Appendix A – References

Community Energy England (2016) Community Energy - State of the Sector *Accessible at:* www.communityenergyengland.org/pages/state-of-the-sector-report

Community Shares Unit (2017) Community Shares – Open Dataset, November 2017. *Accessible at:* www.communityshares.org.uk/open-data-dashboard

Energy Saving Trust (2017) Community and Locally Owned Renewable Energy in Scotland at June 2017 *Accessible at:* www.energysavingtrust.org.uk/scotland/communities/community-renewables/community-energy-reports

Local Energy Scotland (2017) CARES Progress and Impact Report 2017 *Accessible at:* www.localenergy.scot/what-is-local-energy/read-our-cares-progress-and-impact-report

Ofgem (2015) Typical Domestic Consumption Values for Gas and Electricity *Accessible at:* www.ofgem.gov.uk/publications-and-updates/typical-domestic-consumption-values-gas-and-electricity

Quantum Strategy & Technology (2015) Community Energy: Generating more than Renewable Energy *Accessible at:* www.communityenergyengland.org/energy/community-energy-generating-more-than-community-energy/

Regen (2018) Devon Community Energy Impact Report 2018 *Accessible at:* www.regensw.co.uk/devon-community-energy-impact-report-2018

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 during 2017.

The State of the Sector 2018 is the first annual review following Community Energy England's inaugural State of the Sector report ('First Report') released at the UK Community Energy Conference in June 2017.

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 necessary.

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:

- The first State of the Sector report and database;
- Community Energy England's Members Directory;
- Community Energy Wales' Members Directory;
- Scene Connect's Energy Archipelago Database[1].

Drawing on these resources, a revised database was drawn up to include organisations who participated in the last State of the Sector survey as well as newly identified or constituted community energy organisations.

The First Report's survey database provided a platform to build a revised online survey, which was made available from the 16th January 2018 – 23th February 2018.

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 the local area or people. 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] 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 new community energy groups, with identified groups approached for surveying.

A contact database was created using contacts from the first State of the Sector project, augmented through desk-based research of community energy groups within the sampling criteria.

All identified organisations were then included in the survey outreach stage, firstly as a candidate for online surveying and latently for desk-based research.

1.4.2. Desktop Research

The primary source of contact information was the first State of the Sector research project, which surveyed 144 community energy organisations and identified 222 organisations in total. These organisations were verified to be active and still relevant to the research before inclusion.

Web searches of umbrella groups within the community energy sector (e.g. Energy4all, Low Carbon Hub, Sharenergy) provided access to aggregated details on new 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 (Jan – Dec 2017), as well as groups with concrete evidence of their activity (i.e. evidence that organisations had completed and are still operating their project(s)).

Of the 78 organisations who were selected for desk-based research as part of the First Report, 38 responded to this year's survey. A number of those who did not respond were found to be no longer

active, incorporated into wider community energy entities (e.g. Low Carbon Hub) or uncontactable. Those no longer active or uncontactable were discounted from the survey and data collection database.

1.4.3.   Surveying

Surveying was primarily achieved through the use of an online survey, designed using the online platform SoGoSurvey[2]. 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
  - o   Including governance, human resources and legal structures
- ◆ Primary and Secondary Activities
  - o   Including electricity and heat generation, energy efficiency, demand management, and transport.
- ◆ Finance Raising
  - o   Including development funding and investment.
- ◆ Community Outcomes
  - o   Including financial, environmental and social benefits.
- ◆ Sectoral policy, barriers and future outlook

Deviating from last year's survey, 4 separate surveys were conducted a part of the State of the Sector 2018. This included a survey for repeating organisations, new organisations (i.e. did not participate in last year), organisations with stalled or inactive projects and a Welsh specific survey.

In total, 228 community energy organisations were included within the State of the Sector 2017. This included:

- ◆ 115 returning organisations
- ◆ 47 newly identified organisations
- ◆ 9 stalled projects
- ◆ 57 unsurveyed organisations

In total 171 organisations responded to the State of the Sector survey, with desktop research used to gather data on the further 57 identified organisations who did not respond.

