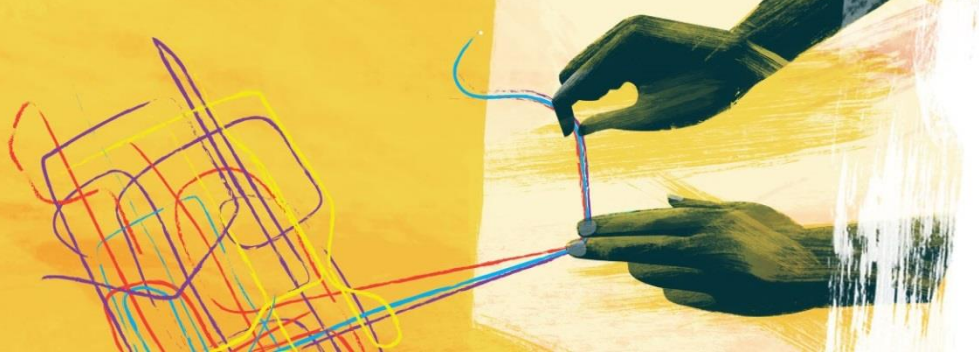




Local Energy Landscape

Report to DECC

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Lead Author

Nicky Hodges

Senior Researcher, Centre for Sustainable Energy

0117 934 1419 (direct line) | nicky.hodges@cse.org.uk

www.cse.org.uk



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1 Introduction

The Department of Energy and Climate Change (DECC) is currently (mid 2016) exploring what needs to be done to stimulate, encourage and support local action in England to contribute to its energy policy objectives. To inform this process, it commissioned two separate studies, initially one from Local Partnerships and subsequently this study from the Centre for Sustainable Energy (CSE).

Both studies were designed to:

- a. improve the quality of DECC's evidence base and understanding of the current 'state of play' of local action on energy, and;
- b. develop and/or propose specific approaches which could subsequently be usefully deployed either by DECC, a commissioned support service or local energy actors themselves to drive more effective strategic prioritisation, improved planning and delivery, and/or greater impact and value for money.

This second study was structured to complement the Local Partnerships study which had a particular focus on energy-related action by local authorities and, within that, on commercial delivery models. As a result, this study has focused more on types of local action and local actors not explored in the Local Partnerships study (particularly by and with community organisations) so that DECC's overall picture of the 'Local Energy Landscape' from the two studies was more complete.

This study also undertook a specific programme of analysis in relation to socio-economic and energy-related features of different localities across the country. The resulting characterisation of different localities according to the technical opportunities and socio-economic challenges for local energy action offers another perspective to inform (i) the selection of local priorities for action and (ii) the design of a range of interventions from a nationally co-ordinated support programme to suit local conditions.

As a separate element, this study has drawn on previous work by CSE to develop an assessment framework to help local actors benchmark the quality of their current performance. The framework – or 'matrix' – also enables its users to consider opportunities to improve their performance and set priorities for next steps. The use of such an assessment framework as an entry point to a national support programme could helpfully embed performance self-assessment in its processes. Importantly, it would help tailor support to suit the specific strengths and weaknesses in each locality's activities and plan.

Each of these study elements are largely 'stand alone' and are therefore presented here as such. Conclusions and recommendations resulting from each of them are drawn together in a discussion to inform DECC's thinking about the design and delivery of future support for local energy action.

1.1 Structure of this report

This report is structured as follows:

- Chapter 1 defines our understanding of local energy landscape and sets out the purpose and context of this report

- Chapter 2 includes a critique of other recent appraisals of local authority performance in the energy sector and summarises other recent studies on community and local energy
- Chapter 3 presents six groupings of local authorities, with groups clustered together sharing commonalities of physical and socio-demographic opportunities and constraints for energy action, as a basis for DECC to develop and target suitable support to different localities
- Chapter 4 provides a 'state of play' snapshot of the community energy landscape, based on an online survey of community energy groups, whilst
- Chapter 5 complements this, by reporting the perspectives of a number of influential practitioners in the local and community energy sectors, on the state of play and what can contribute to the future success of local and community energy.
- Chapter 6 sets out a proposed 'balanced scorecard' style matrix to enable an updated assessment of the local energy performance in an area.
- Chapter 7 provides a round-up discussion of the findings and sets out our recommendations for DECC to consider in developing its future support offer for local energy.
- A bibliography and several appendices are included, including in Appendix 2, a complete list of local authorities by cluster, in support of the groupings reported in Chapter 3.

1.2 How we have defined “local energy landscape”

The local energy landscape is broadly defined to include the range of types of energy related activities identified within the national Community Energy Strategy (CES)¹: generating energy; reducing energy use through energy efficiency and behaviour change; managing energy by balancing supply and demand; and purchasing energy. It also recognises that municipal energy activity may also include other activities, including setting up as an energy supplier (e.g. Nottingham Council's Robin Hood Energy), often with the expectation of securing local social and/or economic benefits.

In line with the Updated Community Energy Strategy, our conception of local energy recognises that local authorities have an important leadership role to play in helping to catalyse and scale up activity, and that local action may involve 'partnership working with the private, public and voluntary sectors'. We have also included a more explicit consideration of local action to address fuel poverty and energy affordability which has often been somewhat overlooked in discussions about community energy or local energy action in the last few years.

Our approach recognises that local energy activity may include both municipal activity driven by the local authority and initiatives driven by arms-length social enterprises (as for example, has been done by Swindon and Plymouth councils) as well as activity directly led by charitable organisations and community groups. The study also recognises the diversity of the community energy sector, with larger intermediary bodies already providing support to smaller community energy groups.

The work presented here uses English local authorities as the main unit of analysis.

¹ DECC (2014) Community Energy Strategy <https://www.gov.uk/government/publications/community-energy-strategy> and DECC (2015) Community Energy Strategy Update. <https://www.gov.uk/government/publications/community-energy-strategy-update>

In our exploration of the characteristics differentiating local energy landscapes across local authority areas, we have assessed:

- indices of multiple deprivation as an indicator both of 'need' for affordable energy and as a proxy indicator of 'barriers to social capital capacity' for community-led energy projects';
- sectoral split in electricity consumption (by kWh and by number of consumers)
- proportion of lodged EPCs in bands F and G
- health indicators of 'need' for targeting of energy measures that tackle cold homes as causing or exacerbating ill-health;
- bottom-up calculation of the degree to which an area is built up, based on a 100m LIDAR land classification grid
- number of renewable energy installations reported under FiT, RHI and RHPP
- bottom-up analysis of the proportion of land area above a heat demand density threshold, using the National Heat Map CSE built for DECC
- number of active community groups as a proxy for community capacity to engage in energy related projects.
- proportion of postcodes in a local authority for which no addresses are connected to the gas network
- The proportion of domestic premises which are privately rented

Local authority capacity itself is clearly also an important dimension in the local energy landscape. The 'Local Energy England' programme led by Local Partnerships has sought to investigate this (see below), whilst a number of other initiatives have also sought to categorise and/or rank local authorities in terms of their capacity and achievements to date. We do not seek to duplicate such efforts; we also avoid scoring 'local authority capacity' on the basis of indicators which may reflect other characteristics of the physical and social geography of the area. However, we have reflected on the existing categorisation and ranking approaches used in these approaches in Chapter 2, under 'Appraising local authority performance'.

1.3 Local Energy England

Local Energy England is a programme being delivered by Local Partnerships, on behalf of DECC. It is focused on identifying the role that local authorities - and others - are currently performing in the energy arena, including the projects that they are promoting and delivering. It is also concerned with identifying the barriers to local authorities and others delivering more. The programme covers a broad range of energy related projects, comparable to the scope of this Local Energy Landscape.

Local Energy England is looking at the different roles played by local authorities and others, as well as different commercial models for delivery. The first output, a draft report to DECC, identified options for a package of support to accelerate the local delivery of energy related projects. This drew on a survey of around 50 local authorities, reflecting a balance across the former 'regions' in England, using qualitative responses concerning governance, drivers, capacity/capability, project financing and approach to risk. The findings from this programme have been shared with DECC and are not repeated here.

2 Current evidence on the extent and quality of local and community energy capacity and activity

This chapter reviews wider evidence on the status and opportunities for local and community action on energy. There have been a number of other recent initiatives to map, rank or otherwise analyse local energy capacity. These include 'Local Engagement in UK Energy Systems' by the Energy Technologies Institute and the University of Edinburgh, and the 'Local Authority Energy Index', developed by Knauf insulation. A number of studies have also sought to identify the opportunities for local energy, particularly at the city level.

A decade ago, in a series of studies for Defra and Local Government Association, CSE² found that best practice to deliver action and policies to drive action on low carbon and/or affordable warmth at a local and regional level had mainly been achieved by 'wilful individuals'; it was therefore unlikely to be replicable other by another wilful individual. CSE's analysis, which had local authorities and then-existent regional bodies as its focus, suggested that national government policy and support programmes should focus on creating an enabling context for other less dogged and less wilful individuals to achieve more in their local authorities.

The reports set out matrices to enable the assessment of performance on different aspects of low carbon energy or affordable warmth. A local authority could use these as a self-assessment tool to provide a picture of the incremental steps associated with performance improvement from Weak to Excellent across a range of relevant dimensions. CSE's reports also identified a package of policy measures that could help progress the enabling context in local authority areas. The policy arena some ten years on (in 2016) looks considerably different. However, the basic concept remains valid of using an assessment matrix (or 'balanced scorecard') to enable local energy actors to benchmark their performance and see at a glance opportunities to improve.

Given this self-assessment approach was not incorporated into other assessment of local energy action reviewed here (below), we have developed an updated '[matrix of local energy performance](#)' as part of this study. The matrix is set out in 'Chapter 7:

² CSE, Impetus & Quantock consulting, 2005, [Local and Regional Action to Cut Carbon](#), report to Defra for the UK Climate Change Programme Review

Roberts, S. & Baker, W. ,2006, [Tackling fuel poverty at local & regional level: Opportunities to deliver action & policies to stimulate success](#) Paper to the Department for Environment, Food and Rural Affairs (Defra)

CSE, 2007, [Council Action to Curb Carbon: key issue for local authorities](#), report to Local Government Climate Change Commission and Local Government Association.

Assessing Local Energy Performance: the Matrix' of this report. It seeks to reflect the current policy context, including available resources and levers for change, as well as the evolution in the local energy landscape since 2006 in terms of potential actors and agents.

2.1 Appraising local authority performance

There have been a number of recent attempts to appraise the capacity of local authority performance in relation to energy. In this section we critique two such efforts, particularly to draw attention to an excessive focus on available top-level indicators which may give a misleading impression of top-down driven success rather than bottom-up drive activity driving changes. Similarly, we draw attention to a focus on easily measurable 'output' measures, interpreted as evidence of transformational activity, whereas it may simply reflect the underlying conditions which can make such change far easier to achieve in some areas than in others, depending on e.g. the predominant housing stock type in the area.

2.1.1 Local Engagement in UK Energy Systems - ETI

The Energy Technology Institute (ETI) has been working with the University of Edinburgh to examine the quality of local authority activity in relation to energy. The ETI, and thereby this project, identifies local authorities as 'critical contributors and catalysts' in shaping future energy provision.

The pilot study report looks UK-wide and reports on activity levels across local authorities, using some 360 variables from different datasets. While the analytical approach used is not explained (e.g. how commonalities between different datasets are addressed to avoid effectively double-counting the same factors), the result is to categorise local authorities into four categories 'energy leaders', 'running hard', 'at the starting blocks' or 'yet to join the race', in terms of strategic planning and investment.

The categorisation system explores relationships between local authority engagement and other factors, identifying correlations which can shape future research to explore the mechanisms by which different levels of engagement are achieved, and to enable future prediction of 'forms, pathways and extent of local engagement in energy productivity, demand management and supply'. The reported analysis identifies different models of engagement with community actors as well as public-private partnerships and public sector activities (e.g. social housing).

However, some of the reporting indicates inaccurate analysis of the causal direction of activity. For example, it reports that Cornwall Council set up Community Energy Plus as a social enterprise to manage cross-sector initiatives', whereas our understanding is that Community Energy Plus was independently founded as a charity in 1998 and has since worked with a range of public, private and third sector organisations, including Cornwall Council. Indeed, the charity has been highly instrumental in helping the Council develop its approach.

Whilst, as mentioned above, the report available in the public domain does not include methodological detail of the selected indicators, the reported analysis appears to give much weight to indicators associated with 'top down' leadership-led (e.g. political commitment from Leader or Deputy Leader of Council and/or Chief Executive, existence of local energy or carbon plan, European funding engagement).

However, in our experience, such strategic coherence/commitments are more likely to be the consequence of sustained bottom-up activity by community groups or active ('wilful') individuals within the council at less senior level, rather than initiatives driven from the top being the cause of effective activity 'on the ground'. Furthermore, some of the selected measures of success in the ETI/Edinburgh analysis may reflect less the leadership achievements of an authority than historical factors associated with the demographic and housing-stock characteristics of the area and the constraints and/or opportunities for action (such as cavity wall insulation programmes) which these provide.

In other words, the ETI/Edinburgh analysis, which suggests a correlation between local authority performance 'on the ground' and level of leadership commitment and strategic quality, may well be then deducing a causal relationship in the wrong direction (i.e. top down commitment leads to bottom up activity, rather than the other way round). This is an important observation since such a conclusion would suggest the need for a support programme focused on the quality of senior leadership as the route to improved action. That may be inappropriate and misplaced.

The relationship between leadership and effective 'on the ground' action is undoubtedly more complex than a straight causal relationship in one or other direction. Our practical experience and analytical work over the last 10 years suggests that effective local action on energy rarely starts with senior level leadership. It nearly always starts with wilful individuals at more junior levels taking action in their immediate sphere of influence. However, once such initiatives are 'up and running', the support of senior leadership and the emergence of a coherent narrative (i.e. strategy) that justifies building on the initial action can be a powerful catalyst for strengthening, broadening and deepening local action.

2.1.2 Local Authority Energy Index - Knauf

The Local Authority Energy Index, developed by Knauf insulation, considers how a sample of 103 local authorities is performing in terms of their own estate, housing, support to community-level energy programmes and energy infrastructure. The index includes a set of 19 individual indicators for each local authority. Selected sets of indicators are then combined and weighted to generate combined scores for the four domains, including energy in the community. Its second iteration was published in 2015, which built on the first assessment in 2014.

While the Index, much of which is based on surveys completed by the local authorities, produces a 'league table' of local authority performance, it should be noted that a number of the indicators it uses may have little to do with the performance of the local authority itself – or even the performance of any other local organisations or agencies.

For example, the selected indicators for energy in housing include – at relatively high weighting – a number of factors (e.g. domestic energy use per capita, fuel poverty levels, EPC band) which are 'slow burn' historical housing stock challenges. The presence in a local authority of a significant proportion of older, solid-wall homes will have an impact on the potential take up of the insulation measures typically available through various energy company energy saving obligations over the last 20 years. This would feed through into the average EPC band, as would the proportion of new housing in an area.

Similarly, the quality of the housing stock is strongly associated with household income and other social deprivation factors. These influence fuel poverty levels and also determine the extent to which households in any area are eligible for the various obligation-driven energy efficiency and heating improvement programmes. So the percentage of homes in a locality fitted with insulation measures under the CERT or CEST or ECO obligation is significantly determined by the physical characteristics of the local housing stock (i.e. those that most suited the measures offered under these obligations) and the socio-demographic characteristics of its local residents.

Hence the apparent 'performance' of a local authority on any of these housing-stock related indicators in the Index may not reflect the actual quality of the local authority's deliberate and planned action. By implying it does, though the use of these indicators and their weighting, suggests the Index does not balance the achievements of a local authority against any assessment of what it might be possible for that particular local authority to achieve, given the housing stock in their area.

Another example of an indicator used within the index to positively rank local authorities is FIT installs per capita (included in the measure of Energy Infrastructure). This may have little to do with the efforts of the local authority to achieve take-up, effectively giving credit where it isn't due in some areas - or not giving credit where there's been a strong effort by a local authority in a context where it had identified a risk of limited take up without intervention. Another example is where the index scores positively local authorities which include a district heating network, irrespective of opportunity and risk, such as whether energy generation is in proximity to a sufficiently concentrated heat demand. Similarly, it scores positively a local authority setting up an ESCO (energy services company) or a municipal energy company, irrespective of the purpose of doing so or consideration of the risks involved or capabilities for successful operation.

