Net Zero Terrace

A Strategic Innovation Fund Project

Discovery Phase

WP 2 Regulatory Review

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Project Partners:

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1 Introduction

The Net Zero Terrace Strategic Innovation Fund (SIF) Round 2 Discovery phase project sits under Innovation Challenge 1, Project Scope 2 and will focus on supporting the decarbonisation of heat for consumer groups with reduced access to opportunities to decarbonise.

The Net Zero Terrace project will demonstrate how to decarbonise an entire terraced street using a Smart Local Energy System (SLES) that is integrated with the network and is optimised, affordable to consumers and easily replicable across Great Britain.

The SLES will comprise ambient loop group source heat pumps (GSHPs), community provided storage and solar PV and local peer-to-peer Power Purchase Agreements (PPAs), controlled by optimisation software.

This report is the output for Work Package 2, the regulatory review, and identifies potential regulatory barriers to deployment of the SLES.

2 Overview

During the application stage of this project a number of potential regulatory barriers were identified that could hinder the development and roll out of this project. They are listed in table 1 below.

Table 1 – potential barriers

Stage of SLES	**Potential barrier**
Supply of local electricity	• Current regulatory situation • Longer term policy direction
Installation of a shared GSHP	• Permits for bore holes • Wayleaves for highway disturbances • Access to private properties • Permitted rights for contractors
Heat as a service	• Current unregulated – potential impact of longer-term policy direction
Installation of community owned roof-mounted PV	• Implications for mortgage holders, housing associations and private renters

The aim of this report is to present the evidence of the key regulatory barriers that may prevent or reduce the success of this project. Evidence for this report has been gathered through a mixture of desk-top research and stakeholder interviews.

Research and reports from the following organisations were reviewed:

- EnergyRev and the Prospering for the Energy Revolution programme
- Active Building Centre
- Net Zero Terraced street Community Renewal Fund report
- Power for People, Supporting community energy and local electricity markets: An alternative proposal
- Burneside Community Energy Ltd, Developing a Net Zero Carbon Community Energy Owned System for New Housing

Stakeholders were interviewed from the following organisations:

- Buro Happold, authors of Net Zero Terraced street Community Renewal Fund report
- Innovate UK housing retrofit research lead
- SHIELD project team
- Rossendale Borough Council planning department
- Two roundtables held with Power for People and north west community energy groups

3 Research Findings

The outcome of the interviews and desk-based research highlighted that the most significant barrier likely to impact the success of this project is the regulation of the energy markets and how difficult it is for community energy groups to supply their local customers.

This is significant for this project for two reasons:

1. Community ownership of the solar generation assets is a key part of the plan because it means that households that might not be able to invest in their own solar generation can get access to reduced cost energy (assuming the cost reductions can be passed on).
2. It will decrease the cost to the households to ensure the decarbonised option does not increase the energy costs for the households. Moving the households away from gas and onto electric has the risk of increasing the cost of energy because the unit price of electricity is currently much higher than gas.

3.1 Local Supply

Licence requirements for electricity supply and distribution are currently a significant obstacle for SLES. Under the 1989 Electricity Act, all energy transactions must go through a licensed energy supplier. However, the process of becoming a licenced supplier is very complex and expensive, reflecting the substantial responsibility and obligations associated with serving a vital public utility[1].

Because of the complexity of the hub and the depth of the compliance requirements under

[1] Energy Systems Catapult, Why Smart Local Energy Systems, February 2023

the licence and industry codes that give effect to it, the licence regime was varied in 2009 to introduce the "licence-lite" mechanism[2].

The Licence Exempt Supply (LES) regulations allow up to 2.5MW to be delivered to domestic customers without a licence, but only for suppliers who themselves generate the electricity they are supplying. This can be problematic in a SLES where generator and supplier are separate entities. It is also a problem where the community scheme owns more than 2.5MW.

In addition, the Contracts for Difference, which is the market mechanism created to support the development of renewable energy, is only available for generation of over 5MW and involves a complicated auction process.