Of the 144 organisations surveyed as part of the First Report, 27 did not respond to this year's survey due to reasons including a lack of contact, lack of organisational capacity to complete the survey or because groups had wound up their operations.

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.

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. The database was organised into sections including:

- - Organisational details (including focus, networks, human resources, etc)
- - Activities (including generation, energy efficiency, etc)
- - Stalled Projects

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[2] www.sogosurvey.com

- Funding & Finance
- Geography (including generation and organisation activity sites / areas)

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.

1.6.   Carbon Reduction Calculations

All carbon emission reductions have been calculated using UK Government emission conversion factors, published by the Department for Business Energy & Industrial Strategy (BEIS) on the 4th August 2017.

Renewable electricity technologies, including wind, solar photovoltaic and hydroelectric generation, are compared against a national grid carbon intensity of **0.35156 kg CO_2e per kWh.**

Total electrical energy generated = 202,071,925 kWh
Total carbon saving of 202,071,925 kWh x 0.35156 kg/CO_2e = **71,040,406 kg CO_2e**

Renewable heat technologies, including biomass, ground-source heat pumps and air source pumps were compared against a blended average carbon intensity of **0.2277 kg CO_2e per kWh** to include gas (0.215 kg CO_2e per kWh), oil (0.320 kg CO_2e per kWh), electric (0.148 kg CO_2e per kWh) heating sources.

Carbon emissions from renewable technologies included biomass (0.02089 kg CO_2e per kWh) and heat pumps (0.037 kg CO_2e per kWh).

Total generation = 3,173,154 kWh
Business as usual (BaU) carbon emissions = 3,173,154 kWh x 0.2277 kg/CO_2e= 722,527 kg CO_2e

Biomass energy generated = 2,715,667 kWh
Total carbon emissions from biomass = 2,715,667 kWh x 0.02089 kg CO_2e = 56,730 kg CO_2e

Heat pump energy generated = 457,486 kWh
Total carbon emissions from heat pumps = 457,486 kWh x 0.0370 kg CO_2e = 16,927 kg CO_2e

Total carbon reduction = Business as usual – renewable heat generation emissions (biomass + heat pump)

722,527 kg CO_2e – (56,730 kg CO_2e + 16,662 kg CO_2e) = **649,135 kg CO_2e**

Totals
Electricity generation carbon saving: **71,040 tonnes CO_2e**
Heat generation carbon saving: **649 tonnes CO_2e**

All calculations have been reported in tonnes of Carbon Dioxide Equivalent (tCO_2e) and rounded to the nearest thousand for electricity generation and nearest ten for heat generation.

1.7.   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.

All contact information has been securely stored within protected database files, with all outputs anonymised in line with 2018 GDPR principles. Data sharing has and will only be undertaken with the expressed authorisation of the respondent (included in the survey consent form) and will be anonymised and shared under a strict non-disclosure agreement to third parties.

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

Q1.   Appendix C - Example Survey

INSTRUCTIONS

Information you will need

The State of the Sector 2018 survey is designed to gather information about community energy organisations in England, Wales and Northern Ireland. This survey aims to capture information on:

- Your organisation;
- Geographical information (e.g. project sites);
- Technical project information (e.g. generation capacities);
- Project financing information (e.g. development and capital finance);
- Community benefit funding;
- Barriers to your organisation's work;
- Your organisation's future plans.

With this in mind, please ensure an appropriate individual from your organisation is completing this survey and that you have as much information to hand as possible.

Should you need to find further information or you have run out of time, you can save the survey and complete at a later date (see instructions below).

State of the Sector Survey 2018

Part A – Your Details

What is the name of your organisation?

Please provide a correspondence / head office address

Your name

Your email address

What is your role in your organisation?

Part B – Your Organisation

In what year was your organisation founded?

Please select the structure of your organisation

Community Benefit Society (BenCom) / Registered Society
Co-operative
Community Interest Company (CIC)
Charity
Other:

Please provide your company's registration number
(i.e. Companies House, FCA or Charity Commission)

How many full time equivalent (FTE) staff does your organisation employ?
(e.g. 1 full time post and 1 part-time post working two days per week would total 1.4 FTE)

How many volunteers do you have currently?
Mark only one oval

<10	11-19	20-29	30-49	50-99	>100

Please state the number of members in your organisation

Please provide your organisation's website URL

Please provide your organisation's Twitter page

What is your organisation's annual turnover over the last 12 months?

