Cambridgeshire County Council

Community Energy Action Plan

~~Draft for Stakeholder Comment~~

~~8th July~~December 2024

1. Introduction

1.1 Community energy refers to energy generation (most commonly solar and wind) developed, owned and controlled by community groups. Community energy projects make a useful contribution to decarbonising the electricity supply, but also provide communities a sense of engagement and ownership over the transition to a clean energy system. Projects also ensure that communities benefit financially from the clean energy projects they deliver, either by generating revenue for community initiatives or by offering cheaper energy to residents.

1.2 The Government's Local Power Plan[1] recognises the contribution community energy can make and aims to support up to 8 GW of clean power projects delivered by community energy and local authorities.

1.3 This ~~draft~~ Action Plan sets out proposed Council actions to support communities who want to develop their own clean energy projects, promote domestic energy efficiency in their neighbourhoods and raise awareness of clean energy opportunities.

~~1.1~~1.4 The Council sought stakeholder views on a draft of the Action Plan from 8th July to 16th September 2024. 140 responses were received. 82% supported the adoption of a Council Action Plan. Support for the individual proposed actions ranged from 72% to 85%. Stakeholder comments have been used to clarify and provide more detail on the proposed actions.

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~~1.2~~1.5 Sections 2 to 6 set out background on community energy and domestic energy efficiency, in order to put the Council's proposed actions in context. The proposals for Council action, ~~on which we are seeking stakeholder views,~~ are in sections 7, 8 & 9.

~~1.3 The Council is seeking views from stakeholders and residents on the draft Action Plan from 8th July to 16th September.~~

2. Council Policy Principles

2.1 In March 2021 the Council's Environment & Green Investment Committee adopted a set of policy principles for community energy under the title "*Right Technology - Right Place – Benefitting Communities*"[2]. These principles require there to be community support for projects and also aim for domestic energy efficiency retrofit to be incorporated within community energy projects where possible.

3. Background - Community Energy

[1] Add Local Power Plan reference

[2] Environment & Green Investment Committee, 16th March 2023, Agenda Item 7

~~3.1 Community energy refers to energy projects owned and controlled by community groups, usually via a community energy co-operative (co-op). Projects can range from rooftop solar to wind turbines and solar farms.~~

~~3.2~~3.1 Community Energy in the UK comprise~~d~~s 206 MW of solar photovoltaics (PV), 113 MW of wind, 12 MW of hydroelectric and 4.7 MW of heat generation capacity[3] in 2021. Community Energy England's 2024 State of the Sector Overview indicated that total capacity has now increased to 398 MW. The majority of recent community energy installations are rooftop solar PV projects.

~~3.3~~3.2 Costs of building community energy projects can be funded from grants, community share offers, bonds and/or loans. To secure investment, projects need to be able to generate a return for co-op members, typically around the 5% mark. Community energy groups raise capital from share and bond offers on online platforms such as Community Energy England's website[4], Ethex[5] etc. Projects generate revenue to cover operating costs and returns for members by selling electricity to the grid. Surplus income is often invested in other projects to benefit the community.

~~3.4~~3.3 Projects sell their electricity to the grid via Power Purchase Agreements with electricity suppliers. Recently, innovative arrangements like Energy Local's Energy Local Clubs[6] ~~and Octopus Energy's Fan Club[7]~~ have become available which enable projects to offer discounted electricity prices to local residents when their projects are generating. Some commercial developers also offer reduced electricity prices for residents living near new wind turbines e.g. Octopus Energy's Fan Club[8]

~~3.5~~3.4 Renewable heat is a more challenging area for community energy projects. In 2021 there were only 3 new community energy heat installations, totalling 138 kW. All of these were heat pump projects and two were supported by the Renewable Heat Incentive, which has since closed to new projects.

[3] State of the Sector Report 2022, Community Energy England
[4] Community Energy England Share Offers webpage
[5] Ethex Investments webpage
[6] Energy Local website
~~[7] Octopus Fan Club website~~
[8] Octopus Fan Club website

~~3.6~~3.5 The following two Cambridgeshire case studies show the type of projects that can be delivered by communities.

