electricity north west

Bringing energy to your door

Powering the Future

Helen Seagrave

Community energy manager

What I plan to cover today:

- Who we are and what we do
- Planning for low-carbon infrastructure
- Supporting communities and customers
- Develop a smart network
- Net Zero Terrace streets

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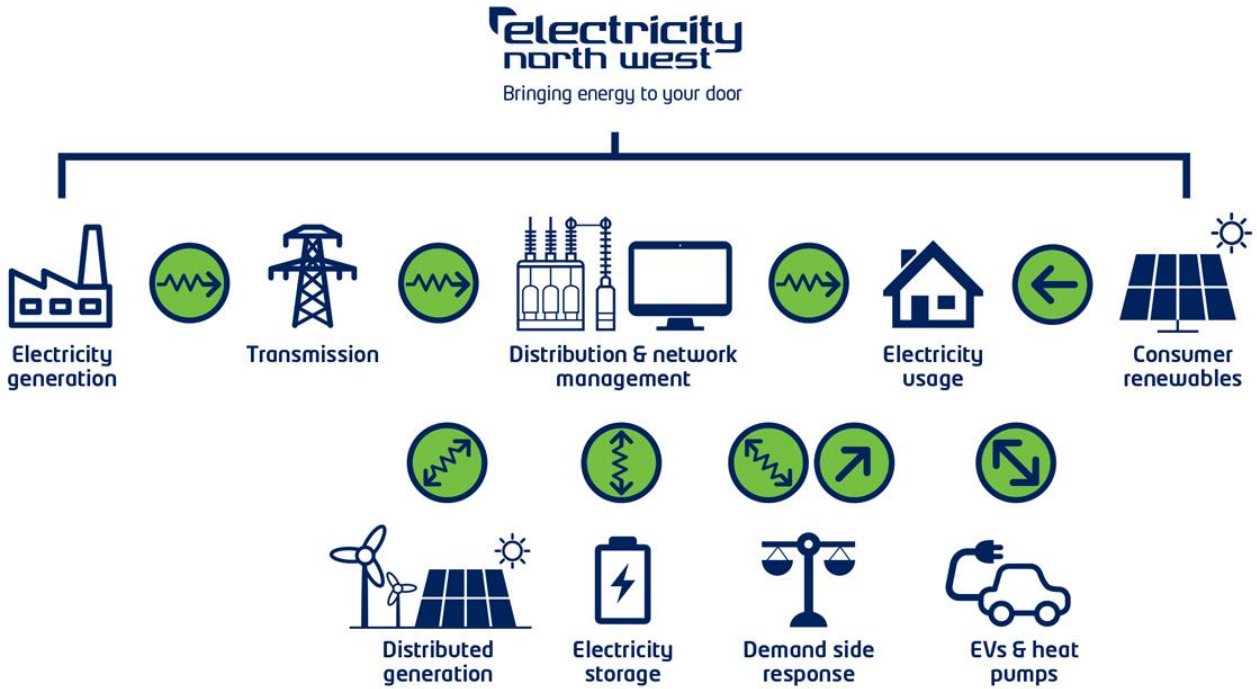
Who are Electricity North West and what we do

- We own, operate and maintain the electricity distribution network in North West England.
- Our overhead lines, underground cables and substations bring power to 5 million people in 2.4m homes and businesses
- Our network is 99.99% reliable.
- We invest billions of pounds in the region focusing on key areas of safety; reliability; customer service and net zero.
- We are regulated by Ofgem and engage our regional stakeholder to develop our five year business and investment plans

ofgem

Our role has changed

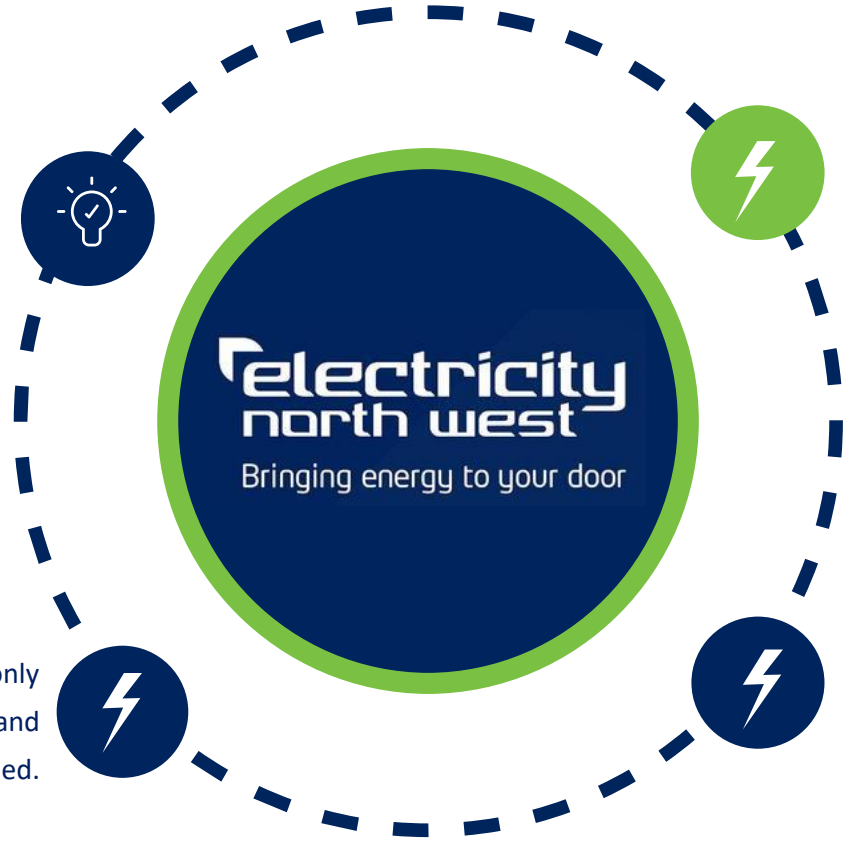


Network planning

We currently use DFES to inform network planning across our Extra High Voltage (132 to 33kV) networks. We also produce forecasts to inform network planning at High Voltage (11 and 6.6kV) and Low Voltage (0.4kV) networks. Moving forward we will expand DFES to cover all voltage levels.

DFES with a planning purpose

Our load related investment is mainly driven by our Distribution Future Electricity Scenarios (DFES), which have a mainly planning purpose



EHV planning

Focus on wider area planning to optimise investment by increasing efficiencies and avoiding piecemeal network expansion.