Is your organisation member or affiliated to a regional hub or umbrella body? If yes, please provide further details.

Please provide any information on subsidiary organisations, stating the year they were incorporated and their function

Part C1 – Primary Activity

Please select the primary activity of your organisation

Electricity Generation	Go to Part C1a
Heat Generation	Go to Part C1b
Transport	Go to Part C1c
Energy Storage	Go to Part C1d
Energy Efficiency / Demand Management	Go to Part C1e

Please provide a brief description of your organisation's primary activity *(No more than 100 words)*

What is the geographical location of your primary activity by region of England, Wales or Northern Ireland?

Part C1a – Electricity Generation

Which of the following electricity generation technologies does your organisation currently operate?

Solar PV
Wind
Hydro
Other:

Is / are your site(s) operational?

Yes
No
Other:

If so, in which year did your organisation first produce electricity?

> *Please state N/A if you have not commenced production*

What is the total capacity (kW) of your organisation's electricity generation project(s)
> *Please provide information as of December 2017*

How much energy have you produced in the last 12 months? (kWh)

Please provide site details for all generating sites.
> *(i.e. Site 1 - technology, post code, generating capacity (kW))*

Do you intend to submit a planning application in the next 12 months?

Yes
No
Other:

Please provide any extra details about your project (*100 words*)

C1b - Heat Generation

Please select the relevant heat generation technology

Biomass Boiler
Biomass District Heat Network
Anaerobic Digestion
Heat Pump
Other:

Is / are your site(s) operational?

Yes
No
Other:

If so, in which year did your organisation first produce heat?
Please state N/A if you have not commenced production

What is the total capacity (kW) of your organisation's heat generation project(s)
Please provide information as of December 2016

How much energy have you produced in the last 12 months? (kWh)

Please provide site details for all generating sites
(i.e. Site 1 - technology, post code, generating capacity (kW))

Please provide any extra details of your project (*100 words*)

Part C1c – Transport

Please select the type of transport activities

Electric vehicles
Hydrogen vehicles
Other:

Please provide further details on your transport activities (*100 words*)

Part C1d – Energy Storage

Please select the type of energy storage

Hydrogen Storage
Electrical Storage
Other:

Please provide information that you think may be useful for CEE/CEW about your projects
(e.g. size of storage, type of battery, etc.)

Part C1e – Energy Efficiency / Demand Management

What types of energy efficiency services do you provide?

Energy audits
Energy cafes
Smart meters
Energy switching
Insulation

Energy efficient lighting
Advice on energy efficient appliances
Other:

Please detail the nature of the energy efficiency measures and services provided by your organisation (*100 words*)

How many members of your community have been provided with services or physical works to date?

What type of support for energy efficiency measures does your organisation offer?

Loans
Grants
Advice
None of the above
Other:

Do you measure the value of the energy efficiency works provided by your organisation? If so, how do you measure this and what value have you placed on your activity?
(e.g. Improved building energy ratings, reduced energy costs, reduction in energy bills)

Part C2 – Primary Activity 2

What ownership models do you use in connection with your primary area of activity?

Community Owned
Community-Commercial Partnership
Community-Public Partnership (Inc. partnerships with local authority)
Unknown
Other:

If you have selected a partnership option, please detail the nature of the partnership.
(e.g. 40% community: 60% commercial)

Have you used any of the following Development Funding?

