Institute of Welsh Affairs

Response to Welsh Affairs Committee Inquiry into renewable energy in Wales

About the IWA

We are the Institute of Welsh Affairs; Wales' leading think tank. We challenge, inspire and drive change, and make Wales a better place to live and work for everyone.

We are independent of government and political parties. We bring together experience and expertise from all backgrounds to collaborate on the most important issues facing Wales.

We come up with ambitious but practical and informed ideas to improve the economy, education, governance, health and social care, and the media.

Our vision is to create a Wales where everyone can thrive.

Re-energising Wales

The Institute of Welsh Affairs' 'Re-energising Wales' project is a 3 year project (April 2016-April 2019) that will deliver a plan to enable Wales to meet its projected energy demands entirely from renewable sources by 2035.

Detailed information about the Re-energising Wales project is available on our website[1].

Summary of key points

We believe the key areas for action to ensure the UK Government can best support the deployment of renewable energy in Wales are:

- allow onshore wind and solar to compete in the Contracts for Difference auctions

[1] http://www.iwa.wales/news/2018/04/re-energising-wales-2/

- harness offshore wind and seize the opportunity to push for more wind farms in Wales in the upcoming Crown Estate leasing rounds in order to allow a more balanced UK energy portfolio
- design a mechanism for meaningful financial support for the marine sector to allow technologies to mature commercially
- recognise the local economic benefits that can arise from renewable energy schemes and ensure that the support mechanisms that the government design for the sector, such as subsidy schemes, enable and encourage the ability for local economic capture
- consider the case for the devolution of powers on energy subsidy to Wales.

Introduction

Wales is an important contributor to the UK's renewable electricity output. Across the UK, over 25 GW of renewable electricity generation capacity has been deployed since 2010, and over 3 GW of this has been deployed in Wales. There is no technical or practical reason why these high growth rates cannot be repeated, and indeed surpassed, provided a positive and stable policy environment is in place to ensure that projects are viable and there is sufficient support for the grid and energy infrastructure.

Wales has made a number of significant policy commitments to support renewable energy and has gone further than the UK Government in setting out its ambitions; specifically through targets for renewable energy, the Welsh National Marine Plan; the Planning (Wales) Act 2015 (which explicitly links the outcomes of the Environment (Wales) Act 2016, and the Well-being of Future Generations (Wales) Act 2015). The National Resources Policy launched in autumn 2017 reaffirms Wales' commitment to achieve an 80% reduction in carbon emissions by 2050 (against a 1990 baseline) and to set interim targets and five-yearly carbon budgets against which progress can be measured.

The deployment of renewable energy in Wales will be vital for making sure that Wales is on track to achieve at least an 80% reduction in emission by 2050 which is the target set by the Environment (Wales) Act 2016. Deployment will help Wales be in a position to achieve a more ambitious target of zero-net carbon emissions consistent with Wales' – and the UK's – overall ambition to transition to a low carbon economy and to meet the commitments made under the Paris agreement to combat climate change.

In September 2017, Cabinet Secretary Lesley Griffiths for Environment and Rural Affairs (now Energy, Planning and Rural Affairs) announced targets for renewable energy production which included 70% of electricity consumption from renewable

sources by 2030.[2] Wales exports significant quantities of electricity and is host to a disproportionately large per capita quantity of fossil fuel generating stations. Wales is making progress towards these renewable energy targets but they are only achievable through a significant acceleration of current levels of renewable energy deployment.

The high level policy framework and ambition is therefore already in place in Wales but greater action is needed from both the UK Government and Welsh Government to achieve these aims. The growth of renewable energy projects in Wales is still dependent, to a large extent, on the energy strategies and policies that are developed in Westminster. Recent cuts to subsidies, which have had a direct impact on the rate of renewable energy deployment in Wales, has highlighted this issue, as did the longstanding uncertainty regarding major projects such as the Swansea Bay Tidal Lagoon.

Through our Re-energising Wales project we have brought together representatives from industry, regional stakeholders and academia that have an interest in the future development and transformation of the energy system in Wales. We have produced a number of evidence based studies[3] which outline the types of actions needed in order to ensure that Wales maximises its renewable energy potential.

We encourage the Welsh Affairs Committee to look at the Re-energising Wales reports in detail. In particular, we encourage the Committee to review our report entitled 'Swansea Bay City Region: A Renewable Energy Future'[4] which developed an energy system vision for a Welsh city region by presenting a case study of the targets, challenges and actions that would be needed to achieve a radical transformation of an energy system at a local level up to 2035. These insights can be applied to other Welsh regions and at a national level.

Within this response we highlight key points from our evidence base to date. It is clear that very few of the challenges and opportunities for Wales identified in our reports can be fully realised without increased policy support from the UK Government.

Onshore Wind

Onshore wind is a key opportunity for Wales. It is the cheapest form of large-scale electricity generation, and it is very popular with the public[5]. Our 'Swansea Bay City Region: A Renewable Energy Future' report showed there could be 1.3 GW[6] of onshore wind capacity in the Swansea Bay City Region alone by 2035.