The index recognises that the vast majority of local authorities do support some kind of programme to encourage communitywide and grass roots community-led energy efficiency programmes, although some reported they had recently stopped such programmes or only offered online advice. There is likely to be significant variation in the quality of support offered by different local authorities.

It provides a set of recommended strategies for each of the local authorities, which reflect the index criteria. However, it is unclear how far these recommendations are tailored to the circumstances of local areas, for example, their capacity to take on the risk of setting up an ESCO or the viability of establishing a local district heating project.

As with the ETI approach, there seems to be little reflection on what any particular local authority should be doing and what would constitute 'doing well', given the energy-related opportunities and challenges it faces and the social and institutional capabilities available in its area.

2.2 Other recent studies on community and local energy

The body of recent literature on local energy is characterised by generally taking a broad definition, to include community-owned or community-led initiatives and municipal-led initiatives, as well as various forms of partnership.

2.2.1 Community Energy

In 2013 DECC and Consumer Futures commissioned Databuild and the Energy Savings Trust to undertake research regarding the scale of community energy activity in the UK at the time, as well as to understanding barriers and opportunities regarding community energy delivery. This was to inform the community energy strategy developed under the Coalition government. Community energy was defined as ‘any UK energy project that was completed, commenced or considered in 2008-2013 and was led or partially owned by a community group’.

The study identified at least 5,000 community groups in the UK, of which 2,670 were in England. Of the total 5,000 groups, 3,607 were associated with sufficient postcode data to be identified as either urban or rural. It found that in England, activity is particularly prevalent in South West England. The groups were identified from a range of data sources³. It found that numbers of community groups in areas of high deprivation are similar to numbers in areas of low deprivation, though with a greater likelihood to focus solely on energy efficiency measures.

The study used responses from an online survey, which achieved 170 responses, to understand more about motivating or enabling factors for community group activity. The study was unable to draw precise conclusions about the scale and impact of renewable energy, awareness raising and energy efficiency measures.

2.2.2 Community-led and community-owned initiatives

Advocates of community-owned initiatives point to a range of ‘added value’ benefits that these bring, by comparison with commercial models, as set out in a Nesta study⁴. The Nesta report identified these added value benefits to include greater levels of reinvestment in local areas, strengthening local capabilities, addressing local economic and social needs, building social cohesion and contributing to a greater sense of wellbeing amongst the community.

A newly published British Academy study on the cultures of community energy⁵, which includes four case studies from the UK⁶ alongside projects from European ‘community energy leaders’ and other international ‘wild card’ case studies, explores the cultural factors that shape the success of projects. For them, community energy generation and supply projects are characterised by ‘local ownership, participation and benefit sharing’.

The case studies identify national policy that illustrates supportive institutional attitudes to community energy; types of market liberalisation that enable the entry of small scale suppliers; predictable, flexible policy making, a culture of social enterprise, and local cultures of trust and social cohesion as enabling characteristics. They also identify that several of the case studies are

³ See Appendix B of Databuild (2013) Community Energy in the UK: Part 2 Final Report.
<https://www.gov.uk/government/publications/community-energy-in-the-uk-part-2>

⁴ Armstrong, H. (2015) Local Energy in an Age of Austerity. NESTA

⁵ Simcock, Willis & Capener (2016) Cultures of Community Energy. British Academy / The Climate Change Collaboration.

⁶ These are Wiltshire Wildlife Community Energy, England; Brixton Energy, England; Cwm Arian Renewable Energy (CARE), Wales; and Horshader Community Wind Turbine, Scotland.

characterised by a 'resistance culture', including in opposition to more commercialised attempts to introduce energy projects in their area. The UK case studies, whilst geographically split, reflect a subset of what others, taking a more broad church definition, would identify as local energy initiatives.

2.2.3 Municipal-led initiatives

A report by think-tank IPPR published in 2014 recommended that cities engage in energy supply and investment in low-carbon infrastructure.⁷ It explores options including distributed generation, moving from organising collective switching towards acting as energy suppliers, and investing in energy, through collective local bonds and pension fund investment in low-carbon infrastructure. It proposes the creation of a local authority energy unit within DECC to bring together guidance for cities and local authorities bringing together expertise in different energy areas, in line with their recommendations.

A report commissioned by the Local Government Association (LGA), aimed at councillors, draws attention to the opportunities for local authorities to achieve cost savings and income from adopting energy efficiency and renewable energy technologies (Verco 2016).

A 2011 study by Royal Institute of Chartered Surveyors (RICS) includes numerous case studies of 'success' stories of low carbon city initiatives, identifying critical success factors to create an environment supportive of effective local carbon strategies and plans in UK cities, namely:

- Implementation and Policy Frameworks, setting targets and implementing coherent action plans, linking city policy with national policy;
- Partnerships – with business/industry, university/research institutes and community/charities as local stakeholder groups. Some scepticism was reported regarding the potential effectiveness of Local Enterprise Partnerships to provide the appropriate linkages;
- Innovative financing solutions, particularly to tackle energy efficiency and retrofitting issues; and
- Integrated low carbon and climate change agenda, supported by sectoral targets and strong leadership.

However, whilst the RICS study may be correct in identifying these as common features of successful local initiatives, it is possible that they are simply emergent symptoms of well-managed practical initiatives rather than genuine 'critical success factors'. It is not obvious that, of themselves, they would guarantee effective projects emerge – or that they could be put in place without having a specific initiative (or set of initiatives) for which they are needed. As with the ETI pilot, there may be a confusion of cause and effect.

As we have written elsewhere (see Footnote 2), best practice case studies often focus on describing the end point 'success' whilst doing little to unravel the complex pattern of influences that shaped its emergence and the challenges involved. That often makes case studies unreliable guides to the

⁷ Platt, R., Straw, W., Aldridge, J & Williams, J. (2014) City Energy: A New Powerhouse for Britain. IPPR, London.

practice from which they emerged and thus difficult to replicate and less than helpful in the context of helping other local authorities to improve their own performance in their own local context.

3 Understanding local energy characteristics

3.1 Introduction

The local authority energy performance assessment approaches described in the previous section share a similar limitation. None of them appears to have assessed the quality of local action on energy in the context of a clear description of the local opportunities and constraints on action in terms of the physical characteristics (e.g. housing, geography, density of heat demand) and the socio-demographic factors (e.g. deprivation, social capital etc.) of the area in question.

To address this gap, we have endeavoured to provide that description of the local context for action. As described below, we have analysed a wide range of available data to produce a set of six distinct clusters of local authorities. Local authority areas within the same cluster share a set of similar characteristics relevant to local energy.

These clusters can be used to inform consideration of the high level opportunities and constraints for local energy action in each area. Used alongside assessment of the quality of current local performance and of available local capacity and capability, this approach can (a) support decisions on the types of support likely to be needed by different local areas and (b) provide a gentle challenge to local authorities and other local energy actors in terms of the priorities for action they are setting. Each of the clusters is characterised below.

3.2 What clustering tells you

The clusters presented in this report are based on the following characteristics of areas:

- rurality
- deprivation
- access to the gas network
- potential for district heating
- proportion of energy inefficient housing

The indicators used in the clustering were identified from an initial long list of possible indicators of physical geography, built environment, social and health status, existing renewable energy installations and existing community group activity. Exploratory analysis of correlation between individual indicators was used to refine this down to the set of six indicators used, which we found to be the most helpful indicators of relevant characteristics in distinguishing different groupings of local areas in terms of their local energy opportunities and constraints.

The analysis is designed to identify, for each group of similar local authorities, which types of local energy activities are likely to be appropriate, and correspondingly which forms of support may be suitable. It can also be used to identify local areas where potential intervention supports can be targeted.

This will need to be used alongside other information, including the capacity of local authorities and other factors not amenable to being included in this form of clustering analysis, such as national policy, devolution arrangements, the differing capacities of single- and two-tier-authorities, presence of protected areas, local politics of opposition or support and localised technical constraints, such as

distribution network capacity. These groupings can be used in conjunction with the '[matrix of local energy performance](#)', as well as other credible approaches to differentiating local energy capability.

3.3 Summary of cluster analysis process

A large number of datasets were compiled at local authority and used to create a set of indicators describing local authorities, including energy consumption levels, housing efficiency levels, proportion of off gas buildings, potential capacity for district heating, proportion of built up areas (as an indicator of rural urban composition), and level of deprivation across each authority. The full list of data sources and the derived indicators can be found in [Appendix 1](#).

These indicators were then run through a clustering algorithm that grouped local authorities according to their similarities across these indicators. (The full details of this methodology can also be found in [Appendix 1](#)).

The clustering produced six groups of local authorities characterised on five variables. These groups are summarised below in Table 1, which shows the median values of each variable for each group, along with the number of local authorities in each group (i.e. group size). Graphs showing the distributions of each indicator for each cluster are presented in Figure 1, in which the mean and median values are shown as vertical lines. The smallest group (c4) contained nine local authorities, while the largest group (c3) contained 96.

The groupings varied from a group of predominantly urban local authorities with an average of 66% of 'built-up' areas to a cluster of local authorities where the average area of land that was built up was just 2%. A map showing the geographic distribution of local authorities in each cluster is provided in Figure 2. A list of all local authorities in each cluster is provided in [Appendix 2](#).

Table 1: Median scores for each indicator for each cluster, and the size of each local authority cluster

Cluster number	Built up area (%)	Heat quality index (higher = better district heating potential)	LSOAs above national median IMD (%)	EPC lodgements In SAP band F/G (%)	Postcodes with all addresses off gas grid (%)	Number of members of cluster
c0	13%	4.75	60%	6%	10%	80
c1	66%	7.28	74%	5%	9%	56
c2	19%	4.78	18%	5%	12%	44
c3	4%	2.78	23%	8%	25%	96
c4	2%	1.89	74%	15%	45%	9
c5	50%	6.65	41%	5%	10%	39

Figure 1: Distributions, means and median values for each indicator for each cluster in the analysis.



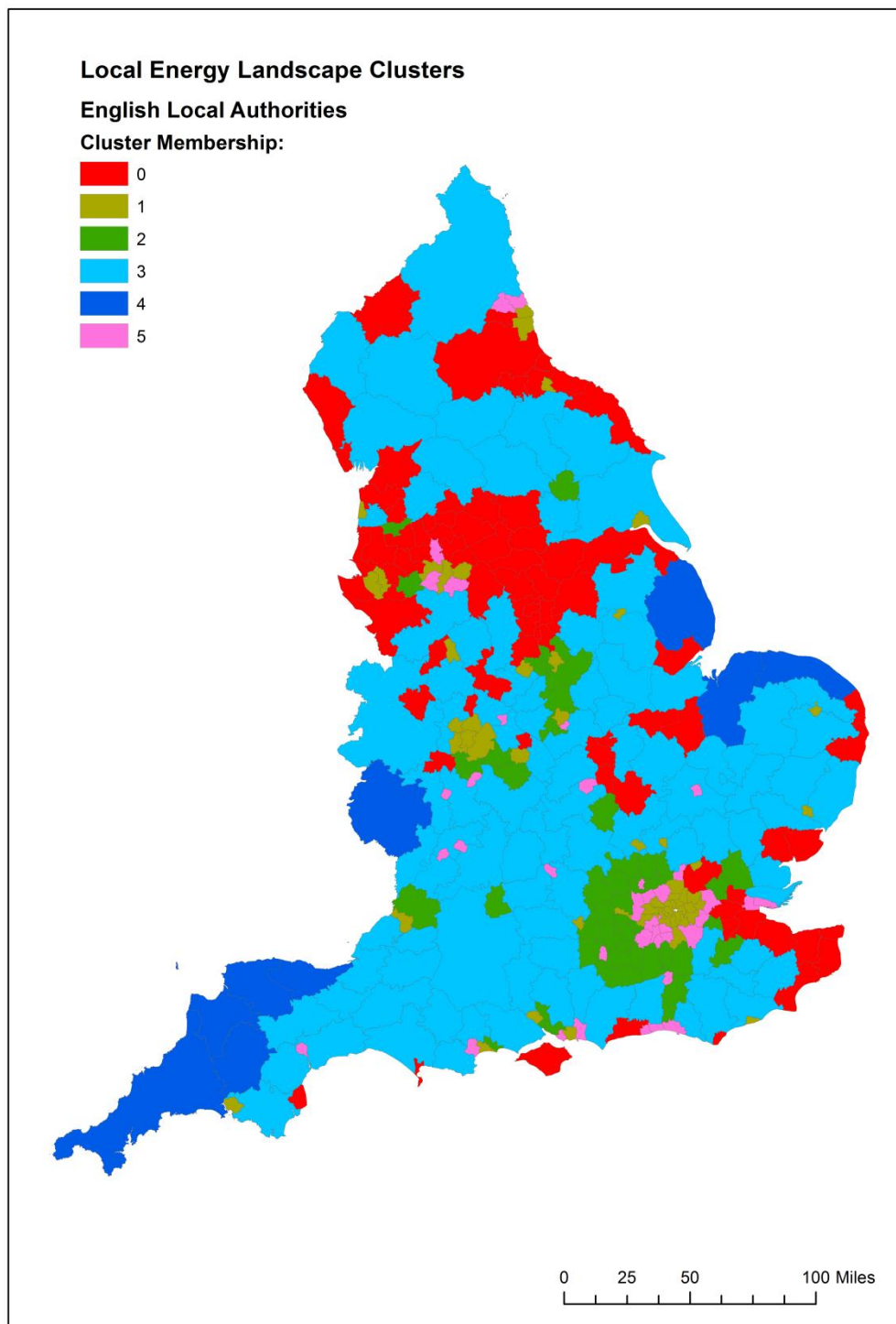


Figure 2: Local Energy Landscape Clusters of Local Authorities in England.

The follow section characterises each of the clusters and identifies which recommended interventions may be appropriate to local authority areas which fall within each cluster.

3.4 Cluster 0: Deprived semi-rural areas (n = 80)

The majority of local authorities in this cluster are in a central northern belt spanning from the Wirral to the Humber estuary and include areas that are predominantly rural but include a central larger town or city. Local authorities in this cluster include areas such as Preston, West Lancashire, Barnsley and Doncaster. However, a number of local authorities from other parts of England are also in this group, including coastal authorities in the North West, the North East and the South East.

Typically, these local authorities have a good heat quality index. On average, 60% of LSOAs in these areas rank amongst the 50% most deprived areas in England. Cross-referencing with Figure 3: Map of relative density of community group activity in England, it would seem that these are generally areas with a relatively low number of active community energy groups.

These areas potentially offer a mix of local energy opportunities, including a wide range of renewable energy opportunities in rural areas, whilst also being suitable for renewable heat opportunities in high density larger towns and cities, particularly those with concentrations of social housing. Initiatives to tackle fuel poverty and promote affordable warmth may be particularly relevant but limited community energy capacity may mean that DECC support should be focused towards LEP- or local authority co-ordination, whilst also encouraging these bodies to engage with local groups and encourage the emergence of new entities.

3.5 Cluster 1: Major Cities and Inner London (n = 56)

These areas are characterised predominantly by urban areas, including central London, and major cities (such as Middlesbrough, Sunderland, Liverpool, Manchester, Birmingham, Nottingham, Bristol, Plymouth and Southampton). Typically, these local authorities contain high numbers of LSOAs with IMD scores above the national median, and therefore likely to have poorer health outcomes than other local authorities. Looking across to Figure 3: Map of relative density of community group activity in England, these areas also tend to include medium to high numbers of active community energy groups.

These authorities are also likely to contain the majority of 'urban fuel poor' households, but have lower levels of inefficient housing than other local authorities, probably associated with high proportions of social housing which have benefitted from insulation and other measures. The urban nature of these areas means that there are low levels of off gas postcodes and there is significant capacity for district heating systems.

In these areas, DECC's balance of support should seek to encourage district heating and also be directed towards energy affordability and health outcome-focused initiatives, with the private rented sector likely to be an area of challenge. These are areas where DECC should be pushing different actors to network effectively and to exchange learning so that existing capacity and expertise is shared, directed towards building capacity in localised pockets of higher relative deprivation. There may be opportunities for experimentation in testing which leadership or collaborative approaches are effective, in areas with multiple local energy actors.