Case study: Gamlingay Community Turbine

Gamlingay residents installed a 330 kW Enercon wind turbine. The capital cost of the project was funded entirely by local residents and businesses. 10% of the net income from the project is used to provide grants for projects that benefit the community.

Case study: Reach Community Solar Farm

Reach Community Solar Farm is a 250 kW solar farm. It generates enough electricity to power around half the homes in the village. The project was funded by a share offer, taken up by 112 people, mostly local residents. Surplus income from the project is donated to a Community Benefit Fund.

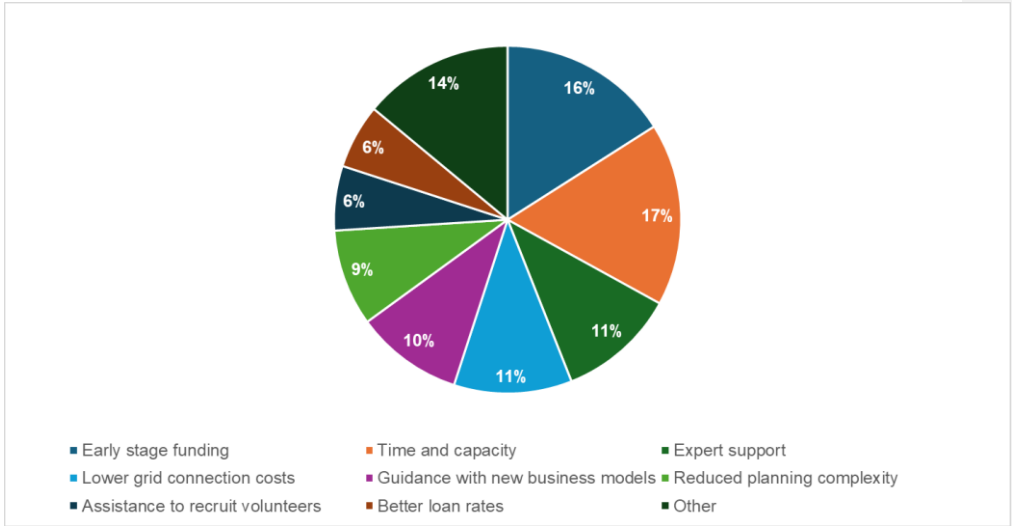
4. Challenges and Barriers

4.1 Community Energy England's State of the Sector report 2022 reported that the community energy sector in the UK had installed the following projects in 2021.

Project Type	Number of new sites in 2021	Capacity of new sites in 2021
Solar PV	17	2.6 MW_e
Onshore wind	2	2.7 MW_e
Hydro	4	2.3 MW_e
Heat pumps	3	138 kW_{th}
Low Carbon Transport	113	NA

4.2 The majority of projects were rooftop solar projects of 5-50 kW capacity with four larger 100-150 kW installations. Wind was dominated by a single 2.5 MW wind farm. New hydro capacity was all located in Scotland. Low carbon transport projects included Electric Vehicles (EV), car-sharing, charge points, EV education etc.

4.3 The report included the following priority areas where community energy organisations reported that more support was required.



4.4 ~~At the time of writing this draft Action Plan, publication of~~ Community Energy England~~'s~~ have published a State of the Sector 2024 Overview ~~report, with~~

~~updated statistics was imminent. This will be published~~ at https://communityenergyengland.org/pages/state-of-the-sector. This will be followed by further more detailed State of the Sector publications.

5. Other Organisations' Initiatives

5.1 Multiple organisations locally, regionally or nationally offer support on community energy and on domestic energy efficiency. The Council's proposed Action Plan aims to complement and fill gaps in the available support.