LV services

Unlooping of LV services to facilitate domestic EV charging and heat pumps to the end customers.

HV and LV planning

Optimisedplanning by releasing only the required capacity where and when needed.

Best View Scenario

2022	Scenario		2030	2040	2050
25 TWh Annual Electricity	Best View		33 TWh	41 TWh	42 TWh
25,000 EVs			1.3 million	2.7 million	2.9 million
22,000 Heat Pumps			0.23 million	0.6 million	0.8 million
1.48 GW of Zero Carbon DG			2.0 GW	2.6 GW	3.2 GW
167 MW of Battery Storage			0.9 GW	1.4 GW	1.9 GW

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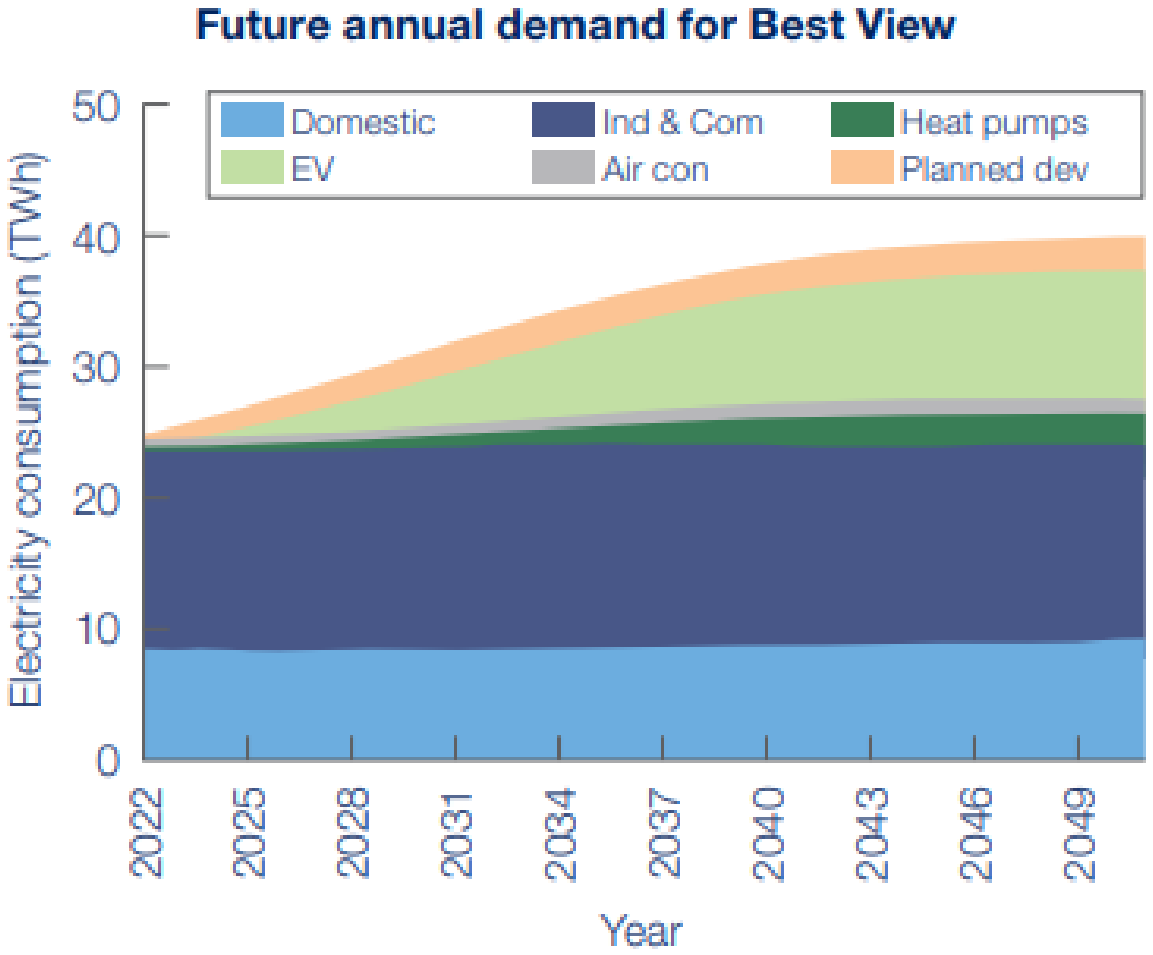
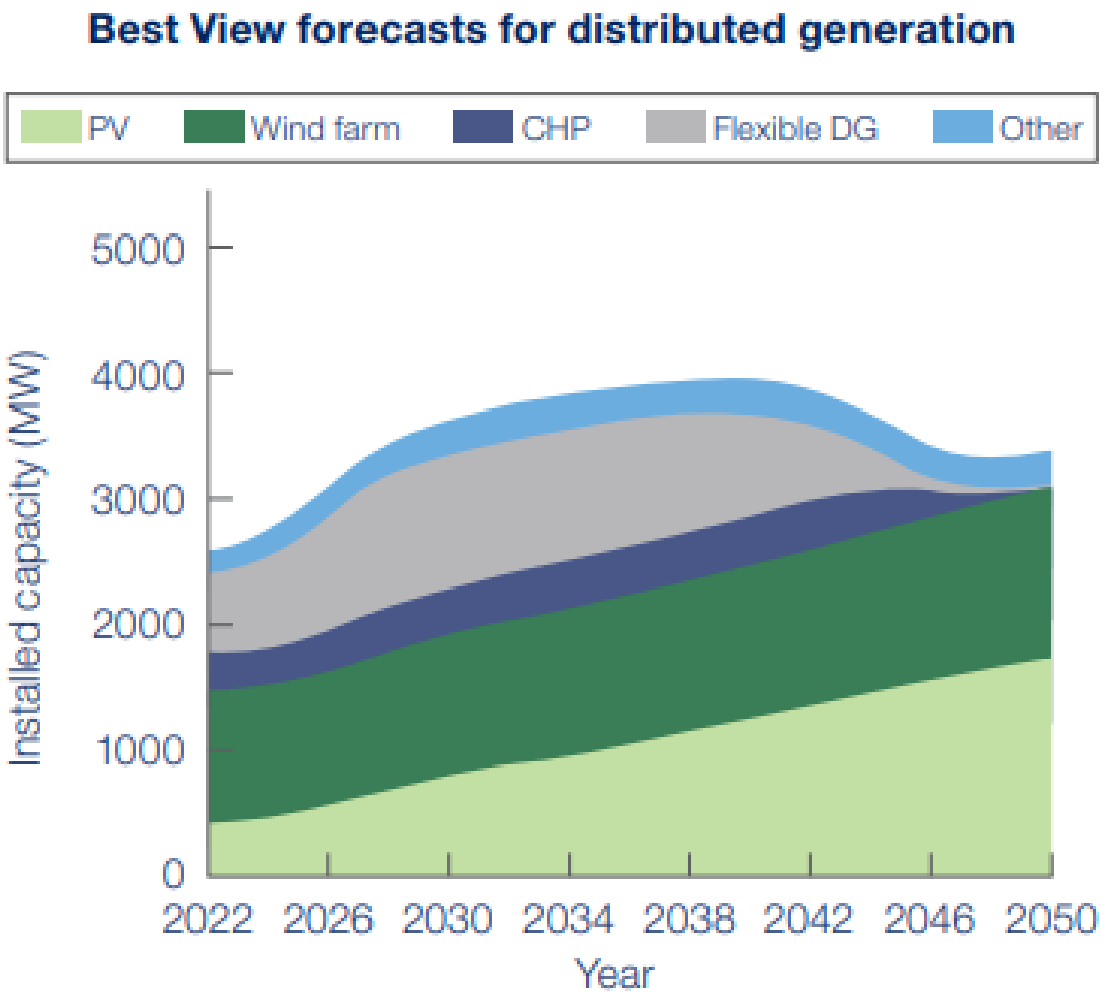
Best View


