Appendix 2 to Cabinet report – Reference FP/096/07/21

Essex County Council

Renewable Electricity Policy 2021-25

1. Everyone's Essex

1.1 Everyone's Essex, the Plan for Essex: 2021-2025, sets out the Authority's four strategic aims and 20 commitments. The strategic aim "High Quality Environment" includes a commitment to "work across the Authority and the County to hit our net zero targets, by ensuring that the Authority significantly reduces its carbon footprint whilst also supporting an acceleration in the progress towards sustainable…energy…".

1.2 The Authority's current budgeted annual spend on electricity across its operational buildings, highways, streetlighting and other infrastructure is £7.6 million. The Authority has an opportunity to leverage its spend on electricity to support its net zero targets whilst improving the Authority's financial resilience through the sourcing of renewable electricity.

1.3 This Renewable Electricity Policy, supports the Authority's commitment to source 100% renewable electricity through three parallel priorities:

- on-site renewable electricity generation
- off-site renewable electricity generation
- certified renewable electricity.

This combined approach aims to provide energy resilience, carbon reduction, reputational benefits, cost certainty and the opportunity to make long term savings on energy commodity costs.

1.4 This policy does not cover gas. Options for buying renewable gas are limited due to limited generation in the UK and renewable gas comes with a price premium. On this basis the Authority is not currently looking to procure renewable gas as part of its supply contract. The Authority will however continue to review the market and will explore opportunities to reduce its use of gas by decarbonising heating systems through converting sites from gas or oil heating to electric heating supplemented by other energy efficiency and retrofit measures

2 Background

2.1 The UK is at the forefront of responding to the climate crisis. The UK has signed the Paris Agreement which commits the world to act to hold global temperature rises to below 1.5°C and the UK is the first country to enshrine in law a commitment to reducing greenhouse gas emissions to net zero by 2050. This year, the Government has committed in law to reduce our greenhouse gas emissions, 78 per cent, by 2035 from a 1990 baseline.

2.2 More recently, the Government has set an ambitious national target to end gas fired energy generation and reach a 100% renewable electricity generation mix – primarily wind and solar – by 2035.

2.3 Everyone's Essex, Our Plan for Essex: 2021-2025 makes a commitment to work across the Authority and the County to hit our net zero targets by ensuring that the Authority the Authority significantly reduces its carbon footprint whilst also supporting an acceleration towards sustainable energy.

2.4 The Essex Climate Action Commission (ECAC) recommended that Essex produces enough renewable energy within the County to meet its own needs by 2040. It also recommended that solar photovoltaic (PV) panels are installed on every available roof on both domestic, industrial and commercial properties by 2050 and 25% of rooftops by 2030.

2.5 The Authority also has an ambition to achieve a net zero carbon core estate by 2030 through investment in energy efficiency, retrofit measures and increasing the use of renewable electricity on the Authority's own estate.

2.6 The Authority's budgeted 2022/23 spend on electricity is £7.6M across the core estate and its core estate and infrastructure – this includes circa 250 operational buildings (including offices, libraries, children's centres, youth and respite centres, country parks), highways, street lighting and other infrastructure. The Authority does not currently have a consolidated policy for using renewable electricity for its maintained estate. Renewable electricity was not stipulated as part of the previous energy supply contract that runs from 1 October 2018 to 30 September 2022. That supply is a combination of 'green energy' from renewable generation such as off-shore wind and solar farms, and 'brown energy' primarily from gas fired power stations.

2.7 As part of the Authority's strategy to reduce its carbon footprint, the Authority purchased Renewable Energy Guarantee of Origin (REGO) certificates from its current supplier in 2019 to ensure that the electricity that it buys is "backed up" by renewable electricity.

3 Renewable electricity policy

3.1 In response to the Authority's Organisation Plan and the ECAC recommendations there is an opportunity for the Authority to lead by example by proactively making a decision on where it sources its future energy requirements from and how renewable that energy is.

3.2 The Authority's contractor Mitie Energy has assessed the current energy consumption and emissions for the core estate and infrastructure including maintained schools. As part of this work, there are a number of recommended measures to support the Authority's ambition to reach net zero across its core estate by 2030 including:

- Energy efficiency – behaviour change and capital investment to improve the energy performance of buildings.

- Electrification and degasification – investing in technologies such as heat pumps to shift heating for the Authority's buildings from gas to electric which will reduce carbon emissions (whist noting that this will increase the Authority's demand for electricity consumption as buildings are converted from gas to electrical heating systems).

- Renewable generation - increasing the Authority's renewable energy supply through investment in on-site renewable generation. The most suitable approach for the Authority to generate electricity on-site is roof mounted solar PV technology.

- Renewable energy procurement – procure an electricity supply agreement with a renewable generator to supply renewable electricity to the Authority's estate.

