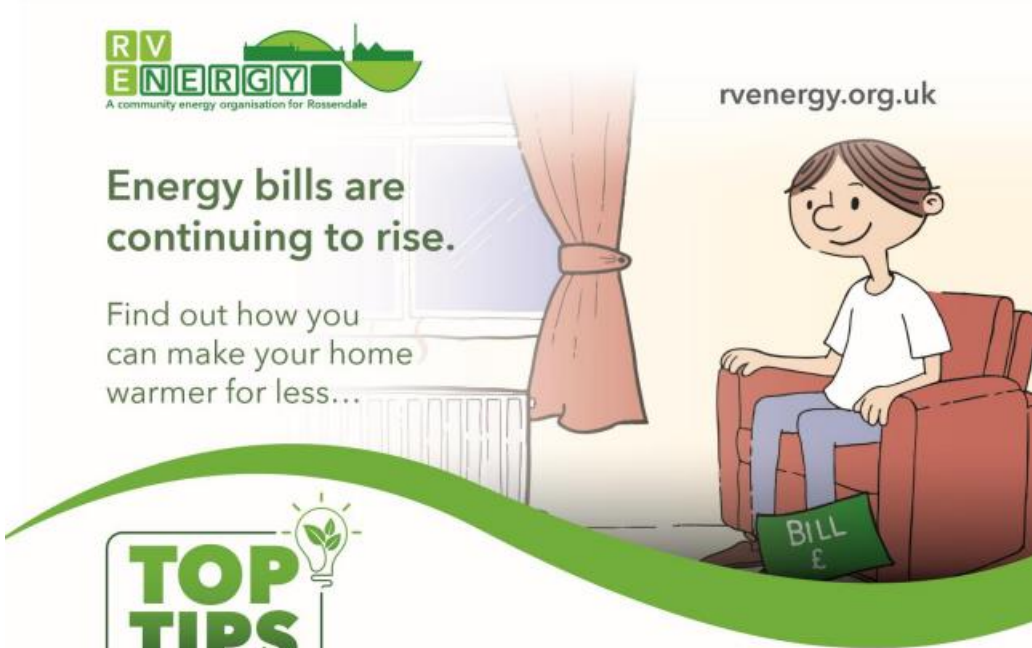
info@rvenergy.org.uk



Department for Energy Security & Net Zero

Energy bills are continuing to rise.

Find out how you can make your home warmer for less...



TOP TIPS



Tuck Curtains behind the radiator when they're closed to reduce heat loss



Increase showering efficiency by changing the head **saving £70**



Look for A-rated appliance when buying new. These will save you money in the long run



Reduce your heating by one degree



Regularly bleed radiators to increase efficiency

Take advantage of this award-winning scheme to combat rising fuel bills



Text RVE to 88802



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Appendix B: CEE user testing and feedback report

Aim

The aim of this user testing was twofold:

- To evaluate the latest enhancements to the Fairer Warmth system, developed specifically for the NZT project.
- To use the findings from user testing to inform the development trajectory and subsequent deployment.

Methodology

The methodology employed for user testing was as follows:

- **Development Collaboration:** Aligning app development with the Alpha phase requirements through collaboration with RVE.
- **Focus Group Testing:** Implementing a structured focus group session to facilitate hands-on user testing.
- **Session Breakdown:**
 - **Interactive Demonstration:** An initial one-hour session enabling participants to engage with the Fairer Warmth system, with opportunities for exploration, inquiry, and feedback.
 - **Technical Feedback:** A subsequent one-hour session dedicated to attendees, focusing on the technical intricacies and specific project requirements and recommendations.
- **Feedback Gathering:** Participants provided written and verbal notes on the Fairer Warmth enhancements throughout the workshop
- **Feedback Analysis:** Synthesising and analysing the feedback to determine trends and inform future development plans.

Participants

This focus group comprised 12 participants from the local Rossendale area.

The participants consisted of two distinct groups:

RVE Core Team

- Composed of specialists in energy advice, the Fairer Warmth system, and the NZT project.
- Provided feedback aimed at troubleshooting complex issues and refining system functionalities.

