



Renewable and Low Carbon Energy Assessment

Executive Summary

For Torfaen County Borough Council

October 2020

Executive Summary

Planning Policy Wales edition 10 (PPW 10) sets out the requirements for clean growth and the decarbonisation of energy, which relates to wider legal obligations, needs and policies at an international, UK, Wales, and local level (Welsh Government, 2018b).

In addition to requirements set out in the *Environment (Wales) Act (2016)*, Welsh Government has introduced the following targets specifically related to local energy generation and ownership:

- > *Wales to generate electricity equal to 70 per cent of its consumption from renewable sources by 2030*
- > *1 gigawatt (GW) of renewable electricity and heat capacity in Wales to be locally owned by 2030*
- > *New energy projects to have at least an element of **local ownership** from 2020*

(Welsh Government, 2020c, p. 3)

To achieve the targets above, local planning authorities (LPAs) will need to work with renewable and low carbon energy developers and ensure that renewable and low carbon energy generation within their authorities is maximised.

PPW 10 acknowledges, “...the planning system plays a key role in delivering clean growth and the decarbonisation of energy” (Welsh Government, 2018b, p. 87). In order to ensure that this role is fulfilled, PPW 10 places a requirement on planning authorities to develop an evidence base to inform the development of renewable energy and low carbon energy policies. The Welsh Government’s *Practice Guidance: Planning for Renewable and Low Carbon Energy – A Toolkit for Planners, September 2015*, “the Toolkit” (Welsh Government, 2015) is identified within PPW 10 as it provides a methodology for developing an evidence base to inform spatially based renewable energy policies for inclusion within Local Development Plans (LDP). Whilst providing a clear methodology for evidence base creation, PPW 10 acknowledges that the “...approach should be adapted to local circumstances to enable renewable energy opportunities to be maximised...” (Welsh Government, 2018b, p. 92).

The Toolkit (Welsh Government, 2015) is used to inform and guide this renewable and low carbon energy assessment, but where appropriate, the methods are updated to account for the local and temporal context of the Torfaen County Borough Council Replacement Local Development Plan (RLDP) 2018-2033.

Within this assessment, the current and future energy demands of the study area (areas of Torfaen outside of the Brecon Beacons National Park), and progress in meeting these demands from local low carbon energy generation assets, are estimated. Against this backdrop, a resource assessment is undertaken of land within the study area to identify the potential for renewable and low carbon energy project deployment from a resource perspective.

The following technologies are considered:

- > Wind energy
- > Ground mounted solar PV
- > Biomass energy
- > Energy from waste
- > Hydropower energy
- > Roof-top solar PV

> Heat pumps

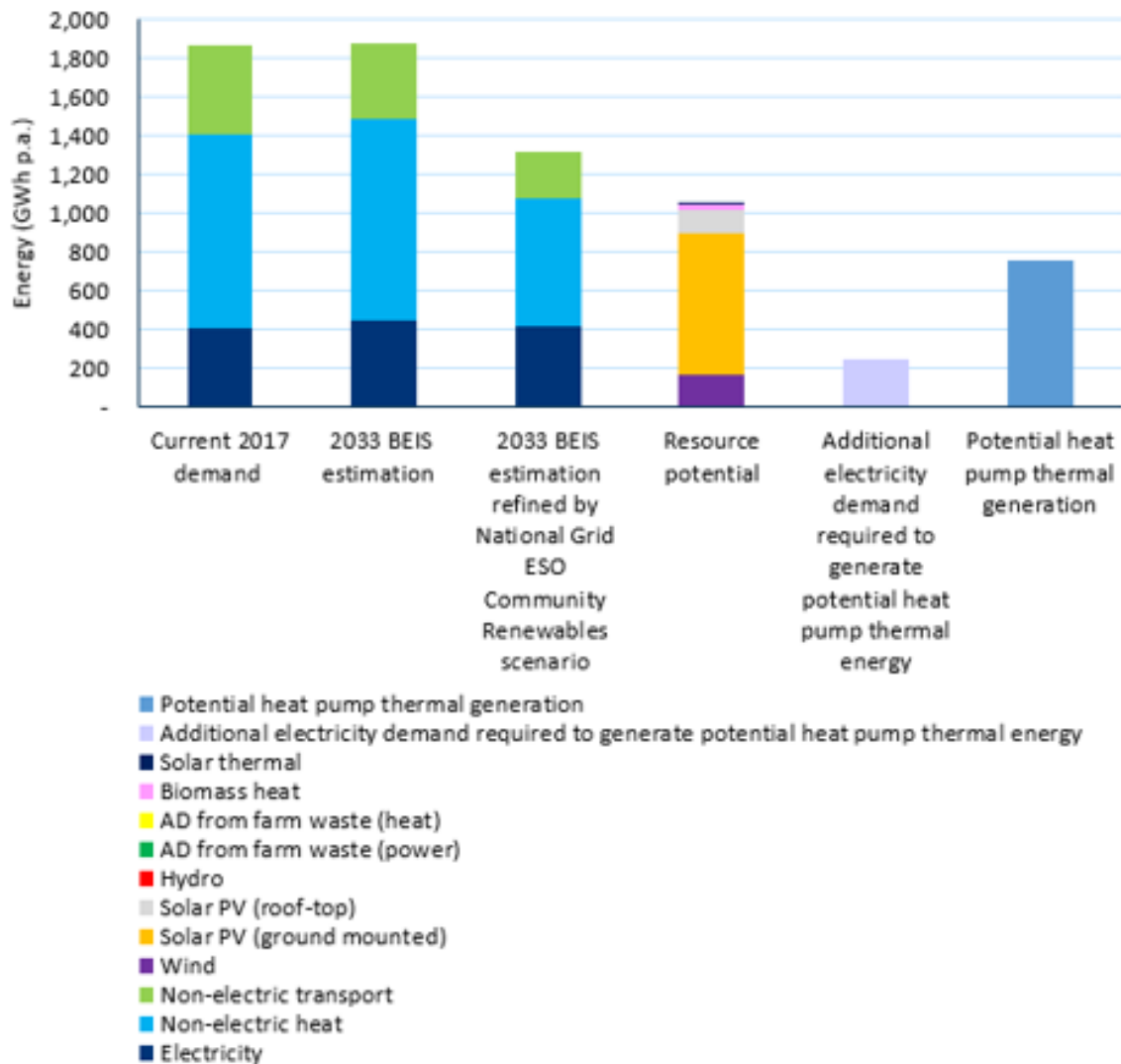
Heat network opportunities are also evaluated.