3.3 Based on these recommendations and the Authority's ambition to achieve a net zero carbon core estate by 2030 it is proposed that the Authority adopt a Renewable Electricity Policy that has three combined workstreams:

- Workstream 1: On Site Renewable generation
- Workstream 2: Off-site renewable generation (Power Purchase Agreement)
- Workstream 3: Green energy tariff

3.4 **Workstream 1: On Site Renewable generation**

The Authority maximises opportunities to self-generate renewable energy on its core estate - the most suitable approach to generate electricity on-site is roof mounted solar PV technology. This could also include small ground mounted systems or solar canopies above office car parking spaces where space permits. Currently the Authority generates less than 1% of its electricity needs across its core estate and streetlighting from rooftop solar. Desktop research estimates that this could increase to circa 10%.

Solar installs are quick, efficient but will require capital investment that on average will payback in seven to nine years. Subject to full business cases, the Authority would need to develop an estate wide solar PV rollout programme across its entire core estate. This should also include exploring the business case for battery storage of the energy created.

Benefits:

- long term cost savings – the on-site electricity generation and consumption benefits from avoiding the cost of using the electricity network ("non-commodity charges") to get the power from the point of generation to the point of consumption. These charges typically make up 60% of the cost of electricity.

- carbon emissions reduction

- a visible demonstration of commitment to climate action

- leading by example in response to ECAC's recommendation to see solar on every available rooftop in Essex where practicable.

Challenges:

- As noted above, there are capacity restrictions and it is unlikely onsite generation will exceed 10% of the Authority's total electricity needs. Any future projects to install solar PV will also need to take account of the ongoing estate rationalisation programme.

Next steps:

- Further work is needed to confirm the potential for onsite generation as part of the estate retrofit programme. Some solar PV installations are already being funded by the Public Sector Decarbonisation Fund Scheme (PSDS). Capital funding to support the Authority's ambition to get the core estate to net zero by 2030 will increase the number of solar PV projects in the pipeline.

- The proportion of on-site generation could also increase in the longer term when a wider range of technologies such as battery storage can be deployed.

3.5 **Workstream 2: Off-site renewable generation (Power Purchase Agreement)**

The Authority could source a significant proportion of its electricity direct from a renewable generator(s) (for example a solar farm) at an agreed price under a long term agreement known as a Power Purchase Agreement (PPA). A licenced energy supplier would facilitate the transfer of the electricity from the generator to the Authority's estate.

Benefits:

- Carbon emissions reduction: the Authority would significantly increase its electricity sourced from renewable generation with an associated reduction in its carbon emissions

- Financial resilience: There has been significant recent volatility in UK energy markets and the long term forecast is for energy prices to increase year on year above inflation. A PPA would fix the price the Authority would pay for the energy it takes from the generator for the long term providing the Authority with 'energy budget security'

- Cost savings: A PPA provides the potential to make long term cost savings

- Additionality: The Authority would incentivise *additional* renewable energy generation to be built to supply its electricity and help to decarbonise the UK electricity grid

- Traceability: an increase in the proportion of electricity in the Authority's supply that is directly attributable to renewable generation in the national energy system and associated reduction in carbon emissions

- Reputational and Innovation: this would be a long term commitment to shift to renewable energy and a visible demonstration of climate action through procurement

Challenges:

- Availability: the availability of renewable generation installations and experienced developers, with sites that have planning permission can be relatively rare, and more so if looking narrowly at sites in Essex.

- Complexity and risk: these contracts can be more complex in nature to enter in to compared to a typical contract for electricity supply and are long term in nature (minimum 10 to 15 years).

Next steps:

- Develop an outline business case to evaluate the opportunity for a PPA, prior to undertaking market testing and developing a full business case (financial and environmental) for off-site renewable energy.

3.6 Workstream 3: Green energy tariff

Where the Authority purchases from non-renewable sources, there is a commitment that such electricity is "backed by" renewable energy by purchasing Renewable Energy Guarantees of Origin (REGOs) which guarantee that for the amount of electricity the Authority buys from the market (which could come from fossil fuel as well as renewable sources) it is "backed up" by an equivalent amount of renewable energy that has been generated and supplied to the national grid. This is certifiable renewable electricity that is already available on the market and can be bought for a small centrally funded premium. (Note: GAS REGOs are not yet viable in terms of affordability or availability).

Benefits:

- An immediate gain in recognition and reputation, that supports the Authority's ambitions and the commitments made in Everyone's Essex.

Challenges:

- REGO certificates do not have the effect of driving additional demand for UK renewables

- REGOs do not guarantee that the energy bought does not necessarily come directly from renewable sources, rather it confirms that the energy is "backed up" by an equivalent amount of renewable energy

- Cost risk: whilst historically the cost of REGOs has been low, demand has increased significantly and prices have jumped significantly in 2021 as more corporate organisations demand REGO backed electricity supply products.

Next steps:

- Commit in principle to purchasing REGOs for electricity that the Council purchases from the National Grid

4 Links to our Strategic Ambitions

4.1 This report links to the following aims in the Essex Vision:

- Develop our County sustainably

4.2 This Renewable Electricity Policy will have the following impact on the Authority's ambition to be net carbon neutral by 2030:

- the opportunity to source 100% renewable electricity to align with the Authority's ambition
- ensure that as the Authority reduces its reliance on gas heating and replaces this with electric heating which is generated from renewable sources

4.3 This report links to the following strategic priorities in the emerging Organisational Strategy 'Everyone's Essex':

- A strong, inclusive and sustainable economy
- A high quality environment

End