Community Members

- Individuals without prior exposure to the Fairer Warmth system or NZT.
- Varied in technical proficiency, reflecting the broader end-user demographic.

Findings and Analysis

The verbal and written feedback gathered from the user testing session was synthesised and sorted into categories. These can be seen in the table below with corresponding suggestions for addressing the feedback provided.

Insights from this analysis inform recommendations for system refinement, aiming to align with user requirements and the NZT project goals.

Table: Summary of User Feedback

	User Feedback	Suggested Integration
Process Visualisation and Information	Users request more visual depictions of the process within the app to better understand each step.	Adaptation to NZT User Journey to be more visual
	The importance of servicing and maintenance is noted, with an emphasis on the need for clear cost information.	Work with NZT team to determine maintenance processes and values for costing.
	Uncertainty about eligibility, particularly regarding benefits requirements.	Work with NZT team to determine eligibility related to benefits, or if not applicable – make this clear.
	Interest in alternative solutions such as Biomass heat pumps.	Discuss relevance with wider NZT team and make the user journey clear once enrolled.
Communication and Engagement	Users compare the app's communication channels with other projects such as Heat the Streets and emphasise the need for direct, in-person and effective communication.	Work with RVE to develop a robust engagement strategy.
	Word of mouth is identified as a significant engagement factor for the Minimum Viable Product (MVP).	Work with NZT team to integrate this into the engagement strategy. Adapt Fairer Warmth to show local interest.
	Users express a desire for a compelling narrative that persuades them of the NZT value proposition.	Work with RVE on engagement strategy.
	A narrative approach could be more effective in convincing users of the benefits and practicality of the NZT solution.	Work with RVE on engagement strategy.
Assistance and Inclusion	Concerns about the ability to perform required actions and the availability of help when needed.	Further discussions with NZT team to test app usability and in-person support.
	A preference for home visits to fill in the required photo uploads rather than expecting users to manage everything themselves.	Add feature for householders to request assistance to fill this out, possibly requesting a home visit from a Champion (working with RVE)
User Journey	Users request a streamlined app with concise information.	Further discussions with NZT. Remove any unnecessary information.

	There's a need for personal interaction before users feel fully engaged and retained.	Work with NZT on service plan and user journey.
	Clarification is needed on what skilled tradespeople are required and who coordinates them, suggesting a desire for a more hands-off approach for the homeowner.	Work with NZT on service plan.
	A suggestion for providing an overview of the app's functions, possibly through instructional videos on YouTube.	Develop app walkthroughs and guidance for use
	Education and understanding of the app and its benefits are requested, indicating a need for workshops or focus groups.	Work with NZT team to develop relevant workshops for deployment.
Ownership and Landlord Engagement	Issues are raised regarding the involvement of landlords and tenants in the process, with a call for targeted information for landlords.	Work with NZT team to determine approach and information required.
	A gap analysis is suggested, potentially to help landlords visualise and plan for retrofitting and installations.	Discuss further with the NZT team. Adaptations as above.
Reassurance and Reliability	The need for reassurance on the reliability of techniques used and the availability of skilled technicians' post-installation is emphasised.	Work with NZT on service plan and develop clear approach for installation and ongoing technical requirements.
	Questions about the type of company behind the app and a desire to see official endorsements, such as council logos.	Add information and graphics about CEE and other NZT project members
	There is a specific request for a description of RVE as an organisation within the app.	As above.
User Concerns and Support	There are concerns about the waiting times for service and what happens if the boiler breaks down.	Work with NZT on service plan and user journey.
	Users want to know the procedure for dealing with problems during the installation journey.	Work with NZT on service plan to highlight potential problems and strategies to address.

The feedback indicates a need for the Fairer Warmth App to be user-friendly, informative, and supportive. Users are looking for assurance, both in terms of process and technical support. Personal touchpoints and clearer information pathways are essential to improve user engagement and satisfaction.

