Towns Fund Delivery Partner

RENEWABLE POWERED TOWNS

This resource explores the opportunities Towns can take to work towards reaching net zero legislative goals. It also looks at how, through existing procurement powers, local authorities can reshape how energy is supplied to existing and future assets to meet their energy demands.

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RENEWABLE POWERED TOWNS

Over the last couple of months, the Towns Fund Delivery Partner has bolstered our work with Towns to identify and support the development of approaches for projects to become net zero. We have explored the opportunity and complexities of achieving net zero through retrofit, new build, nature and greening, and transport.

A common thread running through most of our focus areas has shown that by powering buildings and infrastructure through renewables, Towns will be one step closer to net zero. By procuring their own renewable energy, local authorities can supply all public buildings and infrastructure – including electric vehicle charging infrastructure – with a 100% renewable energy supply, making these assets net zero carbon in energy operation.

THE OPPORTUNITY

Through existing procurement powers, local authorities can reshape how energy is supplied to existing and future assets to meet their energy demands.

The Climate Change Committee Sixth Carbon Budget estimated the rapid rise in electrification is expected to continue – with electricity demand likely to double between 2020 to 2050[1]. As part of this trend, organisations including local authorities will also electrify assets, for example providing electric vehicle charging points and electric heating systems. As such, securing a 100% renewable energy source to these growing assets is going to be increasingly important as demand continues to rise and climate targets loom.

Beyond supporting the ambitions of net zero, certain procurement routes can also provide long term stable power costs, allowing local authorities to set out their energy supply budgets for a longer period with more certainty (e.g., through Power Purchase Agreements (PPAs) and council ownership of generation).

In addition, options such as council owned generation can potentially unlock revenue sources, which can then provide renewable energy supply to local purchasers. Furthermore, local authority procurement can also add renewable energy sources into the national energy supply (via construction of new generation sources or through raising demand for new generators by purchasing ‘good green tariffs’ or agreeing PPAs), demonstrating ‘additionality’ to the system, and contributing to the national energy transition.

MARKET CONTEXT

The national energy market is experiencing unprecedented turbulence. Customers are feeling the impact of supply constraints, leading to high energy prices and facing a future of increasing demand for renewable electricity supply, as the public and private sectors look to meet net zero emission targets in the countdown to 2050.

[1] Climate change committee (2020) Sixth Carbon Budget, https://www.theccc.org.uk/publication/sixth-carbon-budget/

Key market issues include the following:

Wholesale energy prices have risen sharply, with an 54% increase of the energy price cap[2] [3],

Growing concerns over security of existing fossil fuel supplies[4], exemplified by warnings over National Grid's gas deficit[5],

Rapid electrification promoted by net zero emissions targets, with estimates that electricity could represent 70% of final energy demand in 2050 (50% increase from 2021)[6]

Local authorities' lack of funding to support delivery of net zero emissions targets, both within own operations and within the local authority area,

Local authorities have limited powers and mechanisms to drive change to net zero emissions, in both existing infrastructure and in delivery of new schemes.

OPTIONS

To employ a best practice approach to securing a 100% renewable energy supply, local authorities must first investigate mechanisms for reducing energy use during an asset's operation by maximising energy efficiency, followed by investigating the possibility for the development of on-site renewable energy. Once these options have been reasonably considered and employed, there are several options available for procuring any remaining supply off-site. A high-level summary is provided below[7].

'Green Tariffs'

When looking at procurement of energy for local authority owned assets, one option is to consider switching an existing tariff to a 'green tariff'. Many suppliers now allow for purchasing of renewable

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[2] Further information on Energy Price Increases: https://www.britishgas.co.uk/energy-price-news.html
[3] Further information on Price Cap: https://www.ofgem.gov.uk/publications/price-cap-increase-ps693-april
[4] Further reading on energy security: https://ukerc.ac.uk/publications/uk-energy-security/
[5] Further information on UK Energy production: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1064782/Energy_Trends_March_2022.pdf
[6] Further information on energy transition to net zero: https://www.energy-transitions.org/clean-electrification-and-hydrogen-can-deliver-net-zero/
[7] Further reading Renewable energy procurement options: Energy Procurement and Investment Models for Local Authorities (2020) Cornwall Insights

energy, often at a small increased fee, which is demonstrated through providing a 'Renewable Energy Guarantee of Origin' (REGO) certificate administered by Ofgem. The REGO demonstrates that the supplier is matching the volume of energy suppled back to a renewable energy input into the system. However, there have been several criticisms of REGO certificates, mainly centred at the lack of direct link between the supply purchased and renewable generation source, meaning the actual energy supplied to the purchaser is still a mix of renewable and fossil fuel. Due to this lack of transparency in the link between purchased and supplied energy, much of the renewable energy purchased already exists within the system, so the process may not be increasing the overall supply of renewable energy within the national system (this is considered to be 'additionality' – that is, creating additional renewable supply that would not otherwise have existed)[8]. In addition, the local authority still needs to procure through a supplier who is purchasing energy from the wholesale market, and therefore is open to risk from wholesale energy price rises.

