Appendix B – Methodology

1.1. Overview

The State of the Sector community energy report is based on the collation of data from several sources and aims to form the most comprehensive overview of the community energy sector in England, Wales and Northern Ireland to date.

The report uses data obtained from a variety of sources, though primarily focused on data obtained through an in-depth online survey. It is important to note that the response rate to the online survey does not constitute a complete picture of the community energy sector, with further research techniques employed to bridge gaps in the data where possible.

This appendix will provide an overview of the research design, sampling and data gathering techniques, and means of analysis. All actions and assumptions made within the research are detailed below.

1.2. Research Design

Several key resources provided a basis for the research, including:

- Community Energy England's Members Directory
- Community Energy Wales' Members Directory
- 2015 Quantum Community Energy Survey[1]
- Scene Connect's Energy Archipelago Database[2]

Drawing on these resources, an initial database was designed to maximise the use of previously collected data and to build upon previous attempts to detail the state of the community energy sector.

The database provided a platform to build an online survey, which was made available from the 20th January 2017 – 28th February 2017.

1.3. Sample Definition

Two key variables were used to ensure that all respondents could be considered both 'community' and 'energy groups.'

Community organisations were defined as organisational bodies owned or managed (entirely or in part) by a number of 'community actors' to the benefit of a local area, people or mutual group. Due to the complexity and often grey area between local and community initiatives, only groups with community reinvestment and development listed as a focal point were included. Particular focus on registered community benefit societies (BenCom), Community Interest Companies (CIC) and Cooperatives helped to reduce sampling errors in this regard. All data was verified to ensure the community element of the project was definable and agreed upon before inclusion.

Due to a sectoral trend of utilising special purpose vehicles (SPV) to own or manage energy assets or initiatives, all groups were processed for duplication across a wide range of variables to ensure double counting of data did not occur.

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[1] Conducted on behalf of Community Energy England www.communityenergyengland.org/energy/community-energy-generating-more-than-community-energy

[2] Mapping interface accessible at: www.energyarchipelago.com

Where non-community groups were involved in partnership projects, the survey explicitly asked for ownership structures and percentages to ensure the community element of the projects in question were captured.

Energy groups were defined as being involved in one or more of the below activities:

- Energy generation (including electricity and heat);
- Energy supply;
- Energy storage;
- Energy efficiency (including advice, service provision and funding);
- Demand reduction (including advice, service provision and funding);
- And, electric vehicle or low carbon transport initiatives.

As with the community credentials of the respondent groups, all data was verified to ensure that they met the sample criteria as an 'energy group.'

As the report aims to define the 'State of the Sector,' data was collected solely for groups with active or imminently active projects (e.g. currently or soon to be generating electricity or providing energy efficiency improvements). There are a large number of groups aspiring to deploy low carbon technologies or initiatives but are in early stages, or currently outside the criteria set out above. This limited the research to identifying and surveying the 'active' part of the community energy sector, thus focusing on groups contributing to carbon reduction and providing local community benefits.

1.4. Data Collection

1.4.1. Foundation Data

Data collected prior to the study by the project partners was used as a basis for identifying and contacting community energy groups, rather than a source of secondary data. This is due to the outdated nature of the databases previously discussed.

A contact database was created using these resources and augmented through desk based research of community energy groups within the sampling criteria.

Identified organisations were then included in the survey, firstly as a candidate for online surveying and latterly for desk-based research.

1.4.2. Desktop Research

Desk-based research was utilised in both the identification of community energy organisations and the collection of secondary data for analysis.

Web searches of umbrella groups within the community energy sector (e.g. Energy4all, 10:10, Sharenergy) provided access to aggregated details on community energy groups. Further investigation of specific community energy news and organisational websites was also used to obtain basic details about community energy organisations, including contact details.

Secondary data was collected at a later stage of the research, to ensure that double counting groups who had responded to the online survey was not an issue. Data collection focused primarily on groups identified and verified as 'community energy' groups but whom had not responded to initial survey requests.

Due to limited coverage of community energy activities, as well as limited resources to update organisational websites, only active projects that were verified to be generating power or offering energy services were included. This was achieved through the selection of data sources within

specified timeframes (since Jan 2016), as well as groups with concrete evidence of their activity (i.e. evidence that organisations had completed and are still operating their project(s)). Social media was used to gather information on groups currently active, as well as to make contact with groups who had not previously responded.

Due to the complexity and lack of public access to much of the data required, data from desk based analysis was less comprehensive than online surveying, providing details primarily relating to organisational structures and technology specifications.

1.4.3. Surveying

Surveying was primarily achieved through the use of an online survey, designed within Google Forms[3]. The full survey document can be found in Appendix C.

The survey was designed in line with the initial database to provide an overview of the sector through several key themes:

- Organisational information
    - Including governance, human resources and legal structures
- Primary and Secondary Activities
    - Including electricity and heat generation, energy efficiency, demand management, and transport.
- Finance Raising
    - Including development funding and capital finance.
- Community Outcomes
    - Including financial, environmental and social benefits.
- Sectoral policy, barriers and future outlook.

The survey was conducted by 159 respondents (35% of all identified organisations). Data was augmented through desk-based research to include a further 81 organisations. Overall the research collected data on 240 community energy organisations active in the sector from an initial sample of ~400 groups.

It is worth noting that data was not collected for 160 organisations due to several reasons, including:

- Limited or no online presence [50];
- Failing to fit sample definitions (e.g. non-community or non-energy focused organisations) [30];
- Group inactivity [22];
- or, lack of active or imminently active projects [58].

Further surveying was conducted with local authorities throughout England to provide information on public sector engagement with community energy organisations and activities. In total 9 Local Authorities responded to the survey.

1.5. Analysis

The first stage within data analysis was to collate and clean the data, due to the openness of many questions asked within the survey and the variant data gathering techniques utilised.

[3] www.docs.google.com/forms

The database was separated in line with the survey structure to enable more efficient analyses, with data cleaned into string and numeric values. Where data was considered insufficient or incorrect (e.g. erroneous generation values), a non-response value was recorded.

Analysis focused on providing an accessible understanding of the community energy sector in England, Wales and Northern Ireland through aggregated statistical analysis, mapping and qualitative data presentation. Data was analysed using Tableau, allowing for the creation of infographics detailing the state of the community energy sector. Quantum GIS was used to conduct heat map and locational analyses.

Survey data from stalled or inactive projects was processed qualitatively, providing subsidiary evidence of the barriers to community energy development.

Local Authority data was processed qualitatively, forming a basis for in-depth case studies of community-public partnership and as supporting evidence through quotations and theme analyses of the local authority responses.

1.6. Ethics

All data collected within both the surveying and desk based research, including all contact details, were processed in anonymous forms and not shared outside the project team.

Privacy questions within the online survey allowed respondents to authorise the use of more in depth case studies within our reporting, as well as allowing their data to be displayed on Community Energy England's Community Energy Hub.

Where case studies were used, respondents were asked to review the document before the report was finalised.