



MONITORING AND EVALUATING COMMUNITY ENERGY

Reviewing existing tools and outlining a pilot
standardised tool

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Executive Summary

Community Energy provides environmental, social and financial benefits to communities. However, there is currently no tool that enables groups to accurately and comprehensively monitor and evaluate these benefits. Having a standardised monitoring and evaluation (M&E) process and methodology allows groups to have a greater impact in lobbying government, securing finance, promoting their activities in their own communities, tracking their internal development and planning for the future.

No comprehensive standardised M&E tool exists for community energy groups. The most comprehensive review of existing tools for community energy was the Monitoring and Evaluation for Sustainable Communities (MESC) project and several lessons important in the design of any community energy M&E can be drawn therefrom:

- Groups identified M&E as very important to their goals but find it difficult to devote appropriate resources and time to it.
- Groups require training and facilitation to ensure that any M&E tool developed meets their needs and can be easily utilised by them.
- Tools designed to meet the M&E needs of funders often do not meet the M&E needs of the community groups themselves.
- The main gap in existing in M&E tools for community groups are tools designed to capture the social impact of projects.

Based on a literature review and semi-structured interviews with funders, researchers and community energy groups, this report analysed gaps in the monitoring and evaluation (M&E) tools that currently exist for community energy groups and provides an outline of a pilot M&E tool that the community energy movement could begin to use.

Interviews were conducted with 10 funders and researchers that are representative of the much-needed support provided to the community energy movement. Researchers and funders often require M&E information from community groups so any M&E tool should take their needs into account to ensure that there is no M&E duplication.

The interviews with the funders and researchers identified the need for closer collaboration on existing M&E tools, that the main gap that exists in M&E tools currently is capturing the social impact of projects and; any M&E tool developed needs to be easy to use, limited to key metrics, collect quantitative and qualitative information, and be standardised across the movement.

Interviews were conducted with 9 community energy groups that were representative of the diversity of the movement in terms of technology, location and size of group. These interviews were designed to develop M&E metrics for outcomes. The outcomes identified were as follows:

1. Avoidance of CO₂ Emissions
2. Protecting and Increasing Biodiversity
3. Financial Benefits for the Local Community
4. Return of Value to the Local Economy
5. Creation of a Community Fund
6. Increase in Skills, Knowledge, and Confidence
7. Community Cohesion
8. Supporting the Formation and Growth of New Community Energy Groups
9. Awareness Raising and Behaviour Change
10. Control and Empowerment

This report suggests a range of M&E metrics that could be used to measure progress towards these goals and these are detailed in the Outcome Framework. The principal M&E methods that would enable collection of data about these outcomes would be a series of questions to be completed by group coordinators and involve tailored surveys for each area, e.g. an annual species survey of biodiverse sites, a survey for directors, volunteers, interns and staff to measure their learning, and an annual survey for members. This report forms stage 1 of a 3-stage process, culminating in the design and use of a standardised M&E tool for community energy groups.

Definitions

Beneficiaries: those that benefit from the work of the group.

Funders: organisations or platforms which provide community energy groups with finance, though excluding shareholders.

Impacts: long term changes in people's lives or the environment.

Indicators: the signs, clues, or markers of progress towards or achievement of outcomes.

Model of Change: describes how activities contribute to outcomes and the long-term impact the organisation is working toward.

Outcomes: precise statements describing the immediate benefits or changes that a group can expect because of their work. A good outcome is SMART (Specific, Measurable, Achievable, Reliable, and Time Bound).

Outputs: the methods and activities a group carries out to achieve its outcomes or impact.

Researchers: those who work with community energy policy and require data for promotional, lobbying and other purposes.

Acknowledgements

Pure Leapfrog and SELCE would like to thank all the groups and people who contributed to this report, especially those that very generously gave up their time for in-depth interviews with the authors including:

- Big Society Capital
- Brighton Energy Community
- Charity Bank
- Community Energy England
- Community Energy South
- Community Renewable Energy Wandsworth
- Devon County Council
- Green Fox Community Energy
- Greater Manchester Community Renewables
- Plymouth Energy Community
- Power to Change
- Power Up North London
- Regen
- Repowering London
- Sheffield Renewables
- Social and Sustainable Capital
- Suffolk County Council
- Triodos Bank
- Whitby Esk Energy

The authors would also like to acknowledge the support of Community Energy England in producing this report and especially their help identifying a representative sample of community energy groups to conduct interviews with.

Many thanks to Clare Silcock and Helen Jackson of SELCE and Kersty Hobson of Cardiff University who provided valuable feedback on the report.

Pure Leapfrog would like to especially acknowledge the generous funding contributed by Big Society Capital, without which this report would not have been possible.



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Introduction

Community Energy provides environmental, social and financial benefits to communities. However, there is currently no tool that enables groups to accurately and comprehensively monitor, evaluate and report these benefits. This report analyses what gaps currently exist in monitoring and evaluation (M&E) tools for community energy groups and provides an outline of a pilot M&E tool that the movement could begin to use.

Having a standardised M&E process and methodology allows groups to have a greater impact as it enables separate groups to aggregate individual impacts into a collective movement. This can then be used for lobbying, development and communication purposes. As one interviewee identified, the ability to answer the question, “why does it matter that there is another community energy solar farm?” is currently lacking a full and complete answer. Being able to answer this question allows groups to more effectively lobby government, secure finance and promote their activities in their own communities.

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M&E tools can come in a wide range of designs and cover a wide range of subjects. Similarly, community energy groups engage in a diverse range of activities including renewable energy generation, energy service provision (such as LED projects), retrofit, fuel poverty alleviation, energy education, and collective purchasing. This project focuses exclusively on activities associated with ownership of renewable energy or energy efficiency assets. In other words, this report identifies outcomes and outcome indicators that are the results of projects that involve ownership of renewable energy or energy efficiency assets.