3.6 Cluster 2: Home Counties and Wealthier City Adjacent (n = 44)

The majority of these local authorities are in the Home Counties to the west of London, but also include some of the least deprived mostly-rural LAs surrounding (but not including) cities such as Birmingham, Nottingham, Southampton, Portsmouth, Bristol. These include a number of Green Belt areas. Looking across to Figure 3: Map of relative density of community group activity in England, these areas have low to medium numbers of active community energy groups.

Despite their predominantly rural nature, the analysis suggests that there is some potential for district heating systems. Generally, there are lower levels of inefficient housing and these areas are typically well connected to the gas grid. This group represents the least deprived cluster of local authorities, thus the cluster least likely to contain fuel poor households.

These are areas where DECC may choose to be more selective in the support offered, focusing it on promising district heating opportunities, or encouraging LEPs and local authorities to drive suitable energy generation initiatives, recognising that there may be local opposition to certain forms of renewable energy in Green Belt and protected landscapes.

3.7 Cluster 3: Less deprived rural pockets (n = 96)

This is the largest cluster with a total of 96 local authorities located across England from South Devon in the South West to Northumberland in the North East. It is characterised by high levels of inefficient off-gas housing and low levels of deprivation. The rural nature of these authorities means that district heating potential is generally very low. Looking across to Figure 3: Map of relative density of community group activity in England, some of these generally large geographical areas, have few active community energy groups. Those groups that do exist may only cover a very small local area (e.g. a village or town) whilst others may be spread thinly across a larger area.

These are areas where DECC's support is likely to be best focused around renewable alternatives to oil-based heating and renewable electricity generation, including appropriate bioenergy production in protected areas. Given the large numbers of local authorities in this cluster, which together comprise a sizeable proportion of the land cover in England, DECC's support offer will need to be flexible to different partnership arrangements, approaches and scales of planned activities. Whilst there may be overall low levels of deprivation in these areas, this does not rule out the need for initiatives that address energy deprivation and associated health issues affecting certain sections of rural populations.

3.8 Cluster 4: Large rural coastal authorities (n = 9)

The smallest group of local authorities, distinctive in their rural coastal geography and high levels of off inefficient, off-gas dwellings. In addition, these local authorities have above average levels of deprivation.

A number of these are local authorities in the South West, including Cornwall, North Devon and West Somerset, but also include those on the east coast such as King's Lynn and West Norfolk District and North Norfolk District. Looking across to Figure 3: Map of relative density of community group activity in England, these areas have very differing numbers of active community energy

groups, with Cornwall having a thriving community energy sector whilst the areas around the east coast of England have few active groups.

Cornwall can already claim to be an exemplar area for innovation in local energy initiatives and those involved should be encouraged to share their experience with other rural areas, as well as to further innovate. By contrast, the east coast areas should be encouraged by DECC to be more ambitious in making use of potential energy generation opportunities (including off-shore wind – not mapped), including to secure the local economic benefits. In all these areas, initiatives to tackle energy deprivation and related health issues are likely to be important ways to build local engagement, whilst renewable heating alternatives for off-gas communities is another area for focus.

3.9 Cluster 5: Outer urban belt and wealthier larger towns/small cities (n = 39)

The 39 local authorities in this cluster include a ring of authorities in outer London, plus a number of smaller towns across England. Typically these areas are well connected to the gas grid, with an average of around just 10% of postcodes being 'off gas', and have low levels of inefficient housing. There is a range of deprivation levels in this group, from low levels of deprivation in areas such as Cambridge, Cheltenham, Exeter, Oxford and Brighton and Hove, to higher levels in areas such as Bury, Northampton, Stockport and Watford. The analysis suggests that all areas have good district heating potential.

DECC support to this cluster of areas should include encouragement to the exploration of suitable district heating initiatives. As with Cluster 1 DECC's support should also be directed towards energy affordability and health outcome-focused initiatives, particularly in those areas with higher deprivation, with the private rented sector likely to be an area of focus. These are areas where DECC should be pushing different actors to network effectively and to exchange learning so that existing capacity and expertise is shared, directed towards building capacity in localised pockets of higher relative deprivation. There may be opportunities for experimentation in testing which leadership or collaborative approaches are effective, in areas with multiple local energy actors.

3.10 Other important factors to consider

Consideration of the design and targeting of interventions to support local energy should take into account other factors alongside those represented in the groupings. These will include national policy considerations, devolution arrangements, the differing contexts for single- and two-tier areas, the influence or absence of intermediary organisations, the presence of protected areas, which will limit opportunities for certain renewable technologies (e.g. solar, wind, large scale tree felling) but not for all (e.g. pollarding for biofuel), and other technical constraints, such as distribution network capacity and local transport capacity (Linnell 2012). Local politics of opposition or support for renewable energy will also be important, and this is related to planning policy opportunities and constraints.

3.10.1 Devolution agenda

The devolution agenda, whereby power and funding are redistributed from national to regional and local government, provides an important policy driver for encouraging local energy. Devolution arrangements negotiated to date have included proposals for energy initiatives, notably by local

authorities already confident in leading on low carbon action, including Greater London, Cornwall, West of England (including Bristol) and Greater Manchester⁸. Liverpool City Region's devolution arrangement includes partnership commitments concerning tidal power, home energy efficiency programmes and regarding local distribution network, whilst the Tees Valley deal includes work on industrial carbon capture and storage. Other deals (e.g. Sheffield) identify energy initiatives as part of other priority areas. For example, Sheffield City Region includes the exploration of low carbon energy generation as part of its Housing and Planning ambitions. Many more deals are yet to be confirmed and provide an opportunity for innovation and local partnership. The North East deal identifies support for investment in energy efficiency and technological development as a further opportunity for devolution.

3.10.2 Influence of intermediary groups

Community capacity in local authority areas is not straightforwardly a measure of the number of groups active in an area. Previous research has identified intermediary bodies as playing important roles in scaling up community activity, linking community activity with policy, trying to influence the wider context in which community energy projects exist and in helping to accelerate the community response to energy issues (Bird & Barnes 2014; Hargreaves et al, 2013), though Hargreaves et al in particular highlight that intermediary bodies themselves may, like the initiatives they are supporting, also face challenges to their own survival. The existence of more resilient intermediary organisations may be a useful marker of the community capacity of an area and may be an important factor to consider in devising the approach and criteria for how differing packages of support are targeted at different areas.

3.10.3 Local attitudes towards community energy

Community-level energy generation is also influenced by other factors at different scales, including socio-political barriers (Linnell, 2012) which can give rise to local hot-spots of opposition amongst groups within local communities to certain types of energy generation. Planning legislation importantly shapes opportunities for local energy. For example, since 2015, local planning authorities should only grant planning permission where the development site is in an area identified as suitable for wind energy development in a local or neighbourhood plan and following consultation, it can be demonstrated that the planning impacts identified by affected local communities have been fully addressed and therefore the proposal has their backing. This does not rule out opportunities for community-led activity on renewable energy. Neighbourhood planning groups can prepare neighbourhood plans that designate areas suitable for wind energy development and/or undertake activities that build community support for renewable energy generation in their area.

⁸ LGA (2016) 'Devolution deals' <http://www.local.gov.uk/devolution-deals>

4 Local community energy groups: the current state of play (q2 2016)

A database of community energy groups in England was constructed, drawing on CSE-owned or – managed community energy databases (this included Urban Community Energy Fund (UCEF) applicants and the Green Open Homes database), Rural Community Energy Fund (RCEF) funded projects and Community Energy England membership. Postcode data from the cleaned, combined database was mapped to give a feel for the relative number of groups active in different local authority areas.

An online questionnaire was distributed widely to community energy groups, via direct emails, social media and via other local and community energy hubs or networks. A total of 260 responses were received within the 4-week timeframe. The questionnaire included questions on group size, activities, capacity, and views on local authority support. It included an open-ended question to mention activities of particular interest. Many respondents also used this open-ended response box to report on barriers to progressing projects that they had been excited about.

The study identified over a thousand community groups spread across 179 local authorities in England, with the numbers of groups located within a single local authority varying between none to over 50. This is likely to be an under-count, as a previous study commissioned by DECC identified 5,000 community energy groups across the whole of the UK⁹.

This latest assessment shows a strong clustering of groups around Bristol and the South West. While this suggests some potential bias in the sampling, reflecting the use of (Bristol-based) CSE's own records of contacts with groups, this clustering is aligned with the findings of previous studies e.g. Databuild 2013 (see [earlier summary](#)).

There is likely to be some under-reporting of the number of groups in other parts of the country, particularly those not undertaking energy generation activities, urban-based projects that have not sought national funding via the Urban Community Energy Fund (UCEF) or rural-based projects that have not applied to or not been unsuccessful in applying to the Rural Community Energy Fund (RCEF).¹⁰

⁹ Gornall, K & Macleod, F. (2015) Community Energy: Evidence Review - Presentation

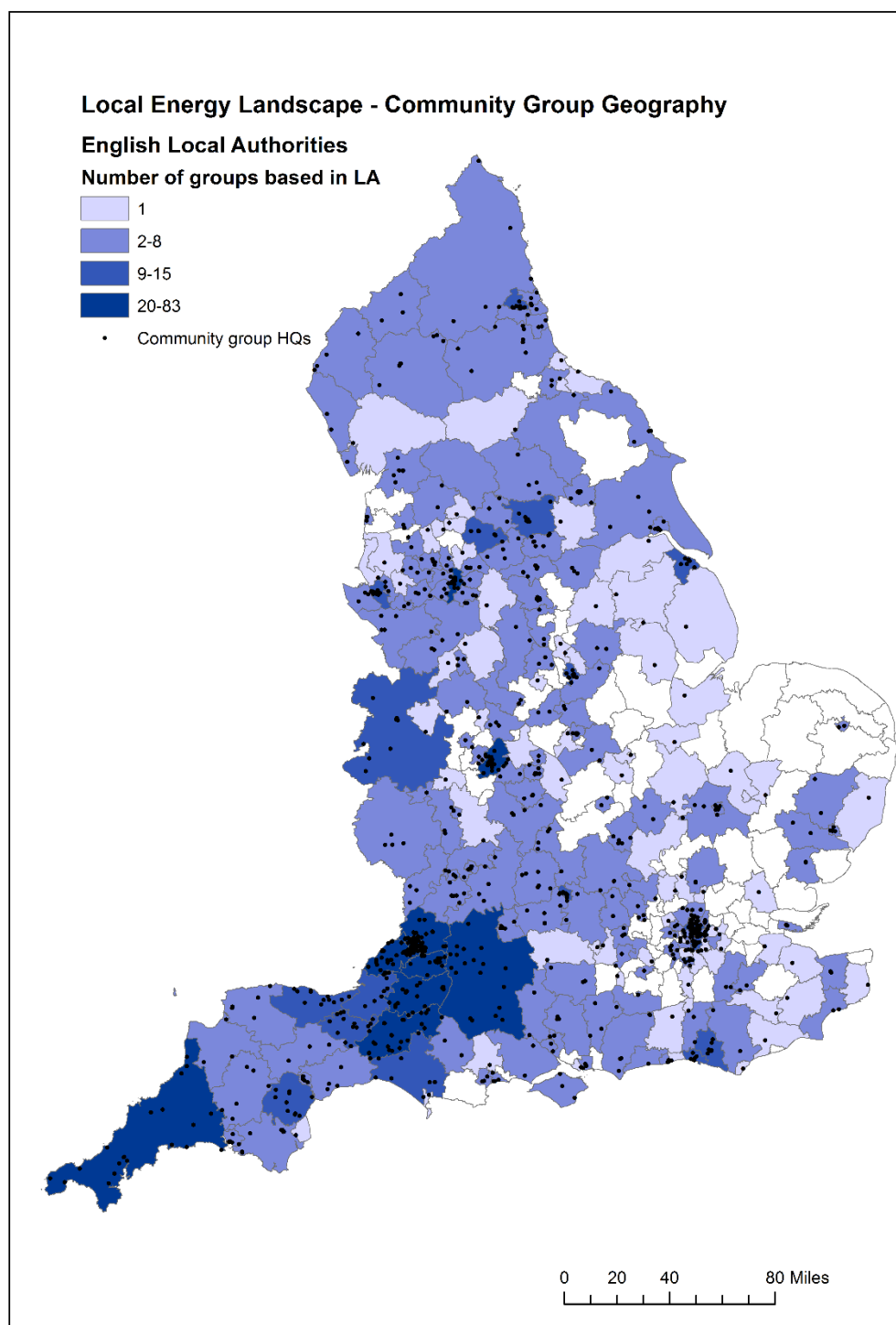


Figure 3: Map of relative density of community group activity in England

The map in Figure 3 can be usefully cross-referenced with the map in Figure 2: Local Energy Landscape Clusters of Local Authorities in England., to compare the relative density of community groups with the physical and socio-demographic characteristics of an area. This can help identify where DECC efforts may need to include efforts to catalyse increased co-operation between local

authority and community actors or to encourage approaches that build greater community involvement in energy.

4.1 How long have groups been active?

Groups reported starting year of activity as a community energy group ranged from 1967 to 2016, with the median age of groups being 4 years (started in 2012). The relative youth of many groups suggests the availability of FIT funding was an important driver for initiating community activity.

Through our analysis we found that there was not a clear correlation between the length of time a group has been around for and the number of active members. This is likely due to many groups not looking to expand beyond a certain level as their focus is much more localised. We did find that the majority of groups with a large number of members (over 200) were formed in the period 2010-2013. Figure 4 below shows the results.

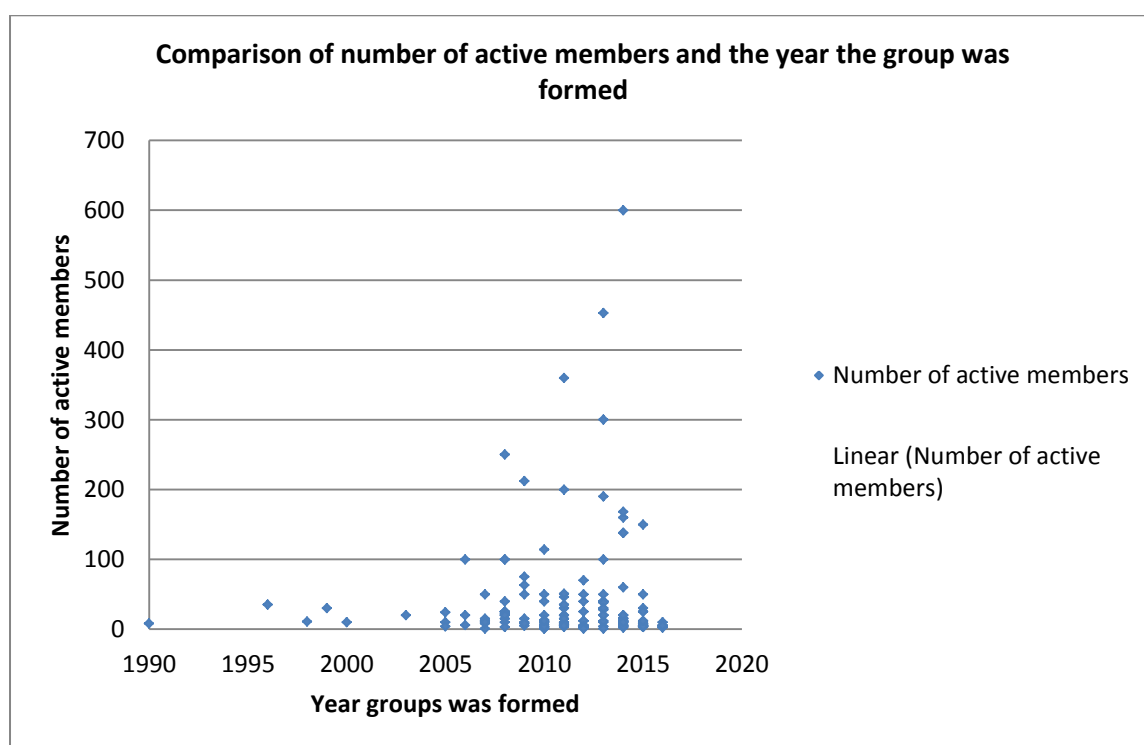


Figure 4: Number of active members of group v year group formed

4.2 Active membership and wider grassroots engagement

There is a wide variation in the number of people reported to be active members or volunteers for individual groups, which probably reflects both actual variation in numbers and differences in what is considered to be 'active'. The most frequent response (mode) given is 4 people, whilst the median number of active members or volunteers is 12 people.