Future annual demand for Best View
Domestic
Ind & Com
Heat pumps
EV
Air con
Planned dev
Electricity consumption (TWh)
50
40
30
20
10
0
2022
2025
2028
2031
2034
2037
2040
2043
2046
2049
Year


Best View forecasts for distributed generation
PV
Wind farm
CHP
Flexible DG
Other
Installed capacity (MW)
5000
4000
3000
2000
1000
0
2022
2026
2030
2034
2038
2042
2046
2050
Year

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Our commitment to the North West 2023-2028 (RII0-ED2)

Vision: Leading the North West to Net Zero

We will drive the transition towards local Net Zero targets, through distribution system operation, following a path to making our own operations Net Zero by 2038

Net Zero

We will remain one of the world's most reliable networks, reducing the number of power cuts and the average time people are without power by 20%

Network

We will deliver at least a 9/10 level of customer service and provide additional support to electricity users in vulnerable circumstances and fuel poverty

Customer

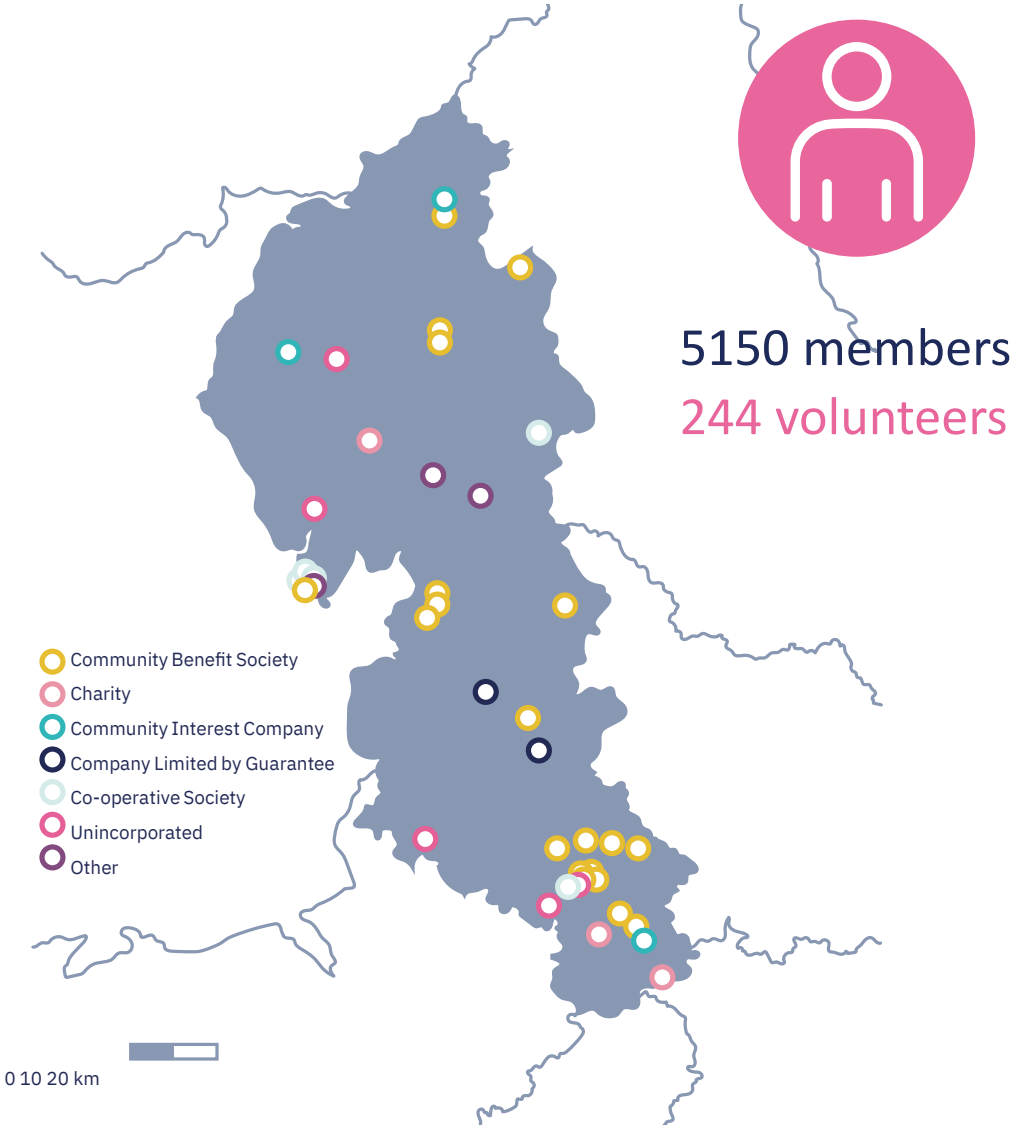
Community energy in the North West

42 community energy organisations in the North West

17.6MW of installed electricity capacity generating 43GWh of electricity

Saving 12,000 †CO_{2e} annually

Powering 15,000 households



5150 members

244 volunteers

Source: State of the Sector Report 2021

ED 1 Highlights

3000 Over 3000 individual engagement activities delivered	**18,587** Visits to community and local energy web pages	**46** Newsletters and engagement emails shared with over 377 stakeholders	**23** Community Connects events held, attended by over 1000 people
£400K allocated to Powering our Communities fund grants	**33** projects supported with a Powering our Communities Fund grant	Winners of the Utility Week Award Community Investor Award, 2022	Strategic Innovation Fund projects developed with two community energy organisations