The report draws on desk research and interviews. The desk research first attempts to comprehensively assess what M&E tools already exist that community energy groups can use (part 1). Then this report looks closely at what M&E data is asked of community groups by funders and researchers (part 2). Any gaps in community energy M&E identified by funders and researchers are highlighted.

The main section of this report analyses the in-depth interviews that are carried out with community groups to identify any gaps from the perspective of the groups themselves (part 3). Having done that, the final section of this report includes a pilot data collection tool that draws in all the analysis identified throughout this report (part 4).

Part 1: Literature Review

This section assesses some of the more prominent M&E tools that currently exist in the UK and whether these tools meet the needs of the community energy movement. The literature review focuses on the Monitoring and Evaluation of Sustainable Communities project and resources developed by the Energy Saving Trust. Whilst there are tools identified here, there is no comprehensive M&E tool available.

Monitoring and Evaluation for Sustainable Communities (MESC)¹

The MESC project was the most comprehensive survey of existing community energy M&E tools. It was a 12-month UK Economic and Social Research Council funded Knowledge Exchange project headed by 3 Oxford University researchers. It ran from 2013-14 in collaboration with the Transition Network, Low Carbon Community Network, and a selection of 20 UK Transition and Low Carbon Community Groups and Partnership Groups (LCCGP). The aim of the project was to explore what happens when groups are given the space, resources and tools to develop M&E data.

Part of the MESC project was a 6-month pilot project which was funded through the Higher Education Innovation Funding at Oxford University which produced a step-by-step guide to M&E.² This guide provides a participatory method for LCCGPs to design their own M&E, tailored to their needs and those of relevant stakeholders. It includes short planning exercises to help clarify aims, objectives, activities and the underpinning assumptions being made about how social change happens. The project also identified common indicators (with a focus on energy and food projects). These indicators were assessed against existing M&E tools relevant to LCCGPs and where the tools were unsuitable, they were either re-developed or new ones created. Approximately half the groups involved in this project were not asset owning community energy groups. Each group participating in the project trialled at least 2 M&E tools over a 3-month period and the purpose of these trials was to explore what happens when the participating groups started to work with particular forms of M&E. At the end of the project groups provided feedback via semi-structured interviews.

The outcome of the project was the highlighting of the positive effects that flexible and relevant M&E has on groups and networks. It also identified the need for on-going support and facilitation for those undertaking M&E. The project identified the possibility that M&E requests from funders or other central bodies could cause groups to become over-burdened and the consequential result of groups losing enthusiasm for their activities.

Following this, some useful tools that community energy groups could use to develop their own M&E process were developed. However, no standardised M&E tool specifically for asset-owning community groups was created (this was after all not an aim of the project). Indeed, groups were to modify the tools to suit themselves as necessary and group feedback resulted in the modifying of the existing tools. One of the strongest outcomes from the project was the identification by community groups of the importance of robust M&E practices. A conclusion from one of the academic papers written from the learning of the project was that “M&E could be one way for groups to “scale-up” their impact without losing their grounding in place and community, [though] issues of capacity, resources and

¹ See: Kersty Hobson, Ruth Mayne and Jo Hamilton (2016) Monitoring and evaluating eco-localisation: Lessons from UK low carbon community groups, *Environment and Planning A*, 48(7): 1393-1410; Kersty Hobson, Jo Hamilton and Ruth Mayne, (2016) Monitoring and evaluation in UK low-carbon community groups: benefits, barriers and the politics of the local, *Local Environment* 21(1), 124-136.
<https://mescproject.wordpress.com/resources/> (Kersty Hobson is happy to provide a copy of any of her papers via email: hobsonk@cardiff.ac.uk)

² Ruth Mayne, Jo Hamilton and Kersty Hobson (2013), ‘A step-by-step guide to monitoring and evaluation’

utility remain paramount.”³ Further, as is noted in the MESC final report, the dearth of sound M&E evidence is partial due to the time and resources groups need to undertake M&E. The range of M&E tools available do not always produce directly comparable results and have measurement and attribution limits, especially around social impacts such as long-term behaviour and improved community well-being.

The development of “off the peg” data collection templates for specific events would allow groups to learn from each other and to aggregate data to assess impacts and barriers to community energy action at a regional or national scale.

One of the possible ways forward identified by the participants in the M&E workshops was the development of “off the peg” data collection templates for specific events, which would allow groups to learn from each other and to aggregate data to assess impacts and barriers to community energy action at a regional or national scale. The development of “off the peg” templates is a gap that this project attempts to plug.

Energy Saving Trust

The Energy Saving Trust (EST) provides M&E information via the ‘Community Energy Hub’ website, hosted by Community Energy England.⁴ This covers what M&E is, the benefits of M&E and there is an M&E section in the Energy Efficiency Toolkit (produced by EST) which can be downloaded. Some of this content is relevant for asset-owning groups as it allows asset-owning groups to start to understand and develop questions and processes for their own M&E system. However, whilst it has an in-depth methodology for how a group may go about building their own system of M&E, it is more of a guide than an M&E tool that can be picked up immediately to collect standardised data.

EST also hosts their own ‘how-to’ guide for M&E of community projects.⁵ This is a useful starting point for groups who are looking to understand what M&E is and what the benefits are. However, as before, it is a guide rather than a tool that groups can pick up and immediately use. Further, it is aimed at a broad spectrum of community entities, and as such not tailored specifically to community energy groups. It provides a list of questions to get groups thinking about what M&E they would like or need to do and how to get organised to do it.

³ Kersty Hobson, Ruth Mayne and Jo Hamilton, Monitoring and evaluating eco-localisation: Lessons from UK low carbon community groups, Environment and Planning A, 2016; Kersty Hobson, Jo Hamilton and Ruth Mayne, Monitoring and evaluation in UK low-carbon community groups: benefits, barriers and the politics of the local, Local Environment, 30 June 2014. <https://mescproject.wordpress.com/resources/> at 1.