Community and Renewable Energy Scheme (CARES)
Rural Community Energy Fund (RCEF)
Urban Community Energy Fund (UCEF)
Ynni'r fro
Ynni Lleol
Other:

Please state the values of each of the development funding types identified above
(e.g. CARES £10,000; UCEF £30,000)

What is the total value of investment in the primary activity to date? (£)

Please identify which investment type(s) have been utilised for the primary area of activity

Self-Funding
Community Shares
Bonds / Debentures
Loans
Grants
Other:

Please detail the value of any self-funding utilised
(e.g. £50,000)

Please detail the value of any community shares utilised
   (e.g. £100,000)

Please detail the value and term / rate of any bonds / debentures utilised
   (e.g. £100,000 at 4% over 8 years)

Please detail the value, source and term / rate of any loans utilised
   (£100,000 Cooperative Bank at 5% over 15 years)

Please detail the values and sources of any grants utilised
   (e.g. £100,000 BIG Lottery)

Which support tariffs does your project use?

Check all that apply.
Feed-in Tariff (FiT)
Renewable Obligation Certificates (ROC)
Renewable Heat Incentive (RHI)
None
Other:

Was your organisation able to offer any tax reliefs when they were available?
   (e.g. Enterprise investment Scheme (EIS), Seed Enterprise Investment Scheme (SEIS), Social Investment Tax relief (SITR), etc.)

Part D1 – Secondary Activity

   Repeat Part C1 - Primary Activity

Part D2 - Secondary Activity 2

   Repeat Part C2 – Primary Activity 2

Part E – Community Benefit

If your organisation has a community benefit fund, what is the approximate value of it over the last 12 months?

How many years are left in your community benefit fund?

Which of the following wider benefits are provided through your organisation's activities?

Grants
Loans
Donations
Reduced electricity price
Job creation
Community asset purchase or development
Initiatives to improve the local environment
Education initiatives
Reduction of fuel poverty
Other

Please give more details and any links to more information (*100 words*)

Part F – Stalled Projects

Have any of your projects been put on hold or stalled?

What stage did your project stall at?

(e.g. pre-feasibility, planning failure / withdrawn, financing)

Please choose from the following list which areas explain what caused the stall?

No viable business model due to reduction in FITs
Finance – Capital
Skill base not sufficient
Engineering issues
Local opposition
National oppositions
Planning changes
Attracting enough volunteers
Keeping existing volunteers motivated
Changes to Business Rates
Access to suitable site (land or building)
Other

Please describe in more detail the problems which stalled or has held up your activity (*100 words)*

Part G – Future Plans

Are you planning on undertaking new activity in 2018?

Yes
No

Please add more details about your planned activities for the next 12 months (*100 words)*
    (e.g. feasibility work for new projects, solar PV, designing new outreach programmes etc)

What three types of support or policy would help your organisation to realise its aims? (Multiple choice)

Please add any further information relating to support or policies which you would like to see introduced

You are Finished!

Thank you for filling out this State of the Sector 2018 survey, your time and effort are extremely valued by CEE, our project partners and the wider community energy sector. The information you have provided in this survey will help us to not just understand the community energy sector in the UK but to build data and narratives which will support CEE's work and advocacy within the sector.

Once we have completed surveying, our team will be working to collate, analyse and present the information provided by yourself and other community energy organisations.

A copy of the report can be made available to you via email, which you can opt-in to receiving by selecting yes to the relevant question below. The report can be expected in early Summer 2018.

Part H – Consents

Are you happy for CEE / CEW to contact you?

Yes
No

Are you happy for your anonymised data to be shared with other community energy research projects? *If you are unsure about what this entails, please select 'unsure' and one of the project team will provide further details.*

Yes
No

Unsure

Would you like to be sent an electronic copy of the final report?

Yes
No

Would you be happy for CEE / CEW to upload information on name, location, sites, capacity and the brief description to the Community Energy Hub?
(This will not include any financial information. For more info, see hub.communityenergyengland.org)

Yes
No

Is there any other additional information that you think would be useful for us to know about? (*100 words*)

Appendix D – Surveyed Organisation Lists

56 organisations were included in the state of the sector study through desk-based data collection. These organisations could not consent to being identified in this appendix and have been omitted. A further 31 surveyed organisations have been removed as they did not consent to being listed in this section of the report.