Local authorities with the largest number of active members or volunteers organised into groups include Wolverhampton, New Forest, Greenwich, Oxford and Plymouth.¹¹

Other areas with community groups with sizeable active memberships are shown below.

Cornwall	285
South Gloucestershire	245
Richmond upon Thames	212
Barnsley	200
Leicester	190
Stratford-on-Avon	177
Gateshead	160
South Somerset	158
West Oxfordshire	150
Bath and North East Somerset	139
Bristol, City of	129
Mendip	124
Winchester	100

Figure 5: Local authority areas with community groups with sizeable active memberships

The number of people a group regularly communicates with provides an indication of the level of wider grassroots engagement with energy issues. The most frequent response (mode) given is 100 people, whilst the median number of active members or volunteers is 200 people.

For example, Bristol and Bath include groups that engage with over 11,000 people, indicating a relatively high level of grassroots engagement with local energy. Other areas where existing community groups engage with more than 2000 people include Brighton, Greenwich, Kirklees, Haringey, Cornwall, Bracknell Forest, North Tyneside, Oxford, Plymouth, Shropshire, Woking, Stoke-on-Trent, and Stratford-upon-Avon.

¹¹ Responses which state a very large number of active members or volunteers, particularly where the reported number is the same as for the number regularly communicated with are not included in this reporting.

4.3 Priority activities

Energy generation clearly emerged as the leading recent priority area of community group activity, whilst energy advice type activities and projects to tackle fuel poverty alleviation are also identified as priority areas for other groups¹². Energy efficiency and open homes activities also identified amongst the priority activities of groups. The diversity of the sector is reflected in the sizeable number of groups reporting 'other' types of priority activities.

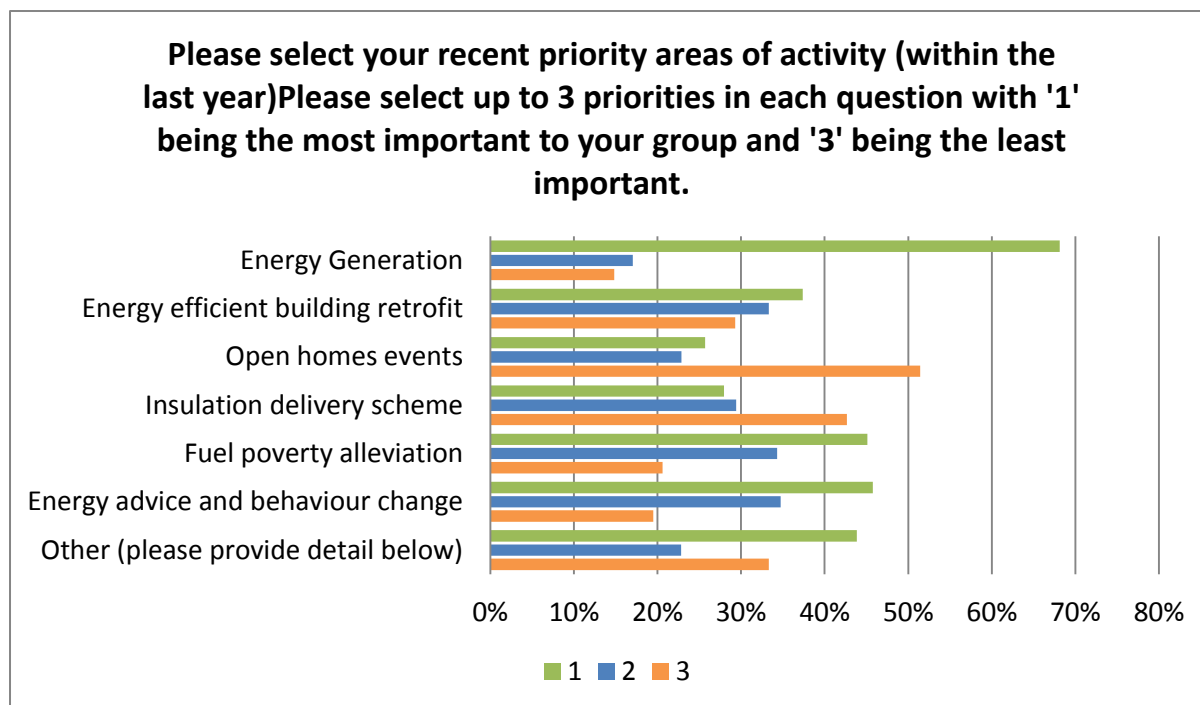


Figure 6: Community group's report recent priority areas of activity

Energy generation emerged even more strongly as the leading future priority area of community group activity, with a reasonably even split between energy efficient building retrofit, fuel poverty alleviation, energy advice and behaviour change and 'other' projects as the priority of other community groups. A majority of groups indicated they undertake open home events, though this was more likely to be a secondary or tertiary activity to their principal area of interest.

¹² Some respondents encountered difficulties with the ranking method used for this question, reducing the number of responses. However, some people used the open-ended box at the end to report the activities they are involved in.

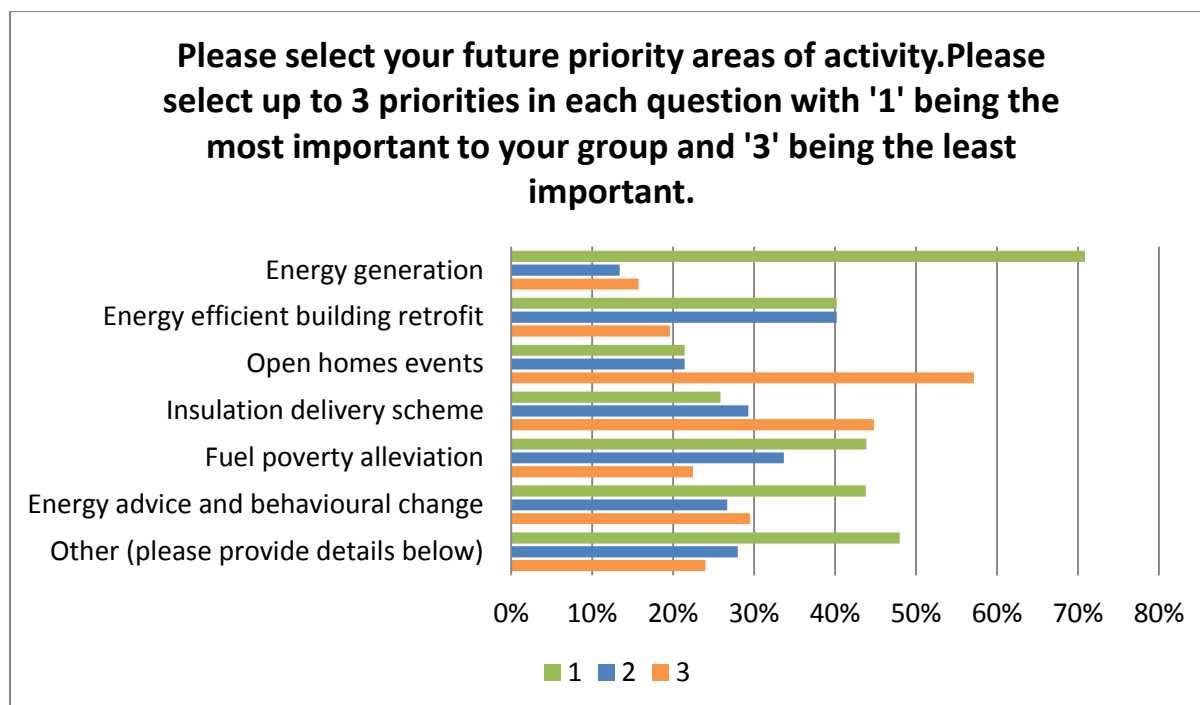


Figure 7: Community groups' reported future priority areas of activity

4.4 Particular projects of interest

Respondents used an open-ended response box to report a wide diversity of projects that they are particularly excited about.

4.4.1 Renewable energy generation

The most frequently mentioned types were various solar PV installation projects, including solar farms and installations on schools, community buildings, a hospital, a church, a supermarket and a university. Other renewable energy generation projects reported included an anaerobic digester, various biomass projects, community wind turbines, hydro projects and small scale communal heating systems. A number of respondents used this box to report pipeline energy generation projects that had either been abandoned or made more difficult due to reductions to FIT rates. In response, a few groups had focused on completion of pre-accredited projects and one had switched their efforts to neighbourhood planning as a way to influence investment in renewables in their area. A few respondents mentioned alternative sources of funding, including community share offers.

4.4.2 Tackling fuel poverty

Several groups reported excitement about projects focused on tackling fuel poverty, including via reinvestment of income-streams from energy generation projects, advice services, training of community energy advisors, targeting of projects in areas of deprivation, various innovative educational and outreach projects and offering discounted fuel or energy efficiency technology.

4.4.3 Educational and awareness raising projects

Educational and awareness raising projects reported included projects aimed at pre-school and school aged children, a solar-powered phone charger project with young people and people from BME backgrounds, energy audits with local businesses, thermal imaging, one-off events aimed at specific target audiences and green open homes events. Specific target groups for projects included children and young people, low income households, people from BME backgrounds, landlords, tenants, health professionals and prisoners.

4.4.4 Community and residential retrofits

Various community and residential retrofits were reported, as well as projects to promote LED lighting uptake, residential energy efficiency measures, and a project to find a way to reduce the running costs of municipal swimming pools. Other types of activities mentioned included sustainable transport projects, neighbourhood planning activities, manufacture of modular passive house homes and energy supply businesses.

4.4.5 Demonstration and experimental projects

A number of groups reported they are undertaking innovative demonstration and experimental projects, including ones concerned with energy storage, use of solar arrays, micro-grid development, local demand balancing initiatives and demonstration sites for renewable technologies and other sustainability measures.

4.4.6 Alternative business models

There was some evidence that groups are employing alternative business models to avoid reliance on public funding, including via the use of time banking, community share offers, repayment of capital investment and reinvestment of income from project (e.g. for projects to replace old lights with LED lights) and seeking other funding sources e.g. energy suppliers.

4.5 Impact of community level activity

The impact of community level activity can be roughly gauged from the amount of funds raised in the past twelve months. Respondents were asked to indicate the amount raised within a series of bands. The questionnaire did not separately ask about the amount of income generated by projects.

Local authority areas where community groups report raising more than £150,000 include significant amounts of funding had been raised by community groups are mainly located in the South/South-West of England, whilst groups located in Lichfield, Carlisle, Hartlepool, Liverpool, Sheffield are amongst those that have raised over £50,000.

For energy generation projects, respondents were invited to report the amount of kW capacity installed to date. 173 respondents reported energy generation, with the highest capacity reported of 7500kW in Bath and North East Somerset. Other significant energy generation projects were located in Plymouth, Shepway, West Oxfordshire, Shropshire, North Somerset, St Edmundsbury, New Forest, Oxford, Cornwall, Bury, Sedgemoor, Brighton and Hove, Lichfield, Leicester and Waverley.

Smaller scale energy generation projects were reported in numerous areas in the South West, a number of London Boroughs (Greenwich, Haringey, Enfield) and the RB Windsor and Maidenhead), Stratford-on-Avon, Lancaster, Warrington, Liverpool, Southampton, Warwick, Hartlepool, East Hertfordshire, Chiltern, Wychavon, North East Lincolnshire and West Oxfordshire.

A further group of projects reported no capacity as yet, but as being in the process of taking their project forward.

4.6 Relationship with local authorities

Community groups were invited to rate the support received from their local authorities for their community energy activities over the past two years. Overall, this indicates a spread of views amongst groups concerning the helpfulness of their local authority. However, as outlined below, there is a positive relationship between the number of groups in an area, total kW installed and total funding raised and the perceived helpfulness of the local authority's support.

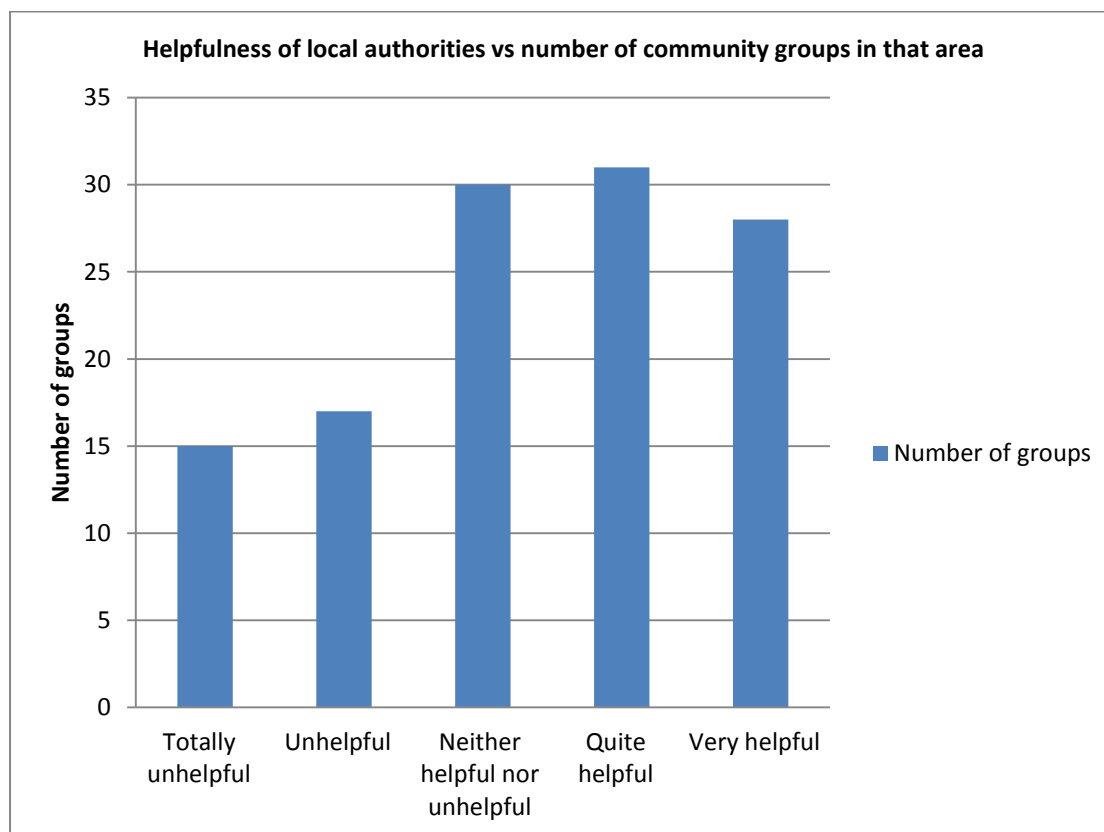


Figure 8: Community group perceptions of how helpful their local authority has been

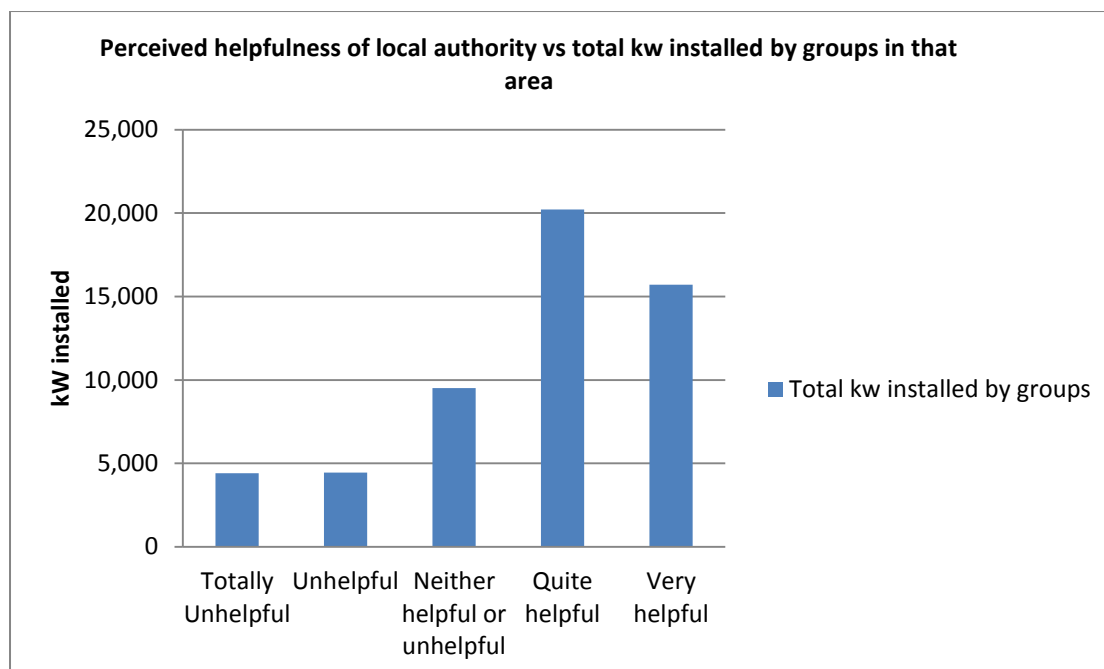


Figure 9: Perceived helpfulness of local authority in relation to community installation of renewable energy