⁴ <http://hub.communityenergyengland.org/resources/Monitoring-and-evaluation/>

⁵ <http://tools.energysavingtrust.org.uk/Communities/Support-and-guidance/How-to-guides/How-to-monitor-and-evaluate-your-community-project>

Tools exist for groups who wish to monitor specific metrics. For example, both EST⁶ and Bioregional⁷ have a Community Carbon Footprint. The EST calculator is mentioned later in this report and both tools provide a good metric for groups looking to monitor their community carbon footprint.

Conclusion

There are existing tools which focus on specific outcomes and there are guides for how groups might go about building their own process and methodology for M&E. However, no comprehensive, standardised, dedicated M&E tool exists for community energy groups. The most comprehensive review of existing tools for community energy was the MESC project and several lessons can be taken from that which are incorporated into this project:

- Groups identified M&E as very important to their goals but find it difficult to devote the appropriate resources and time to it.
- As such, groups require training and facilitation to ensure that any M&E tool developed meets their needs and can be easily utilised by them.
- Tools designed to meet the M&E needs of funders often do not meet the M&E needs of the community groups themselves.
- The main gap in existing M&E tools for community groups are tools designed to capture the social impact of projects.

⁶ <http://tools.energysavingtrust.org.uk/Communities/Support-and-guidance/How-to-guides/How-to-get-the-most-out-of-community-carbon-footprinting>

⁷ <http://calculator.bioregional.com/>

Part 2: Review of Funder and Researcher M&E

Community energy groups often receive requests for information from funders and researchers. As identified in the MESC project, any standardised movement-wide M&E tool must consider the needs of funders and researchers, if survey fatigue is to be avoided. This section assesses what information funders and researchers are currently looking for and also whether there are any gaps in what funders and researchers would like to receive from community groups compared to what they actually receive. This part of the report has been compiled from a review of questionnaires and forms that funders and researchers use with community groups and semi-structured interviews with researchers and funders.

Methodology

7 interviews were conducted with funders and 3 interviews were conducted with researchers. The interviewees from both groups were selected as being a representative sample of community energy funders and researchers. Each interview included a balance of open and closed questions.

Already Existing M&E

The types of information currently collected on an on-going basis by funders and researchers differed between the different organisations but generally included:

- Financial performance (the exact information requested differed per funder but was most often described as ensuring that “the money is going where it is supposed to go”)
- Performance of energy assets (yield and comparisons with forecast including explanations for any divergence and the associated carbon reductions)
- Governance information (purposes of the organisation and project(s), organisational structure, and future plans of the organisation)

Currently the requested financial performance metrics differ between funders but information on accounts, budget, debt, Feed-in-Tariff (or other) payments and how much money is produced as a surplus are consistently requested. But the funders generally identified that no follow up on social impact was requested as long as the payments were being made on schedule. Indeed, it was identified that while the social aims were often asked for at the start of the project, whether these aims were ever realised was generally not followed up. This could be because funders stated that they only wanted information that was quick to review and therefore allowed easy identification of any potential risks to returns.

It was generally felt that groups had the capacity to respond to these requests and could provide all the necessary information and data. However, some funders did identify that this somewhat depended on the stage of the community group, groups that were small or just starting out did not necessarily have the experience of providing formalised accounts. In such situations, the funders assisted the groups with ‘professionalising’ their financial reporting.

More Collaboration Required

Interestingly, some interviewees suggested some community groups were already collecting high-quality M&E on specific topics but other community groups were not collecting the same information. This suggests that, at a minimum, the movement’s M&E could be improved by the sharing of methodologies and approaches in current M&E. There were also areas identified where interviewees felt that though information was being collected it was not done in a standardised systematic way (e.g. carbon reductions). This lack of information and methodology sharing links to the fact that interviewees identified that coordination and collaboration across the movement could be improved as part of a standardised M&E process. Interviewees wanted to be better able to understand exactly

what projects were happening in their localities (often important for interacting with local authorities). Other interviewees pointed out that allowing groups to share standardised metrics could assist groups in designing projects. Generally, there was an agreement that there needed to be further information on the ability to scale up projects across the movement.

Gaps Identified in Current M&E

The gaps identified in the current M&E processes concerned the social impacts of projects and covered the following topics:

- Is/what money is kept in the locality
- Jobs created (especially opportunities for local residents)
- Volunteer hours
- Demographic of the people involved in the project
- Level of wider community support
- Other/wider community benefit

Methodology and design of M&E

Community energy groups have a set of specific characteristics that must be considered in designing any M&E tool. Many of these were identified in the MESC project (detailed in the literature review section) and these were often echoed in the funder and researcher interviews.

Many interviewees commented on the lack of group capacity. With many community energy groups relying on volunteers, it can be difficult for groups to find the time for M&E when there are much more pressing day-to-day concerns. For this reason, some interviewees identified that they often needed intensive contact with groups to ensure that they received the appropriate M&E information e.g. via face-to-face meetings. Another interviewee identified that while groups were generally positive about responding to M&E requests, response rates were substantially increased with semi-structured interviews, rather than online requests. For this reason, interviewees generally thought that there should be a limited set of M&E metrics to ensure groups are not overburdened.

Another key theme identified was the need for standardisation of data and information so that comparisons across groups can easily be made. Interviewees identified that the quality of M&E carried out by groups varies a lot which reduces the usefulness of that M&E information. Part of this can be because of different requirements of funders – some funders require a ‘heavier’ M&E than others (e.g. EU projects are notoriously M&E heavy). Another issue is that with groups at different stages of development, a standardised M&E tool needs to be able to facilitate all groups using it.

Funders identified the need for both quantitative and qualitative information collection. Groups need to be able to give all the data but also be able to tell the story behind their group and project(s) as it is often this story that really sets community energy apart from commercial energy projects

The final point on methodology that interviewees identified was the need for both quantitative and qualitative information collection. Groups need to be able to give all the data but also be able to tell

the story behind their group and project(s) as it is often this story that really sets community energy apart from commercial energy projects.