Powering our Communities Fund

Fund:
- £500,000 over 6 years
- 40 projects funded

Who's received funding
- Community energy groups
- Environmental Organisations
- Parish Councils
- Youth Groups
- Community Organisations

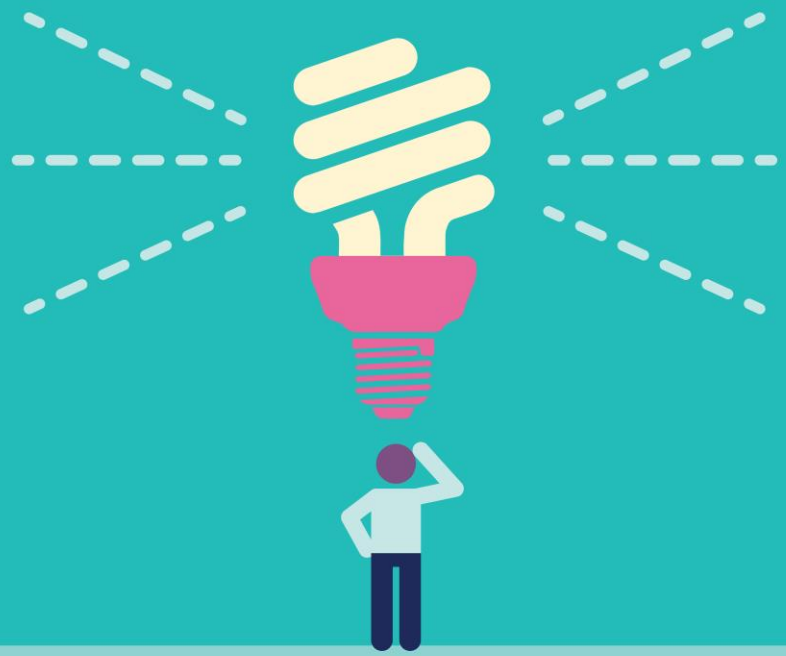
What's been funded:
- Advice and engagement activities
- Research and feasibility studies
- Capacity building activities
- Installation of measures

Solar Made Easy – Cumbria Action for Sustainability

Overcoming barriers to solar PV installs for both households and community buildings. Working with communities across Cumbria to map PV resource and match up demand with installers and Community Energy Businesses.

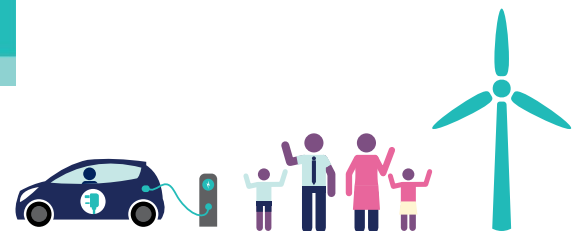
This approach has been developed across 3 POC funded projects. It works with interested communities to engage residents with information on Solar PV. It pre-vets installers; matches the two leading to householders installing PV. It also identifies buildings for community owned solar.

It has worked with Kendal, Ambleside, Levens, Arnside, Keswick, Duddon Valley, Alston Moor, Halton with Augton, Greysothern, Penrith and Ulverston.



Over 400 people and 50 business engages

480kW solar PV; 120 homes and 4 community buildings (est)

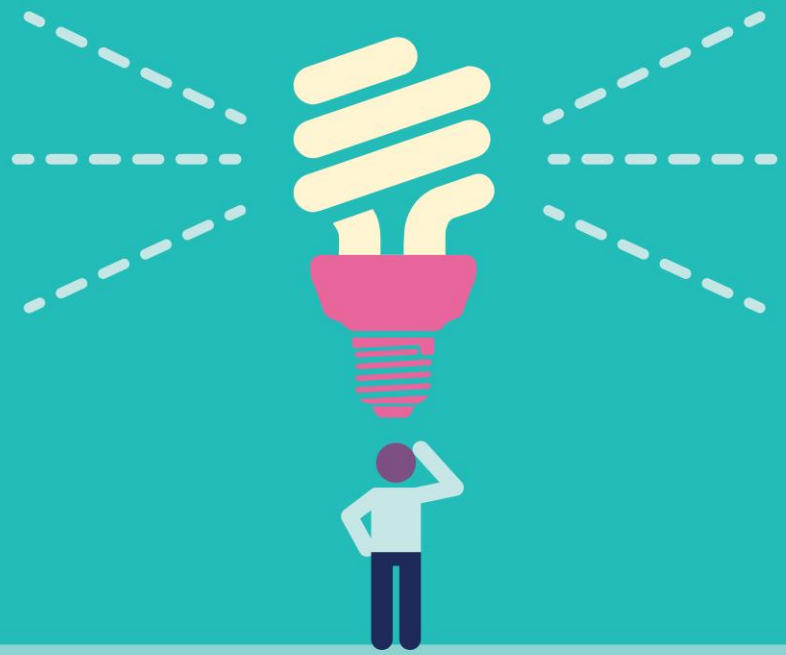


Solar for Greater Manchester Faiths

This project is led by the Salford Diocesan Trust and is working with an interfaith group in Greater Manchester to overcome the barriers to the installation of low carbon energy in religious buildings.

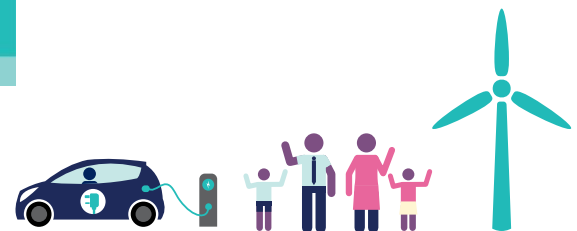
The grant is providing capacity and capability to Salford Diocesan Trust. It will provide resources to engage with the GM interfaith group, draw out the barriers faced by faith groups and develop resources to help overcome the barriers

The project is aiming to deliver information and resources to help faith groups and organisations to install solar PV.