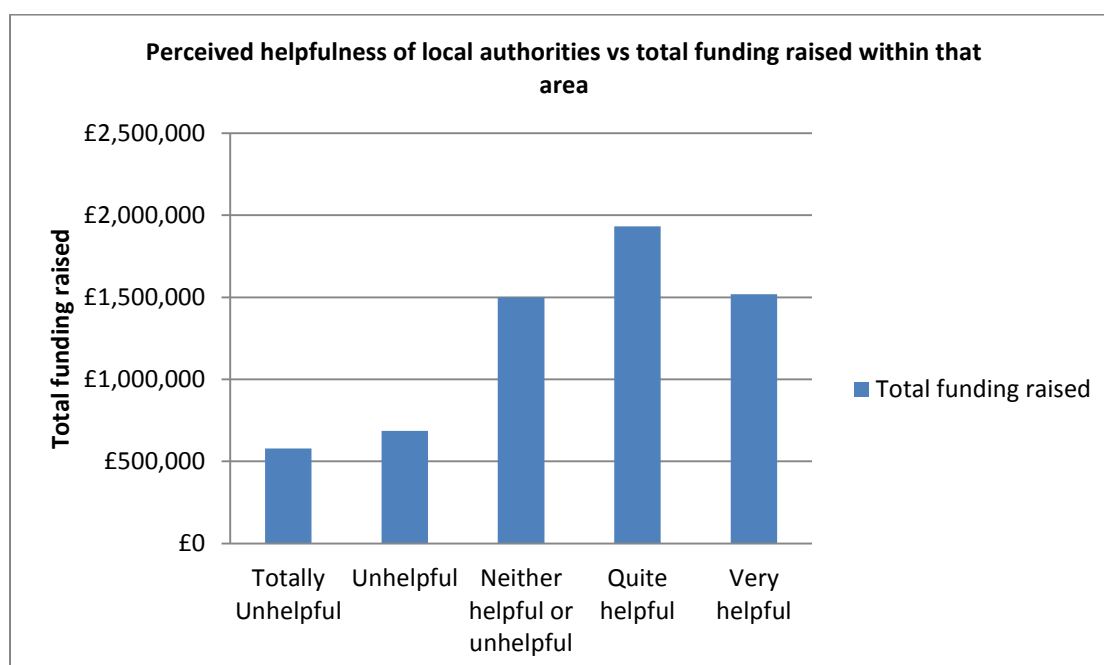


Figure 10: Perceived local authority helpfulness against funding raised by community groups

Amongst the open-ended responses, partnering with local authorities and successful efforts to persuade local authorities to undertake local energy initiatives were reported.

While this suggests a strong relationship between community energy group success and local authority helpfulness, it cannot be used to conclude that one causes the other. Our hypothesis, informed by our experience, would be that successful initiation of community energy activity and supportive local authority behaviour tend to go hand in hand and feed off each other. That said, it

seems clear from this analysis that community energy groups in local authorities perceived as 'unhelpful' or 'totally unhelpful' will tend to be less successful (if success is measured by kW installed or funds raised).

4.7 Summary

This snapshot online survey demonstrates the diversity of the community energy sector, in terms of types and range of activities, scale of activity and level of active membership. There is strong clustering in the South-West and the South more generally. Outside those hubs of community engagement, typified by a large numbers of groups, over 100 active members of groups in the area and regular communication with over 2,000 people on community energy, there are many areas where community energy activity is far more limited and has not reached a snowballing effect size to achieve projects of scale or supportive networks of groups.

The findings suggest that amongst respondents, there is a positive relationship between the achievements of community group and their experience of a helpful local authority. This suggests there is value in DECC encouraging local authorities to fulfil their enabling role, as set out in the Community Energy Strategy.

Energy generation is the leading future priority identified by groups. However, most groups also engage in a range of other activities of relevance to their local communities, including examples which focus on particular sections of their community, notably children, but also groups that experience social disadvantage.

Cuts to funding and recent policy messages are reported as having discouraged groups in recent years, and whilst some groups have used this as an opportunity to experiment with different business models, others have been discouraged and abandoned plans. The revitalisation of government strategy on local energy may help to re-ignite enthusiasm amongst groups to take forward activities, particularly where local authorities or other third parties are also available to provide support and advice to groups.

5 Interviews with local energy innovators

5.1 Introduction

Interviews with a number of individuals identified as local energy innovators were conducted to draw out their experience and elicit their views on the factors that enable local energy activity, as well as their experience and views on the roles of local authorities and what future support by DECC would contribute to the future success of local energy.

5.2 Interviewees

Semi-structured telephone interviews were conducted with a number of individuals, identified as influential practitioner leaders in the local and community energy sector. Those interviewed were:

- Anne-Claire Leydier, of Northern Powergrid
- Becky Willis, Independent Researcher
- Alistair Macpherson, Plymouth Energy Community
- Pete Capener, Bath and West Community Energy/Mongoose Energy
- Andy Heald, Gen Community Ventures
- Paddy Bradley, ex Swindon Council

A brief profile of each of the interviewees is provided at Appendix 5. Between them, they have experience of a range of different approaches to local energy activity, including champions of community-led approaches, local authority officers with leading roles in municipal-led initiatives and a private company which uses a community asset ownership model to financially support socially beneficial projects. The focus of all of these practitioners is principally on renewable energy generation, though several are integrating energy efficiency and fuel poverty objectives into their approach and business models.

5.3 Enabling factors

Interviewees identified a number of factors which can promote or hinder the establishment and thriving nature of community energy groups. The socio-economic characteristics and existing community spirit of the area were considered by some to be influential, with affluent communities and pre-existing strong community spirit considered favourable, though the contrasting view was also expressed that this need not be relevant, with the role of those starting the project to galvanise community support, regardless of socio-economic circumstances.

In areas where the local authority has been responsible for setting up community energy groups, it was identified that a strong political will and desire to do things differently was crucial. The introduction by councils of Local Development Orders to allow certain kinds of development to be fast-tracked through the planning system was identified as very useful to enabling energy generating projects. In situations where the local authority played a pivotal role, ensuring projects had at least some 'grassroots credibility' and enthusiasm was also considered important.

Other third parties identified as valuable providers of advice ranged from governmental organisations such as DECC, to non-profit organisations such as Regen SW, volunteer networks and other community energy groups. It was felt that there was a certain 'snowball' effect whereby once a couple of projects in a local area had succeeded, momentum built and confidence in the community energy model increased. Creating a proposition based on more than environmental values, for instance highlighting the localism message, was rated as important in drawing in wider interest (see below). Local business interest in the proposition of community energy was also identified as an important enabling factor.

The impact of commercial renewable energy developers was seen as negative for community ownership by some, though one interviewee felt that big energy companies should be involved in developing community energy, rather than it becoming a separate entity isolated from mainstream practice.

Being able to raise finance to support the project was viewed as pivotal. A noticeable rise in the number of community projects was associated with the introduction of the FIT. With the reduction in FIT funding, other forms of fund raising are increasingly important, with mention of the use of sites such as Ethex, who support ethical investment. There has also been more funding from charitable foundations, though there are signs that this may not be sustained if government support for both renewable energy and for community energy is seen to dwindle.

5.4 Leveraging local investment

A number of factors were identified as important in gaining local investment in community energy projects. These included the use of start-up grants or loans from the council; setting up a Community Benefit Society to raise funds locally; and a shared ownership model whereby a developer works with a community to develop a project, with mention that organisations such as Abundance provide services linking these two groups together. Reservations were expressed by others regarding the use of a shared ownership model, on the basis that although this approach can achieve local buy-in to projects (considered preferable to funding coming from multinational companies) it can miss the opportunity to secure real engagement and involvement of residents in the project.

Interviewees drew attention to the need for groups to broaden the appeal and importance of community energy to achieve broad local buy-in, by not only emphasising environmental messages, but also emphasising local capture of economic benefits, the social rewards of involvement and the localism dimension of initiatives. Interviewees were also keen to point out that their experience had been that, from the initial interest in the financial rewards, local people tended to value more highly the social rewards in the longer term and that this could also lead on to other forms of community-led activity in other spheres.

Having some financial support from the local council was identified as helpful in making the amount needing to be crowdfunded more manageable. Backing from the council was also considered to provide some security and reliability to the project. Funding from ethical banks in the form of match funding was viewed as helpful in generating more funding whilst loans were also used.

There was a view that DECC should continue to offer financial support, but not in the form of grants, so as to encourage groups to stand on their own two feet. Interviewees felt that provision of advice

and support by DECC would potentially be more useful than grant-giving for helping groups to move towards financial independence. A specific suggestion was for DECC to draw up a set of example business models for community energy groups to use, with the point made that although community energy groups are not-for-profit, they need a strong and viable business model behind them.

5.5 Role of local authority

Two of those interviewed came from local authorities which had helped to establish community energy projects. In one of these, ambitious targets adopted by the local council for installation of renewable energy capacity were pivotal in driving projects forward. In this case an Arm's Length Management Organisation (ALMO) is used for the development of projects, and they are then passed back over to the council or to a third party. The council's main role is provision of funding. In the other example the council provides a staff force for the project, with the community energy company able to buy chunks of staff time through a shared services agreements. This means that instead of them being only able to employ one person, with one set of skills, they can pick and choose from the council's knowledge base. This model also placed a strong emphasis on encouraging and securing the interest and involvement of residents.

Respondents from groups where the council played a less central role had a variety of opinions on the importance of the local authority. Some felt the council being involved helped to secure the trust of locals. Others mentioned council providing support and drive and that projects would have struggled without at least some backing from the local authority. Not all interviewees identified local authorities as necessarily having an important role, with the view expressed that councils can be slow to act and that some local authorities do not seem sure of how to engage with community energy. There was also a view that local authorities may be switching their focus towards local supply and away from community energy, presumably on the assumption that it could potentially provide greater income.

A strongly held view was expressed of the need to keep a clear distinction between local authorities and communities, with recognition that both had something to offer and could potentially work well together. This was related to concern that projects should not be framed by local authorities purely in terms of income generation and a concern that local authority activity does not necessarily equate with community engagement, and associated social benefits. Local authority interviewees were clear that the ability to generate unrestricted income was an important driver for municipal-led activities, to spend for the benefit of local communities.

5.6 Opinions on what DECC should support

A range of opinions were expressed on what DECC should be using its limited resources to support. There was concern that help should be spread evenly, against a perception that recent help and support has mainly been targeted at the south of England, and the South West particularly (though this is where there are more active groups). There was enthusiasm for replicating DECC's approach to supporting district heating, which was viewed as a successful model.

There was an expressed desire for DECC to articulate a clear vision of how they would like the community energy landscape to look in 5 years' time, as the basis for then choosing which projects

to support to move towards this vision. Other related suggestions included providing information about the benefits of community energy and commissioning research into the benefits of community energy, including community benefits, towards garnering support for it.

A broadly shared view was for DECC to provide informational resources and support. For instance, it was suggested that DECC could produce example business plans and other financial and legal documents that community groups could use. There was also appetite for DECC to help with grant funding applications, for instance from European bodies. Supporting and facilitating the creation of partnerships was also mentioned, including the suggestion of help to create a 'peer-mentoring' scheme between established and aspiring community groups or sponsorship of local events and meetups for networking.

Another role identified for DECC was to increase the attractiveness of the sector to skilled graduates. A specific suggestion was that commercial energy companies could be used to train graduates up as part of their Corporate Social Responsibility, who could establish community energy groups for handover to communities.

5.7 DECC policy

The importance of DECC articulating a clear vision for Community Energy was again mentioned in terms of policy, based on interviewees' perception that cutting subsidies had sent a message that it was an area not worth investing in. There was a strongly expressed desire for this message to be countered through straight forward, predictable and stable policies as well as by DECC talking about Community Energy openly, so it is in the public's mind.

A joined up approach was viewed as important. A specific suggestion was advocated that DECC should work with Ofgem to create an incentive for communities to generate energy and connect to the network. It was also mentioned that grid problems needed to be overcome to allow the connection of locally generated power. Another area of policy concern was support for policies that develop the market around local energy supplies and distribution networks.

The potential value of link ups between DECC and other government departments, such as DEFRA was also highlighted, with specific suggestions that DECC should get more involved in Local Enterprise Partnerships, currently managed by the Cities and Local Growth Unit. Partnerships between DECC, the private sector and community energy groups were also considered important.

A particular concern of leaders of community energy initiatives was that DECC distinguish between community and municipal energy as part of their local energy strategy, so that resources can be focused where they are needed most, with policy framed to encourage community groups and local authorities to work together. There was also an appetite for policy to make it more favourable to access lending from ethical banks and social impact funds, rather than commercial sources, on the basis of compatibility with the ethos of community-based practice.

5.8 Summary

The key informants' range of approaches to local energy initiatives demonstrates that different approaches can succeed, but that the types of activities may differ depending on the prioritisation of different ends, including economic, environmental and social aims.

There is a desire for a clearer medium-term vision from DECC of the direction of local energy, which distinguishes the roles of community energy groups and municipal-led initiatives. There is recognition that these entities have potentially complementary roles but there is also evident concern that a wholesale shift towards municipal-led energy presents a threat to community-led activity, whilst not necessarily delivering the diversity of activities and social benefits that are claimed of community-led initiatives.

Leaders of municipal-led energy initiatives recognise that these require at least some 'grassroots credibility', whilst the approach taken in Plymouth demonstrates that municipal-led initiatives can lead to community involvement in initiatives, where this has not developed bottom-up. An increased emphasis by DECC on strategic partnerships with Ofgem, Defra, CLG and engagement with Local Economic Partnerships (LEPs) are also identified by local energy partners as important for enabling opportunities.

In considering how to prioritise its resources, these interviews with experienced practitioners suggest that DECC will need to take account of potential sensitivities regarding fair distribution regionally as well as to how to structure and deliver support which both reflects and helps to shape positively the changing relationships between municipal-led and community-led initiatives.

Various specific minimal cost suggestions were identified, including for making available example business plans and other model documents for community groups to use, support to encourage peer-mentoring, sponsorship of network opportunities and provision of advice and support for groups to be more financially self-sufficient. Clearly, these leaders in the community renewable sector acknowledge that DECC's support offer will be strongly determined by available resources and may therefore fall short of satisfying the need in the sector. DECC should therefore be clear in how it is setting its priorities for support (and why) and potentially take further soundings as it develops its programme.

6 Assessing Local Energy Performance: the Matrix

A starting point for any local energy action – and for any programme seeking to support local energy action – should be to assess the current quality of local energy activity. Previous work by CSE (2006 – 2010) created assessment tools to do just this for low carbon objectives and for tackling fuel poverty. These ‘balanced scorecard’ style assessment tools were widely used at the time by local authorities seeking to benchmark their current performance and identify and prioritise opportunities for improvement.

As part of this study we have updated these tools to integrate them into one assessment matrix, reflect the current policy context, recalibrate the performance benchmarking, and re-orient the structure so it can be used to assess local energy action led by any party, rather than just a local authority.

6.1 Introducing the Local Energy Assessment Matrix

The scorecard or assessment matrix outlined below is designed to help a local authority or other local energy actors to (a) assess their area’s current performance in relation to delivering on various aspects of sustainable energy and (b) identify opportunities for improvement.

