Renewable Energy Study for Brentwood Borough Council

EXECUTIVE SUMMARY

D Lash and A D S Norton

Contract Report 273 April 2014

Centre for Energy and the Environment
Physics Building
Stocker Road
Exeter
EX4 4QL
UK

Tel. (01392) 724159

Website http://www.ex.ac.uk/cee/

E-mail d.lash@ex.ac.uk

Approved by A D S Norton
Date 2/4/14

EXECUTIVE SUMMARY

The Centre for Energy and the Environment (CEE) was commissioned by Brentwood Borough Council to undertake a Borough wide Renewable Energy Capacity Study to form part of the evidence base for the Local Development Plan (LDP) which will run from 2015 to 2030. This report assesses a range of existing data sources and publications to understand both current demand for energy and emissions of carbon dioxide, together with the potential for the supply of low and zero carbon energy within the Borough.

Currently, around half of all energy used in the Borough is for road transport, with a third from homes and about a fifth from the commercial and industrial sector. Carbon emissions have fallen over the past seven years, following similar trends observed at a national level. Compared to the national average, emissions from the commercial and industrial sector are significantly lower, which reflects the comparatively low proportion of manufacturing within the local economy. Domestic emissions are broadly similar to national domestic emissions. This is a slightly unexpected result, but can be explained by savings from the milder climate and high proportion of gas heated homes being offset by Brentwood having on average homes that are larger than the overall UK dwelling stock. Transport emissions are higher than the national average, due to increased car ownership and access to vehicles. Over the period of the Local Plan, energy use and carbon emissions may increase by about 10% following a "business as usual" trajectory. An analysis of the impact of key Government policies indicates that by 2030 energy use might decrease by 8%, with carbon emissions falling by 28%.

The potential for renewable energy in Brentwood was assessed using existing data sources and the Government's SQW methodology where possible. The total technical potential was established, together with an indicative scenario for a potential energy mix in 2030. Following this scenario would result in about 9% of energy demand for the Borough in 2030 being met by renewable sources of energy. The technologies considered were classified into three groupings; standalone technologies, district schemes and building technologies. The most significant standalone technologies are large scale wind turbines and photovoltaic (PV) arrays. Due to their scale, a relatively small number of these installations could result in significant generation of renewable energy within the Borough. However, development would necessarily occur within the Green Belt, and may be constrained by proximity to suitable connection to the national electricity grid. The assessment did not identify individual locations, but due to site specific factors, any scheme that comes forward would need to be assessed on an individual basis. District energy schemes could also form a significant component of the Borough's energy mix. The most promising site is likely to be at the West Horndon and Brentwood Enterprise Park sites, where a large development incentivised by new building standards may result in such an approach being more cost effective for developers than considering each building in isolation. If a potential scheme here could be heated from an Energy from Waste plant, then the benefits may be even greater. There is additional potential for district schemes at Brentwood town centre and at the Council Depot site, though these would involve retrofitting schemes to existing heat users and therefore represents a greater challenge. In all cases, it is important that the local planning authority sets clear policy, and that early discussions are held with critical stakeholders. Building scale technologies often comprise permitted development, though given their small scale a large volume of installations would be required to achieve the same impact as a single large standalone scheme. The technologies with the greatest potential here include rooftop solar technologies, and biomass boilers in the commercial and industrial sector.

If Low or Zero Carbon technologies were to be implemented following the assumptions made within this report then the total generation in 2030 would be equivalent to approximately 8.7% of the total energy demand in 2030. This is somewhat short of the 15% target by 2020 proposed in the Local Plan 2015-2030 Preferred Options. In order to meet this target, uptake of the potential resource within the Borough would need to be increased. The greatest opportunity would come from large scale wind or solar as the 2030 values reported here are about 20% of the overall available resources. To meet a 15% target in 2030, a further 16 commercial scale turbines would be needed. A complementary strategy would be to further

reduce demand for energy within the Borough. The equivalent carbon savings compared to current emissions would be around 7.4%.

The National Planning Policy Framework (NPPF) was published in 2012 and acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications. This, together with Part L of the Building Regulations which concerns the conservation of fuel and power, comprise the main national regulatory context. Brentwood's Local Plan Preferred Options for Consultation (July 2013) document contains a policy (CP14) titled "Sustainable Construction and Energy" that sets out the preferred approach for new development in the Borough. The analysis from the resource assessment undertaken in this report together with the draft local policy and evolving national policy were considered to propose a series of recommendations to take forward to the next stage of the development of the Local Plan.

