Low carbon: the “new norm” for Wales?

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25/08/17

On Thursday 13 July 2017, the Research Service and the Learned Society of Wales held a seminar on the role of renewables in Wales’ future energy mix. This was the third in a new Exchanging Ideas Seminar pilot series aimed at giving Members and the wider public the opportunity to hear about and discuss different policy ideas.

The seminar featured short presentations from, and a question and answer session with, an expert panel comprised of: Dr Nina Skorupska from the Renewable Energy Association; Professor Max Munday and Professor Hywel Thomas from Cardiff University; and Professor Andrew Barron from Swansea University. It focused on renewables in the context of the Environment and Sustainability Committee of the Fourth Assembly’s Smarter Energy Future for Wales report recommendation that Wales must:

Aim to meet all of its energy needs from renewable sources and, in the context of the need to reduce carbon emissions by at least 80% by 2050, set a target date for achieving this.

A full video recording of the seminar is now available to view via the Assembly’s YouTubechannel.

An overview of the discussion

The panel presented a range of perspectives on the role of renewables in Wales' low carbon future and discussed several innovative ideas and initiatives. Topics covered during the seminar included marine renewables; the Flexis project; bioenergy and the role of biorefineries in biomaterial production; 'green' hydrogen; **employment and economic opportunities**; **carbon utilisation and storage**; future grid scenarios; skills development; zero carbon homes; and **the implications of Brexit**. A highlight of the discussion on key themes is provided below.

Renewables and the low carbon economy

On renewables and the economy, Dr Skorupska stated that a quarter of UK electricity comes from renewables, with the sector accounting for around 125,000 jobs in the UK in 2016 and 6,000 in Wales. She noted that the "rapid global cost declines" of solar and battery storage technologies has helped to address the traditional supply intermittency challenge for renewables. She concluded highlighting the "extraordinary opportunity" presented by the sector's potential for growth and for the number of sector supported jobs to treble.

Professor Munday noted that, as renewables start to take up a bigger share of the energy mix, it will be important to consider the implications of this for Welsh employment and economic activity. He highlighted that there is a clear challenge for

the Welsh Government and Welsh institutions to consider how new technologies and low carbon developments might contribute to generating economic outcomes for economically deprived communities.

Using the proposed Swansea Bay tidal lagoon as an example of a business that aims to ensure that 65% of the capital expenditure is spent within the UK, Professor Munday highlighted that supply chain developments need to be prioritised. He concluded by stating that many of the returns that Wales receives from renewable developments in Wales are returns to labour rather than capital. He suggested that it should not be assumed that proximity to resources will equate to beneficial outcomes for Wales.

Carbon capture and utilisation

The panel discussed the role of carbon capture and utilisation in decreasing emissions in the context of significant heavy industry in Wales. Professor Barron noted that there are number of ways in which Wales can reach its 80% reduction target. One approach he described would be to consider South Wales as being "the Saudi Arabia of CO_2" and to start thinking of CO_2 as a major resource. He suggested that heavy industry could become zero carbon if the CO_2 it generated was captured and converted into useful products, using 'green' hydrogen (hydrogen produced using surplus renewable energy) for example. Under this scenario, Professor Barron suggested that captured CO_2 could be catalytically converted at low cost to produce materials traditionally derived from fossil fuels.

Carbon capture and storage

Discussing carbon capture and storage Professor Barron described how under the UK's current approach there is approximately 10-20 years of storage capacity in UK reservoirs (at present emission rates). He suggested that the extraction of natural gas from shale (a common and globally abundant crust rock) could yield significant amounts gas for energy. Furthermore, the resultant storage capacity created within exploited shale reservoirs could potentially store 3 times more CO_2 than the gas extracted (equating to around 500 to 700 years of sequestration capacity).

Dr Skorupska added a note of caution stating that, whilst possible from a technological and engineering perspective, to invest in more fossil fuel technologies for a short,

transitional period makes limited commercial and financial sense and may not deliver the best benefit for Welsh communities.

The implications of Brexit

Professor Barron warned about the competitiveness of the Welsh steel industry under a post-Brexit tariff (worst-case) scenario. He noted there was a move towards low emission steel among some countries such as Germany, and suggested that demand for low emission or zero carbon steel is likely to be high, among car manufacturers for example.

Dr Skorupska stated that the Renewable Energy Association believes being part of the single energy market to be important given the connectedness of electricity, heat and transport energy policy under current regulations, standards and the EU Emissions Trading System. She added that there is considerable uncertainty in our understanding of the implications of a hard or soft Brexit in these areas.

Conclusions from the panel

In her closing remarks, Dr Skorupska stated that "low carbon needs to be the norm" and that decision makers need to be clear about the regional priorities and the outcomes that they hope to achieve through their delivery of the low carbon agenda.

On Wales' future energy mix, Dr Skorupska stated "renewables can deliver a resource efficient, decentralised, democratic and secure energy system". Professor Barron supported this in part, advocating the implementation of a multi-technology approach to energy policy which targets key emission sources to achieve the greatest emission reductions.

A further two seminars are planned for the autumn: 15 November and 5 December 2017. We are keen to hear your suggestions for these and future seminars. You can send these via email to ExchangingIdeas@assembly.wales or on Twitter using **#ExchangingIdeas** @SeneddResearch

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Source: Screen shot of Assembly owned video