Conclusion

In conclusion, the interviews with the funders and researchers have identified the need for closer collaboration on existing M&E tools, that the main gap that exists in M&E tools currently is the capturing of the social impact of projects and, any M&E tool developed needs to be easy to use, limited to key metrics, collect quantitative and qualitative information, and be standardised across the community energy movement.

Part 3: Review of Community Group M&E

Nine in-depth interviews, loosely structured around a discussion guide were conducted with community energy group representatives. Each interview was composed of a series of open and probing questions that were designed to illicit:

- the expressed aims or mission of the group;
- the beneficiaries;
- the outputs;
- the outcomes;
- ways of measuring these outcomes.

The authors worked with Community Energy England (the representative body for the community energy movement in England) to identify a list of representative asset-owning community energy groups from small volunteer-run groups to larger professionalised-groups, across a range of technologies. Three of the groups are based in the North of England, one in the Midlands and the remainder in London or the South. One of the principal researchers is herself a practitioner (the CEO of South East London Community Energy) and all findings from this set of interviews were filtered through the lens of her own experience, so that the research actually reflects the views of 10 community groups.

The research identified 10 key outcome themes that community groups identified as important which are explored in this report. For each there is a discussion of the outcome and then a table of indicators (where appropriate).

1. Avoidance of CO₂ Emissions

All respondents cited combatting climate change as the principal impact and avoidance of greenhouse gas emissions as the primary outcome of their work. This is done through the following means:

- *The purchase, installation, ownership, and operation of renewable energy or energy saving technology*

All but one of the groups interviewed own and operate renewable energy installations. Seven of them own and operate roof-mounted solar PV. One of these groups also owns a ground-mounted solar PV array. Another group operates a hydro plant and another a biomass heating plant. One group replaces older light bulbs with energy efficient LEDs. One group stated that they specifically target sites that have neither the capital nor the knowledge to be able to install solar PV though this is probably implicit and common practice amongst all the groups interviewed.

- *Creation of a Community Fund to Combat Climate*

All groups interviewed have, or intend to, pay any financial surplus from their community renewables or energy efficiency projects into a Community Fund. Most groups are in the early years of their projects, where financial surpluses are small, so this fund is currently small to non-existent. Some groups have decided it will be used to fund projects aiming to reduce carbon emissions.

- *Local Sourcing of Woodfuel*

Green Fox Community Energy replaced an oil-fired boiler with a community financed biomass plant. In addition, they have sourced the biomass locally, to avoid carbon emissions from the transport of fuel.

Outputs	Measurement
Renewable energy has been installed	Capacity of renewable energy installation in kWp
Renewable energy generated	KWhs of energy produced
LED light bulbs installed	The number and wattage of light bulbs installed
Renewable energy or LED Light bulbs that are <i>additional</i>	A survey to owners of sites (facilities managers or land owners) whereby they are asked whether they would have installed renewable energy in the absence of the community energy group
Funds raised and spent on projects that aim to reduce CO ₂ emissions	Fund value in £s
Outcomes	Indicators
Avoidance of CO ₂ emissions through the installation and operation of renewable energy installations	KWhs produced by the renewable energy installation multiplied by the carbon factor of the grid or oil being replaced (e.g. each kWh of grid electricity currently produces 0.054 tonnes of CO ₂)
Avoidance of CO ₂ emissions by means of installation of energy efficient light bulbs	EST CO ₂ and Cost Saving Calculator can be used to calculate carbon reduction due to a certain kWh reduction in demand
Local sourcing of woodfuel for biomass	Average CO ₂ associated with the transport of oil to the UK and CO ₂ associated with the transport of food fuel to the site

2. Protecting and Increasing Biodiversity

Some groups aim to increase biodiversity as part of a renewable energy project. As an integral part of Plymouth Energy Community's ground mounted solar array, 18 acres of wildflower meadows were planted in between and around the solar panels. Green Fox Community Energy plan to use woodchip obtained by thinning the nearby national forest as a local and sustainable source of fuel for their biomass plant. Thinning a forest promotes biodiversity and habitat creation by increasing light and reducing the thicket. On the other hand, a group who manage the woodland surrounding their hydro plant do not feel that promotion of biodiversity constitutes an outcome for them; it is considered a peripheral activity.

Outputs	Measurement
Wildflower meadows planted	Acreage of new wildflower meadow planted
Use of woodfuel from local forest thinning	Tonnage of woodfuel from local forest thinning
Outcomes	Indicators
Creation of biodiverse habitat for fauna and flora	A species survey prior to planting or thinning and post planting or thinning (or any other action). Various survey methods could be used such as a species counts along a randomly selected transect.

3. Financial Benefits for the Local Community

Some groups explicitly aim to provide financial benefits to those sites that host renewable energy assets. This is particularly the case where sites are community venues, such as schools or community centres, or where a charitable Community Land Trust exists. These groups seek impact by enabling

sites to channel funds into activities that benefit the community. The means of providing financial benefits to sites depends on the technology used:

- Roof mounted Solar PV: solar electricity is either provided for free or sold to sites at a reduced rate relative to the commercial cost of electricity from the grid.
- Biomass Renewable Heat: Heat is sold to the site at a reduced cost relative to the price of oil. The group also covers the maintenance costs previously paid for by the site.
- Ground mounted solar PV: rent is paid to the Community Land Trust that owns the land.
- LED lights: LED lighting services are sold to the site at a reduced cost relative to the cost of non-LED lighting.

Respondents describe how savings could be spent by host organisations on things that are of benefit to the community. For example, in the case of Power Up North London the church that hosts the solar PV array has channelled any savings into a programme for ex-offenders. Some groups felt providing financial benefits to sites did not constitute an outcome; it was merely a pre-requisite for convincing sites to engage with community energy and to host community renewables. This was particularly the case where sites were not exclusively ‘community venues’ but also included commercial businesses.

