

# Policy Brief

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## Tools for Local Government Net-Zero Decision Making

### 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

### Key findings

**Planning and Decision Making:** High levels of complexity wrestle with the needs to meet multiple objectives: climate change, local wealth creation and retention, social inclusion and wellbeing.

**Place Based:** Tools are generalised rather than locally specific, limiting their usefulness and applicability in supporting local planning and decision making.

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

**Resources & Expertise:** Levels of resource and expertise vary across local authorities, with many having suffered long term decline in funding and corresponding reductions 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.

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

**Government Funding:** Central government funding programmes have tight deadlines both in the application process and implementation. This can hinder councils' ability to collect the necessary evidence and business case to attract funding. Competitive funding rounds waste scarce resources for those unsuccessful and increase inequality between local authorities. This could compromise central government efforts in their "levelling up" agenda leading to further waste of resources and funding.

**National Delivery Framework:** 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 boundary 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.

## CLIMATE ACTION FROM CENTRAL TO LOCAL GOVERNMENT

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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.

## DECISION SUPPORT TOOLS & APPROACHES

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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.

## PLACE BASED APPROACHES

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Modelling approaches, by necessity, are a generalisation and simplification of the system being studied. Local authorities, however, often point to the “uniqueness” and social identity of their geographical areas. For approaches such as Local Area Energy Planning (LAEP) that may use a generalised model such as Energy Path Networks (EPN), a great deal of work remains for local authorities to relate the model to their particular local needs and characteristics.

While modelling tools can be adapted to some extent for particular objectives and conditions, there can be boundary issues that affect decarbonisation progress on a regional and national scale. We note that the Welsh Government have proposed to support the use of LAEPs in all local authorities, and state the need for consistent methodology in order to be able to make national appraisals and avoid boundary issues [5].

In Scotland, there is a toolkit available to assist in the development of community-led local area energy plans [6]. The Scottish toolkit takes the local energy plan developer through 6 stages with freely available information and excel spreadsheets to enable the micro level plan to be developed. However, a local authority may have more complex needs than can adequately be addressed by such a toolkit.

Local energy projects are wide ranging in nature and scope, and the diverse characteristics need to be taken account of in regional and national modelling.

## POWER & DUTY

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In making investments in projects, local authorities decisions are subject to the Social Value Act which requires public authorities to consider not just the financial cost but also social and environmental values when procuring contracts for services. Arguably this should apply in the local authority spend on energy related services too, yet the Energy Path Networks (EPN) model used for the Local Area Energy Planning (LAEP) is a financial cost optimised model based on “total cost” to society. EPN specifically excludes questions of energy poverty/vulnerability or inequalities. We are not aware of any scaled energy modelling systems that incorporate a social value approach.

Decision making by local and regional governments can also be constrained by national tools for decision making such as the Treasury’s Green Book and Benefit Cost Ratios, this can lead to priorities for investment being at odds with net zero emissions delivery [1]. Though the Green Book has been amended to shift priorities towards climate and nature, time will tell if this is realised in practice.

From a local government perspective, the shift to a low carbon energy system can be an opportunity to meet multiple other objectives identified as “co-benefits”. For example, addressing low-carbon goals can be oriented to meeting citizens’ needs for accessible and affordable energy while supporting local businesses implementing energy efficiency measures and investment opportunities.

In appraising positive and negative impacts of an investment project one authority has drawn on principles of “doughnut” economics to develop a “Decision Making Wheel” [7], and we are aware of others taking an interest in similar approaches. Holistic approaches such as these need engagement across all teams and departments in local government, as well as support by a national framework, in order to be effective.

## CAPACITY

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Proposals for local energy planning, as with other planning forms need regular review and monitoring, and significant consent from citizens and businesses. Planning is not a one-off activity but an ongoing process, implying ongoing costs and resource requirements. We would argue that few, if any, local authorities are in a position to add non-statutory duties to their current burden.

For energy system models to meet the needs of policy and decision makers there can be two problems: the mismatch of timescales with model development taking longer than needed for decision making; and one of misunderstanding or a lack of mutuality on needs and objectives. There can be issues too in finding the appropriate level of expertise among local authority staff to interpret outputs and findings from the use of models. Limitations and uncertainties attached to energy system models can often be overlooked [8]. The required hastened speed of meeting net-zero emissions target further complicates matters.