5.2 Actions on Community Energy are potentially linked with the following partner activities:

i) Greater South East Net Zero Hub's Community Energy Fund (CEF) grants for (Stage 1) feasibility studies and (Stage 2) project development. Council staff resource and guidance will support communities in identifying suitable projects for CEF bids and Council match funding will supplement CEF development grants. NB CEF funding requires that projects will be at least 50% community owned;

ii) Cambridgeshire & Peterborough Combined Authority's £1m Net Zero Villages programme could provide capital grants for projects with successfully completing CEF Stages 1 & 2;

iii) South Cambridgeshire's Zero Carbon Communities initiative, providing £2-15k grants for reducing carbon emissions and engaging the community on climate change. This can include funding for upgrades for community buildings, but not for projects that benefit individuals, rather than the wider community or generate profit for private gain.

5.3 District Councils lead on domestic energy efficiency work. This is delivered and co-ordinated under the Action on Energy Cambridgeshire[9] initiative (of which County Council is a member). This includes delivery of Home Upgrade Grant Phase 2 (HUG2) funded upgrades for lower income, lower energy efficiency homes. Cambridgeshire Councils have also procured and vetted 5 contractors for domestic retrofit under Action on Energy Cambridgeshire. These contractors are used for HUG2 work and are also available for self-funding residents to commission work from. County Council's proposed actions aim to support the work of District Council's by mobilising communities to promote the uptake of grant funding and to make use of Action on Energy contractors for community-led, neighbourhood, installation schemes.

5.4 Peterborough Environment City Trust (PECT)[10] provide energy advice and a Home Energy Support Service for residents in Fenland, Huntingdonshire, Cambridge City or East Cambs.

[9] Action on Energy Cambridgeshire website
[10] PECT Energy Advice webpage

6. Project Ideas

6.1 The following are examples of different types of project that community energy groups could deliver.

6.2 Rooftop solar

6.2.1 Installing rooftop solar PV on one or more non-domestic buildings in the community. This might be a school, a community owned building, a local business etc. The community energy co-op would fund the installation and maintenance. They would recover their costs and generate a return by selling electricity to the building occupier via a Power Purchase Agreement and selling any excess electricity to the grid via a Smart Export Guarantee[11]. This type of project works best on buildings where the occupier has significant daytime electricity use i.e. demand matches times when the solar PV is generating. In principle battery energy storage systems can be added to address a mis-match between consumption and generation times. Batteries do add significant cost which can make project affordability more challenging.

6.3 Solar farm or wind turbine(s)

6.3.1 Like the case studies, communities could develop community owned and operated wind turbines or solar farms on community owned or leased land. The community energy co-op would fund and manage the installation and maintenance of the turbines or solar. The co-op would sell electricity to the grid via a Power Purchase Agreement or Smart Export Guarantee to recover investment and generate a return. ~~Wind turbines will require broad support from the community and within the District Council's Local Plan[12].~~

6.4 Solar farm or wind turbine(s) + sleeving

6.4.1 In the above project idea electricity is sold to the grid rather than to local residents. Electricity market regulatory requirements make it impractical for community energy co-ops to sell electricity direct to residents, although electricity can be sold via a licensed electricity supplier by "sleeving". Arrangements like Energy Local Clubs allow community energy co-ops to form a partnership of households, businesses and local generators. If partners are using electricity when the solar farm/wind turbine is generating, they pay a lower price for their electricity and the generator receives more for their electricity generated. The licensed electricity supplier administers this and sells customers the extra electricity when there is not enough generated locally. In this type of arrangement the community energy co-op's Power Purchase Agreement would be with one of the licensed electricity suppliers who is signed up with Energy Local.

