

September 2015 Energy Research Partnership

Community energy and the low-carbon transition

Executive Summary



The Energy Research Partnership

The Energy Research Partnership is a high-level forum bringing together key stakeholders and funders of energy research, development, demonstration and deployment in Government, industry and academia, plus other interested bodies, to identify and work together towards shared goals.

The Partnership has been designed to give strategic direction to UK energy innovation, seeking to influence the development of new technologies and enabling timely, focussed investments to be made. It does this by (i) influencing members in their respective individual roles and capacities and (ii) communicating views more widely to other stakeholders and decision makers as appropriate. ERP's remit covers the whole energy system, including supply (nuclear, fossil fuels, renewables), infrastructure, and the demand side (built environment, energy efficiency, transport).

The ERP is co-chaired by Professor John Loughhead, Chief Scientific Advisor at the Department of Energy and Climate Change and Dr Keith MacLean (formerly Director of Policy & Research at Scottish and Southern Energy). A small in-house team provides independent and rigorous analysis to underpin the ERP's work. The ERP is supported through members' contributions.

ERP MEMBERSHIP

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Dr Keith MacLean	Independent industry co-chair	Formerly of SSE

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The Energy Research Partnership Reports

ERP Reports provide an overarching insight into the development challenges for key low-carbon technologies. Using the expertise of the ERP membership and wider stakeholder engagement, each report identifies the challenges for a particular cross-cutting issue, the state-of-the-art in addressing these challenges and the organisational landscape (including funding and RD&D) active in the area. The work seeks to identify critical gaps in activities that will prevent key low-carbon technologies from reaching their full potential and makes recommendations for investors and Government to address these gaps.

This project was guided by a steering group made up of experts from ERP members and other key organisations, as listed below.

The views in this report are not the official point of view of any organisation or individual and do not constitute government policy.

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We would like to thank all those who helped inform this work, including the wide range of experts that were interviewed (see Annex 1).

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Executive Summary

This discussion paper considers the potential role of community energy in the UK's transition to low carbon energy. It presents examples of community energy in the UK, to consider the motivations, benefits, costs and risks, and to identify challenges that it faces in the UK. Those challenges are grouped into: assessing outcomes, deploying projects, and delivering benefits.

The paper proposes measures to improve the assessment of projects, and research to improve the understanding of community energy in the UK in order to determine whether its costs and benefits (and their distribution in society) justify addressing the challenges that it faces. The paper also highlights opportunities in the short-term to increase the uptake of projects and improve the delivery of expected benefits.

Overview and theory of change

Community energy has the potential to engage local communities in energy matters, with the aim of bringing two main benefits: firstly, acceptance of change, including new technology and behaviours, and deployment of infrastructure in the local area; and, secondly, engagement with energy, including demand reduction and energy balancing. Acceptance of change and engagement with energy can occur sequentially or concurrently, or in a cycle to build up a "virtuous circle".

Community energy can be broadly defined as energy projects in which local residents and businesses have a shared stake and are the main intended beneficiaries. Motivations for community energy include political objectives, local priorities, and some consumers' desire for more control

of their energy affairs. Projects include energy production (heat and/or power), energy efficiency, demand reduction, demand balancing (with available supply), and contracting for energy supply. Community energy projects are larger than individual homes or businesses, and can range up to municipal systems. They can be run by groups of residents and businesses, local organisations, local councils, community energy support groups, or businesses in partnership with communities. A project's focus will depend upon local opportunities and resources (e.g. wind power in rural areas, and solar power on urban rooftops), and upon the needs and interests (e.g. deprived urban areas focussing on fuel poverty, and affluent areas focussing on environmental or engineering opportunities).

Current status

Over 5,000 community energy groups are active in the UK, covering: heat, power, energy efficiency, demand reduction, transport, balancing, energy education, and energy purchasing. Schemes have a range of ownership structures, including joint ownership within a community, leadership by local authorities, community share options in commercial projects, and joint ventures. Some projects use expertise from a range of organisations, e.g. local authorities co-ordinate the work, residents provide knowledge of local needs, local businesses provide land for energy production, technology providers test equipment, and energy supply companies provide tariffs. Indeed, many community energy projects aim to achieve a range of objectives, and can therefore justify resources (including funds) from a variety of organisations, helping to make them viable.

The UK Government published its Community Energy Strategy in 2014, and an update on this strategy in early 2015: a key

driver is the potential for greater competition with traditional energy suppliers. The Scottish Government has a Community Energy Policy Statement (CEPS): key drivers include renewable energy production, and income streams to fund land reform, employment and local services. Community energy features in the Welsh Government's energy strategy: drivers include supporting communities' aspirations to produce energy and address fuel poverty. The Northern Irish administration intends to develop an action plan for community energy: some community groups already incorporate energy as part of their local projects.

Community energy projects are active in several countries around the world. Local circumstances and government policies help to shape motivations that include: aiding development; offering alternatives in established energy markets; and contributing to national energy strategies.

Assessing outcomes

The current approach to assessment poses a challenge to community energy projects in the UK, by not necessarily accounting for all of the relevant issues in a consistent manner. This makes it difficult to assess the impacts of existing projects, and to forecast the outcomes of proposed projects. It also impedes the ability to understand the role of community energy in the UK. This is partly an intrinsic challenge because community energy projects seek to address multiple issues which are not always easily defined (including in financial terms). However, it is primarily an extrinsic issue, due to how community energy is assessed, by multiple organisations using different selections of data and sometimes different criteria, and not necessarily with an appropriate counterfactual.