Outcomes	Outcome Indicators
Financial benefits to sites that host community financed solar PV	Total savings: The difference between the cost of grid electricity and solar electricity multiplied by the kWhs consumed
Financial benefits to sites that host community financed biomass	Total savings: The difference between the cost of oil fuel per kWh and the cost of biomass per kWh multiplied by kWhs consumed plus (or minus) the difference in the cost of maintenance
Financial benefits to sites that participate in an LED project	The difference between the cost of non-LED lighting and LED lighting (using the EST CO ₂ and Cost Saving Calculator)
Financial benefits to sites hosting ground mounted solar, hydro or wind who have charitable aims	The sum of rent payments to site owners who have charitable aims

4. Return of Value to the Local Economy

Returning value to the local economy is an explicit aim of some community energy groups.

“We’re wanting to keep the trading of the co-op as local as possible because the money that it generates and spends locally, has the potential to benefit the local area far more than using the Big Six where the money might go offshore.” (Green Fox Community Energy)

For others, trading locally is more of a practice than an explicit aim: although they make efforts to procure locally, the idea of enabling money to circulate locally was not an impetus for the formation of their group nor an expressed aim. There are five mechanisms that enable groups to return value to the local economy:

- *Local procurement:* Most respondents stated that their groups attempted to procure locally where possible, particularly for the ‘big ticket’ items such as installation and maintenance of the renewable installation. Although it is not possible to keep a large percentage of the money for renewable equipment, such as solar PV, in the local area because it is not made locally,

local procurement can be linked to local jobs. For example, when Repowering London found that they could not procure installation services locally, they required their installers to employ local young people as apprentices. They also raised grant funds to pay local apprentices to develop the project from inception to completion.

- *Local investors:* Most of the groups sought local investment and membership so that at least some of the funds paid out to investors by way of a return would be spent in the local economy. Brighton Energy Cooperative even offers to pay investors in Brighton Pounds.
- *Savings to sites spent locally:* As described earlier, most community energy projects result in savings for host sites. It is a reasonable assumption that money that would otherwise be paid to mostly multinational utility companies is instead spent in the local economy particularly if the host organisation is a school or church or community centre that exists to serve the community.
- *Community Fund spent locally:* Groups differ in terms of their stated intention for the Community Fund but all respondents insisted that the majority of it should be spent locally.
- *Local employment:* groups able to employ people are directly contributing to the local economy through wages.

It is difficult to determine a methodology for measuring returns to the local economy. Ideally each group would use the LM3⁸ formula to calculate their organisation's contribution to the local economy. However, because it can be complex and time-consuming, this is unlikely to be used as a measure by community energy groups with limited capacity. The sum of the following could be considered the value of the returns to the local economy:

- Total expenditure with companies based in the local area
- The sum of interest and dividends paid to investors who reside in the local area
- The sum of disbursements from the community fund to local organisations or causes
- The calculated financial saving to host sites
- Sum of wages and fees paid to employees that reside in the local area

These would provide an indicative sense of the returns to a local economy. But, as indicators, they are still problematic. Firstly, the definition of 'local' would differ between groups. Secondly, this assumes that 100% of returns to investors, disbursements to the community fund or financial savings to sites are spent locally.

One possible resolution would be to collect some data from a representative sample of groups to track local expenditure and gain an understanding of the percentage of each category of expenditure that is normally spent in the local economy. However, given the huge variation between sites, investors and community fund expenditure, it would prove difficult to identify a representative sample. The number of people employed per £ invested in various renewable technologies would provide a good proxy of returns to the local economy, if this data were available. Any presentation of returns to the local economy should make assumptions and data limitations explicit.

5. Creation of a Community Fund

All groups that participated in the research intend or have created a community social fund into which financial surplus is paid. Some groups intend to exclusively use this fund for projects contributing to

⁸ Justin Sacks (2002) *The Money Trail: Measuring Your Impact to the Local Economy Using LM3*

mitigation of climate change. Others state that it will be used for projects that alleviate fuel poverty in the local area.

The majority of groups do not define the use of a community fund beyond stating that it will be used for projects that accord with the values and aims of the group. The creation of the community fund is not in itself an outcome, it is an output. Given the variety of possible projects and concomitant social change that could result from the expenditure of the community fund, it is impossible to define an outcome. Measurement of the output – the size of the fund donated to various causes must suffice (as identified in the indicators above under CO₂ Emissions Avoided).

6. Increase in Skills, Knowledge and Confidence

Only one group, Repowering London, stated that they expressly set out to build the skills, knowledge and confidence of those involved in the project.

“It’s fantastic to see some of the local residents really growing and developing skills, and when we went to launch the share offer, talking at events. You could see how they had grown and been empowered seeing them talking at events with 80 people and MPs attending.”
(Repowering London)

Repowering London volunteers involved in projects not only acquired financial, legal and organisational skills but also grew in confidence and developed leadership skills. For Repowering London, the aim is to increase employability.

Some other organisations reported an aim to increase their own internal capacity to develop projects. A further aim would be to enable Directors to mentor other community groups (detailed below).

Although other groups didn’t immediately cite growth in skills and knowledge as an outcome, when prompted they recognised the learning that had taken place and also the value of that learning to all of those involved:

“A few of us changed jobs whilst we’ve been working on PUNL and I think it’s been good for us individually for our own personal development, it goes on our CV and it shows our long-term commitment and something positive. Some other people have developed their career based on doing this and becoming passionate about this. There is quite a bit there, if we were doing impact measurement for the sector it would be an important thing to do.” (Power Up North London)

Outputs	Measurement
Volunteer hours contributed to running the community energy group	Summed annual volunteer hours across the organisation
Outcomes	Outcome Indicator
An increase in hard skills	A stated increase in financial, legal, and technical capabilities
An increase in soft skills	A stated increase group working skills, public speaking, and confidence
An increase in employability	Monitoring of employment gained

7. Community Cohesion

In a cohesive community, members share values and relate to one another regardless of differences in age, gender, race, religion or sexual orientation. A few community energy groups expressly work to increase community cohesion. For example, Greater Manchester Community Renewables plan to establish a panel including representatives from each site, the Board and the membership, whose members collectively decide how to spend the community fund and Power Up North London hold regular events with the same aim in mind.