Practical tools and guidance

Leading to PV installs across Greater Manchester

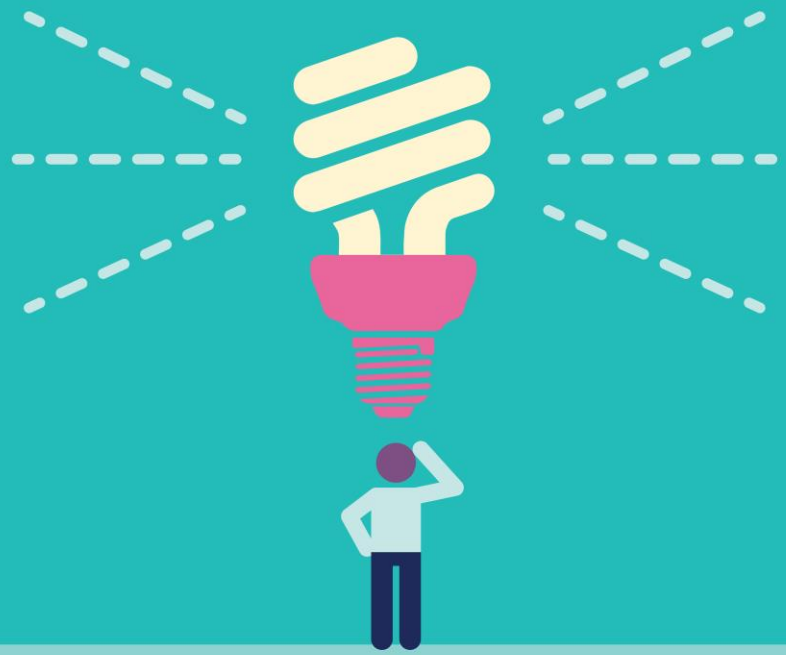


Middleton Community Power

The aim of the project is to establish a local solar PV co-operative in Middleton including identifying opportunities for the deployment of community owned solar PV projects and lands and buildings in the town.

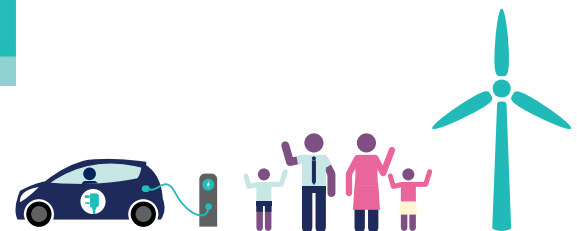
The grant is providing capacity and capability to Middleton Cooperating to support the assessment of suitable sites for solar PV, community engagement and set-up costs for Middleton Community Power.

Middleton Co-operating is a unique business model designed to act as a catalyst for the development of local co-operative owned businesses including community energy. This project aims to develop a community energy organisation with a growing core or members.



Community Energy Business established

Identification of sites for community owned solar

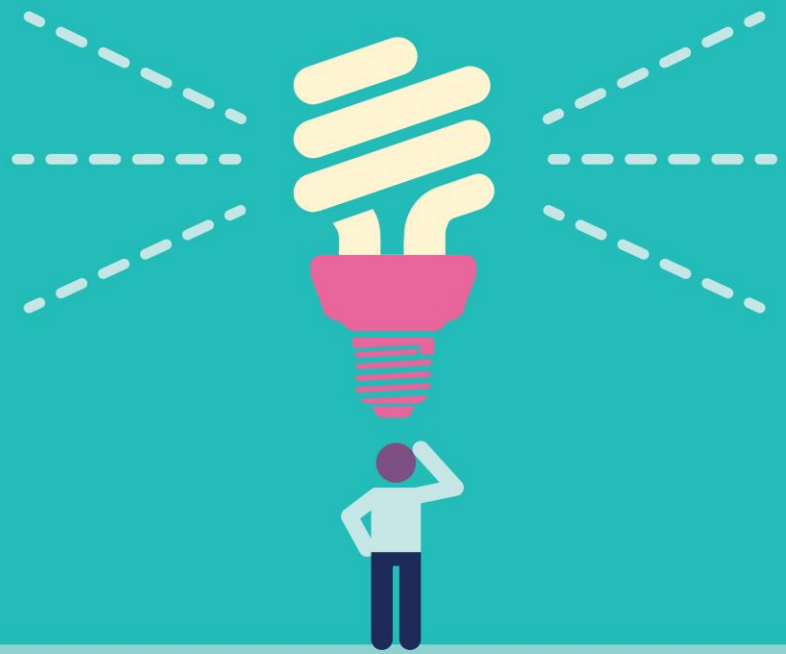


Oldham Community Wind Farm

This project wants to reinvigorate the proposal to create an Oldham Community wind farm, owned by the people and for the benefit of the people in Oldham.

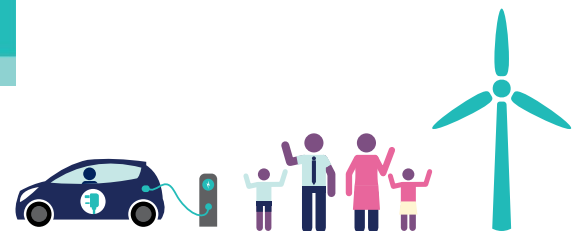
The grant is providing capacity and capability to Energy4All develop an engagement programme to discuss the potential to develop a previously proposed wind farm on United Utility land near the village of Denshaw in Oldham.

The aim of the engagement programme will be to consult on the proposal, develop the concept of community ownership with the local community as well as discussing how the project can benefit the local community.



Community engagement

Community owned wind farm



Customer focused: Extra care

Extra care

- Enhanced winter support
- Leaflets to 2.4m North West customers
- Our free extra care register gives extra help and support
- Reduced winter hours for planned power cuts

Cost of living support

- £8m Take Charge collaboration with Citizens Advice and Energy Savings Trust
- Increased investment to reduce disruption
- Enabling new low carbon technology
- Keeping bills low

