

Subject:	Net Zero Terraced Street Funding	Status:	For Publication
Report to:	Council	Date:	28 th February 2024
Report of:	Director of Economic Development	Lead Member:	Environment and Corporate Services
Key Decision:	<input checked="" type="checkbox"/> Forward Plan <input checked="" type="checkbox"/>	General Exception <input type="checkbox"/>	Special Urgency <input type="checkbox"/>
Equality Impact Assessment:	Required: No	Attached:	No
Biodiversity Impact Assessment:	Required: No	Attached:	No
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Recommendations

1. That Rossendale Borough Council to become the Lead Partner in the delivery of the Net Zero Terrace Street project
2. That Council approves the acceptance of the grant funding from Innovate UK for £2,522,874 in order to deliver the Net Zero Terraced Street Project
3. To delegate authority to the Monitoring Officer in consultation with the S151 Officer and the Lead Member for Environment and Corporate Services to make amendments to the grant offer letter and accept it on behalf of the Council
4. To delegate authority to the Monitoring Officer in consultation with the S151 Officer and the Lead Member for Environment and Corporate Services to enter agreements with partner organisations to establish the terms of payments and related items between Rossendale Borough Council and project partners.

1. EXECUTIVE SUMMARY

- 1.1 The Net Zero Terrace project has been awarded £2,522,874 to deliver a demonstration scheme to promote a net zero heating solution for terrace houses in Rossendale
- 1.2 The project is to be delivered by a partnership which includes Rossendale Valley Energy along with a range of other organisations in the public, private and community sectors to deliver different aspects of the project. This report requests that Rossendale Borough Council become the lead organisation for the purposes of managing the funding.
- 1.3 The project start date is the 1st March 2024 and it is expected to last for 21 months (December 2025).
- 1.4 The funding will allow the appointment of a Project Manager and a Project Officer to lead the coordination and delivery of the project including financial management, promotion and business engagement.

- 1.5 There are 14,000 terraced houses across Rossendale, many of which will face the challenge of moving to a cost effective green heating solution but with limited space around the terraced houses and the difficulties to fund up-front costs required to make the transition.
- 1.6 This project proposes to test an approach that includes retrofit actions such as insulation of the home and the installation of community ground source heat pumps. The scheme aims to have no upfront costs and to be significantly cheaper to operate than current and future heating options

2. Background - The Net Zero Terraced Street Scheme

- 2.1 As part of Innovate UK's £60 million Net Zero Living programme, which is part of the Government's Levelling Up agenda, a successful joint bid between Rossendale Borough Council, Rossendale Valley Energy and the Centre for Energy Equality provided funding to investigate the barriers to achieving Net Zero in communities.
- 2.2 As a pilot scheme, an area of Bacup will be chosen which has homes with mixed tenures, with some homes in a conservation area. This first "Discovery" stage which was completed in June 2023, provided the initial scoping in overcoming the barriers to Net Zero and this allowed a bid to fund the second stage which is the subject of this report.
- 2.3 A key downfall of previous schemes to introduce green heating has been that it is based on the ability of the individual to apply and fund schemes on a house by house basis. This has resulted in low uptake but is particularly difficult for areas of lower income and older terraced housing. This proposal moves to a street by street, planned approach utilising shared heating sources that offers economies of scale reducing overall upgrade costs and encouraging neighbourhood uptake of district heating schemes.
- 2.4 With the dramatic rise in the cost of energy being a significant impact on the cost of living and with domestic heating being responsible for 14% of total CO2 emissions, targeting scalable, investible solutions in areas of need should be a priority to Local Authorities.

3. Description

- 3.1 Working in partnership with Rossendale Valley Energy (RVE) and other partners, Net Zero Terraced Streets is an innovative approach to addressing the complex problem of decarbonising communities which due to the nature of the housing stock, i.e. terraced streets are unsuitable for retro fitting of technology such as Air Sourced Heat Pumps (ASHP's).
- 3.2 This means that as gas as a source of heating is withdrawn, the alternatives will either be impractical because of space or cost. Therefore, if our communities are to be able to afford heating, different approaches are required
- 3.3 The approach identified in the Net Zero Terraced Street project is to work with a terraced street to find implementable solutions. This will be done by considering:
 - Ground source bore holes (150m deep, placed in alley and highways) for clusters of terraced houses,
 - Taking the ambient heat (10-15°C) and circulating it via brine, through a shared loop network for each cluster of homes.

