Gwynedd and Anglesey Joint Planning Policy Unit

Renewable Energy Capacity Assessment for Anglesey

Summary Report

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Ove Arup & Partners Ltd
4Pierhead St
Cardiff CF10 4QP
United Kingdon
www.arup.com

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Executive Summary

Introduction

Renewable energy is described by Welsh Government as "energy from a source that is either unlimited (at least from our perspective) or which can be renewed without harming the environment". It does not include nuclear power, which can be described as a "low carbon" technology, but not as renewable.

This report assesses the natural resources available to produce renewable energy within Anglesey. It covers the following technologies:

- Onshore Wind
- Hydropower
- Biomass
- Energy from Waste (EfW)
- Microgeneration
- Anaerobic Digestion
- Tidal

The aim of this study is to provide an evidence base for the emerging Joint Local Development Plan (JLDP) for the area. Arup has been commissioned to assess the available natural resources. The next stage will be to further assess likely levels of deployment, and use the evidence contained in this report to inform the development of land use policies and to influence other local plans and strategies.

The methodology for the assessment is based on the Welsh Government Practice Guidance: Planning for Renewable and Low Carbon Energy - A Toolkit for Planners (June 2010, referred to as the "Welsh Government Toolkit"). This is supplemented by other assessment methodologies where appropriate.

Energy Baseline

In 2009, Anglesey used 1,341.9GWh of energy. The majority of this was made up of petroleum products (31%), natural gas (35%); grid electricity (24%). 4% was from off-grid renewables. It is expected that gas and electricity demand will increase by up to 10% up to 2020. This means that an increase in renewable energy will be required to meet this demand and reduce carbon emissions.

There is already some renewable energy in place on Anglesey. There is a total of 35MW of installed capacity; most of this is made up of wind energy (Llanbabo Wind Farm is the largest), with some solar energy. This accounts for approximately 6% of Anglesey's existing energy demand.

Planned developments that may be important for Anglesey's renewable energy industry and supply chain include;

- National Grid's proposed transmission infrastructure improvements to accommodate 7GW+ of renewable and low carbon energy
- The proposed 4.2GW offshore wind array in the Irish sea (Centrica)
- A proposed 299MW biomass plant near Holyhead (Lateral Power)
- A proposed 10.5MW tidal array between Skerrier and Carmel Head (SeaGen Wales).

- In addition, a new 3.3GW nuclear power is planned at Wylfa. Whilst this is not a renewable energy (and therefore outside the scope of this report), it is included here for completeness.

Renewable Energy Assessment

The greatest potential for renewable energy in Anglesey is Tidal power (estimated to be 180MW of larger scale tidal). However, as this is an offshore technology, the local planning authority has less direct influence over the ability to realise this resource.

Onshore wind has a relatively large potential for Anglesey (78MW, plus over 100MW of micro-scale wind). However, it should be noted that all schemes will require consultation with the Ministry of Defence (MoD) and it may be that the full capacity is unlikely to be realisable.

The potential of microgeneration (solar photovoltaic, solar thermal, heat pumps) appears reasonably high (150MW in total). However, the reality of achieving this level of deployment will be challenging. Planning policies have the most control over the integration of microgeneration technologies to new development, so this provides a sensible area of intervention for the JLDP. Planning policies can also encourage and facilitate greater integration of renewable energy technologies through the appropriate retrofitting of such technologies to existing buildings.

However, some barriers to retrofit, particularly on domestic properties, remain, and it may be hard to deliver the full quotient of renewable energy that is technically available. Homeowners tend to perceive retrofit measures as disruptive, and it is often difficult to achieve uplift in property value as a result of the initial investment. However, initiatives such as the Green Deal may be expected to overcome some of these barriers.

There will also be wider issues relating to the deployment of renewable energy. It is beyond the scope of this report to consider these constraints in detail. However, from our experience elsewhere, the following are seen to be some of the most significant factors:

- Financial constraints;
- Public perception;
- Readiness of the supply chain for some technologies;
- Real and perceived grid constraints.

Anglesey Energy Island is an important local partnership, and is likely to be instrumental in achieving deployment of renewable energy within the County. It is therefore recommended that any further work undertaken by the planning authority should involve this group to ensure a joined up approach to renewable energy on Anglesey.