#BeWinter Ready

- Social media campaign
- Safety messages
- Working with Cadent and United Utilities in partnership
- BeWinterReady information hub

www.takechargetoday.co.uk

Helping you take charge

Energy and money advice you can trust

electricity north west
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citizens advice in the North West

energy saving trust

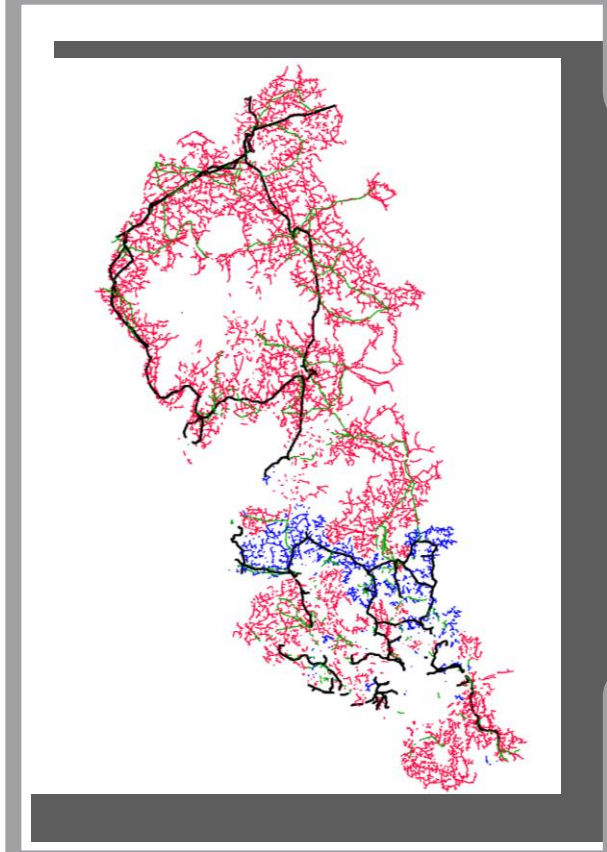
The Electricity North West network

Enough cables and overhead lines to go round the world one and a half times

60,000km cables and overhead lines

460 grid & primary substations (132/33kV)

34,000 distribution substations (11/6.6kV)



Overhead line network

132kV

33kV

11kV

6.6kV

76% underground (highest proportion outside of London)

Smart technologies

Over £30m investment in R&D	Smart Streets	Customer Load Active System Services (CLASS)	Network Management System (NMS)

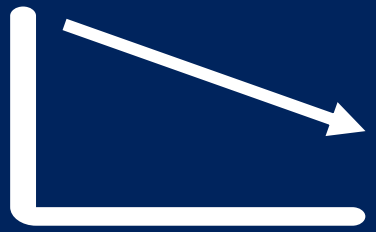
Smart Street

Predicted high LCT uptake

Areas with a high level of fuel poverty

Sites which satisfy both criteria

Smart Street Benefits

Optimisation benefits (energy)	Optimisation benefits (losses)	Trade off between loss and energy consumption reduction	Carbon benefits
			
6-8% voltage reduction 5.5 – 8.5% energy reduction All networks similar energy reduction	Up to 15% loss reduction Rural network has highest loss reduction	Does exist but depends on load composition Energy consumption dominates Total energy reduction independent of weightings applied	Electricity system emissions reductions of 7% to 10% may be possible with a full application of Smart Street

CLASS

00:03:00

2% ↑ 00:00:08 ↓ 2%

By reducing voltage, a kettle consumes less power. The kettle takes longer to boil but uses the same energy.

"A problem shared is a problem halved ..."

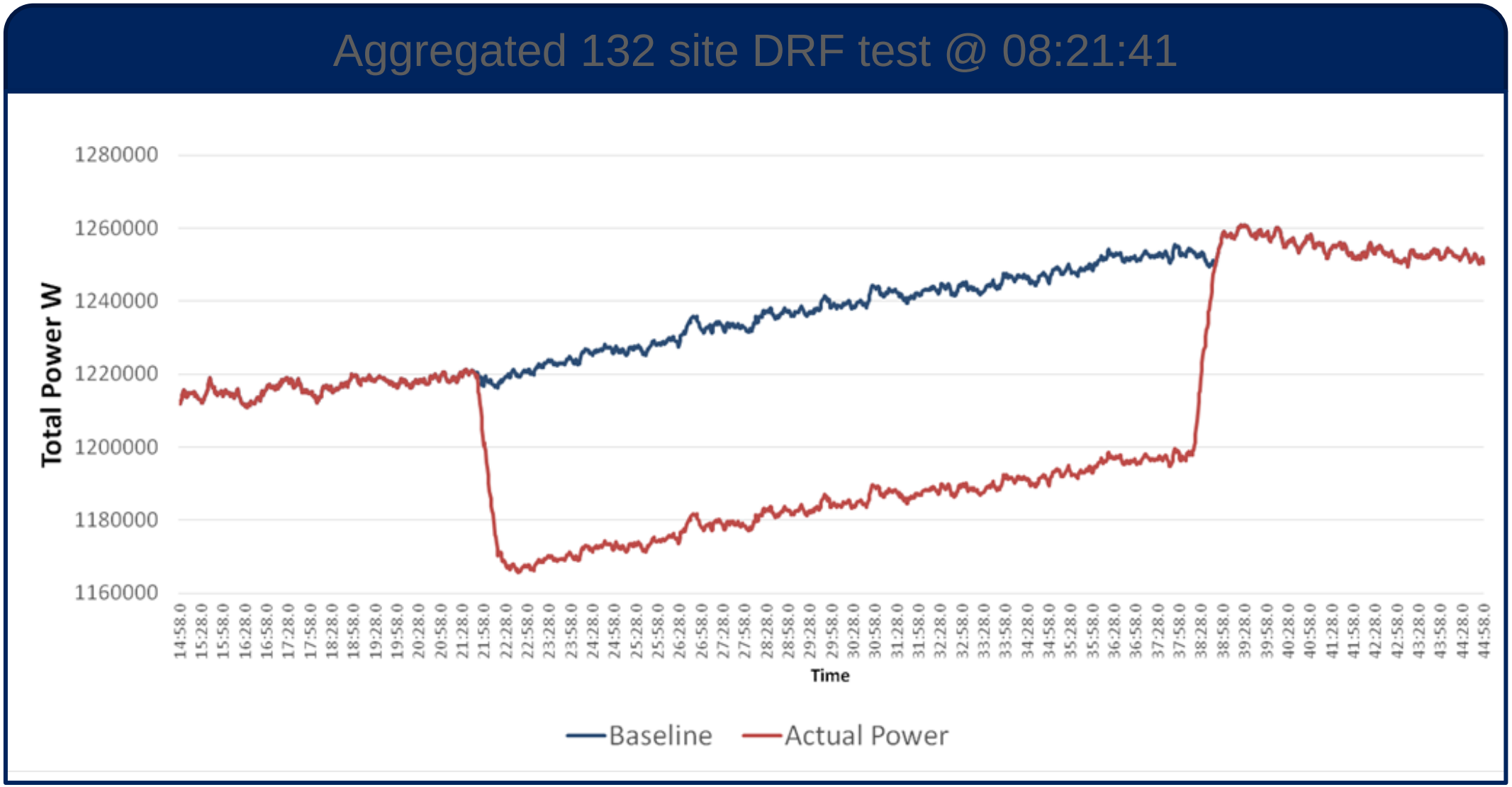
20,000 homes in a town

200,000 homes in a city

26 million across Great Britain

CLASS uses small changes over many customers to give a big response

Measured CLASS response



Project summary

The community-led *Net Zero Terrace* project will be the first to explore using a DNO network to decarbonise terraced communities through an integrated, optimised community virtual power plant, taking a smart integrated systems approach to low carbon heat.