- Each home will have a small Heat pump within the home, which will upgrade this low temperature heat to useable heat (45°C) for the central heating system.
- Radiators would need to be upgraded to larger ones with a larger surface area to enable adequate heat transfer.
- As the heat pumps will be operating on a source temperature of 10-15°C, the scheme will offer better efficiencies for householders than ASHPs, which will ensure lower running costs and bills.
- Thermal batteries (Sunamp) will be used for hot water – with the potential flexibility for the local grid.
- The improved efficiencies will mean that the pressure on the Electricity Grid at peak tea-time winter months will be less, with less requirements for expensive reinforcements.
- Low carbon transport – EV charging and/ or EV Car clubs
- Shared Solar PV across the terraced street with shared battery storage and using Allume (sol-share) to ensure maximum generation is consumed across the terraced street.
- Potential for urban battery utilising Local Supply model and peak saving
- Fabric retrofit – cost to benefit ratio– energy efficiency and flexibility.

3.4 The project will also engage with the wider local supply chain to help more businesses transition to the installation and maintenance of such systems. This is essential if the model is successful and is to be more widely implemented

3.5 The project has been built around the need to bring together a partnership of technical expertise and community solutions so that an approach can be delivered without the need for the infrastructure of the national government or large metropolitan councils. The partnership therefore brings together:

- Rossendale Borough Council
- Rossendale Valley Energy
- Nuvision Energy
- Urban Chain
- IoT Horizon
- Centre For Energy Equality
- Kensa Utilities Ltd
- Community Energy Association Ltd
- Challoch Energy

3.6 Many communities around the UK are similar to that of Bacup, with higher than average deprivation and high numbers of terraced housing which risks them being locked out of net-zero (NZ) carbon transition. Domestic household gas use emitted 22% of the total CO₂ in the Borough in 2022, so this project will be vital to finding a solution that makes sure that no one is left behind.

3.7 We are also working with Bridgend County Borough Council and some of their community groups to develop the scheme in a way that it can be easily applied to other areas. It is hoped that Bridgend will be the first stepping stone to a wider national roll out.

3.8 There are nearly 10 million terraced homes in the UK, 6 million are 2-3 bed (narrow footprint homes means reduced ability to situate an ASHP) and therefore at risk of being stranded in the transition to decarbonised heat and transport without this solution.

- 3.9 Terraced homes are disproportionately in the North West, North East, Yorkshire and Wales. Any solution targeting terraced homes will positively benefit communities in those regions, supporting wider government Levelling Up aspirations. In Rossendale there are 14,000 terraced houses so finding a solution is essential.

4. **Expected Impacts of the Project**

Impact on residents: It reduces bills by over 80% from the counterfactual, alleviating fuel poverty and translates to approximately £1,500 per home. In Rossendale alone this could lead to an aggregated saving of £35m for households per year in an area of wide fuel poverty

Economic: Local supply chain is directly supported through the provision of renewable generation and building efficiency measures to stimulate the local economy. In Rossendale alone we estimate the retrofit value to be an average of £8k per household or a market value of £112m. Local community energy delivered as part of the model can be used to generate community benefit funds which can be reinvested into the local community.

Quality of Life and Fairness: The project fairly distributes local energy generation including to those homes who would not normally have access to it, further protecting against fuel poverty with associated health and economic benefits. Home inspections and targeted efficiency measures will improve home comfort, energy affordability and identify any potential causes of health issues e.g. damp and water ingress which can be addressed during the installation phase.

Accessible: The model permits local authorities of all sizes to engage and deploy, unlocking the barriers associated with limited public resource and funding. The technical solution delivers flexibility to electricity networks at marginal cost. When aggregated this means potentially many GW and GWh of flexibility to the UK at very low cost permitting renewable generation to be delivered at scale whilst potentially saving many millions in network reinforcement.

Collaborative: The governance and contracting mechanisms will permit multiple parties in the industry to collaborate and deliver their solutions including energy suppliers, heat cluster providers and community energy groups. This will build partnerships formally and informally that will have a value and impact beyond this specific project.

5. **LEAD PARTNER ROLE**

5.1 As the Lead Partner in the project, Rossendale Borough Council will be responsible for:

1. Entering into an agreement with Innovate UK through the Grant Offer Letter to accept the funding and outputs
2. Entering into agreement with partner organisations setting out the processes for data collection, the payment and partner responsibilities
3. Employ the Project Manager and Project Officer roles
4. Manage key sub-contractors including Burro Happold
5. The collection of expenditure and output information from partners
6. Servicing of the Project Board
7. The submission of quarterly claims for expenditure related to Rossendale Borough Council and sub-contractors to Innovate UK

5.2 The Innovate UK funding is delivered through a direct relationship between Innovate UK and each individual partner which means that the Lead Organisation is not exposed to the

direct risk of underperformance and inappropriate expenditure from an individual partner. In order to ensure that individual and shared responsibility lies at the correct point in the project, the process of passing down the risks and liabilities contained within the grant offer letter to partnership organisations is a tried and tested method to ensure that. A funding agreement between Rossendale Borough Council and the individual partner organisation ensures that each partner has clear responsibilities. Each project partner is responsible for:

1. The delivery of defined aspects of the project that are related to that organisation
2. The collection of accurate information regarding expenditure and outputs and submitting this information in a timely manner to Innovate UK.
3. Cash flowing the aspects of the project that the partner is responsible for delivery
4. Ensuring that all expenditure incurred and claimed is eligible under the terms of the grant offer letter
5. Ensuring that any overspends or expenditure on ineligible activity is the responsibility of the partnership partner organisation
6. Providing the Lead Organisation with any information necessary to fulfil the requirements of the Grant Offer Letter.