Energy system modelling to support decision-making does enable the technicalities of the transition to be debated to a degree, despite difficulties of “prising open” the black boxes and understanding the assumptions intrinsic to the models. It is crucial that background politics and power dynamics are also addressed, to avoid the science being abstracted to pursue narrow political objectives [9].

Furthermore, stakeholder engagement can enable wider issues to be taken into account and local opportunities harnessed. There is significant unevenness in power dynamics and boundary issues, between regions and nationally. Failure of effective engagement and robust energy planning could lead to despondency on climate action. Especially if central government chooses to overrule local government in pursuit of national targets. Care is also needed to avoid “engagement fatigue”

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.

### RESOURCES & FUNDING

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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.

### COORDINATION & COLLABORATION

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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

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 consistent modelling approaches also makes it difficult for local authorities to find or manage reliable information for planning purposes.

Within any particular local authority, there needs to be “buy-in” across all the departments for energy planning, rather than being the focus of one particular team in the authority. Local authorities often face conflicts between multiple objectives e.g. between landscape tourism and onshore wind-farm developments. Decarbonisation plans may be frustrated by the land-use planning process, which is not currently aligned to the decarbonisation agenda. The CCC 21st Progress Report highlighted the need for planning framework reform in particular to support local authorities in their important decarbonisation role [11].

Local decarbonisation activities can involve collaboration with electricity and gas network operators in order to access detailed data on energy supply and demand. This is of interest to operators too since local authority investment plans could change the source and nature of the way local energy is generated and consumed. This could create tensions between the need for local authorities to deliver on decarbonisation targets, and potential threats to business models for energy network operators.

Consultations over climate plans have also revealed that public understanding remains limited, with e.g. public support for tree-planting far outstripping support for more effective decarbonisation interventions [12]. A number of democratic innovations, such as citizens’ assemblies can fulfil a range of objectives: to inform and educate more widely and to appreciate a diverse range of perspectives to support decision making. Whether such initiatives are adequately taken into account in policy making is debatable. Without clear guidance or intensive and periodic public engagement, decarbonisation efforts are often frustrated in the local political arena.

While local action is both necessary and potentially effective, there is an imperative to meet national targets in aggregate. There are dangers of seeing local energy projects as isolated or independent cases, particularly when government funding for climate initiatives has tended to be piecemeal. Local initiatives need to be understood as part of a complex multi-scalar integrated system.

## RECOMMENDATIONS

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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 encourage decarbonisation aims to be aligned with other statutory objectives such as care, health and housing.
4. Central government funding, objectives and policy need to be reliable and sustained. Funding schemes must also be more carefully prepared and based on listening to local experience, to avoid the most obvious failures.
5. Effective and ongoing engagement with stakeholders is essential in the transition to a net zero economy. This necessarily requires both time and resources. Getting engagement right can enable sustained effort towards shared goals both at central and local government.

It is in the interest of central government that all local authorities are appropriately resourced to help bring about a low carbon transition, since this contributes to the legally binding national target for net zero emissions by 2050. Energy responsibilities are currently voluntary at the local and regional government level. That local authorities are choosing to engage in energy and climate planning should be encouraged as it is helping central government meet the legal target.

Local authority actions towards a Just Transition can be undermined by central government inaction or sudden changes in focus. Securing or advancing their commitment requires certainty through the transition process to maintain momentum and facilitate confidence and trust between government, local government, citizens, businesses and organisations (including third sector organisations).

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## PROJECT INFORMATION

This policy brief reports on UKRI funded research carried out in 2021 under the auspices of the Centre for Energy Systems Integration (CESI) by academic researchers at Durham Energy Institute, Durham University and SPRU at the University of Sussex. The research included two in-depth case studies and participation in local authority energy management teams in one largely rural unitary authority, and one multi-authority collaborative planning initiative. The research used empirical methods to question how models are put into practice, and what kind of organisational settings they are thought to serve. A paper with more detailed information and analysis is forthcoming.

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