# Environmental Audit Committee Inquiry: Technological Innovations and Climate Change: Community Energy

**Written Submission by the Energy Systems Catapult, March 2021.**

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## About Energy Systems Catapult

Energy Systems Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia and research.

We take a whole-system view of the energy sector, helping us to identify and address innovation priorities and market barriers, in order to decarbonise the energy system at the lowest cost.

## Evidence submission / responses to questions in call for evidence

**What contribution could community energy (through renewable power and/or energy efficiency) make to achieving net-zero by 2050 in the energy sector and its potential role in decarbonising the heat and transport sectors?**

Decentralised energy resources, many of which could be owned or operated by communities, can make a substantial contribution to achieving net zero, reducing costs and realising benefits for consumers and communities.

ESC believes that this potential can only be realised through improved energy market design and supporting policy/regulation. Reforms that enable markets to more accurately reflect the value of particular energy resources and technologies to the net zero transition in particular localities will improve the environment for community energy projects.

**How well are the financial and technical needs of setting up and running community energy projects met by existing Government support mechanisms? What changes would be needed to the access or nature of support to develop community energy further?**

ESC has not conducted evaluations of any Gvt support mechanisms for community energy and has not examined evaluations conducted/available.

ESC would recommend, however, that evaluation of current policy be holistic, extending to assessment of market failures and interaction of the existing policy with markets and other policies. Our analysis of the current energy market environment points to the case for ambitious reforms (not confined only to incremental reform of existing policy measures) to make markets work more accurately in time and space. This would reveal and reward more accurately local and decentralised energy resources, including those owned and/or operated by communities.

Our work also suggests that Local Area Energy Planning can play a key role in enable local authorities and other local interest groups to understand the net zero energy options which are suited to the specific needs of their localities.

**What are the main barriers to development of new community energy schemes under the current regulatory regime? Do lack of connection or high access charges to the electricity grid pose an obstacle? How could these be overcome?**

A major barrier to community energy and local energy more broadly, relates to the challenging economics associated with developing viable business models:

- inadequate reflection of locational value in wholesale electricity prices and/or network charges – prices should more accurately reflect network congestion and line losses. Community projects in areas of high energy demand and congested electricity networks might then become NPV+.
- incoherent carbon price signals across energy vectors, hampering energy vector switching (important for e.g. low/zero carbon heat networks, community solar; large-scale heat pumps):
- non-CfD supported community projects must compete against CfD supported projects and low wholesale electricity prices (especially due to price cannibalisation caused by CfDs and the fact that CfDs are now being applied to mature, competitive technologies)
- different treatment of transmission and distribution connected assets (e.g. connection agreements), which impacts the extent to which they can contribute to system integration and be rewarded for it e.g. generators connected at distribution level are not used to balance the grid; GC0143 - Last Resort Disconnection of Embedded Generation (with no compensation, unlike generators at transmission level).

**What role should Ofgem play in supporting community energy and resolving regulatory issues, such as decentralisation and incorporating community energy projects into smart electricity grids?**

Ofgem/BEIS need to prioritise development of open, competitive energy markets with prices and charges reflecting full marginal costs and externalities. Getting this right reduces the policy support that zero/low carbon energy resources, including community energy, will need.

The Government & Ofgem should assess options to incorporate locational value in wholesale electricity prices (e.g. zonal pricing, locational marginal pricing and nodal pricing) and all market actors/technologies should be exposed to market signals so they locate in optimal locations.

Market rules, policies and regulations need to be reformed to ensure equal treatment of and a level-playing field between different energy resources/technologies and market actors.

- Some stakeholders call for expanding CfDs to smaller assets. ESC, however, recommends phasing out CfDs and replacing them with sectoral carbon regulation (e.g. minimum carbon intensity performance standards), applied to the market actors that drive markets (i.e. consumers, retailers) [1], [2]. This will remove price distortions and create more of a level-playing field. If directly linked to the Climate Change Committee's carbon budget cycle,

[1] See ESC, *Towards a New Framework for Electricity* Markets https://es.catapult.org.uk/reports/towards-a-new-framework-for-electricity-markets/ and to be published in March 2021, *Rethinking Electricity Markets: A new phase of innovation-friendly and consumer-focused electricity market design reform*

[2] ESC, *Accelerating to Net Zero: A sector led approach to an economy-wide carbon policy framework,* https://es.catapult.org.uk/news/accelerating-to-net-zero-a-sector-led-approach-to-an-economy-wide-carbon-policy-framework/

carbon standards combined with carbon pricing will give market actors and investors the certainty they need.
- Assets connected at distribution level need to be 'visible' to NG ESO with connection agreements enabling their system integration and compensation for provision of services, as for transmission assets.
- Require community projects connecting to the grid are digitally enabled and visible to the system operators (DSO/ESO).