[11] Ofgem webpage on the Smart Export Guarantee

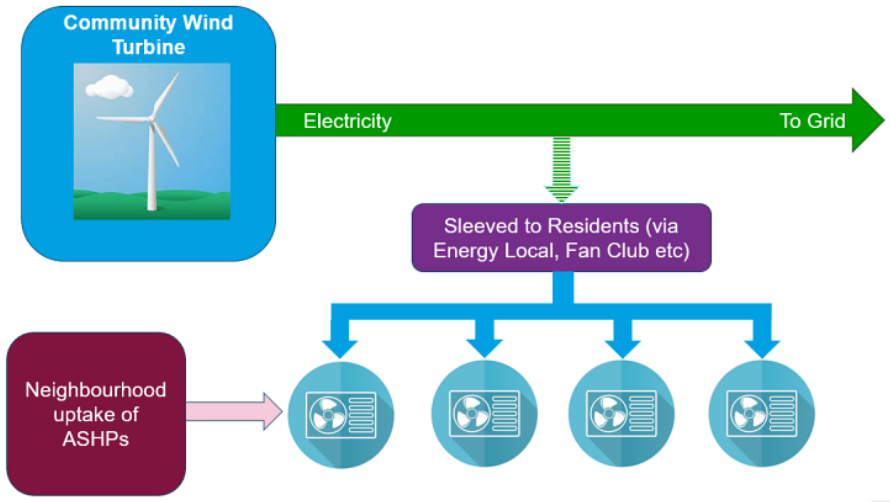
[12] ~~National Planning Policy Framework~~

6.5 Domestic energy efficiency & renewables

6.5.1 Community groups could promote uptake of domestic energy efficiency and domestic renewables via their own information and marketing campaigns, to make residents more aware of the technologies, potential benefits and available grant funding. Community groups could also take this a step further and facilitate neighbourhood wide retrofit schemes e.g. to simplify the process for residents, create a sense of community ownership over a programme and capture potential cost savings for multiple retrofits within a single community. This might involve the community group seeking expressions of interest from residents, arranging quotes from contractors and sharing experience within the community on proposals received and installations delivered.

6.6 Wind powered heat

6.6.1 There is potential for communities to combine some of the above projects. One particularly interesting idea is to combine a community owned wind turbine, selling cheaper electricity to local residents via sleeving, with domestic retrofit of Air Source Heat Pumps (supported by the Government's Boiler Upgrade Scheme[13] £7,500 grant per property).



6.6.2 A study on this concept by Possible[14] concluded that a wind turbine could provide 68% of the electricity demand from heat pumps and deliver a 26% cost saving relative to gas heating. The same concept is also possible with solar PV, instead of wind, although Possible found that solar PV generation alone was less well matched than wind with the timing of heat demand. The report found that adding 3 kW rooftop solar PV per

[13] Gov.uk Boiler Upgrade Scheme website
[14] Wind-powered heat, Possible - February 2024

household (in addition to the community wind turbine) and domestic battery storage systems, further reduced running costs. Including domestic solar and batteries as well as a new community wind turbine could bring the potential cost savings up to 31%, and reduce carbon emissions by up to 90% compared to gas heating, and by 64% compared to running heat pumps on grid electricity.

7. The Council's ~~proposed Draft~~ Action Plan

7.1 The Council's proposed actions to support community energy are set out below. These have been developed through two community workshops, a partner workshop, including the District Councils and Combined Authority, and input from across Council services.

7.2 A budget for staff costs, plus £231k over 2 years for communications activity, feasibility studies, supporting the set-up of a co-operative, education & awareness raising etc has been agreed from the Council's Just Transition Fund to support the development and delivery of these actions. No capital budget is proposed.

7.3 **Help Establish a Cambridgeshire Community Energy Co-operative**. Community energy projects are delivered primarily by community volunteers. Delivering projects is complex, lengthy and requires a wide range of community skills. Access to the full range of skills (chairing, project management, engineering, environment, planning, legal, commercial, finance, marketing etc) can be a barrier to getting a community energy project off the ground within a particular community. Subsidies such as Renewables Obligation Certificates, Feed in Tariffs, Renewable Heat Incentive which helped deliver community energy projects in the past no longer exist. The current policy landscape requires economies of scale for community energy to succeed. Supporting the set-up of a county-wide community energy co-op, with volunteers, could pool expertise to help deliver projects and capture economies of scale. The Council will call for volunteers, provide briefing on what's involved and help with registering the co-operative. We will work with national community energy organisations to do this. It's expected that existing organisational structures and documents available from Community Energy England etc will be used for the co-operative.

