

Policy Brief

Executive Summary

The Climate Change Act (2019 amendment) introduced a legal requirement in the UK to eradicate greenhouse gas emissions that contribute to climate change by 2050. While central government provides the national policy framework, many activities and service provisions are undertaken by local authorities. However, the level of ambition and degree of effectiveness in delivery is variable across the UK. We investigated how local authorities currently access energy information, and what kind of model or decision-support would be useful for them as they embark on increasingly challenging forms of localised energy planning.

Introduction

The shift to renewable energy has prompted increased interest in integrating diverse aspects of the energy system. This in turn has prompted increasing investment and research interest in whole-energy systems modelling, as one of the technical responses to changing demands and technologies. The question of how models help in these complex political (and sometimes politicised) processes deserves further examination.

There is growing pressure for local authorities to address energy and climate issues locally, despite decreasing core funding from central government. Currently there is no national framework in place for local and regional government to achieve net-zero emissions targets. This combined with no statutory responsibility, and no long-term programme of funding means that any progress made by a local authority or combined authority is more the exception than the rule e.g. [1].

In observations of two contrasting governance settings, it is found that: Where local authorities collaborated on initiatives with dedicated central (or devolved) government

Many energy system models are cost-optimisation techno-economic models and may therefore undermine the promotion of social value. Models should consider how existing models can be adapted to allow for social value and societal considerations in combination with social-value appraisals.

Levels of resource and expertise vary across local authorities, with many having suffered a long term decline in funding and corresponding reduction in staff. This can make it difficult for local authorities to develop and retain the levels of expertise required to address the complexities in planning and decision-making, or to support commissioning of the appropriate consultancy services.

Local authorities increasingly rely on external expertise, mainly in the form of consultancy. The success of employing external expertise relies on the sharing of information and the management of relationships. This creates a staffing burden for local authorities and there are additional concerns around security and intellectual property.

Central government funding programmes have tight deadlines both in the application process and implementation. This can hinder the ability to collect the necessary evidence and build a case to attract funding. Competitive funding rounds waste scarce resources for those unsuccessful and increase inequality between local authorities. This may compromise central government efforts in their “level up” agenda leading to further waste of resources and funding.

There needs to be a framework to operationalise local net-zero emissions planning and investment across all authority departments and to ensure consistency of approach to avoid bottlenecks and issues. The different geographies of energy network operators add another level of complexity.

funding, they rely on commissioning external providers for their modelling and engagement activities. Monitoring and management of these projects still requires significant internal local authority staffing resource to meet objectives both of the participating local authorities and those of central and devolved government. In contrast, for local authorities that do have a dedicated team to drive decarbonisation activities, there is a reluctance to meet the costs of additional modelling tools designed to assist with local energy planning. Due to extremely limited budgets, there is scepticism as to whether such tools would provide them with the information that they need, or provide value for money.

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Centralised energy systems have meant that energy policy has been the domain of central government. Deployment of dispersed renewable technologies and harnessing benefits of “smart” technologies increases the need to consider localised low carbon heating and other energy and related services provision. Energy planning activities on subnational scales are growing among energy providers as well as by local and regional government.

74% of UK local authorities have signed up to the global “Climate Emergency Declaration” movement, which puts addressing climate change on a “war-like” footing [2]. Many of these have pledged commitment to a target of net-zero emissions by 2030, substantially earlier than the national target. Activities and planning for net-zero emissions pathways are underway in many local authorities looking to deliver on their declarations. While directly responsible for only about 2-5% of emissions, local authorities have influence over a further 33% emissions in their administrative area [3], and a degree of influence over the rest. Local authority activities in decarbonising energy systems are seen as “critical” to meeting UK climate targets through their fulfilling, enabling, advising and investing roles. Progress is however patchy.

Central government's system of competitive bidding rounds for investments meeting specific needs or targets, and a lack of local autonomy whittled away by a long period of austerity are hampering progress. Yet it is arguably in central government's interest (and in the national interest) to provide enduring programmes for local authorities with the appropriate levels of support.

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Quantitative models of the energy system are developed for a variety of purposes. As well as summarising relevant information and providing outputs of selected quantities of interest, models also carry a persuasive role in legitimising decision-making processes. This can either be by framing a decision in terms that lead to a narrow range of outcomes, or by lending scientific authority to particular routes.