Therefore, the only remaining route to market for small-scale generators is to negotiate a Power Purchase Agreement (PPA) with a supply company or a business. PPAs with a supply company can be challenging for small-scale suppliers because historically supply companies have not wanted to enter into contracts with small-scale suppliers. There are notable exceptions to this: Younity Energy, part of Octopus, actively engages and supports the community energy sector; Ovo Energy, which has recently become a member of Community Energy England and it is therefore assumed they have a new interest in this market; and Good Energy. The corporate PPA market is not very well developed in the UK.

Other drawbacks of the PPA market: the contracts are often short-term, which means they can make an investment model very risky; and until the recent price rises, the unit price was not always high enough to make a business model work. It also doesn't help local consumers. There is no obligation for the supplier to offer a unit price to households that are local to the generation of anywhere near the price the community energy group would offer, if they could.

Energy Local is a Community Interest Company that has developed an operational model to make the link between local generation and supply within the existing regulatory regime. It works for generation and customers connected to the same voltage and the same substation. Where these conditions exist, Energy Local uses the P441 *Creation of Complex Sites* on metering to meter local generation and demand. Then working with a willing supply company, which is responsible for the metering and billing, those customers who have signed up to the Energy Local club receive a reduced tariff for energy consumed when the local generation is producing. Energy Local works within existing regulations but has limitations, which means it is not applicable in all circumstances.

Power for People is a campaigning organisation which is campaigning to increase the growth of community energy. It has a campaign aimed specifically at the barriers preventing local supply, and started life with the development of the Local Electricity Bill which aimed to enshrine the right to local supply into legislation. Power for People has developed two policy instruments by which this right to local supply could be implemented, see table below, and has gained enough support in the House of Lords to have both proposals added to the Energy Security Bill as amendments during the House of Lords stage. The next step is for this bill to be passed back to the House of Commons, where they debate and vote on the amendments.

Table 2 – Power for People amendments to Energy Security Bill

[2] Nigel Cornwall and Power for People, Supporting community energy and local electricity markets, An alternative proposal, April 2022

Community Electricity Export Guarantee Scheme	Within six months of this Act coming into force, the Secretary of State must by regulations require licensed energy suppliers with more than 150,000 customers ("eligible licensed suppliers") to purchase electricity exports from sites including those operated by community groups that generate low carbon electricity with a capacity below 5MW
Community Electricity Supplier Services Scheme	Within six months of this Act coming into force, the Secretary of State must by regulations require licensed energy suppliers with more than 150,000 customers ("eligible licensed suppliers") to offer a Community Electricity Service agreement to any registered Community Energy site under section 1 of this Act for the purposes of allowing that site to sell electricity to local consumers.

Electricity North West co-hosted two roundtables with Power for People for north west community energy groups to consult them on the Power for People proposals and the wider issue of support for the sector. The output from the roundtable has been used as part of the evidence base for this report.

The proposal for this project is to use a peer-to-peer trading platform which will enable the households to access a reduced price for the community-generated power. This will work within the existing regime because the company operating the trading platform is applying for a supply licence[3].

In conclusion, despite the challenges, this project has found a potential solution that works within the existing regulations. However, this option is not yet proven and therefore would need to be tested during subsequent phases of the project.

3.2 Installation of ground source heat pump

3.2.1 Planning requirements

The planning team at Rossendale Borough Council have been consulted as part of the evidence gathering phase and their advice is that planning permission will be required for drilling boreholes. They recommend a pre-application to help with the process. Cost and length of time depends on the complexity of the application[4].

In addition to planning permission, permission will be needed from the owners of the road, either a private owner or the highways authority, which in this case is Lancashire County Council. Appendix 1 shows a map of the study area with road ownership marked[5]. The map shows some of the roads are

[3] At the time of writing Urban Chain are going through the application process to apply for a supply licence and operating under a white label with Rebel Energy.

[4] Pre Application Advice Charging Scheme and Post Application Service (1st July 2020) | Rossendale Borough Council

[5] http://mario.lancashire.gov.uk/.

adopted by Lancashire County Council and some are not; specifically, Shepherd Street and the westerly section of Albert Terrace are unadopted. In addition, the alleyway between the two is a leasehold, title number LA46341[6]. For both the leasehold and the unadopted roads, owners will need to be identified if their permission is required for any aspect of this scheme. The Planning Department recommend starting on the process to identify ownership as soon possible, as it can be complicated.