The scorecard seeks to capture the range of possible achievements and aspirations and help its users understand how their current performance compares with what could be achieved (and therefore what they need to be doing to improve their performance). Thus an area which rates its performance as ‘fair’ can see what ‘good’ looks like and then consider what might be involved in making the next grade.

The Matrix has five dimensions of action, each with three or four sub-elements. It provides brief descriptors of what weak, fair, good and excellent action might look like for each element, thus providing the opportunity for performance assessment either by local actors themselves or by a third party (such as DECC):

- Domestic sector energy
- Commercial sector energy
- Fuel poverty and affordable warmth
- Low carbon energy infrastructure and markets
- Institutional ecosystem and resourcing

The matrix is also suitable for use by DECC to use in conjunction with the mapped cluster analysis and other credible information on local authority capability, to determine how best to direct its support and where targeted support could lead to impactful change in local energy performance. We would recommend that any local organisation looking to access support from a DECC-sponsored support programme should be required to complete this matrix as a self-assessment as the first stage of any application process.

DOMESTIC SECTOR ENERGY	Weak	Fair	Good	Excellent
<i>Strategic approach</i>	<i>No evidence of a strategic approach to improving the energy performance of local housing.</i>	<i>Local strategies broadly recognise importance of improving energy performance.</i> <i>Long-term targets set but not linked to a resourced plan of action and without delivery vehicle.</i>	<i>Local strategies set out housing energy performance improvement targets in alignment with future UK carbon budgets.</i> <i>Action plan underway with identified resources & delivery agents.</i>	<i>As 'good' plus:</i> <i>Local strategy focus on improving housing energy performance across all tenures</i> <i>Identified agencies lead delivery of a resourced action plan, with regular progress review undertaken.</i>
New housing	Only Building Regulations Part L energy requirements apply to new housing developments. Weak monitoring and enforcement of Part L.	Light touch approach to consideration of renewable energy / district heating opportunities as part of new development planning. Aspirational targets but limited effort to realise targets with uncooperative developers.	Strategic commitments to very low or zero carbon new housing in new developments, using all available powers to deliver commitments. Good advice and enforcement activities.	As 'good' plus: Commitment to encourage and support exemplary developments (e.g. Passivhaus standard).
Low carbon retrofit <i>[includes insulation, heating and controls, domestic scale renewables, more efficient lighting and equipment etc.]</i>	Haphazard approach to low carbon retrofit. No obvious effort to establish or stimulate local schemes or apply any available funds.	Systematic and sustained efforts to draw in and promote take up of energy supplier or Government initiatives/ funding (e.g. ECO) Limited integration of retrofit activities. Little or no market development.	Structured and integrated local activity to establish low carbon retrofit activities and encourage local take-up, drawing in available funding and national schemes. Effective guidance available on energy retrofit for older homes.	As 'good' plus: Integrated local initiative(s) to stimulate local demand and support to building trades skills development to develop joined up skill-base and market. Wider promotion of smart energy efficient appliance/ lighting.
Advice and behaviour change <i>[includes energy advice, local engagement initiatives (e.g. Green Open Homes), switching support and other energy market interventions]</i>	Few or no local services or groups/agencies active in providing energy-related advice or behaviour change initiatives.	Ad hoc initiatives taking place but not well integrated or linked to one another OR not operating at sufficient scale to have meaningful influence on community-wide changes in attitudes or actions.	A range of initiatives available locally which work together to raise awareness and stimulate action on a sustained basis and at a meaningful scale to influence community-wide changes in attitudes and actions.	Well-resourced and well-used local services offering energy advice, opportunities to learn (e.g. Green Open Homes) and acting as catalyst for other organisations' efforts to engage people and address housing energy performance (see also 'Health & Affordable Warmth').

COMMERCIAL SECTOR ENERGY

	Weak	Fair	Good	Excellent
<i>Strategic approach</i>	<i>Commercial energy use and business sector not a focus of local efforts to improve efficiency and reduce carbon emissions</i> <i>Individual companies making their own efforts in isolation.</i>	<i>Business sector actively involved in local efforts to reduce local carbon emissions (particularly its own).</i> <i>Activities are piecemeal and not part of coherent local programme.</i>	<i>Strategic focus on commercial energy use d as key area for local energy action and economic development.</i> <i>Local leadership (e.g. by local authority, LEP, chamber of commerce) on targeting opportunities and supporting business action.</i>	<i>Relevant local strategies set challenging business sector carbon targets in line with UK carbon budgets.</i> <i>Strong leadership within local business sector with programmes in place to enable companies to realise targets.</i> <i>Cross-sectoral engagement/ integration with corporate-wide initiatives of larger businesses.</i>
New buildings	Building Regulations provide basis for energy considerations of new commercial developments. Weak monitoring and enforcement of building regulations re energy.	Generalised approach to consider renewable energy and district heating opportunities as part of new development planning Aspirational targets set but limited effort to realise with uncooperative developers.	Strategic commitments to very low or zero carbon buildings in new developments, using all available powers to deliver commitments. Good advice and enforcement activities.	As 'good' plus: Commitment to encourage and support exemplary developments.
Low carbon retrofit and energy management activity	No active programmes locally to support business sector to manage energy performance and reduce carbon emissions.	Some advice and support on business energy management available locally with efforts to highlight and celebrate good practice.	Targeted local efforts to engage owners of key buildings and land to support retrofit/energy management activity. Promotion and support for effective use of smart energy data to optimise building system performance. Structured sector-specific programmes (e.g. run by Chamber of Commerce) to drive improvement and staff engagement.	As 'good' plus local efforts to raise/access finance to support commercial building retrofit and promote energy services contracting approaches.

FUEL POVERTY

	Weak	Fair	Good	Excellent
<i>Strategic approach</i>	<i>Limited understanding of fuel poverty as key vulnerability with financial, health and social consequences and which requires specific interventions to tackle causes.</i>	<i>Strategic focus on tackling fuel poverty and associated vulnerabilities as part of broader initiatives to tackle poverty and health inequalities and improving housing condition and affordability.</i>	<i>As 'fair' with effective understanding of local needs and appropriate targeting of interventions to improve energy efficiency and home energy management, increase incomes, and reduce fuel costs.</i>	<i>As 'good' plus:</i> <i>Strong inter-agency activity (housing, health, social care, community) to target energy vulnerable households and secure funding for appropriate interventions across all housing sector.</i> <i>Actions integrated with other agencies to address vulnerabilities. NICE guidance being realised.</i>
Targeted energy retrofit for housing	Haphazard approach to stimulating or promoting fuel-poverty targeted insulation and heating measures schemes locally (e.g. energy supplier funded initiatives).	Systematic and sustained efforts to draw in and promote take-up of energy supplier and Government initiatives (e.g. ECO). Limited integration with wider efforts to tackle fuel poverty (e.g. energy advice, tariff support etc.).	Structured local activity to establish local retrofit schemes to target fuel poor & vulnerable households, drawing in available funding and national schemes. Integrated with local advice and referral initiatives for wider support.	As 'good' plus: Effective mechanisms, with good take up, to target and refer in most vulnerable households to schemes (through systems links to health sector and DNO PSRs). Focus on take-up in private rented sector.
Health sector engagement on tackling cold homes <i>[see NICE guidance on excess winter deaths and health impacts of cold homes]</i>	Public health strategy acknowledges role of cold homes in exacerbating poor health. Limited engagement with implementing NICE guidance	Public health actively engaged with NICE guidance. Lack of engagement by wider health sector limits implementation.	Local health sector engaged in NICE guidance delivery, with funding for efforts to establish effective referral mechanisms. Limited strategic engagement with the cost-benefits of action/inaction.	Local health sector providing strategic direction in line with NICE guidance. Funding for referral mechanisms and other interventions justified by cost benefit analysis of NHS savings / health benefits from effective action.
Advice support and referral mechanisms (as per NICE guidelines)	Limited or no local provision of advice and support for fuel poor households to secure more affordable warmth	Accessible local services providing energy advice to fuel poor households and making referrals to insulation/heating schemes, helping with tariff switching etc.	Well-resourced and well-used local advice services linked to other agencies to meet range of needs of vulnerable households.	As 'good' plus: Cross-agency referral mechanisms to tackle cold homes meeting NICE guidance, integrated with wider support services for vulnerable households.

Low carbon energy infrastructure and markets	Weak	Fair	Good	Excellent
<i>Strategic approach</i>	<i>Limited attention to understanding or realising local renewable and low carbon power and heat opportunities for local benefit</i>	<i>Supportive and enabling approach (e.g. planning policies) to local renewable energy and district heating/CHP initiatives but ad hoc and reactive.</i>	<i>Strategic goals set based on clear understanding of local renewable and low carbon power and heat opportunities.</i> <i>Coherent locally-driven action plan to realise for local benefit, with appropriate planning policies, commitment to local ownership.</i>	<i>As 'good' plus:</i> <i>Public and community engagement to establish meaningful public consent for energy system transition</i> <i>Active plans to realise opportunities from smart energy data & associated energy market developments</i> <i>Coherent local financing strategy for investment</i>
Renewable energy	Limited activity to develop or enable new renewable energy projects beyond dealing with planning applications from commercial developers.	Supportive planning policies in place and being applied to permit decent renewable energy projects, irrespective of ownership Some community-owned renewable energy projects in place (or in development).	Local initiatives to develop and finance renewable energy projects for local ownership and benefit. Local authority providing supportive and enabling role. Supportive planning policies in place and being applied.	As 'good' plus: Clear strategy and targets for significant growth in locally-owned renewables. Neighbourhood planning activities to address low carbon opportunities, with supportive policy.
District heating/CHP <i>[mainly for urban localities]</i>	Little activity to explore district heating and/or CHP opportunities identified in previous studies (e.g. regional spatial strategy evidence etc.)	Policies in place to support district heating and/or CHP where feasible plus studies undertaken and published which identify possible sites	Active local initiative on district heating and/or CHP. DECC's HNDU engagement to secure funding and to support project identification and development	Well-defined strategy and action plan to realise thoroughly considered local opportunities, with clear development and financing programme.
Smart energy developments	Smart energy opportunities not on the radar beyond a few individual organisations	Some interest from academic and tech sectors but not particularly joined up with local focus or purpose.	Smart energy a focus of local strategies. Partnerships emerging to deliver specific projects as basis for further initiatives.	Strong collaborative and cross-sector approach to exploring and realising smart energy opportunities in the area in the public interest, with good understanding of the challenges.

Institutional ecosystem and resourcing

Dedicated resources and partnerships

Weak

Local action on sustainable energy dependent on a few wilful individuals or isolated commercial initiatives, with little support from local authority or other potential lead agencies

Fair

Several different local sustainable energy initiatives from different sectors (e.g. commercial, public, academic, community). These may have loose connections with one another, but have a limited sense of leadership or shared resources

Good

Clear leadership role adopted by local organisation(s) (e.g. local authority and/or local energy agency) on sustainable energy leadership.

Draws others in (incl. business, universities, community groups) to deliver a range of projects and secure funding from a variety of sources

Excellent

As 'good' plus:

Cross-sector partnership with a sustainable energy focus active in identifying opportunities, developing initiatives and securing funding to realise them.

Community energy

Some community energy activity but slow to come to fruition with real projects.

A few community energy renewable energy projects realised place plus engagement with initiatives like Green Open Homes (or similar), Big Energy Saving Network etc.

Active community energy sector with several groups undertaking projects.

Co-ordinating function in place (e.g. regular network meetings, newsletters, website etc.)

Broad scope of activities, beyond energy generation to include e.g. low carbon retrofit, energy advice, behaviour change, fuel poverty.

Well-resourced network or hub function supporting several community organisations in developing and delivering sustainable energy initiatives which meet local needs and engage wider public with issues.

Sharing experiences and resources to avoid reinventing wheel and wasted effort and to improve practice and sustainability of model.

Financing and funding

Limited efforts locally to secure funding for local action on sustainable energy (reflected in limited activity).

Piecemeal funding secured for individual projects.

Active pursuit of funding, investment finance or income generation by several organisations for a variety of initiatives from a range of different sources (e.g. Lottery, supplier obligations, Innovate UK, EU, LEP, community shares/bonds etc.)

As 'good' plus:

Joined up approaches to securing funding for local initiatives and investment finance for sustainable energy assets.

7 Discussion

In this section, we discuss the findings from the research undertaken, in terms of how DECC support may be best focused at encouraging local energy activity.

The local energy landscape is an increasingly broad church arena, in which a diversifying range of actors are involved, including community energy groups of varying scale and professionalism, as well as a new era of municipal activity, looking beyond cost-saving improvements to social housing and other public buildings, to income-generating opportunities of renewable energy technologies, new role as energy suppliers and establishment of arms-length delivery bodies and offer some innovative suggestions regarding the potential roles of municipal bodies, which may be of particular importance where there is limited community-initiated activity and significant challenges and opportunities. The survey of community groups confirms the considerable diversity in this sector, which can present challenges for providing meaningful support from a constrained budget, where existing or new intermediary bodies or networking support within the sector may offer a way to better way to enable efficient use of expertise and learning from experience.

There have been a variety of recent efforts to construct a clear picture of the state of progress of local energy. An over-reliance on headline indicators which use past performance measures (installation numbers etc.) or high level outputs (existence of a strategy) may not be reliable in identifying how support should be targeted or designed. We have attempted to contribute to this understanding through our clustering analysis and the development of an assessment matrix that uses descriptors of progress for different areas of local energy activity.

The identification of clusters of local authorities according to key measures of potential opportunity (including where there remains a high proportion of non-efficient housing stock) used in this report provides a way for DECC to target support around particular types of intervention aimed at the challenges and opportunities in those areas. At a high level, these are likely to include district heating; solar, wind and biofuel energy; investment in insulation and other improvements to the energy efficiency of housing stock; and initiatives to tackle fuel poverty in rural and urban areas. The clusters offer an aid to the targeting of particularly packages of support to address the energy challenges and opportunities of local areas in the same cluster. This mapped evidence will need to be interpreted and cross-referenced with other factors, including the emerging devolution agreements. Indeed, the clusters may provide a way for DECC to engage more actively with devolution lead bodies (e.g. LSPs) to encourage more ambitious use of devolution as a means of maximising the opportunities in the sector for achieving economic growth and other outcomes for the area.

The findings of the community survey illustrate both the value of a thriving and diverse community sector, but also the highly varied picture nationally in terms of capacity and maturity of the sector. Community innovators identify that in areas without existing strong community support, municipal action may provide an alternative, but that community and municipal activity tends to be complimentary, so that a solely municipal-focused support

package may not realise the range or extent of benefits that can be realised by also supporting community action. However, there is recognition that some forms of relatively low cost measures would be valued by the community sector.

Feedback from both innovators and community groups shows a strong desire for political commitment and capitalised budget for a support programme that runs over several years, avoiding jumpy and inconsistent funding patterns that make it hard for groups to plan and create uncertainty for investors.

Community innovators express a desire for DECC to take up its role in defining a vision for the local energy landscape, though DECC will need to be heedful of potential hostility to a perceived favouring of municipal-driven income-generating initiatives over community-led ones.

The matrix of local energy performance is relevant to helping DECC choose where to focus its efforts to catalyse progress by weaker local authorities and challenge them to move towards excellence. By using descriptors for a range of local energy areas, it encourages a more meaningful scrutiny of the state of play in different localities, without being prescriptive about the way to move forward.