7.4 **Match Funding for Feasibility Studies.** Community Energy Fund grants are available from the Greater South East Net Zero Hub for Stage 1 feasibility studies and Stage 2 project development work. However, these are capped at £40k and £100k per project respectively. More ambitious projects will require greater funding, in particular at the project development stage. This can be hard to raise due to the level of risk at these early stages of a project. Match funding, subject to initial business cases demonstrating financial viability ~~e.g. minimum 5% return over project lifetime (in line with typical community energy share offer returns)~~ could address this. To ensure budget is focused on projects with a high chance of success applicants for funding will need to demonstrate that certain criteria are met. These are likely to include:

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- An options appraisal has been completed considering a range of project types in order to identify the most promising options to pursue; and
- An initial business case demonstrates that a minimum 5% Internal Rate of Return (IRR) over the lifetime of the capital investment is achievable (in line with typical community energy share offer returns).

~~7.4~~ The Council can support groups with advice on how to produce their options appraisals and business cases. To prolong budget, funding should be repaid if/when projects conclude successful share offers that allow them to proceed to construction.

7.5 **Council Community Energy Development Officer**. Employing an officer to support community energy groups with project identification, site identification, grant applications, feasibility studies, project development and delivery. This will help capture and share experience from community energy and Council projects. The Development Officer would engage with community energy groups from the outset to steer them towards the most viable project opportunities.

7.6 **Guidance & Advice**. In particular "route maps" on the steps community energy groups would need to take to explore, develop and deliver community energy projects including rooftop solar, solar farms, wind turbines, EV charging etc. This would seek to supplement, but not duplicate other information available to community groups in the public domain.

7.7 **Brokering Customer Relationships**. Introducing community energy groups to schools, municipal buildings etc as suitable host sites and customers for community delivered rooftop solar. This could be extended to projects with other technologies, if and when these are financially viable.

7.8 **Search for Sites**. A review by the Development Officer using GIS datasets on wind resource, solar resource, substation location and headroom, agricultural land grade, nature value to identify the sites, in private as well as public ownership, most suitable for use for community energy projects. This review will use UK Power Network's "Your Local Net Zero Hub" tool for this purpose. This tool incorporates 160 GIS datasets and has been developed for producing Cambridgeshire's Local Area Energy Plan. Search for Sites results will be reviewed by the Council's Property, Heritage and Natural Environment teams to ensure sites with high agricultural, heritage and nature value are protected and not proposed as suitable for energy projects.

8. Supporting Domestic Energy Efficiency

~~8.~~8.1 The Council will work with District Councils via the established Cambridgeshire Energy Retrofit Partnership (CERP) to ensure the following actions are consistent with existing domestic retrofit work. The Council will also look for opportunities to work with existing voluntary groups in the delivery of these actions.

~~8.1~~8.2 **Promote Uptake of Grants** e.g. Boiler Upgrade Scheme grants for heat pumps, Home Upgrade Grant Phase 2 & Local Authority Retrofit Scheme grants for insulation, solar PV and heat pumps. This might involve providing

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community groups with promotional materials, training and information on streets most likely to contain eligible properties to enable them to promote grant awareness and uptake in their communities.

~~8.2~~8.3 **Raising Awareness of Innovative Energy Tariffs**. Providing generic information on time of use tariffs and Energy Local Clubs (where available) and links to switching and comparison websites for up to date details on the latest tariff offers. Energy Local Clubs are a mechanism by which community energy projects can "sleeve" electricity to local residents when the community solar PV or wind turbine is generating. This requires residents to collectively switch to the specific licensed electricity supplier used by the community energy project. It offers residents reduced bills and a higher income for the community energy co-op.

~~8.3~~8.4 **Neighbourhood Uptake of Domestic Renewables**. Provide community groups with "route maps" on how to deliver a community-led neighbourhood solar PV and heat pump installation project e.g. seeking expressions of interest from residents, obtaining surveys and quotes from the 5 Action on Energy Cambridgeshire installers etc.