The exclusion of onshore wind from the Contracts for Difference (CfD) mechanism greatly restricts the viability of onshore wind projects. It could result in the UK

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[2] https://gov.wales/newsroom/environmentandcountryside/2017/170928-lesley-griffiths-high-on-ambition-for-clean-energy/?lang=en

[3] http://www.iwa.wales/news/2018/04/re-energising-wales-2/

[4] http://www.iwa.wales/wp-content/uploads/2018/04/Regen-SBCR-A-Renewable-Future-FINAL.pdf

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/702640/Wave_25_Summary_Report.pdf

[6] http://www.iwa.wales/wp-content/uploads/2018/04/Regen-SBCR-A-Renewable-Future-FINAL.pdf

having to pay more to meet its carbon emission reduction targets than is necessary, as well as in households paying more for their energy needs. There is significant activity currently in the energy market around the integration of flexibility and energy storage into the system. This makes the use of more established lower cost sources of renewable energy such as onshore wind becomes even more important. We therefore believe that onshore wind projects should be allowed to compete in the CfD process.

It is also worth highlighting that additional onshore wind would be difficult to deliver without sufficient grid infrastructure. Grid infrastructure is a key part of unlocking renewable energy deployment. Deployment in Wales has been curtailed by weak grid infrastructure across all of Wales and in mid Wales in particular. A significant increase in grid infrastructure will be required to meet the targets set, and would provide large socio-economic benefits in areas of Wales which suffer from low productivity and average earnings.

There is a desperate need to support new network infrastructure with strategic grid and network investment upgrades which would remove capacity constraints to projects. Proactive investment in grid infrastructure would not only help deliver renewable energy projects, but would additionally act as an enabler for associated economic activity, such as business development, manufacturing facilities, the take up of electric vehicles and the electrification of heat energy. Individual developers, in the absence of CfD support, are generally unable to afford the costs of connecting to, and reinforcing, the grid. A strategic approach to grid development, underwritten by the UK Government, could be cost-neutral if project developers were able to pay back the cost on connection. This could unlock hundreds of millions of pounds of economic activity across Wales.

Solar Photovoltaics

Solar photovoltaics are also currently ineligible to compete for funding in the CFD system. Coupling the potential resource in Wales and the UK (1,215 MW resource potential by 2035 in the Swansea Bay City Region alone[7]), with the fact it is one of the cheapest forms of electricity generation, we believe there is a strong case for solar photovoltaics to be allowed to compete in the CfD process. Solar and wind technologies are effectively being denied a route-to-market, despite their substantial cost effectiveness. Wales' unique geography makes it a prime location for these technologies and without a route-to-market these technologies are unlikely to come forward. This would mean the Welsh local economy would lose out on potential benefits from future renewable energy generation.

Significant barriers to deploying more renewable energy remain in the form of commercial viability, including grid access, and an uncertain policy environment at a UK level. If grid (both transmission and distribution) bottlenecks can be reduced or eliminated and if onshore wind and solar are once again allowed to compete with other renewable technologies in the subsidy auction, future rates of deployment could remain high.

[7] http://www.iwa.wales/wp-content/uploads/2018/04/Regen-SBCR-A-Renewable-Future-FINAL.pdf

Wales could become an even greater exporter of energy to the rest of the UK. Furthermore, alongside considerations of the costs to the consumer, a diverse power portfolio best suits the UK and Wales and the ambition to deliver a low carbon energy future for all.

Offshore Wind and Marine Energy

Wales has some of the first offshore wind farms deployed in the UK and has developed a significant offshore service sector based in North Wales and around the Port of Mostyn. Wales could potentially develop a similar industry based around the ports of south Wales including Pembroke, Swansea and Port Talbot. As costs continue to fall, offshore wind is expected to play a pivotal role to enable the UK to deliver its decarbonisation targets with perhaps another 20 GW of offshore wind deployed in the coming decade.

The UK Government (alongside the Welsh Government and Wales Office of the UK Government) should seize the opportunity to push for more wind farms in Wales in the upcoming Crown Estate leasing rounds, due in 2018/19. This should include building potential sites off the north Wales coast, in the Bristol Channel and Celtic Sea. The ambitions of the Crown Estate in this regard are currently not known.

To achieve this, they should ensure they each:

- restate the case for infrastructure to support increased offshore marine generation
- work with and encourage project developers to bring forward site proposals
- support the supply chain in Wales to be able to play a full part in the installation, operation and maintenance of any new wind farm
- articulate the strong case for offshore wind in Wales, including the advantage of a more balanced UK energy portfolio and regional economic benefits
- support early stage project development, including support to identify and assess potential development zones such as through funded geophysical surveys and wind resource assessments
- continue to invest in innovation, such as the Pembrokeshire demonstration zone, particularly for floating wind and new foundation solutions for deeper and more challenging sites. Floating wind technology offers a significant opportunity for innovation for which the Pembroke demonstration zone and the deeper waters of the outer Bristol Channel and Celtic Sea are prime sites for deployment
- encourage civic, institutional and community ownership of new wind farms in Wales. This will require an investment vehicle to aggregate and channel investment funds.