Key actions for NZT team include:

- Refine service design and user journey
- Clarifying costs and eligibility
- Developing robust communication and engagement strategies

- Enhancing support features throughout the NZT user journey

Key actions for further system development include:

- Integrating visual process guides
- Further developing and testing app usability
- Providing educational resources for Fairer Warmth app use
- Adding to app content in line with developed NZT service plan and engagement strategies
- Further develop admin capabilities for accessing uploaded user photos

By integrating feedback from initial user testing, these modifications aim to provide a more targeted, efficient, and engaging experience for all stakeholders involved in the NZT project.

Appendix C: Energy Heroes

'Energy Heroes' is a practically engaging programme teaching children to be 'energy literate', a lifelong skill that is the first step in them having energy awareness.

Energy Heroes

Vision

To enable school communities across the UK to become models of Energy Efficiency.

Our Aims:

- To improve data handling and problem solving skills for pupils in Year 5.
- To encourage a responsible attitude and desire for low carbon living.
- To help communities across the UK understand the benefits of reducing CO₂ emissions.
- To empower energy users across the UK to reduce their fuel bills.







The Background:

- We have run Energy Heroes for over 10 years;
- Over 250 schools previously taken part;
- We won a Community Energy England award!

Objectives:

Provide teachers with high quality resources that enable pupils to achieve high standards for data handling and problem solving skills.

- To deliver a highly engaging, reusable programme, that enables schools to act as knowledge hubs for Energy and Climate Change.
- To provide schools and their communities with a range of activities and resources that empower them to make good choices in relation to energy conservation and low carbon living.
- To empower children to become **messengers** who describe and model behaviours that reduce CO₂ emissions and reduce fuel poverty.

The Structure:

- Teacher Training twilight session
- Energy Quiz
- Newsletter article
- Whole School Assembly delivered by team and Energy saving Flyer for all pupils
- Kick off lesson for Year 5s delivered by specialist teacher
- Home Challenges and log books
- School Eco Energy Audit with pupils, led by energy expert
- Further 5 Lessons, delivered by year 5 teacher through resource booklet
- School's energy saving action plan/display board delivered by energy expert
- Certification
- Evaluation of impact undertaken by team



The Assembly:

The Kick off assembly launches the Year 5s on their quest to become 'Energy Heroes' and help save the planet! Each pupil receives an energy efficiency 'tips' leaflet.



Teacher resource booklet:

Lessons are designed to use real and relevant data within the context of energy

Lesson one – Energy Matters

Investigating energy use and types of energy through an exploration of Pie Charts.

Lesson Two – How Much?

Calculating the cost of running home appliances within the context of climate change and Global Warming.

Lesson Three – Day and Light

Calculating how much our lights cost and preparing to save energy at home.

Lesson Four – Evil Standby

Solving problems associated with the costs of leaving appliances on standby.

Lesson Five – Be a Saver!

Finding the mode and range of our data to tell a story about energy consumption.

Lesson Six – Magical Maths

Using a range of measures and numerical facts to describe what we have learnt about energy and Climate Change.



Energy Heroes – Quiz for Pupils

Name: _____ Class: _____

School: _____

Circle the answer that you think is the best. Sometimes you have to choose your answer that is nearest!

1. Do you think it's important to save energy in your home?

Yes	100%	Not really	No
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2. Do you know how to save energy in your home?

Yes	100%	Not really	No
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3. Do you know how much your electricity costs per unit?

10 pence	10 pence	10 pence	10 pence
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4. How much do you think energy costs in your home every year?

£200	£200	£200	£200
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5. Do you think that saving energy is good for the planet?

Yes	100%	Not really	No
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6. Do you think it's important to protect the environment?

Yes	100%	Not really	No
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7. What is the best way of protecting the planet?

Recycling	Turning off the lights	Not using the car	Using energy saving light bulbs
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8. What is renewable energy?

Solar	Wind	Hydro	Geothermal
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9. Do you know how to save energy in your home?

Yes	100%	Not really	No
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10. Which two appliances in your home do you think use the most energy?

Energy Quiz:

To evaluate the impact of the programme, pupils and their parents take part in a pre and post quiz.



Appendix D : planning process for future phases

Developing the planning process that will coordinate the interfaces between the DNO, the community progress and the Local Area Energy Planning process.

NZ terrace asset deployment approach