~~8.4~~8.5 **Private Landlords.** A proportionate comms and engagement campaign promoting domestic retrofit, including uptake of Home Upgrade Grant and Local Authority Retrofit Scheme grants by private rental landlords, in order to reduce energy bills for tenants, whilst also enhancing the landlord's property values.

9. **Education & Awareness Raising**. Working with Communities to reach out to those not currently engaged in clean energy to win hearts and minds, encourage demand reduction via behaviour change and reduce opposition to proposed clean energy projects. Education & awareness raising activities could include:

- Drop-in events providing independent advice on domestic energy efficiency and renewable technologies;
- Events looking at options for improving the energy efficiency of historic and listed properties;
- ~~9.~~ Working with less affluent communities to raise awareness of opportunities to reduce their energy bills.

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10. Monitoring

10.1 The Council will monitor the effectiveness of the Action Plan in terms of the following:

- Number of projects supported
- Number of projects progressing to construction/installation
- Investment leveraged in from Government grant funding and community investment
- Resident bill savings projected from projects entering construction/installation

- Carbon savings projected from projects entering construction/installation
- Number of residents engaged via Education & Awareness raising activity
- Attendee feedback from Education & Awareness raising events

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~~10.~~11. Schools Solar Pilot

~~10.1~~11.1 In parallel with ~~stakeholder engagement on~~ the ~~draft~~ Action Plan the Council is working on a pilot programme of school rooftop solar PV projects installed by a community energy organisation. Seventeen schools across the county have expressed an interest in participating. These projects will involve a community energy organisation funding, installing and maintaining the solar installation and the school purchasing electricity from the solar at a rate below the electricity retail price. Net revenues after repaying community energy shareholders will be shared with the schools.

~~10.2~~11.2 If the pilot is successful the portfolio of projects could be transferred to a Cambridgeshire Community Energy Co-op, once this is set up, for them to manage and extend to other schools, public and community buildings. It is hoped that this will kick-start other Cambridgeshire Community Energy Co-op activity e.g. community solar farms or wind turbines.

~~11.~~12. Local Area Energy Planning & Heat Zoning

~~11.1~~12.1 The Local Area Energy Planning (LAEP) process is designed to assess Cambridgeshire's energy infrastructure needs between now and 2045, in order to achieve net zero. This includes what renewable energy, battery storage and flexibility services are needed to meet the county's changing needs, as well as vehicle charging infrastructure and new heating systems. It aims to estimate the cost of this infrastructure, so that investment strategies can be developed. It is also aiming to anticipate fuel poverty issues that may be aggravated during the net zero transition, so policies and funding can be identified to counteract this.

~~11.2~~12.2 Communities are key stakeholders as part of this process and stakeholder engagement will be designed to enable them to engage as much as possible to shape the LAEP, along with industry, public and private sector stakeholders.

~~11.3~~12.3 In December 2023 to February 2024 the Government consulted on proposals for Heat Network Zoning[15]. The proposal is to establish a central authority to identify areas where heat networks are the most cost effective solution to decarbonising heating and to appoint Local Authorities to co-ordinate heat network opportunities within their areas. Government's proposal is that Local Authorities be responsible for refining the Heat Network Zones identified by the central authority, marketing these opportunities in their areas, collecting operational data from heat networks and enforcement. Conclusions

[15] Heat Zoning consultation

from the consultation and legislative proposals are yet to emerge. As Government proposals on Heat Zoning become clearer, we intend to keep community energy stakeholders informed and engaged on how this will apply in Cambridgeshire.

~~12.~~13. References

1. https://cambridgeshire.cmis.uk.com/ccc_live/Meetings/tabid/70/ctl/ViewMeetingPublic/mid/397/Meeting/1918/Committee/67/Default.aspx
2. https://communityenergyengland.org/files/document/626/1655376945_CommunityEnergyStateoftheSectorUKReport2022.pdf
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