3.2.2 Heat as a service

Providing heat as a service is not regulated in the same way as the supply of electricity. There are the Heat Network (metering and billing) Regulations[7] which apply to operators of heat network, further details are below:

It is anticipated that heat as a service will become more regulated to protect consumers and the industry currently follows with Heat Network Code of practice published by CIBSE[8] which is assumed to be a precursor to future regulation.

Both of the regulations and Heat Code would need to be understood by the operators of the heat network.

3.2.2.1 Heat Network (metering and billing) Regulations

The purpose of the Heat Network (Metering and Billing) Regulations ('the Regulations'), which came into force initially in 2014, is to drive energy efficiency and reduce carbon emissions from heating. The energy efficiency is achieved through the installation of metering devices and billing based on consumption, which will decrease the use of energy and reduce consumer bills, and result in associated carbon emission savings. Metering also supports fair and transparent billing for customers on heat networks. In addition, the Regulations have led to the creation of the first database of UK heat networks.

Under the Regulations, the operators of heat networks must submit notifications for the heat networks they operate. They must, where required, install metering devices on those networks.

Operators whose networks are fitted with metering devices must meet ongoing obligations including using these devices to bill customers based on their consumption of heating, cooling or hot water.

The Regulations were subsequently amended in 2015, and most recently, in November 2020.

3.2.2.1 Heat Network Code of Practice

A second edition of the Code of Practice: *Heat networks* was published in January 2021 and it provides a very significant update to the first, 2015 version.

The first edition is considered to have been highly successful in establishing minimum standards to improve the quality of district heating projects from concept through to operation; it has also had a strong influence on the procurement of heat networks, and underpins much of the Heat Networks

[6] onlinelandregistry.org.uk
[7] Regulations: heat networks (metering and billing) - GOV.UK (www.gov.uk)
[8] Heat networks: Code of Practice for the UK (CP1) (2020) | CIBSE

Delivery Unit and Heat Networks Investment Project work done by the UK Department for Business, Energy and Industrial Strategy (BEIS).

Further information can be viewed at https://www.cibse.org/knowledge-research/knowledge-portal/heat-networks-code-of-practice-for-the-uk-cp1-2020.

3.3 Community owned roof top solar

Bruneside Community Energy was supported by a Next Generation Grant in 2020 to investigate the development of community owned energy for new housing. The project did not go beyond the feasibility stage because the developers could not commit to the development; however, they produced a report to share the research with other projects. They advise that there may be some issues with installing community owned solar on domestic properties. This advice comes with the caveats that it relates to new builds and is now three years old. From discussions with other community energy groups, Burneside Community Energy found that:

Commented [EP1]: It looks like some of the below may be quotes - shall we add a reference, if so?

- *There is still a reticence to provide a mortgage on properties with solar roof lease – informed by previous poor practice.*
- *The legal costs associated with roof leases on private homes made one Next Generation project uneconomic, as it was originally planned, and they have redesigned their project towards private ownership of the PV systems.*
- *Issues of insurance have been raised. We [Burneside Community Energy] have no evidence of the impact of insurance industry concerns on roof-leases on private homes – but have direct experience of the problems with the factory-mounted system.*

As a result, we [Burneside Community Energy] have been advised against community-owned PV panels on private roofs. There may be a role for the ESCo to own panels on the social housing, but we have also heard from the CE sector that some housing providers are having problems raising capital funding for homes with roof-leases.[9]

4 Conclusion

This report sets out the regulatory and policy issues the delivery of the Net Zero Terrace SIF project needs to consider. There are no insurmountable barriers, and this project has been devised to work within the existing regulatory regime. There are many requirements for installing a ground source heat pump which need careful consideration as the project develops. The largest barrier is the supply of community-generated electricity to local customers and those identified with third party solar panels on domestic properties. This project proposes to use the Urban Chain platform,, which works within the existing regulatory regime to use PPAs to supply energy to local customers, to achieve this aim. This is a relatively new approach, so the project will also need to keep it under review as this area of policy and regulation develops.

[9] Burneside Community Energy Ltd, Developing a Net Zero Carbon Community Energy Owned System for New Housing