**What role can local authorities play in developing community energy, for example in planning, decision making and the availability of sites for energy generation?**

LAEP approaches, with strong local authority leadership, can create well-targeted and evidenced Net Zero investment and infrastructure plans for localities, towns and cities. This can support better decision-making, and help regions (including community led initiatives) take a lead in delivering green recovery and growth nationwide.

Local Area Energy Planning can play a key role in supporting decarbonisation by **allowing coordination** of investment in energy infrastructure, including low-carbon heat and transport technologies. It can serve to build **credible evidence base** around which to begin **meaningful engagement** and dialogue with local citizens and stakeholders about credible pathways and priority actions to achieve decarbonisation objectives. This can provide a stronger strategic plan within which community energy projects can be scoped and designed to deliver maximum value in meeting local needs.

**How can policy ensure that community energy projects maximise their positive impacts (social, environmental, economic) on the local communities?**

Government support for the national roll out of Local Area Energy Planning could be a key policy measure to ensure that community energy projects are designed in ways that are closely aligned with local social, environmental and economic priorities.

We have recently worked with the Centre for Sustainable Energy to develop a methodology report **commissioned by Ofgem** describing the purpose and value of Local Area Energy Planning (LAEP). It identifies four critical elements of LAEP and sets out quality criteria for each element which together define what LAEP 'done well' involves.

The methodology report[3] will enable LAEP to be undertaken on a more consistent basis in different places across Great Britain and that the process produces more reliable and informative outputs which are therefore more useful at the local, regional and national levels.

ESC believes that this methodology and guidance should be adopted as part of the RIIO2 network regulation framework to ensure that energy network companies invest in infrastructure that best meets local net zero energy needs. This in turn should enable community-led energy resources to connect to networks and realise their potential.

[3] Accessible here https://es.catapult.org.uk/reports/local-area-energy-planning-the-method/

**What are exemplars of successful community energy systems from across the UK's urban and rural communities; what makes them so successful?**

Examples of local energy planning action are emerging across the UK, many of which include elements of community-led action or ownership. They include the Scottish Government's Local Heat and Energy Efficiency Strategies (LHEES), pilot renewable energy and low-carbon plans in Pembrokeshire County Council and Swansea Bay City Region in Wales and work by several local and combined authorities in England delivering progressive emission reduction programmes, including Greater Manchester, Bristol, Nottingham and Warrington Borough Council. **These local energy assessments focus on identification of specific sets of activities** and projects within a local area, including energy efficiency, low-carbon and micro-generation, smart local grids, public and on street EV charging.

ESC developed the concept of Local Area Energy Planning as part of the Smart Systems and Heat Programme (see Box below). ESC has been working with Ofgem and the Centre for Sustainable Energy to develop a LAEP guidance to support the development of consistent, robust and transparent local area energy plans and encourage the development and application of transparent and consistent methodological approaches across industry. These **new local area energy planning approaches can play a key role in facilitating the creation of robust whole system decarbonisation plans for local areas**.

Our policy brief, 'Towards an enduring policy framework to decarbonise buildings: step 1', sets out the case for a new wave of 'place based low carbon building programmes' to drive early deployment of building decarbonisation solutions (including energy efficiency, fabric improvements and low carbon heating) at scale. Our vision of place-based low carbon programmes:

- Led by local and regional authorities, alongside consortia of private sector partners and Local Enterprise Partnerships.
- Funded by a combination of post-Brexit regional funding (the 'Shared Prosperity Fund' proposal), aligning existing sources (e.g. ECO) and leveraged private sector contributions.
- Co-ordinated place-based targeted investment at scale (£10's of million) in energy efficiency, fabric improvement/retrofits, low carbon heating technologies, regional supply chain improvement and skills development.
- National guidelines and quality control set by BEIS, but with space for regional leadership, innovation and specification (ideally informed by robust local area energy planning).

Access the report at: https://es.catapult.org.uk/policy-briefs/six-steps-to-zero-carbon-buildings-step-one/

This approach to building supply chains could, in conjunction with other measures, support the replacement of jobs in areas impacted by the transition to a low carbon economy.