5.3 The Project Board shall oversee the delivery of the project including the delivery of the programme of activity, expenditure and outputs. The role of the Project Board is also to support individual partners to ensure that they are able to meet their obligations above, and deliver the project successfully

6. RISK

6.1 Rossendale residents are particularly exposed to the future costs of a low carbon heating due to the number of terraced houses and the limited future heating options around electric heating therefore the approaches designed in this project are necessary for the well-being of our communities

6.2 The key financial risks are related to the delivery of the terms of the grant offer letter. Each partner has a direct funding agreement with Innovate UK so reducing the exposure to financial risk. The responsibility for cash flowing the project sits with individual partners. So Rossendale Borough Council will need to cash flow the funding for our aspects. The sub-contractors will be paid in arrears after Innovate UK pay the Council for the sub-contractors quarterly claims.

7. FINANCE

7.1 The grant from Innovate UK is £2,522,874 and this funding is to support the delivery of the entirety of the project. This means that there is no requirement for the Council to provide match funding.

7.2 Rossendale Borough Council will be provided with a budget of £448,000 to employ two officers to support the project and related costs such as material, equipment, office space and events. The delivery of most of the funding will be the responsibility of partner organisations and will be managed through partnership agreements.

7.3 After signing of the Grant Offer Letter it is proposed that the Council will become the Lead Organisation as it will be the Council's role to employ the staff and service the Project Board. Part of the Council's role will be to manage sub-contractors with an estimated value of £615,000.

7.4 The total project cost is £2,859,297, the table below details the individual funding allocations at the time of the funding bid was submitted.

	Total costs (£)	Funding level (%)	Funding sought (£)	Contribution to project (£)	Other public sector funding (£)
ROSSENDALE VALLEY ENERGY LIMITED Lead organisation	1,301,955	100.00	1,301,955	0	0
NUVISION ENERGY (WALES) LTD Partner	135,730	70.00	95,011	40,719	0
URBANCHAIN LTD Partner	42,414	70.00	29,690	12,724	0
IOT HORIZON LTD Partner	124,800	70.00	87,360	37,440	0
CENTRE FOR ENERGY EQUALITY LTD Partner	373,888	70.00	261,722	112,166	0
CHALLOCH ENERGY LIMITED Partner	358,200	70.00	250,740	107,460	0
KENSA UTILITIES LIMITED Partner	5,172	0.00	0	5,172	0
Rossendale Borough Council Partner	448,000	100.00	448,000	0	0
COMMUNITY ENERGY ASSOCIATION (ENGLAND) LIMITED Partner	69,138	70.00	48,397	20,741	0
Total	£2,859,297		2,522,874	336,423	0

8. LEGAL

- 8.1 The grant offer letter will set out the outputs of the project and this will be agreed between Rossendale Borough Council and Innovate UK.
- 8.2 Partnership agreements will be drawn up between Rossendale Borough Council and partner organisations to reflect the terms of the grant offer letter and ensure that liability for delivery is with the individual partners.

9. POLICY AND EQUALITIES IMPLICATIONS

- 9.1 There no policy or equality implications arising out of this report.

10. REASON FOR DECISION

- 10.1 For Rossendale Borough Council to take the project lead and accept the grant funding offer from Innovate UK.

Background Papers	
Document	Net Zero Terraced Street Briefing

The Net Zero Terrace Street

Net Zero Terrace Street will create net zero communities that otherwise would be left stranded. It is applicable to millions of homes in the UK. It is unique in being community centred, with no upfront costs to consumers and a Fairer Warmth approach. Local authorities of all sizes can participate with delivery models tailored especially to deliver in areas of resource and capacity constraints. Its engagement model enables people to sign up so their street reaches a critical mass of demand so the solution is investable and can be installed.

“Affordable, low carbon energy, healthy warm homes, no upfront cost to the householder, so no one gets left behind”

Our aims under this project:

- Develop an approach to decarbonising nearly 10 million terrace homes
- Help everybody in the community to significantly reduce their home energy use and have lower energy prices
- A plan to collectively transition terraced communities from fossil fuels to renewable energy for all
- A planned approach which accelerates deployment through collaborative planning with key stakeholders including local authorities, the DNO, local community energy groups, energy suppliers and financiers.