Project Partners

BURO HAPPOLD

RV ENERGY
A community energy organisation for Rossendale

Rossendale BOROUGH COUNCIL

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NORTHERN POWERGRID

University of Salford MANCHESTER

UK Power Networks
Delivering your electricity

Kensa Group

UrbanChain

CEE Centre for Energy Equality

The challenge

- Nearly 10 million terraced homes in the UK
- Many not suitable for heat pumps due to space and noise constraints
- Plus, a large proportion are from 19th and early 20th century, with low energy ratings
- Affordability for many residents is an issue
- Electric boilers are the counterfactual option
- Electric boilers negate the need for fabric retrofits, which can be a key decision based on affordability
- Resulting bills for residents will be considerable
- Will also put extra demand on the network

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Project description

1. A technical solution: Clustered, boreholes with shared ground loop and individual household shoebox heat pump, a standardised package of **retrofit**, smart water cylinder and shared solar PV. The solution has to enable affordable, low carbon heat.

2. A financial solution: Investor backed delivery at no upfront cost to householders, but a longer repayment through a standard charge. Local generation model to subsidise the energy bills of householders participating.

3. Grid: Areas will be engaged within their individual substation and each Low carbon heat project will be delivered within the constraints of the substation. This will be a Smart Local Energy Solution with all technology deployed being smart and able to be agile within the needs of local grid flexibility.

4. Engagement: The engagement methodology is central to the success of the Net Zero Terrace Street. If people do not sign up, then the economics of the model will not be viable or therefore deliverable.

5. Governance: A non profit extracting model that returns benefit (future) to consumers to push down energy bills.

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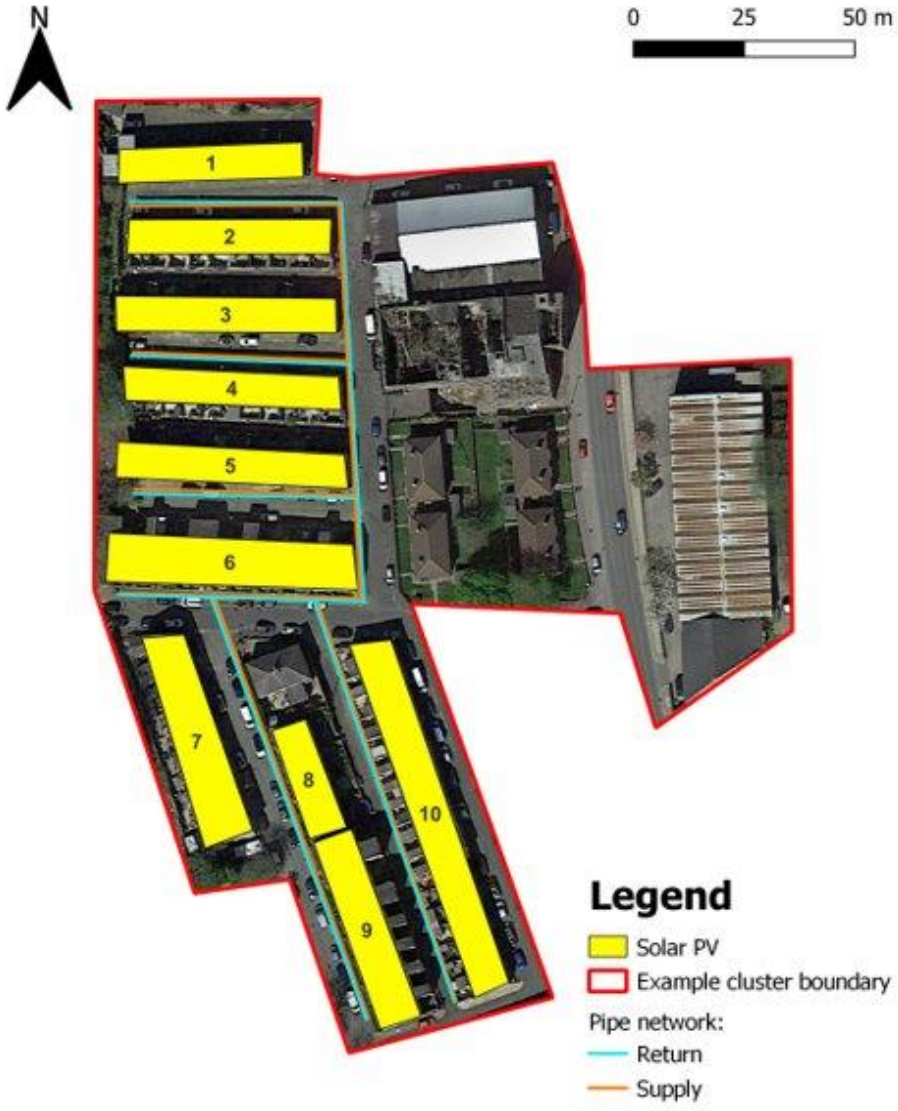
Network elements

- The systems focussed on decarbonisation are:
  - Heating
  - Power
  - Travel
- An example full terraced system comprises of:
  - Rooftop PV
  - Ambient loop heating network
  - Local EV charging