The most appropriate solution to this challenge would be two-fold. Firstly, there could be improvements in the evaluation processes used by evaluators and decision-makers (i.e. funders, planning authorities, network companies, etc.), such that they considered all of the factors in a co-ordinated manner, allowing for a more holistic and consistent treatment of existing projects and proposals. Secondly, there could be an increase in resources for community groups, in the form of information (e.g. a database of case studies about similar projects) and guidance (e.g. template documents) to help them to produce business cases that consider all of the important factors and to report effectively on existing projects. Through a wider assessment (see the scoping note in Annex 2), there is an opportunity to better understand the role of community energy in UK, in order to inform decisions about whether community energy's net impacts (and their distribution in society) justify taking action to address challenges that it faces in the UK.

Deploying projects

There are many reasons why more community energy projects are not attempted in the UK, and why many of those that are attempted do not reach deployment. These challenges include intrinsic issues (primarily lack of certain skills and expertise in many community groups), and also extrinsic issues (primarily funding, risks, planning permission, and regulations).

The DECC work programme on funding and planning is outlined in its Community Energy Strategy. For regulations, the appropriate solutions could involve amending the requirements that projects must satisfy under current arrangements. This could take the form of derogations, but these could introduce further complexity to the sector. Alternatively, the appropriate solutions could involve amending the assessment processes, to include wider costs and benefits. There is an opportunity to investigate this option further by conducting trials (as per above) of alternative arrangements for electricity, and new arrangements for the emerging heat sector. Once further research has provided more information about the role of community energy projects in the UK, it could be justified to consider substantive changes to address deployment challenges that they face.

In the meantime, there are some less substantive changes that could be made: given the present small scale of the community energy sector, certain changes could be desirable (there is merit in assisting the deployment of projects, including for studies of technology and services) and acceptable (there is little risk of distorting the wider energy sector). The most beneficial actions that could be taken at present would be those that provide community energy groups with more resources (especially guidance and expertise) to help them to meet the existing requirements. Available routes for providing guidance and expertise include: tailored guidance and advice from community energy support groups; partnering with corporate energy developers through schemes such as the voluntary shared ownership arrangements; and partnering with providers of new products and services that wish to conduct trials for localised energy. In addition, the ability to delegate administrative functions to a central team (e.g. in a local authority that could work on behalf of various groups in an area) would make it easier for groups to undertake projects and would reduce the costs to each individual project, whilst not diminishing the delivery of benefits within the communities.

Delivering benefits

Delivering a full range of intended benefits and avoiding unintended consequences can be a challenge for projects. It is largely an intrinsic matter; i.e. it is dependent upon the skills and expertise within the project. The appropriate means of addressing this issue would be to provide extra resources (guidance, advice or services). There are some common issues for which generic guidance can suffice (e.g. how to communicate about demand reduction). Support groups in Wales and Scotland have

developed guidance and toolkits for community energy projects. DECC is funding the initial development of the Community Energy Hub which will provide a forum for discussion between groups, and signposts to sources of advice, including toolkits. There are issues for which community energy groups need tailored advice (e.g. how to balance multiple objectives). Support groups in Wales and Scotland offer more tailored advice services, whereas the Community Energy Hub currently lacks funds to offer that service.

Conclusions and recommendations

Community energy could be an effective means of delivering benefits, both for the low carbon transition, and in other aspects of society. Examples from the UK and from other countries illustrate the motivations, benefits, costs and risks of community energy. Motivations for community energy include political objectives, local priorities, and some consumers' desire for more control of their energy affairs. Energy-related benefits that have been delivered include: low-carbon energy sources with less local opposition; area-wide improvements to buildings' energy efficiency; community level balancing of supply and demand; and greater interest in debates about energy. Projects have also delivered other benefits to communities and society more broadly, including: income streams to fund local services; training and employment; improved health; and greater community cohesion. Community energy faces challenges in the UK, in how projects are assessed, in the deployment of projects, and in the delivery of expected benefits.

There are opportunities to address the challenges posed by the assessment of community energy projects, by taking into account the full range of costs and benefits in a co-ordinated manner. Furthermore, through a wider assessment, there is an opportunity to better understand the role of community energy in UK: evidence from existing projects could be reviewed; data from proposed projects could be monitored more consistently; and trials could be conducted to test specific local arrangements for community energy. This research would inform decisions about whether community energy's net impacts (and their distribution in society) justify taking action to address challenges that it faces in the UK.

We recommend steps to improve assessments of community energy projects, and to improve the understanding of the role of community energy in the UK:

- DECC and the Devolved Administrations should develop recommended approaches for monitoring and evaluating community energy projects (including key data that should be collected), and for producing business cases for proposed projects.
- DECC and the Devolved Administrations should develop guidance for decision-makers (funding, planning permission, energy regulation, wider social benefits, etc.) for assessing community energy in a holistic and co-ordinated manner.
- DECC and the Devolved Administrations should review and monitor community energy projects, and, with Ofgem, should trial alternative arrangements for local energy.
- Support groups should develop a database of community groups that are interested in participating in studies of technology and services, to allow product developers and service providers to more easily find suitable partners.

In time, more information will become available to inform decisions on changes that could increase the deployment of community energy in the UK. In the meantime, there are certain opportunities to reduce the challenges for projects without increasing costs or risks for other consumers. In addition, there are opportunities to increase the delivery of expected benefits of projects, and to reduce unintended consequences. This can be done in part by providing community groups with more guidance and advice for developing their own abilities, and in part by allowing community energy groups to delegate certain tasks (e.g. administrative or legal) to other organisations.

We recommend steps to improve the deployment of community energy projects (including for conducting studies) and the delivery of benefits:

- DECC and the Devolved Administrations should identify routes by which community energy groups could receive tailored advice for their projects.
- DECC and the Devolved Administrations should identify routes by which community energy groups could delegate administrative tasks.



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