7.1 Recommendations for DECC

1. **DECC should set out a new Local Energy Strategy** which provides a clear statement of the Government's expectations, moving forward from the Coalition era community energy strategy. This should acknowledge the widening range of potential local actors involved. It should set out the Government's expectations of the roles played by different actors – and particularly the role of local authorities. It should provide guidance on expectations of the interactions between different actors within the local energy landscape. This should recognise commonalities and differences in the priorities, opportunities and approaches taken in local areas across England. Importantly, this strategy should frame local energy activity in relation to the wider energy policy context and energy market activities, setting out the expectation that Local Energy activities should become a mainstream component of energy practice, contributing to national policy objectives, rather than sticking around as a niche 'nice to have' activity.
2. **All DECC policies should in future set out their expectations of local energy action**, taking it into consideration from the earliest stages of any policy development process. DECC may need to do more work internally to achieve a better shared understanding of the potential – and limitations – of local energy action, so that policy-making teams can give informed consideration to the opportunities it provides for achieving their policy aims.
3. **DECC should establish a sophisticated local energy support programme to stimulate, encourage and support effective local action on energy.** The programme should not pre-prescribe a particular organisation type to lead local initiatives (and would therefore be eligible to access the support offered) but should look for proof of capability. In some areas, this may require 'start-up' support to catalyse new leadership and co-operation

capability. The programme should include tailored elements with the following objectives:

- a. **Stimulate action where none currently exists** (but where the energy-related opportunities suggest it should), based on an understanding of the local barriers to action. *This will require a proactive approach driven by analysis of opportunities (such as provided by the cluster analysis here) and 'weak' areas, with specific effort to find and stimulate potential lead organisations to draw up plans for initial initiatives and catalyse their access to capacity-building support and mentoring to help get them off the ground.*
- b. **Encourage and support more local initiative taking**, appropriate to the locality, to enhance local capacity for action and create the momentum (or 'head of steam') to secure wider participation and engagement. *This could be in the form of a grant pot to seed local initiatives, probably mainly targeted at 'weak' and 'fair' performers (as assessed through the Matrix), to build up their practical experience and widen participation in local energy action.*
- c. **Support the drawing up of strategic local plans** and securing of local buy-in, where initiative taking is already reasonably well established. *This could be through a support service which assists local areas already active in energy projects to draw together what may be disparate activity into a more coherent strategic plan, using the exercise as an opportunity to engage more widely and secure buy-in to greater local initiative. This is likely to be mainly for areas which rate 'fair' or 'good' on the Matrix, but which show uneven performance across the various dimensions.*
- d. **Reduce the costs and effort of replicating successful initiatives in different areas**, where the reasons for success are already understood and the conditions are similar in each area. *This is the main focus of the Local Energy England proposal to DECC from Local Partnerships, sharing procurement specifications and legal documentation, pooling knowledge on reliable delivery partners and consultants, identifying and addressing common regulatory and practical obstacles, providing additional capacity at key moments in project realisation etc.*
- e. **Promote innovation** in new delivery models, partnership working, capacity building and replication. This is also a component of the Local Energy England proposal.
4. **DECC should aim to secure political commitment and a capitalised budget** for a support programme that runs over several years, with expenditure not restricted to activity in a particular financial year.
5. **The new DECC support programme should require all applicants to assess current local performance** (using the Matrix or similar), identifying strengths and weaknesses and justifying their priorities in terms of local opportunities (informed by the cluster analysis) and how they plan to improve performance. This will enable a tailored programme of support to be provided, drawing on the elements outlined in recommendation 3 above.
6. **DECC should avoid competitions which tend to favour well-established groups**, which tend to be in less-deprived areas. DECC could consider using the matrix or similar to

achieve a balance of funding and support across localities at different stages in terms of their performance.

7. DECC should set aside some support and funding to build the skills and capacity of lead bodies and groups in localities with weak or fair performance to date, particularly in those areas with high deprivation and strong opportunities.
8. **DECC should engage with relevant national funding providers to make the case for local energy action** as a legitimate target for funding focused on economic development, innovation, social enterprise, charitable/voluntary sector initiatives (e.g. EUSIF via CLG, Innovate UK, Power to Change and other Cabinet Office-sponsored social enterprise initiatives, Big Lottery, etc.)
9. **DECC and the Treasury should engage proactively with LEP devolution plan-making** as a means of achieving more ambitious sustainable energy plans at scale by requiring/encouraging LEPs to undertake a self-assessment of current performance and opportunities using the Matrix or similar at an early stage. This will ensure that devolution planning has to engage with energy but still with a consideration of the risks and opportunities in the area and within a context of *informed* local priority setting.
10. **DECC should actively encourage local authorities and LEPs to engage with local intermediary bodies and existing community energy groups to develop a shared local approach** which enables:
 - An appropriate balance of complementary roles by municipal/local authority and other actors (grassroots community energy groups, third sector organisations, local authority and health bodies, businesses and social enterprises), which makes use of existing capacity and avoids crushing emergent initiatives;
 - Co-ordination of actions across a range of inter-connected energy themes, learning from examples elsewhere and exchange of best practice;
 - Area-based (e.g. local authority-wide or LEP-wide) coordination of community energy activities; and
 - Co-ordination to access potential funding streams, including local investment, energy company obligations funding, crowd-sourcing and coordinated applications for grant-based programmes.
11. **DECC should be clear how support available will be prioritised** in the context of a highly diverse community sector and local councils undertaking a range of activities for social, environmental and economic ends, with many groups and councils currently struggling to continue their current work, let alone to grow and experiment with new innovation.

8 Bibliography

Armstrong, H. (2015) Local Energy in an Age of Austerity. NESTA

Bird, C. & Barnes, J. (2014) Scaling up community activism: the role of intermediaries in collective approaches to community energy. People, Place And Policy (2014): 8/3, pp. 208-221. DOI:10.3351/ppp.0008.0003.0006

CSE, Impetus & Quantock consulting, 2005, [Local and Regional Action to Cut Carbon](#), report to Defra for the UK Climate Change Programme Review

CSE, 2007, [Council Action to Curb Carbon: key issue for local authorities](#), report to Local Government Climate Change Commission and Local Government Association.

Databuild (2013) Community Energy in the UK: Part 2 Final report. DECC
<https://www.gov.uk/government/publications/community-energy-in-the-uk-part-2>

DECC (2014) Community Energy Strategy.
<https://www.gov.uk/government/publications/community-energy-strategy>

DECC (2015) Community Energy Strategy Update.
<https://www.gov.uk/government/publications/community-energy-strategy-update>

[Gornall, K & Macleod, F. \(2015\) Community Energy: Evidence Review - Presentation](#)

Hargreaves, T. et al. (2013) Grassroots innovations in community energy: The role of intermediaries in niche development. Global Environmental Change
<http://dx.doi.org/10.1016/j.gloenvcha.2013.02.008>

Linnell (2012) Local Energy Assessment: Constraints and Potential for Community Wind Energy Deployment On Behalf Of Newleaf Herefordshire. A Study by Herefordshire Community Renewables.

[LGA \(2016\) 'Devolution deals' http://www.local.gov.uk/devolution-deals](#)

Platt, R., Straw, W., Aldridge, J & Williams, J. (2014) City Energy: A New Powerhouse for Britain. IPPR, London.

Roberts, S. & Baker, W., 2006, Tackling fuel poverty at local & regional level: Opportunities to deliver action & policies to stimulate success Paper to the Department for Environment, Food and Rural Affairs (Defra). <https://www.cse.org.uk>

RICS Research (2011) Hotting Up? An Analysis of Low Carbon Plans and Strategies for UK Cities. RICS.

Simcock, N., Willis, R. & Capener, P. (2016) Cultures of Community Energy. British Academy / The Climate Change Collaboration.

Verco (2016) The potential for energy efficiency and renewable energy. LGA.

Appendix 1: Approach and methodology

Approach

This work has been undertaken in correspondence with Local Partnerships, which has focused on the local authority and LEP-driven opportunities for driving investment in local energy initiatives, particularly via procurement routes. This project has focused on supporting DECC to differentiate geographically where the physical opportunities for local energy initiatives lie, as well as to explore further the balance between community-driven energy and municipal-driven energy.

The approach to local energy landscape taken in this research has sought to understand physical opportunity for energy generation using different technologies; 'built environment need' for energy efficiency and energy generation/demand reduction; 'social/health need' for affordable energy; and community-level groups as a key source of delivery or partnership capacity in local energy initiatives.

The understanding of community-driven opportunity has been informed both by a survey of community groups concerning their existing and future priorities, as well as by a series of interviews with selected local energy intermediaries who have been involved in different models of promoting local and community energy activity.

The approach has also sought to develop an updated matrix towards how DECC support can be differentiated, according to the contexts of different types of local energy scenes.

Scoping

The scope of the project was shaped first by reviewing current and recent local landscape analysis projects, three scheduled phone conversations with members of the Local Partnerships team, with a further revision of scoping, following review of the Local Partnerships report.

Cluster analysis and mapping

Data Identification

A substantial list of potential datasets was identified, including Office of National Statistics Census 2011 data, Public Health England indicators, Office of National Statistics postcode level data and various datasets held by government departments (DECC, DCLG). The data collection was organised into five broad categories, on the basis of professional judgment about factors which affect local energy action. These were:

- Physical geography
- Built environment (including energy/efficiency/fuel consumption)
- Social indicators
- Health indicators
- Existing renewable energy installations
- Local energy initiative taking (e.g. community group activity)

The datasets compiled and considered in the analysis are listed below in Table 2, organised in these categories.

Table 2: Data used in the local energy landscape analysis

Data category and details	Description of data	Source of data
<i>Physical geography data</i>		
Corine Land Cover 2006 raster data	A European inventory of land cover in 44 classes, presented as a cartographic product, at a scale of 1:100,000 (European Environment Agency)	www.eea.europa.eu/data-and-maps/data/corine-land-cover-2006-raster-2
National Heat Map	A tool providing high-resolution web-based maps of heat demand by area for England (DECC/CSE)	tools.decc.gov.uk/nationalheatmap/
<i>Built environment data (including energy/efficiency/fuel consumption)</i>		
EPC data - live tables for domestic EPC data at local authority level	Aggregate data from domestic EPC certificates lodged on the Energy Performance of Buildings Registers since 2008 (DECC)	www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates
Sub-regional electricity consumption data (DECC)	Electricity consumption statistics at Regional and Local Authority level, including the numbers of registered MPANs for standard and Economy & meters (DECC)	www.gov.uk/government/collections/sub-national-electricity-consumption-data
Off gas postcodes	A list of all postcodes which contain no buildings connected to the mains gas grid network (Xoserve)	www.cse.org.uk/news/view/1792
<i>Social indicators</i>		
England IMD 2015 series	Statistics on relative deprivation in small areas in England (DCLG)	www.gov.uk/government/statistics/english-indices-of-deprivation-2015
Sub-regional fuel poverty statistics	Numbers and proportions of households in fuel poverty in each local	

authority (DECC)

Tenure (Census 2011; Tenure - Households, 2011 (KS402EW))

Number of households by tenure at COA for England and Wales as at census day, 27 March 2011 (ONS)

www.nomisweb.co.uk

Health indicators

P00114 - Years of life lost due to mortality from asthma

Directly age-standardised rates (DSR) per 10,000 European standard population for all persons aged 1-74, Health & Social Care Information Centre (HSCIC)

indicators.hscic.gov.uk/webview/

P00140 - Years of life lost due to mortality from bronchitis, emphysema and other COPD

P00395 - Mortality from all circulatory diseases

Existing renewable energy installations

Feed-in tariff installations

Total number of installations and total installed capacity by technology type, confirmed on the Central Feed-in Tariff Register (DECC)

www.gov.uk/government/statistical-data-sets/sub-regional-feed-in-tariffs-confirmed-on-the-cfr-statistics

RHPP installations

Statistics for the RHPP and RHI programmes for the number of applications and accredited installations, November 2011 to November 2014 (DECC).

www.gov.uk/government/statistics/rhi-and-rhpp-deployment-data-november-2014

RHI installations

Statistics for the RHI for the number of applications and accredited installations, December 2014 to February 2016 (DECC).

www.gov.uk/government/collections/renewable-heat-incentive-statistics

Local energy initiative taking

Communities

Register of community groups compiled from existing CSE contacts,

Various sources

Group Database **Green Open Homes database, Urban Community Energy Fund and Rural Community Energy Fund applicants**

DECC Community groups postcode data ??? ???

General spatial datasets and lookup data

Office for National Statistics Postcode Directory **All current and terminated postcodes in the United Kingdom related to a range of current statutory administrative, electoral, health and other area geographies.** geoportal.statistics.gov.uk/Docs/PostCodes/ONSPD_FEB_2016_csv.zip

Local authority districts (UK) 2014 Names and Codes **Names and codes for all local authority districts (LADs) in the United Kingdom December 2014 (ONS).** [geoportal.statistics.gov.uk/Docs/Names%20and%20Codes/Local_authority_districts_\(UK\)_2014_Names_and_Codes.zip](https://geoportal.statistics.gov.uk/Docs/Names%20and%20Codes/Local_authority_districts_(UK)_2014_Names_and_Codes.zip)

Creation of Indicators

Each of the above datasets was processed to derive a single aggregate value for each local authority (with the exception of the ONSPD and Names and Codes tables), and the results compiled into a single table with a row for each Local Authority and a column for each indicator (see Table 3 for the details of each indicator, and Table 4 for an excerpt of the final version of the compiled dataset). Next, we investigated the degree of correlation between all pairings of indicators, removing all but one of each set of highly correlated variables. This led to the removal of the following indicators:

- standardised death rates indicator for respiratory and circulatory diseases (correlated with IMD indicator).
- tenure (correlated with % of LA area built-up).

As a result, the final list of local authority level indicators used in the analysis was as follows:

1. % land area in each local authority that is built-up
2. % lodged EPCs that are in SAP band F or G.
3. Domestic electricity consumption as % of total
4. Domestic % electricity meters as % of total
5. % postcodes that are fully off-gas
6. Log % of land area with a heat demand of at least 3,000kW/km² (this value was then shifted to set the minimum to zero)
7. % LSOAs with IMD scores above the national median score

8. Log number of renewable installations installed through FiT, RHPP and RHI since commencement of said policies (this value was then shifted to set the minimum to zero)
9. Log number of community groups identified (this value was then shifted to set the minimum to zero)

Table 3: Indicators used to classify local authorities and the sources of data used to produce them

Data used to produce indicator	Indicator derived from data
<i>Physical geography description</i>	
Corine Land Cover 2006 raster data	Percentage of land area in each local authority that is built-up (calculated on a 100m spatial grid)
National Heat Map	Proportion of local authority land area with a heat demand density of at least 3,000 kW/km² (calculated on a 100m spatial grid and log transformed to obtain normal distribution)
<i>Built environment (including energy/fuel data)</i>	
EPC data - live tables for domestic EPC data at local authority level	Percentage of all lodged EPCs that are in SAP band F or G.
Sub-regional electricity consumption data (DECC)	Percentage of total electricity consumption that is from the domestic sector
	Proportion of total electricity meters that are domestic meters
Off gas postcodes	Percentage of postcodes that are fully of off gas
<i>Social indicators</i>	
England IMD 2015 series	Percentage of LSOAs in each LA with IMD scores above the national median IMD score
Tenure (Census 2011; Tenure - Households, 2011 (QS405EW))	Percentage of dwellings that are private rented
<i>Health indicators</i>	
Health & Social Care Information Centre (HSCIC): P00114 - Years of life lost due to mortality from asthma	Combined standardised death rates from asthma, bronchitis, emphysema and other COPD, and from all circulatory diseases.

HSCIC: P00140 - Years of life lost due to mortality from bronchitis, emphysema and other COPD

HSCIC: P00395 - Mortality from all circulatory diseases

Technical description of existing technology and technical opportunity

Feed-in tariff installations

RHPP installations

RHI installations

The log of total number of domestic renewable installations installed through FiT, RHPP and RHI since respective commencement of these policies

Local energy initiative taking

Communities Group Database

Community Energy England membership

The log of the number of community groups in each local authority

Table 4: Excerpt from the local authority summary table

la.code	name	% built up	% EP C F & G	% kWh domestic	% Meters domestic	% off gas	Heat quality	% high IM D	RE installations	Comm Group Count
E06000001	Hartlepool	0.19	0.05	0.37	0.93	0.07	5.29	0.69	7.25	0.69
E06000002	Middlesbrough	0.54	0.05	0.38	0.94	0.07	6.69	0.70	7.23	0.69
E06000003	Redcar & Cleveland	0.11	0.06	0.19	0.94	0.10	4.53	0.65	7.57	0.69
E06000004	Stockton-on-Tees	0.19	0.04	0.31	0.93	0.08	5.43	0.50	7.97	1.10
E06000005	Darlington	0.11	0.07	0.45	0.92	0.14	5.37	0.57	7.22	-
E06000006	Halton	0.28	0.04	0.33	0.93	0.09	5.35	0.67	6.83	1.10
E09000003	Westminster	0.75	0.05	0.12	0.76	0.20	7.99	0.72	5.45	1.95

Cluster Analysis

Having chosen a set of features (represented by the variables in Table 4) which we considered to be relevant to local energy decision-making, we summarised the way they vary across local authorities using a clustering algorithm. Clusterings seek to divide up a population (in this case the set of English local authorities) into sensible groups, so that the members of each group are akin to one another and unlike the members of other groups. Producing this clustering involved three choices:

1. How to quantify the similarity between two individual local authorities
2. How to construct the groupings of multiple authorities from these pair-wise similarities
3. How many groups (or clusters) to produce

We calculated the similarity between each pair of local authorities using a "Manhattan distance", in which the *dissimilarity* is the sum of the absolute difference on each of the variables we selected. It is named for the distance one has to walk to get from one place to another on a grid; there are no diagonal edges, so the total distance is the sum of the vertical and horizontal distances. This is an appropriate choice of measure when the types of variables used are not commensurable (i.e. not conceptually comparable).