England	
Amber & Derwent Valley Community Energy	Ashton Hayes Community Energy C.I.C.
Basingstoke Energy Services Co-operative	Bath & West Community Energy
Baywind Energy Co-operative	Belchford Community Solar Co-operative
Bishop's Castle Community Energy Co-operative	Brampton and Beyond Energy
Brent Pure Energy	Brighton & Hove Energy Services Co-operative
Brighton Energy Co-operative	Brightwell cum Sotwell Environment Group
Bristol Energy Co-operative	Burneside Community Energy
Calderdale Community Energy	Chase Community Solar Limited
Chester Community Energy	Community Energy Birmingham
Community Energy Cumbria	Community Energy Warwickshire
Community Power Cornwall	Community Renewable Energy Wandsworth
Cuckmere Community Solar	Derrington Way Ahead
Dorking Solar Group	Dorset Community Energy
Ealing Transition	Easton Energy Group
Eastrington Energy Project	en10ergy
Energise Sussex Coast	Energy Alton
Energy Efficient Widcombe	Energy Prospects
Esk Energy	ESVIPS
Exeter Community Energy	Fal Energy Partnership
Ferry Farm Community Solar	Forest Row Energy Co-operative
Four Winds Energy Co-operative	Friends of Millhouses Park
Future Homes Alliance	Gamlingay Community Turbine
Gawcott Fields Community Solar Project	Gloucestershire Community Energy Co-operative
Grand Union Community Energy	Greater Manchester Community Renewables
Green Community Buildings	Green Energy Nayland
Green Fox Community Energy Co-operative	GreenTEA
Hampshire Renewable Energy Co-operative	Harbury Energy Initiative
IFEES-EcoIslam (Green Mosques)	John Cleveland College Community Woodheat Co-operative
Leominster Sunrise Co-operative	Light Foot Enterprises
Liverpool Community Renewables	Low Carbon Gordano
MaidEnergy	Malvern Community Energy Co-operative
Meadow Blue Community Energy	Morecambe Bay Community Renewables
Meadows Ozone Energy Services (MOZES)	Muswell Hill Sustainability Group
Neen Sollars Community Hydropower Co-operative	Norwich Community Solar
Orchard Community Energy	OVESCO
Pennine Community Power	Pomona Solar Co-operative
Power Up North London	Reading Community Energy Society

Repower Balcombe	Repowering London
Rose Hill and Iffley Low Carbon	Saddleworth Community Hydro
Settle Hydro	Sheffield Renewables
Shrewsbury Hydro CIC	Solar SOAS
South Brent Community Energy Society	South Dartmoor Community Energy
South East London Community Energy	South Hill Association for Renewable Energy
Southern Staffordshire Community Energy	Southill Community Energy
Sport in Desford	Springbok Sustainable Wood Heat Co-operative
St John's Sunshine	Stamford Community Energy
Stockport Hydro	Sustainable Energy 24
The C.H.E.E.S.E. Project	The Schools' Energy Co-operative
The Small Wind Co-operative	Torrs Hydro
Tring Community Energy(TriCE)	Two Rivers Community Energy Society
Two Valleys Community Energy	Verdant Community Energy CIC
Wadebridge Renewable Energy Network	Wedmore Community Power Co-operative
Wendron Cricket club	West Cornwall Community Renewables
West Solent Solar	Westmill Solar Co-operative
Westmill Sustainable Energy Trust	Westmill Wind Farm
Wey Valley Solar Schools Energy Co-operative	Whalley Community Hydro
Wiltshire Wildlife Community Energy	Woolhope Woodheat
Yealm Community Energy	York Community Energy
Wales	
Awel Co-operative	Bro Dyfi Community Renewables
Cardiff Community Energy	Carmarthenshire Energy
Crucorney Environmental Group	Egni - Wales Solar PV Co-operative
Gower Power Co-operative	Gwent Energy CIC
Llangattock Green Valleys	Swansea Community Energy
The Green Valleys CIC	Transition Monmouth
Ynni Anafon Energy	Ynni Cymunedol Talybolion
Ynni Padarn Peris	Ynni'r Ocar
Northern Ireland	
Drumlin Wind Energy Co-operative	
Umbrella Organisations	
Carbon Co-operative	Communities for Renewables
Community Energy South	Energy4All
Generation Community	Low Carbon Hub
Mongoose Energy	