Only one of the groups interviewed – Repowering London - state that community cohesion is an explicit aim. Their approach is unique in the movement, working with a very small neighbourhood, recruiting interns and core group members to own and operate a renewable energy installation on the rooftops of (or near) their homes.

Embedding community cohesion as a core function in the business models of community energy groups can result in a very resource-intensive approach being taken and for this reason can be difficult to replicate. Therefore, whilst community cohesion can often result from the delivery of projects and be an informal outcome, it is not a central aim for most groups and we do not recommend including it in an outcomes framework.

8. Supporting the Formation and Growth of New Community Energy Groups

Two groups explicitly aim to enable the growth of the community energy movement by mentoring and supporting other groups. Greater Manchester Community Renewables feel that they play a role in the growth of the renewables movement as a whole; they have developed skills and experience, in part so that they might be able to share it with other groups.

Output	Measurement
Support for other groups	Number of groups supported and amount of support provided
Outcome	Outcome Indicator
An increase in skills and knowledge that would allow new groups to form and existing groups to grow	Number of new groups formed following mentoring or support from another group. A reported increase in skills and knowledge.

9. Awareness Raising and Behaviour Change

An objective or desired outcome for many groups is to raise environmental awareness among group members and the wider community leading to changes in behaviour, such as the installation of renewables or energy efficiency measures. Respondents identified four different ways in which behaviour might change:

1. Renewable energy generation used as an educational resource to raise awareness about renewable energy and climate change

Four of the groups interviewed own and operate solar PV arrays on school sites. All groups recognise that there is huge educational potential to change attitudes and inspire behaviour change amongst pupils, parents and staff in school communities.

“You’re providing inspiration for the decision makers of the future, you’re normalising that. That’s the outcome you’re seeking. Whether we get it, I’m not sure. If we had the resources we’d be engaging in the educational system that follows on from that.” (Plymouth Energy Community)

2. Site managers become more engaged in energy issues and this leads to installation of further energy efficiency or renewable energy measures

It is possible that the staff that manage host sites for renewable energy learn from the experience of having worked with a community group, come to understand the benefits of renewables and energy efficiency and come to understand more about energy systems and the relationship with climate impacts.

3. Members become more engaged in energy issues and climate change

It is possible the decision to invest in a community energy project is accompanied by an increased awareness about energy issues. Similarly, information contained in a community energy group newsletter may lead to increased awareness of energy issues and may inspire action. There is no consensus as to whether this is a realistic pathway for change. Most respondents felt that there is a mechanism by which *“having ownership of that renewable energy asset will include them in the wider debate about the change in the system if they can influence it.”* Sheffield Renewables have experienced members making changes to their lives after investing: *“a lot of investors have made the decision to have solar PV on their roof. It has a knock-on effect.”* This pathway to change is part of the central narrative about community energy.

“The original goal of the whole community ownership thing was to empower people to own their own benefits from the project: it gives them the power and control and then care more about their energy and to know where it comes from and care about how it’s used and they are going to care about their own energy consumption. It’s that kind of mechanism that we are looking for.” (CREW)

However other respondents pointed out that most of their members were already engaged in energy issues prior to investing. Moreover, there is a lack of evidence about a relationship between investment in energy issues and behaviour change.

“What’s missing is a case study that talks about the journey from someone keeping their money in an ISA; to a decision to place it with a community energy organisation; to energy related behaviour change. We need to explore in more detail the difference those investment decisions make. The fact that they have invested in something with a wider social benefit rather than just propping up Barclay’s is great, its helped that project to happen. But having made a prosumer choice, this may be the beginning of a journey where they think ‘Bloody hell! Renewables are something real – we can do that!’ Or energy efficiency – ‘I should be doing more of that on my estate or getting more engaged in energy in one form or another – or just talking about it more at the pub’. I’ve no idea what that journey is. We’ve been doing this for a while and I still feel that I’m conscious that I don’t know that.” (Plymouth Energy Community)

Repowering London actively worked to engage residents on the estate that hosts the solar panels; these are not people that have typically engaged in environmental issues. They have observed this pathway from ownership of shares through to attitude and behaviour change. Providing members with the ability to make decisions was key to being able to engage residents in a discussion about energy. However, it is difficult to maintain that engagement when there are no longer any decisions to make about the solar array.

“You need an ongoing dialogue and engagement programme. The problem with the solar asset is that it just sits there and people don’t really engage with it. You need funding that will enable you to go back in there. You need that closer link – you need to be able to sell electricity and monitoring equipment – you need interventions that are constantly reminding them that this is happening in our lives. We struggle to do that at the moment because of capacity issues and our model doesn’t allow us to sell electricity locally.” (Repowering London)

Many respondents echo the view that being able to supply electricity to investor members would make any pathway between membership and behaviour change far more realistic.

4. The broader community become more engaged in issues of energy and climate change

A community-financed renewable installation ‘showcases’ renewable energy in action. Some respondents felt that there would be a broader impact on the community in that it would demonstrate the efficacy of renewable energy and inspire organisations to take action and install more renewables.

“There are a lot of people that think that solar cannot work in Sheffield, that it’s too far North. All the users of the buildings can see that it works. There is power or strength in that symbol: we are a constant reminder to the council that we are taking it on ourselves. We are a constant presence reminding the local authority and the government that if they don’t do it, we’ll do it ourselves. We want their support really.” (Sheffield Renewables)

Similarly, there is an aspiration from the Directors of Power Up North London who installed a community financed solar array on a church that the presence of the solar array would enable the congregation of the church to think differently about energy. However, they also recognise that engagement work with the church congregation may be needed to kick start this process. The greatest behaviour change is generally experienced in those whose lives are most affected by the project, e.g. the core organising group, volunteers, those that benefit from the renewable energy and the effect weakens as the impact diminishes outwards, e.g. to the congregation of a church where solar panels have been installed so that to engage the congregation may require more direct involvement.