There is currently no national planning framework for decarbonisation at a local or regional scale. There are two approaches that have been trialled and are in various stages of being adopted on a subnational scale: Energy Masterplanning (EMP) and Local Area Energy Planning (LAEP). Both EMP and LAEP have evolved out of the decarbonisation of heat challenge. These methods have evolved to identify not only the potential for local district heating networks, but a whole suite of renewable energy technologies across all energy “vectors” and energy efficiency measures can be invested in and deployed. There are no plans (yet) to apply these approaches consistently on a subnational scale. The Energy Systems Catapult (ESC) has proposed a methodology for LAEP to Ofgem [4] and offers the quantitative Energy Paths Network model.

While there may be differences in the way EMP or LAEP is applied by a particular local authority, we found that EMP and LAEP can be briefly described as follows:

- EMP provides quantitative and qualitative measures for the location of current energy supply and demand over a particular geographical scale, and appraises stakeholder attitudes to inform a multi-criteria investment plan of what decarbonisation activities may be feasible and acceptable
- LAEP is a much more granular appraisal – down to dwelling or building level, to understand the implementation of decarbonisation investment plans

A key characteristic in both these approaches is not just the need to appraise spatial or geographical characteristics and existing infrastructure for feasibility of decarbonisation, but also the willingness to invest, and the degree of acceptability of changes among local citizens and businesses. The extensive public consultation exercises required pose significant challenges both in ensuring citizens are adequately represented, and also in reflecting changes in general knowledge and awareness over time. This is in addition to further funding and staffing resources required by this method. This also needs to be balanced with the degree of appetite for consultation among citizens, and to avoid dangers of consultations being seen as tokenistic.

since this could undermine the benefits from such activities.

As already outlined, different local authorities and regions are at different stages in decarbonisation planning and actions, and different “spatio-temporal rhythms” must be permitted to enable a transition that meets the needs and aspirations of citizens in all locations.

achieved by appointing an independent “gatekeeper”, with the necessary extra funding requirement. However, the diverse range of local energy projects with different funding requirements can make it difficult to determine fair options. The lack of

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Local authority funding from central government has been reduced substantially since 2010 and appears likely to reduce even further post-Covid and be channelled through goal-oriented competitive funding schemes. Meeting net zero emissions was expected to add 20% of GDP in government debt over 30 years, a figure that the pandemic has managed to reach in 2 years [10].

There have been calls in the UK and many other countries for a “green recovery” after the pandemic. The UK government has also vowed not only to “build back better” but address the unevenness of regional prosperity and opportunity with its “levelling up” agenda. It is currently not clear how this will translate into net zero emissions delivery.

Many local authorities face depleted staff and resources and an urgent need for increased skills to address multiple objectives. The notion that it is possible to do more with less is increasingly seen as unrealistic. In England, Local Enterprise Partnerships (LEPs) have formed Energy Hubs to provide support, but there are so far only 5 of these covering wide geographical areas that are not well suited to addressing at the level of detail required for local energy planning.

The piecemeal, short term and competitive nature of government funding and a lack of clarity over responsibilities and roles that local authorities play in the UK’s decarbonisation pathway also raise the risk that spending offers poor value for money. This is far from an ideal approach to achieving net zero in aggregate and in the timeframe required.

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Pooling finances through local authority collaboration could be an effective way to commission energy planning projects such as Energy Masterplanning (EMPs) and Local Area Energy Planning (LAEPs). The very different geographical scales, resources and geographical areas of local authorities, mean that decision making processes need to take care to ensure fairness and proportionality. This can be

We propose the following recommendations:

1. If government mandates local area energy planning, then it is critical that appropriate funding and resourcing are made available, and a national framework that:
 - a. Sets out a consistent methodological approach
 - b. Enables local authority forward-planning to include energy plans
 - c. Integrates decarbonisation goals into local government planning guidance and building regulations
2. When modellers design tools for decision-support in local energy planning, they need to be complex enough to be of real use, but simple enough to apply at low cost. The limitations of these models also need to be made much clearer so that they can be used appropriately.
3. Local authorities need to embed decarbonisation goals across departments and offices. This will