- The first criterion set out in policy CP14 requires general sustainable construction principles to be met and evidenced qualitatively as part of a planning application. It is a positive strategy that should nonetheless not be burdensome to developers. It is recommended that wording be included to capture design measures that increase resilience of developments to the threat of climate change, for example summertime overheating. This would be consistent with Chapter 10 of the NPPF and was deemed to be positive at workshops held in Brentwood.
- Policy 14.b discusses incorporation of water conservation measures and sustainable drainage measures, whilst policy 14.c requires a Water Sustainability Assessment. The recent outcome of the Housing Standards Review (HSR) introduced a new water efficiency standard of 110 litres/person/day that may be used in areas of water stress. Whilst the exact means of assessing whether an area experiences water stress has not yet been made explicit, there is a good chance that Brentwood may fit that definition, and so this could form the local policy on water conservation. Redrafting of the final policy should continue on this basis.
- Policy 14.d currently frames standards for new housing with respect to the Code for Sustainable Homes (CSH). The outcome of the HSR has resulted in the removal of the ability of local planning authorities to set specific energy standards in excess of the building regulations, and the intent to potentially wind down the CSH. This means that the current preferred policy wording will be redundant. There is a potential interim period and so it may be possible to retain elements of the policy, for example that new homes should achieve at least CSH Level 3, with a caveat that the local policy is to remain in place until such a time as the proposed Government changes take effect. Achieving CSH Level 3 has been shown to be a low cost measure.
- There is a current legal loophole whereby through the "transitional arrangements" mechanism, developments that come forward in phases may "lock in" to early versions of Part L of the Building Regulations. It is recommended that wording is included to ensure that each phase of multi-phase developments is built under the Building Regulations of the day.
- Policy CP14.e currently sets a requirement that new non-domestic development achieves a BREEAM rating of at least "Very Good", rising in line with Part L of the Building Regulations. However, there is no such relationship between BREEAM and changes to the Building Regulations, and so this link should be removed. The detail within BREEAM is updated at regular increments to account for changes to current practice, including changes to Building Regulations. It is not clear what the additional cost of achieving BREEAM "Very Good" is, but based on an international analysis of certified buildings it is expected to be minor and so should therefore not be burdensome for developers. It should also be stated that the version of BREEAM under which a scheme should be assessed should be the version that is current at the time of the planning application.

- Policy CP14.f states that major schemes will incorporate the use of renewable and low carbon energy. It is expected that this should be achieved as a matter of course under the latest version of Part L of the building regulations, and certainly once the 2016 iteration of Part L comes into effect.
- The current policy wording for renewable energy schemes echoes the messages set out in the NPPF, namely that proposals will be supported provided they can demonstrate that they will not result in unacceptable harm to the local environment including addressing the specific planning conditions pertaining to the Green Belt. The resource assessment has shown that large scale renewable energy schemes such as commercial scale wind or PV would necessarily occur in the Green Belt. Workshops with invited stakeholders has revealed that the tension between development of large scale renewable energy schemes and the Green Belt can be addressed through careful screening and siting, for example at land adjacent to the M25. This should be reflected within the policy narrative. In practice, any application for large schemes would need to be assessed in their own right.
- There is a gap in policy about specifically capturing the potential for district energy schemes. The analysis has shown that West Horndon and the Brentwood Enterprise Park offers the greatest potential. Specific wording should be included within the policy, which could be framed around development at this location, or for the Borough at large, and should include the requirement for development to connect to existing or planned heat networks. In parallel with this, the council should being talks with potential network operators and significant end users.
- The current preferred policy includes the provision for Allowable Solutions, which is a mechanism that will be introduced together with the 2016 iteration of Part L of the Building Regulations. The detail of how the policy will be implemented at a national level is uncertain, though more will be known once the outcome of a consultation which ran during the Autumn of 2013 is published. It is recommended that unless precluded by the outcome from that consultation, the wording for the Allowable Solutions policy is revised to ensure that the funds raised are to be used within the Borough. In parallel with this, the Local Authority should begin to identify local projects that could utilise funds raised through Allowable Solutions. This could begin to address some of the wider challenges within the Borough, for example reducing energy use from older properties, or those with vulnerable residents.