The Net Zero Terrace Street



The technical solution:

- A community heat service delivered through clusters of shared bore holes and ambient heat loops to provide more efficient community heating with less impact on the grid
- Tailored energy efficiency package and renewable energy
- ‘Fairer Warmth’ digitalised consumer journey to reach, engage and retain interest within the community. Supported by real people, energy advisors and champions.

The non-technical solution:

A people-focused model ‘one stop shop’ creating energy communities with a commercial standardised, replicable, scalable model can be developed, then utilised across multiple areas irrespective of geography, demographic or local authority size.

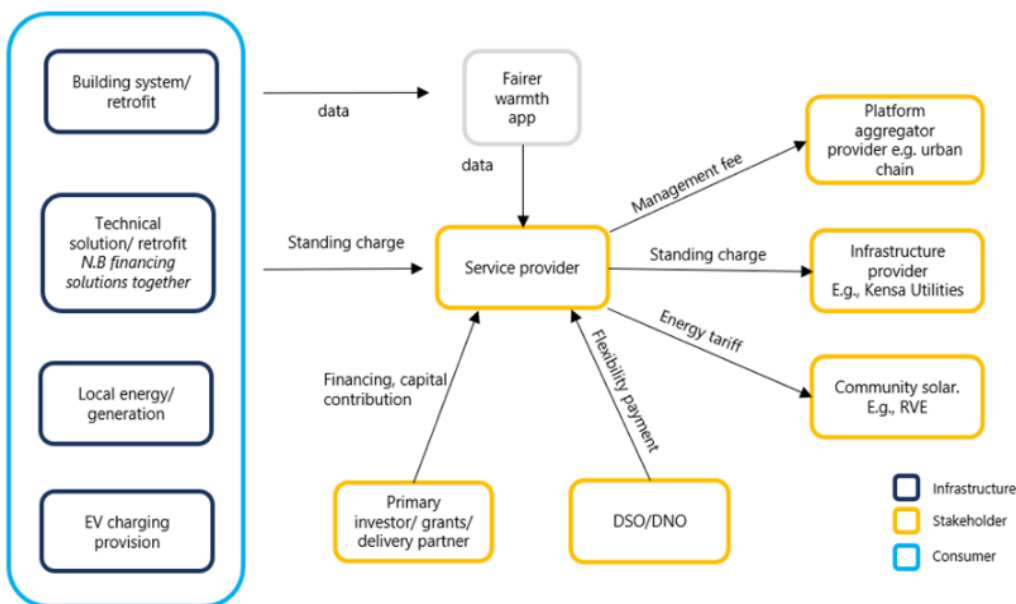


Why is this project important?

- ‘Unlocks’ potentially millions of otherwise stranded homes mitigating noise, space and affordability barriers
- Homogenous, inclusive solution with no upfront cost for householders
- Delivers affordable, low carbon energy and healthy warm homes, improving lives, **keeping bills affordable vs staying on gas or moving to direct electric heating;**
- Speedy delivery, replicable & scalable for all sizes of local authority using local supply chain (job and skills growth).



Service Model will continue to be developed, building on Phase 1



A bit about The Smart Local Energy System:

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 of the system ensure reduced bills and peak network capacity by up to 80% compared to the counterfactual of direct electric heating in individual homes. It will automatically optimise bills, deliver flexibility to electricity networks (reducing reinforcement costs to customers) and utilise local community energy when available.

More about the barriers:

The main driver for the solution is to find an approach that can be used to decarbonise terraced streets, where issues around space constraints and fuel poverty prohibit the deployment of off the shelf low carbon solutions such as air source heat pumps. Choices for consumers are heavily restricted, effectively limiting consumers to the use of electric boilers which will prove both prohibitively expensive to operate, as well as putting huge strains on the electricity system.

Procuring such a solution would normally be complex, requiring multiple parties to work together under complex commercial arrangements. It would therefore not be possible for most communities to engage or local authorities to resource the solution.



Watch animation [here](#)

The pathfinder places project in a nut shell will:

- Further develop the service model to identify all transactions and interactions with stakeholders
- Develop the digital consumer journey (Fairer Warmth platform and app)
- Develop the operational and organisational governance under which the service model is delivered (tailored for 2 operating models, a consortium and a Special Purpose Vehicle)
- Refine the procurement approach testing it with actual system providers and consumers
- Develop legal, commercial and financial templates and models needed to enable delivery
- Disseminate the outputs including a tool kit that can be openly used by all
- Develop a planning approach to identify and engage with communities
- Use two different geographies; Lancashire and Bridgend South Wales to ensure replicability
- Build a demonstrator that showcases the solution to real community members to ensure collaboration, gather feedback, and co-produce
- Develop a robust system of contracts with clear understanding of insurance, warranties, liabilities and interdependencies; including quality assurance to ensure the system is robust over a long time period and continues to protect and serve customers and communities.