To produce a clustering from these distances we used hierarchical agglomerative clustering (again, an appropriate choice when working with incommensurable features), which proceeds by starting with a single cluster for each item, and then repeatedly merges the most similar pair of clusters until the desired number of clusters remain. This implies a choice of method to convert the similarity between individual elements into similarity between clusters of elements (the 'linkage function', in the jargon). In our method we used the maximum or complete linkage (sometimes called the Voorhees¹³ algorithm, in which two clusters are as dissimilar as their two most dissimilar members).

Initial review of the clustering results revealed that for certain variables the within-cluster distributions offered no explanatory value. Further investigation showed that these variables were not contributing to the separation of the clusters due in some cases to their being very little difference across local authorities, and in other cases to the data being very discontinuous. On this basis we removed the following variables from the input table:

- Domestic electricity use as % of total (insufficient differences to influence clustering)
- Domestic electricity meters as % of total (insufficient differences to influence clustering)
- Count of renewable energy installations (discontinuous data, conflicting trends between different types of renewable energy)
- Community Group Count (discontinuous data)

¹³ Voorhees (1986a), VOORHEES, E. M. 1986a. The Effectiveness and Efficiency of Agglomerative Hierarchic Clustering in Document Retrieval. Ph.D. thesis, Cornell University.

In addition, it became apparent that the City of London and the Isles of Scilly were very different from all other areas; they were therefore removed from the analysis.

Finally to choose the number of clusters, we made qualitative judgements based on:

1. the distributions of the variables within each cluster, for each clustering (Table 4 for an example of this) – here we sought good separation between the clusters on all variables
2. the relative populations of the different clusters, for each clustering (see Table 5) – here we sought an even distribution of local authorities across clusters
3. Geographic maps of the results of the clustering (see Figure 2 for an example of this) – here we sense-checked the results using our knowledge of the technical, social, geographic and political aspects of local energy systems.
4. Balancing the tension between the greater explanatory power of a larger number of clusters, and the summarising power of a smaller number.

As a result we chose the six clusters which are set out in Chapter 3 above of this report.

Table 5: cluster populations for different solutions

	Cluster ID									
	1	2	3	4	5	6	7	8	9	10
Number of clusters in solution	1	324	219	163	80	80	80	80	80	36
	2		105	56	56	56	38	38	32	32
	3			105	83	83	44	44	44	44
	4				105	96	96	18	18	44
	5					9	9	96	82	18
	6						39	9	9	82
	7							39	39	9
	8								14	39
	9									6
	10									

Community Group Mapping / Capacity Analysis

A database of community energy groups in England has been constructed, drawing on a range of existing community energy datasets:

- CSE's own database of contacts by community groups and Green Open Homes database;
- Urban Community Energy Fund (UCEF) applicants;
- Rural Community Energy Funds – group name/postcode (funded projects only)
- Community Energy England membership – group name/postcode.

Further groups were identified from responses to the survey. Missing postcodes were identified via web searches, including using the RCEF live projects map. The Transition Network supplied missing postcodes for a set of groups from the above databases, with names of transition towns or sustainability town groups. The database was cleaned to remove duplicate and entries (particularly from CSE's contact list) which appeared to be private individuals not representing a community group (e.g. students) or private businesses, contacts the location of each, by local authority was analysed.

A scoring was applied to each local authority to reflect the number of groups. This was mapped to show local authority areas with 'lots', 'some' or 'no' community energy groups.

Having many groups in an area may show that the community energy scene is thriving, with several groups working in a localised supportive network, sharing learning. Or it may show that there are multiple splintered small groups who are not co-ordinated.

Community Survey

A short online questionnaire was distributed widely to community energy groups, via direct emails to organisations on the database, via CSE's communications (Twitter, e-news, website) and via other local and community energy hubs or networks¹⁴. The questionnaire was available for a four week period. The questionnaire achieved a response rate of approximately 20%, with 260 responses from a total of just over 1300 email invitations directly issued. A further set of emails were sent to intermediary organisations to request them to share it with their network members.

The questionnaire (see Appendix 4) included questions to gain a sense of the size of groups, priority areas of activity, capacity and views on local authority provided support, in delivering or partnering in local energy initiatives. An open-ended question invited views on planned projects that respondents were excited about. Responses included a range of current and pipeline projects, but also included comments on barriers encountered that had prevented projects progressing.

The community survey feedback is reported under

¹⁴ Marches Energy Agency, Severn Wye Energy Agency, Community Energy Plus, ACRE, Cumbria Action for Sustainability, ACTion in Cumbria, National Energy Foundation, Yorkshire Energy Partnership, Community Action Northumberland and Cosy Devon.

Local community energy groups.

Interviews with local energy key informants

Following a review of the Local Partnerships report, the scope was revised to include a small number of interviews with a handful of local energy key informants, identified by senior CSE staff as representing a range of innovative approaches to enabling local energy initiatives. The interviews sought to explore key informants' understanding of the current status and opportunities for local energy, to learn from their experience the circumstances where different models for promoting local energy activity can be effective and to draw on their experience insights regarding how DECC can best support local energy initiatives in the current policy environment. The key informants interviewed were:

- Anne-Claire Leydier, Sustainability Northern Power Grid, convenor of Community Energy North East
- Becky Willis, independent researcher working with Cooperatives UK
- Alistair Macpherson, CEO, Plymouth Energy Community
- Pete Capener, Chair, Bath and West Community Energy and chair, Mongoose Energy
- Andy Heald, director, Gen Community Ventures
- Swindon Council. Swindon Common Farm Solar CIC

Telephone interviews were conducted with all of the above, with the exception of Alistair Macpherson and Pete Capener¹⁵, with whom a face-to-face joint interview was conducted in CSE's office. The interviews were analysed directly from the interview transcripts. See Appendix 5 for the interview guide used.

¹⁵ In the interests of transparency, it is reported that Pete Capener is a trustee of CSE.

Appendix 2: All local authorities by cluster (excludes City of London and Isles of Scilly)

Table 6: Complete list of local authorities by cluster

c0	c1	c2	c3	c4	c5
Amber Valley	Barking and Dagenham	Blaby	Allerdale	Cornwall	Adur
Arun	Birmingham	Bracknell Forest	Ashford	Herefordshire	Barnet
Ashfield	Blackpool	Brentwood	Aylesbury Vale	East Lindsey	Bexley
Barnsley	Bournemouth	Bromsgrove	Babergh	King's Lynn and West Norfolk	Bromley
Barrow-in-Furness	Brent	Broxtowe	Basingstoke and Deane	North Devon	Broxbourne
Basildon	Camden	Charnwood	Bath and North East Somerset	North Norfolk	Bury
Bassetlaw	Bristol	Chelmsford	Braintree	Torridge	Cambridge
Bedford	Derby	Chiltern	Breckland	West Devon	Castle Point
Blackburn with Darwen	Kingston upon Hull	Christchurch	Broadland	West Somerset	Cheltenham
Bolsover	Leicester	Dacorum	Central Bedfordshire		Crawley
Bolton	Nottingham	Dartford	Cherwell		Elmbridge
Boston	Plymouth	Eastleigh	Cheshire East		Epsom and Ewell
Bradford	Portsmouth	Erewash	Chichester		Exeter
Burnley	Southampton	Fareham	Cotswold		Gloucester
Calderdale	Stoke-on-Trent	Gedling	Craven		Gosport
Cannock Chase	Westminster	Guildford	Daventry		Harrow
Canterbury	Wolverhampton	Hart	Derbyshire Dales		Havant
Carlisle	Coventry	Hertsmere	East Cambridgeshire		Havering
Cheshire West and Chester	Croydon	Mid Sussex	East Devon		Hillingdon
Chesterfield	Dudley	Milton Keynes	East Dorset		Kingston upon Thames
Chorley	Ealing	Mole Valley	East Hampshire		Merton
Peterborough	Enfield	Reigate and Banstead	East Hertfordshire		Newcastle upon Tyne
Colchester	Greenwich	Runnymede	East Northamptonshire		North Tyneside
Copeland	Hackney	Rushcliffe	East Riding of Yorkshire		Northampton
Corby	Hammersmith and Fulham	Solihull	Eden		Oadby and Wigston
County Durham	Haringey	South Bucks	Forest Heath		Oxford
Darlington	Harlow	South Gloucestershire	Forest of Dean		Poole
Doncaster	Hastings	South Ribble	Fylde		Redditch
Dover	Hounslow	Spelthorne	Hambleton		Richmond upon Thames

East Staffordshire	Ipswich	St. Albans	Harborough		Rushmoor
Eastbourne	Islington	Surrey Heath	Harrogate		Southend-on-Sea
Epping Forest	Kensington and Chelsea	Swindon	Hinckley and Bosworth		Stockport
Fenland	Knowsley	Tandridge	Horsham		Sutton
Gateshead	Lambeth	Three Rivers	Huntingdonshire		Tamworth
Gravesham	Lewisham	Tonbridge and Malling	Lewes		The Brighton and Hove
Great Yarmouth	Lincoln	Warrington	Lichfield		Trafford
Halton	Liverpool	Warwick	Maidstone		Watford
Hartlepool	Luton	Waverley	Maldon		Worcester
High Peak	Manchester	Welwyn Hatfield	Malvern Hills		Worthing
Hyndburn	Middlesbrough	Windsor and Maidenhead	Melton		
Isle of Wight	Newham	Woking	Mendip		
Kettering	Norwich	Wokingham	Mid Devon		
Kirklees	Reading	Wycombe	Mid Suffolk		
Lancaster	Redbridge	York	New Forest		
Leeds	Salford		Newark and Sherwood		
Mansfield	Sandwell		North Dorset		
Medway	Slough		North Hertfordshire		
Newcastle-under-Lyme	South Tyneside		North Kesteven		
North East Derbyshire	Southwark		North Somerset		
North East Lincolnshire	Stevege		North Warwickshire		
North Lincolnshire	Sunderland		North West Leicestershire		
Nuneaton and Bedworth	Tameside		Northumberland		
Oldham	Tower Hamlets		Purbeck		
Pendle	Walsall		Ribble Valley		
Preston	Waltham Forest		Richmondshire		
Redcar and Cleveland	Wandsworth		Rochford		
Rochdale			Rother		
Rossendale			Rugby		
Rotherham			Rutland		
Scarborough			Ryedale		
Sefton			Sedgemoor		
Sheffield			Selby		
Shepway			Sevenoaks		
St. Helens			Shropshire		
Stockton-on-Tees			South Cambridgeshire		

Swale Telford and Wrekin Tendring Thanet Thurrock Torbay Wakefield Waveney Wellingborough West Lancashire Weymouth and Portland Wigan Wirral Wyre Wyre Forest			South Derbyshire South Hams South Holland South Kesteven South Lakeland South Norfolk South Northamptonshire South Oxfordshire South Somerset South Staffordshire St. Edmundsbury Stafford Staffordshire Moorlands Stratford-on-Avon Stroud Suffolk Coastal Taunton Deane Teignbridge Test Valley Tewkesbury Tunbridge Wells Uttlesford Vale of White Horse Wealden West Berkshire West Dorset West Lindsey West Oxfordshire Wiltshire Winchester Wychavon		
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Appendix 3: Profile of Local Energy Key Informants

Anne-Claire Leydier – Northern Powergrid

Anne-Claire Leydier is the Low Carbon manager at Northern Powergrid. This DNO has been supporting community energy groups for several years through provision of grants and support and information regarding the grid connection process.

Becky Willis

Rebecca Willis is an independent researcher who has been involved in projects looking at the strategic policy and background to community energy for the last ten years. She works with community energy groups and analyses the factors that help and hinder their progress. She was lead author for a recent study on the culture of community energy, with Peter Capener as a co-author¹⁶.

Alistair Macpherson - Plymouth Energy Community

Alistair Macpherson is the CEO of Plymouth Energy Community a Community Benefit Society set up in 2013 with a start-up loan from Plymouth Council. The group aim to tackle fuel poverty through provision of affordable/free insulation and boiler schemes, a fuel debt advice service and a home energy team. PEC renewables have also installed a solar array.

Pete Capener - Bath and West Community Energy

Pete Capener is the chair of Bath and West Community Energy, a group that was formed in 2010 by Transition Bath Energy Group and Transition Corsham to deliver renewable energy, energy efficiency and energy supply services. Pete was also instrumental in the establishment of Mongoose Energy as a separate company to take on project development activities in other areas.

Andy Heald - Gen Community Ventures

Andy Heald is the director of Gen Community Ventures, a company which use a community asset ownership model to financially support socially beneficial projects which would not be able to raise enough capital themselves. Members of Gen Community Ventures provide the finance to invest in these projects.

Paddy Bradley - Swindon Council

Swindon Council have established a Community Interest Company which operates as a partnership between the council and the community which will be responsible for funding a 4.8 MW solar farm. Paddy Bradley was the lead officer in the commissioning of this project. He is now the director of the Swindon & Wiltshire local enterprise partnership.

¹⁶ Simcock, N., Willis, R. & Capener, P. (2016) Cultures of Community Energy. British Academy <http://www.britac.ac.uk/policy/Energypolicy.cfm>

Appendix 4: Interview Guide

Preparation

Before the interview, please have a quick look at relevant info on crib sheet , their website and/or supporting info noted.

Be ready to audio record interview.

Interview purpose

To draw on experience and expertise of interviewees about the current status and opportunities for local and community energy (broadly/flexibly defined), their experience of initiating, supporting and running local or community energy initiatives, their thoughts on effective models of collaboration (e.g. between local authorities and community energy groups) and their thoughts on what forms of support by DECC could help local or community energy initiatives get off the ground and succeed in different contexts.

It is not intended to identify wider policy changes. It is intended to explore options for how DECC's available - and limited - budget could be most effectively used to provide support at a local level in ways which supports action by – and delivers benefits to – communities.

The Interview

- Inform them you are recording interview. Check they are OK with this.
- Inform them we intend to report anonymously. Ask if they want to be acknowledged by name or anonymously (we'd prefer by name)
- Expect interview to last half an hour. Check Ok with this.

Questions

1. Can I start off by asking you to tell me a bit more about the community energy projects you've been involved in, and the nature of your involvement? (refer to specific project from crib sheet)
2. How has your role (e.g. as sustainability manager for a DNO) enabled you to influence activity at local or community level?
3. So, thinking about the model you've used (been involved in), what do you think makes it work?
4. What are the circumstances that make it appropriate?

Suggested prompts

- area with highly active community group
- educated/motivated individuals
- area with lots of opportunity for energy generation or improve housing stock
- area with particularly high needs (e.g. fuel poverty/low income)
- political 'colour' of area/ community activity in energy;
- local attitudes re energy or fuel poverty
- failure or inappropriateness of other options

5. Which other organisations (or individuals) have been important in making things happen? Have there been or have blocked)

6. What role has/have the local authority (ies) in the area played?

Suggested prompts

- Pro-active or responsive in style
- Capacity - trained officers provide support – or not
- Attitude of councillors
- Supportive strategy or local funding

7. Any other reasons not already explored which you think explain why things have happened or not – by design or by chance? Have conditions changed which means would be easier/harder in future?

8. We recognise that the local and community energy sector is quite a broad area. What do you think are the most important or most promising opportunities for activity from 2016 onwards? What drives that?

9. What do you think DECC should be offering in the way of support to local energy, given it has very limited budget, which means any meaningful grant-giving is unlikely? What shouldn't it be doing?

10. How do you think DECC can help leverage greater local investment in energy initiatives?

11. Any other thoughts?

Thanks for time.

End.