A tidal lagoon project in Swansea Bay could be a strategic project to help create a new tidal energy industry. The synergy between offshore wind, wave energy, tidal stream

and tidal range (lagoons) should be exploited. New technologies are already being attracted to Wales and their commercial development could position Wales as a leading nation for the development of offshore energy. The fall in the cost of offshore wind illustrates what can happen when industry and government work together to reduce costs, and we recommend that tidal power can be revisited in the near future in Wales.

Wave and tidal stream are still considered to be emerging technologies. Although there are a number of demonstration projects, and one larger scale tidal stream project in the Pentland Firth, Scotland (MeyGen), there are no commercial scale tidal stream, or wave energy projects, deployed in Wales.

Wales does, however, have a significant amount of wave and tidal stream resource, both off the coast of Pembrokeshire, into the Celtic Sea and off the coast of Anglesey. The development of marine energy is also seen as a strategic priority by the Welsh Government and Swansea Bay City Region stakeholders. The Welsh National Marine Plan has also identified Strategic Resource Areas for marine energy, providing clear policy support from a planning perspective. Once developed, the market for wave and tidal stream technology could grow quickly.

Marine renewables and their current high level of cost/MW reflects the fact that they are emergent sectors and technologies. The sector has to date received EU funding for project demonstrations and post-Brexit it is difficult to see a viable future for the sector without a revenue support mechanism.

The UK Government's requirement that projects must be value-for-money requires deeper interrogation. How is the government measuring value capture? At present, value seems to be placed in the initial price of power only. It does not seem to consider other factors such as long term power costs, unlocking new industries through pathfinders, the stimulation of employment, manufacturing and regional investment. We believe the UK Government needs to take a much broader, long term view of the benefits of projects.

The UK Government should provide a mechanism for meaningful support for the sector to achieve significant cost reductions whilst the sector is working towards a position of commercial maturity. This mechanism should take into account the wider social, economic and environmental benefits of projects. The marine sector could make a significant economic contribution in Wales[8].

Local economic benefit

The low carbon Swansea Bay City Region Energy System Vision set out in our report "Swansea Bay City Region: A Renewable Energy Future"[9] would, according to our best current estimates, require around £4.6bn of investment in renewable electricity generation, and £1.2bn in domestic energy efficiency interventions. Investments at such a scale are absolutely necessary if Wales and the UK are to meet their commitments on mitigating climate change emissions.

[8] http://www.marineenergywales.co.uk/wp-content/uploads/2016/03/economic-impact-of-developing-marine-energy-en.pdf

[9] http://www.iwa.wales/wp-content/uploads/2018/04/Regen-SBCR-A-Renewable-Future-FINAL.pdf

If such investment is forthcoming, it comprises a significant potential opportunity for Wales. This investment could support some 4,500 jobs across Wales during a 15-year investment period, with around £1.66bn in total Welsh GVA created in total. We consider that around 60-70% of this Welsh economic potential could be captured within the Swansea Bay City Region, around 3,200 FTE jobs.

However, in previous 'energy booms' Wales has proved able to capture only a small portion of total economic benefit, usually that related to local labour, some professional services and rental, sales or lease of landscape. Some of this lack of past economic capture relates to a narrow economic base and lack of locally available skills and relevant companies. Additionally, there is almost no Welsh capital ownership in the energy sector.

Whilst 'locally owned' renewable energy capacity makes up 17% of all renewable energy capacity in Wales at 575 MW, community owned renewable energy projects (which form one part of the definition of 'locally owned') only total 13.4 MW of this 575 MW[10].

The UK Government should recognise the local economic benefits that can arise from renewable energy schemes and ensure that the support mechanisms that the government design for the sector, such as subsidy schemes, enable and encourage the ability for local economic capture.

Devolution of energy powers

The Wales Act 2017 transferred some new powers to Wales, for example in the area of planning for generating stations less than 350 MW, but does not go far enough to enable Wales to determine and achieve its low carbon energy ambitions.

Wales is suffering from a lack of policy certainty and direction at a UK Government level regarding the future of renewable energy subsidies and Welsh schemes have previously been susceptible to UK Government policy and subsidy changes.

We believe the Welsh and UK Government should explore the case for Wales to be given more powers to be able to directly levy money from Welsh consumers' energy bills to pay for subsidies supporting low carbon energy. The UK Government currently levy such charges across the UK and use the 'Levy Control Framework' (LCF) to control the costs of supporting low carbon energy. Specifically, the case for Wales to gain powers over levy responsibility or devolve one of the schemes included within the LCF, such as the CFD or the 'Feed-in Tariff Schemes', should be explored further.

We believe the policy environment could be structured to better respond to fit regional geographic and technical advantage, public attitudes and investment opportunities. Substantial gaps between Welsh Government and UK Government priorities mean that Wales is unable to reach its renewable energy potential, or

10 https://gov.wales/topics/environmentcountryside/energy/renewable/energy-generation-in-wales/?lang=en

realise the substantial co-benefits renewable energy presents for the economy and the environment.

Thank you for your consideration of our response.

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