Output	Measurement
Renewable energy installation is used as an educational resource	The number of pupils that participate in a lesson that makes use of the renewable energy installation.
Engagement activities for members	The number of events held by the community energy group for members or the broader community. The number of members who have attended an energy focused event or activity. The number of non-members who have attended an energy focused event or activity.
The number of people that read about the community energy group and engage with them	The number of people on the newsletter circulation. The number of Facebook friends. The number of twitter followers.

Outcome	Indicator
Renewable energy installation used in the classroom to raise awareness about climate change and inspire action	Students state that they have an increased understanding of issues related to energy and climate change. Students state that they have done 1 or more things to reduce their own personal carbon footprint.
An increased engagement about energy related issues amongst managers of sites that host community financed renewables	Site managers state that they have an increased awareness about energy related issues, renewable energy, energy efficiency and climate change. Site managers adopt energy efficiency or renewable energy measures, or they institute policies to reduce demand.
Members become more engaged in energy and climate change issues	Members state that they have an increased understanding of issues related to energy and climate change. Members state that they have done 1 or more things to reduce their own personal carbon footprint.

10. Control and Empowerment

Almost all respondents identified two factors as driving forces for the formation of their group: enabling control and ownership of renewable energy assets and enabling participation in a low carbon transition. For example:

“Ultimately, it’s about local people taking ownership of infrastructure, it’s not just about CO₂ reductions.” (Repowering London)

Many of the respondents spoke about working hard to enable members to have control over issues such as how the community fund is distributed and also ensuring that a large percentage of members are from the local area. However, control within a community energy group is an artefact of the governance system.

Similarly, some respondents felt that enabling action on climate change – giving members the opportunity to participate in a transition to a sustainable energy system constitutes an important outcome of their work.

“We have the capacity to do something in between the very big projects and the little one – medium sized projects so that people who could do renewable energy who couldn’t do it on their own home either because where they are situated or financially. You can’t do a lot on your own home for £250 but you can invest in a community energy group. You are enabling people to do something collectively that they couldn’t do by themselves.” (Sheffield Renewables)

Enabling group members to take control within the community energy group depends on the legal structure and enabling members to participate in the energy projects is an artefact of the business. Therefore, neither of these are specific or time-bound measurable outcomes and so are not included in the outcome framework.

Part 4: Design of a Pilot M&E Tool

In developing a comprehensive tool for M&E, we have devised the following Outcome Framework below which lists all the outcomes and outputs discussed. For outcomes, it also lists the intended beneficiary.

Type	Definition	Data Collection Methodology	Beneficiary	Measurement or Indicator
Output	Renewable energy installation or LED Light bulbs that are <i>additional</i>	A one-off post installation survey of site owners or managers		A survey of site owners (facilities managers or land owners) whereby they are asked whether they would have installed renewable energy without the community group involvement
Output	Renewable energy installation has been installed	Annual Monitoring		Capacity of renewable energy installation in kWp
Output	Renewable energy generated	Monthly Monitoring		KWhs of energy produced
Output	LED light bulbs installed	Annual Monitoring		The number and wattage of light bulbs installed
Output	Funds raised and spent on projects that aim to reduce CO ₂ emission	Annual Monitoring		Fund value in £s
Outcome	Avoidance of CO ₂ emissions by means of the installation and operation of renewable energy installation	Annual Monitoring	The Environment (everyone)	KWhs produced by the renewable energy installation multiplied by the carbon grid factor (tonnage of carbon contained in each kWh of grid electricity currently 0.054 tonnes)
Outcome	Avoidance of CO ₂ emissions by means of installation of energy efficient light bulbs	Annual Monitoring	The Environment (everyone)	kWh reduction in demand using the EST CO ₂ and Cost Saving Calculator
Outcome	Avoidance of CO ₂ emissions by means of sourcing local woodfuel for biomass	Annual Monitoring	The Environment (everyone)	Average CO ₂ associated with the transport of oil to the UK and CO ₂ associated with the transport of food fuel to the site
Outcome	Increasing biodiversity on sites of renewable energy installations or on sites	An annual survey conducted by core team	The Environment (everyone)	A species survey prior to planting or thinning and post planting or thinning (or any other action). Various

	where woodfuel for biomass sourced			survey methods could be used such as a species counts in a randomly selected area.
Output	Wildflower meadows planted	Annual Monitoring		Acreage of new wildflower meadows planted
Output	Use of woodfuel from local forest thinning	Annual Monitoring		Tonnage of woodfuel from local forest thinning
Outcome	Financial benefits to sites that host community financed solar PV	Annual Monitoring	Host Sites	Total savings: The difference between the cost grid electricity and solar electricity multiplied by the kWhs consumed
Outcome	Financial benefits to sites that host community financed biomass	Annual Monitoring	Host Sites	Total savings: The difference between the cost of oil fuel per kWh and the cost of biomass per kWh multiplied by kWhs consumed plus (or minus) the difference in the cost of maintenance of the plant
Outcome	Financial benefits to sites that participate in an LED project	Annual Monitoring	Host Sites	The difference in the cost of non-LED lighting and LED lighting using the EST CO ₂ and Cost Saving Calculator
Outcome	Financial benefits to sites hosting ground mounted solar, hydro or wind who have charitable aims	Annual Monitoring	Host Sites	The sum of rent payments to site owners who have charitable aims
Output	Volunteer hours	Weekly monitoring		Summed volunteer hours across the organisation
Output	The project has engaged the whole community	Annual Monitoring		The demographic profile of volunteers, directors, interns and staff
Output	Donation of a community fund to good causes that benefit the locality	Annual Monitoring		The amount in £s raised and donated to various causes
Outcome	An increase in hard skills (financial legal and technical capabilities) amongst volunteers, directors, and staff	Annual questionnaire for team of Directors and volunteers	Volunteers, directors, interns and staff	A stated increase in financial, legal, and technical capabilities