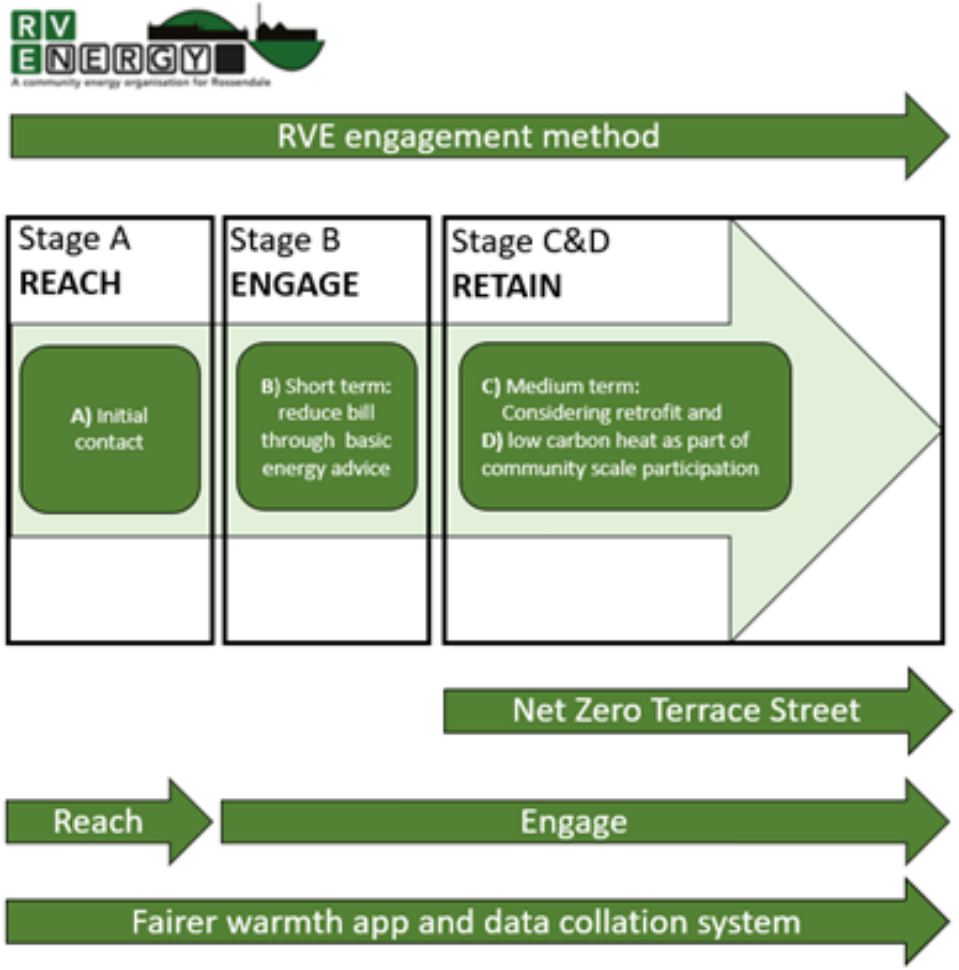
BURO HAPPOLD

Scaling up the project: Engagement is key

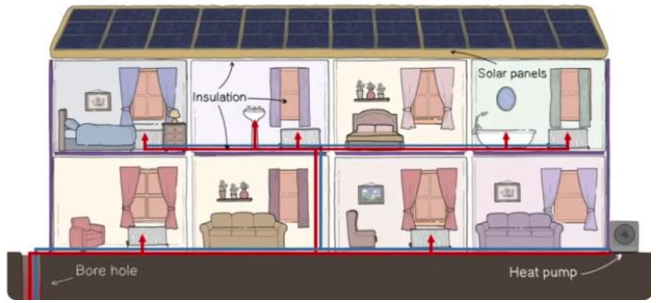
This is a co-production community centric project

Affordable energy, healthy warm homes at no upfront cost to the householders

Engagement is a fundamental part of creating a model that is accessible and inclusive and will be adopted and taken up by the community to deliver the critical mass required. We need ~30% of residents on board to create a deployable solution. The engagement methodology has a ‘cold start’ community approach, deploying the app first, then expanding the community energy champion network, then building the energy model that can enable deployment.



Fairer Warmth



north west
net zero hub

North West of England
COMMUNITY ENERGY FUND

Express interest before January 5th to participate in first round of applications

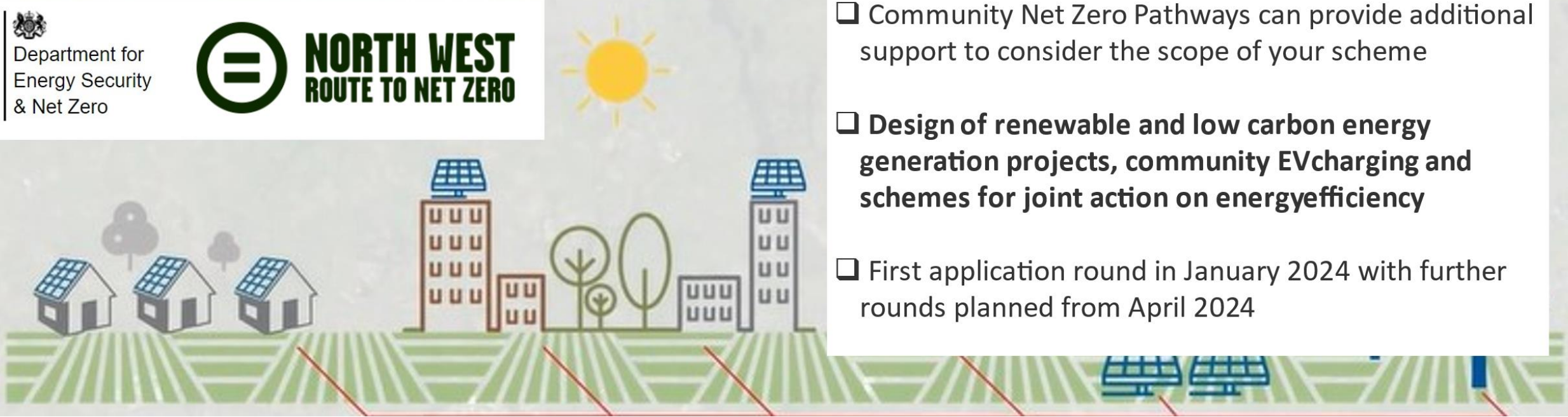
❑ **Email**
NWNZHub@liverpoolcityregion-ca.gov.uk

❑ **Website**
www.localenergynw.org/page/community -energy-fund

- ❑ **Funding for community and eligible third sector organisations to develop energy project proposals**
- ❑ Test feasibility, prepare evidence for planning, launch a crowd- fund raiser and more.
- ❑ **Cannot fund the installation or maintenance of the technologies themselves**
- ❑ Community Net Zero Pathways can provide additional support to consider the scope of your scheme
- ❑ **Design of renewable and low carbon energy generation projects, community EVcharging and schemes for joint action on energyefficiency**
- ❑ First application round in January 2024 with further rounds planned from April 2024

Department for Energy Security & Net Zero

NORTH WEST ROUTE TO NET ZERO



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Thank-you
Keep in Touch

Sign up *for our newsletter*

Get in touch: *Communityandlocalenergy@enwl.co.uk*