The potential resource available is compared with estimated energy demands, as shown in Figure 1. Figure 1 provides two future energy estimations; one based on projections from BEIS (2019h) and a second in which the BEIS (2019h) projection is refined with data from National Grid ESO (2019a) Community Renewables Scenario. The two estimations identify the difference between the UK Government's current reference projection for future energy demand (BEIS) and what may be required to meet the Environment Act (Wales) 2016 80% carbon reduction target (National Grid ESO Community Renewables scenario).

Figure 1 shows that by 2033 the Torfaen study area could theoretically generate over half of its current energy demand and 2.5 times its current electricity demand from renewable and low carbon sources. The practical resource that will be exploited is likely to be less than the resource identified due to grid capacity, competition with other land use and issues such as landscape impact. This, in addition to the discrepancy between times of generation and demand, means that energy generated in other parts of the country and offshore, and local energy storage assets are also likely to be relied upon.

Torfaen County Borough Council (TCBC) should consider setting ambitious renewable energy deployment targets to maximise the use of the local resources available within the study area. Solar and wind are the greatest resources that have been identified within the study area. TCBC should identify designated areas, "Local Search Areas", for ground mounted solar and wind developments, in order to guide developers and ensure that targets are met in an acceptable manner. The council should also aim to maximise deployment of roof mounted solar PV in new building developments (where this is not required by building regulations).

Current and estimated future energy demands and renewable/low carbon energy resource potential



Wind: assumes that 50% of the wind/solar overlap areas is available for wind
Solar PV (ground mounted): assumes that 50% of the wind/solar overlap areas is available for solar PV
Solar PV (roof-top): provides the estimated maximum potential resource estimated in section 5 plus the potential from non-domestic new developments estimated in section 8
AD (power/heat): based on calculations from pigs, cattle and poultry only and assuming use within a CHP plant
Heat pumps: provides the estimated maximum potential estimated in section 5 plus the potential from non-domestic new developments estimated in section 8. The heat pump thermal generation is the total generation potential from heat pumps.
Biomass: assumes all local resource is used within biomass boilers (existing biomass (CHP) generation is excluded)
Solar thermal: based on existing installations only
Energy from Waste: excluded as considered unlikely to be able to be exploited locally within the Plan period

Figure 1: Summary of current and estimated future energy demand and renewable and low carbon energy generation potential identified in the study area

Specific strategic development sites that may be integrated into the Replacement Local Development Plan (RLDP) are considered in the assessment with regard to meeting their potential energy demand from renewable and low carbon sources.

Policy recommendations include:

- > **Targets:** Adopt ambitious local renewable energy targets.
- > **Repowering:** Adopt positive policies regarding the repowering of existing renewable generation assets when they reach the end of their current planning consents.
- > **Local search areas:** Identify preferred, broad, geographical areas for development of solar PV and onshore wind (termed in the assessment “Local Search Areas”), taking into account the renewable energy resource available, land use and landscape value, in order to sign-post developments to the areas considered most appropriate.
- > **New developments:** Review building regulations in place when the RLDP is due to be adopted and consider whether higher standards can be required. Support attainment of building regulations by requiring:
 - energy use to be sufficiently considered within planning applications, and
 - post-occupancy monitoring to be carried out to evidence that design standards are achieved in practice (if not required by building regulations).
- > **Low carbon heating:** Discourage new developments from connecting to the gas network and encourage low carbon heating systems to be installed if not required by building regulations. At the very least new developments should be built so that they are compatible with low carbon heating systems.
- > **District heat networks:** Whilst limited potential for district heat networks is identified, priority areas for district heating could be designated, with developers required to formally consider the potential for heat network development in these areas. Any new district heat networks should be designed so that they are suitable for integration with lower temperature heat generation systems (e.g. solar thermal and heat pumps).

In addition to the planning policy recommendations provided above, TCBC can demonstrate leadership with respect to the decarbonisation challenge by:

- > Developing additional renewable energy generation projects on TCBC’s (or other stakeholders’) own estate
- > Investing in renewable energy generation technologies (joint venture or sole investor)
- > Ensuring that renewable energy generation from waste is secured through any new waste management contracts
- > Sharing learning from any TCBC decarbonisation projects with others (private and public sector)
- > Acting as an enabler for energy systems innovation, allowing new innovations to be trialled within Torfaen
- > Committing to building any new council developments to the highest energy efficiency and environmental standards consistent with TCBC’s climate action commitments and policy
- > Implementing energy efficiency measures on TCBC’s (and other stakeholders’) own estate
- > Managing organisation operations in the most energy efficient manner (through staff training)
- > Ensuring that climate change impact and sustainable development is considered throughout all procurement activities.

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