Outcome	An increase in soft skills (team work, public speaking, and confidence) amongst volunteers, directors and staff	Annual questionnaire for team of Directors and volunteers	Volunteers, directors, interns and staff	A stated increase group working skills, public speaking, and confidence
Outcome	An increase in employability	Annual questionnaire for team of Directors and volunteers	Volunteers, directors, interns and staff	Monitoring of employment gained and based on skills gained or enhanced whilst working on a community energy project
Output	Support for other groups	Annual Monitoring		The number of groups supported. The amount of support provided.
Outcome	An increase in skills and knowledge that would allow new groups to form and existing groups to grow	Tutor notes based on feedback from the group supported	Community energy groups who have received mentoring or support	The number of new groups formed following mentoring or support from another group. A reported increase in skills and knowledge.
Outcome	An increased engagement amongst managers of sites that host community renewables about energy related issues	An annual survey to site owners or managers	Host Sites and the Environment	Site managers state that they have an increased awareness about energy related issues, renewable energy, energy efficiency and climate change. Site managers adopt energy efficiency or renewable energy measures, or they institute policies to reduce demand.
Output	People read or hear about the community energy group and engage with them	Annual Monitoring		The number of people on the newsletter circulation; Facebook friends; Twitter followers.
Output	Renewable energy installation is used as an educational resource	Annual survey of school sites		The number of students that participate in a lesson that makes use of the renewable energy installations.
Outcome	Members become more engaged in energy issues and climate change	Annual survey to members	Members	Members state that they have an increased understanding of issues related to energy and climate change. Members state that they have done 1 or more things to reduce their own personal carbon footprint.

				Demographics of members: their age group, gender and ethnicity.
Outcome	Renewable energy installation used in the classroom to raise awareness about climate change and inspire action	Feedback questionnaire following lesson	Students at solar school sites	Students state that they have an increased understanding of issues related to energy and climate change. Students state that they have done 1 or more things to reduce their own personal carbon footprint.
Output	Engagement activities for members	Quarterly Monitoring		The number of events held by the community energy group for members or the broader community. The number of members who have attended an energy focused event or activity. The number of non-members who have attended an energy focused event or activity. The demographic profile of those engaged in community energy.

Part 5: Conclusion

Evaluation tools and methodologies

The information to be collected as part of the annual monitoring process would be as follows:

- Capacity of renewable energy installations in kWp
- Energy produced in kWh
- The number and wattage of LED light bulbs installed
- Fund value in £s
- kWhs produced by the renewable energy installation multiplied by the carbon grid factor (tonnage of carbon contained in each kWh of grid electricity currently 0.054 tonnes)
- kWh reduction in demand using the EST CO₂ and Cost Saving Calculator
- Average CO₂ associated with the transport of oil to the UK and CO₂ associated with the transport of food fuel to the site
- Acreage of new wildflower meadow planted
- Tonnage of woodfuel from local forest thinning
- Total savings: The difference between the cost grid electricity and solar electricity multiplied by kWhs consumed
- Total savings: The difference between the cost of oil fuel per kWh and the cost of biomass per kWh multiplied by kWhs consumed plus (or minus) the difference in the cost of maintenance of the plant
- The difference in the cost of non-LED lighting and LED lighting using the EST CO₂ and Cost Saving Calculator
- The sum of rent payments to site owners who have charitable aims
- The number of people on the newsletter circulation
- The number of Facebook friends
- The number of Twitter followers
- The amount in £s raised and donated to various causes
- The number of groups supported
- The amount of support provided

In addition, there should be quarterly monitoring of

- The number of events held by the community energy group for members or the broader community
- The number of members who have attended an energy focused event or activity
- The number of non-members who have attended an energy focused event or activity
- The demographic profile of those that attend events: age, gender and ethnicity
- (In the case of schools) the number of students that participate in a lesson that makes use of the renewable energy installation

An annual survey for Directors, volunteers, interns and staff would gather information related to:

- Summing of volunteer hours (should be collected on a weekly basis)
- A stated increase in financial, legal, and technical capabilities
- A stated increase group working skills, public speaking, and confidence
- Monitoring of employment gained and based on skills gained or enhanced whilst working on a community energy project

- The demographic profile of volunteers, directors, interns and staff: age, gender and ethnicity

An annual survey for site managers would collect information relating to:

- Increased awareness about energy related issues, renewable energy, energy efficiency and climate change
- Adoption of energy efficiency or renewable energy measures, or policies to reduce demand

An annual survey of community group members to collect information relating to:

- Increased understanding of issues related to energy and climate change
- Increased action to reduce personal carbon footprint
- The demographic profile of members: age, gender and ethnicity

Adaptation of evaluation methods to reflect the needs of the group

Not all the metrics listed here are relevant for each group. To be able to tailor research tools a system would be needed to enable groups to specify the outcomes (and outputs) that are relevant to their group. This report aims to be the first step to the development of an IT system to be used to enable the tailoring of research tools dependent on the relevance of outcomes (and outputs) to groups.

Given that most groups have limited capacity, tools would need to be intuitive and straightforward. Similarly, given the competing demands of most facilities managers or business managers in host sites, tools would need to collect only that information that is necessary. Groups would have limited capacity to analyse data and thereby make comparisons across time or with national averages but a carefully designed IT system could collate descriptive statistics and present them in graphical format.

Next Steps Following this Report

The intention is for this report to be stage 1 in a 3-stage process of building a standardised M&E tool for community energy groups. Stage two is to develop the actual M&E tool through an iterative process with a number of community energy groups. Stage three is to disseminate that tool across the UK community energy movement. In addition, throughout Stage 2 and 3, the work will be used to streamline the data gathering by CEE State of the Sector Survey.