As such, if a local authority is considering 'Green Tariffs' as an option, due diligence is advised to ensure that the supplier generates their own renewable electricity and that there is a direct link between the source and the supply. This is possible by procuring a REGO certificate which demonstrates bundled power (there is a direct link between energy purchased and the generator). There is clarity over the power source which can be confirmed as 100% renewable, and the ownership is clearly demonstrated by retirement of the REGO certificate, so it cannot be sold again. The UKGBC (2021) *Renewable Energy Procurement & Carbon Offsetting, Guidance for Net Zero Carbon Buildings*, provides further details on REGO certificates and the three principles that need to be in place to contribute a 'good green tariff':

1. Energy attribution through exclusive ownership
2. Confirmation of renewable source
3. Additionality to the system.

The report outlines that at the time of publishing, only three UK suppliers have been recognised by Ofgem to provide additionality: Ecotricity, Good Energy and Green Energy.

Case study example: The London Energy Project (LEP) has been operating since 2007, providing 36 London Councils the opportunity to work together to secure certified green energy contracts as a collective, in addition to supporting other energy initiatives such as on-site renewable energy generation[9].

Power Purchase Agreement (PPA)

A power purchase agreement (PPA) connects local authorities directly to a specific renewable energy generator, via an energy supplier, providing renewable energy to council owned assets. By signing a PPA, an organisation is agreeing to take a set volume of electricity produced over a set time, at a set cost. These agreements may be more expensive than procurement through the open market, but there is a potential to fix prices over the long term and therefore create stability in supply and price which could protect against significant price rises in the energy market. In addition, the local authority can match up with a generator that supports wider socio-economic and environmental targets, such as a local EV generator and local jobs being created. By procuring through PPA, the local authority would not be taking any renewable energy from the existing system, therefore adding additionality to the national supply.

There are two key types of PPA: sleeved (also known as direct), and synthetic (also known as indirect). The sleeved option provides a contract between the purchaser and the generator, with the energy supplier facilitating the transfer of money and energy. If there is not enough energy to meet need, the energy supplier will be responsible to supplying the additional power needed. The synthetic PPA consists of a pair of contracts between the generator and the supplier, and then the supplier and the organisation. Whilst most PPAs are sleeved, the synthetic option is becoming more popular, as it can offer flexibility to the contracts for both the generator and organisation purchasing energy, if supply/ demand is not as originally predicted.

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[8] Further reading: UKGBC (2021) Renewable Energy Procurement & Carbon Offsetting, Guidance for net zero carbon buildings

[9] Further reading: London Councils London Energy Project, https://www.londoncouncils.gov.uk/who-we-are/committees-and-networks/london-councils-capital-ambition-programme/london-energy-project

Case study example: In 2020, the City of London Corporation signed a power purchase agreement to buy all the electricity produced by a new-build 95,000-panel solar farm in Dorset for 15 years[10].

Ownership of Generator

This option involves a local authority purchasing or building assets to provide renewable energy supply. Ownership of a generator has the potential to be the most rewarding option, with benefits such as price stability, adding to national supply by construction of a new asset and providing high resilience again market changes. In addition, building a new asset can provide the opportunity to utilise brownfield land. There can also be significant benefits such as bringing in jobs, skills and investment into the local community if the generator is built within the local area. The development of a generator can also become a revenue source for a local authority in the long run, with the option to sell any remaining supply, such as in the case study example included below.

However, this is a complex option and does come with a range of regulatory, consenting, and development risks which would need to be fully considered. For example, the construction of a new asset can be a lengthy process and requires specialist knowledge that a local authority might need to develop internally or partner with another organisation to deliver.

Case study example: Warrington Borough Council are developing a solar farm, which would produce electricity above its annual energy consumption, and the remaining supply would be used to generate revenue for the council[11].

FUTURE DIRECTION AND CONSIDERATIONS

Currently, green tariffs, PPAs and generation ownership are the three main options available in the UK for towns to become powered by renewable energy. This means there is still scope for innovation, and a number of approaches have been and are being trialled. *Robin Hood Energy* in Nottingham was set up as the first non-for profit public owned energy company with the aim to offer lower rates to residents and provide 100% renewable energy. However, it must be noted that the Council struggled with the business model leading to the closure of the organisation after 6 years of operation, highlighting the risks faced in developing new approaches.

Another trial approach involves a number of cities exploring matching energy used with zero or low carbon supply on an hourly basis to maximise consumption of electricity at the lowest carbon times of day (avoiding high carbon times). This approach was outlined in the Hidden Carbon Economy report – building on a methodology championed by Google called 24/7 Carbon Free Energy. Elsewhere, cities in the US like Boston are trying new 'community aggregation models', pooling demand from residents and businesses as well as the city.

Local authority led approaches to renewables have high potential for innovation, and there is the opportunity for Towns to work together, pooling ideas and coming up with new approaches to become net zero and energy secure.

[10] Further reading City of London Corporation PPA: https://news.cityoflondon.gov.uk/citys-pioneering-green-energy-deal-could-be-blueprint-for-local-authorities/

[11] Further reading Warrington Case Study: https://www.local.gov.uk/case-studies/warrington-borough-council-commercial-approach-public-sector-clean-energy-investment

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