

## **Welsh Affairs Committee: Renewable energy in Wales**

### **NORTH WALES TIDAL ENERGY & COASTAL PROTECTION LTD**

*North Wales Tidal Energy & Coastal Protection Ltd (NWTE) is privately owned company developing a tidal lagoon concept sited on the coast of North Wales.*

*Initial studies indicate a tidal lagoon that encloses approximately 156 sq km of sea, with an installed capacity of 2.5GW, will generate in excess of 4 TWh pa – enough to power over 1,000,000 homes.*

*As importantly for local businesses and communities, the tidal lagoon will also provide a significant mechanism to help mitigate the threat of rising sea levels and storm surges caused by Climate Change. An independent report has shown that land, property and infrastructure valued at over £3Bn will be protected.*

*NWTE has invested £1M of private funds in its work to date, including preliminary research into engineering designs, environmental scoping, economic impact and coastal protection afforded to the North Wales coast. No public funds have been received.*

### **Q1. How can the UK Government best support the deployment of renewable generators in Wales?**

The critical support required from the UK Government is Policy Support for tidal energy as an integral part of the UK future energy mix.

Despite positive independent reviews of the features and benefits of tidal range, including predictability, flexibility, operating life and co-benefits, the Government continues to ignore its potential contribution to the UK's energy security and stability. Most notably in the Government's 'Ten Point Plan' for a green industrial revolution.

There is an urgent need for a reset in thinking.

This requires funding to gather the necessary independent and credible evidence to provide the basis of discussions on future Policy, pricing and subsidies.

The Tidal Range Alliance, speaking on behalf of the UK tidal range industry, including NWTE, has called for a £20M fund to be made available.

It is interesting to note that almost every submission to the recent Environmental Audit Committee Call for Evidence on Tidal power - from RSPB to NRW to EA to BEIS and individual developers - called for more and better financial, system and environmental data, more modelling, and true and fair whole-life and whole-system cost-benefit analysis.

The TRA's "Tidal Range Baseload Assessment Fund" would investigate, among other subjects:

- Turbine development (performance, efficiency, fish friendly)
- Construction techniques, costs and timeframes
- Baseload generation potential – single and multi-lagoon – and value to the National Grid
- Front End Engineering Development (FEED) for selected projects
- Environmental baseline research – fish, birds, invertebrates
- Co-benefit valuation (eg. coastal protection)
- Cost-benefit analysis of ultra-long life (120 + year) operating assets such as tidal lagoons

- Financial and operational modelling of large and small tidal range projects to evaluate cost-effectiveness and value for money

The data obtained would enable true and fair whole-life and whole-system cost benefit analysis. This would allow the Government and Investors to understand and formulate the optimum long term funding requirements (modified CFD or RAB or other) to benefit the UK.

## **Q2. How should the UK and Welsh Governments work together to support the development of renewable energy projects in Wales?**

Wales, with a unique coastline and marine resource, has a significant chance to take leadership in the global tidal energy market – both tidal range and tidal stream.

The UK and Welsh Governments need to establish common aims, objectives and policy to support the growth of a new and vital industry.

Although small tidal lagoons (<350MW installed capacity) can be developed and approved within Wales' devolved powers, the UK government retains control of subsidy levels, the principal current mechanism being awarding Contracts for Difference (CFDs).

Large tidal lagoons, such as the North Wales Tidal Lagoon, are defined as a Nationally Significant Infrastructure Projects (NSIPs), for which the decision maker is the (Westminster) Secretary of State.

As has been demonstrated through government sponsored development of other renewables pathways, it is scale and technical complexity that drives early stage economics, which in turn forms the basis of national subsidies. And it is the benefit of scale and reduced technical complexity that tidal range offers. As illustration to that point, the installed capacity cost of Swansea Bay lagoon was >£4,000/kW, for North Wales Tidal Energy it is 60% of this.

The “Tidal Range Baseload Assessment Fund” outlined above (Q1) will provide both Governments with the data and modelling to allow open discussion of the value of tidal range to regional and national economies.

The UK and Welsh Governments should work together to agree a framework and funding for the “Tidal Range Baseload Assessment Fund”.

## **Q3. What mechanisms can ensure that subsidies for renewable generators are good value for money?**

At present, no mechanisms are in place for tidal lagoons.

The existing mechanism, the CFD, does not recognise any features and benefits of an energy generator that has an ultra-long life (over 120 years) and provides significant co-benefits to its area of operation (coastal protection, transport etc).

This means that *existing simplistic comparisons, such as Levelised Cost of Energy (LCOE) and cost per MWh are inadequate and do not reflect whole-life and whole-system cost and value for money.*

The UK and Welsh Governments need to develop a subsidy regime which recognises these factors. The Regulated Asset Base (RAB) has been suggested, however there may be other mechanisms whereby value for money is ensured.

## **Q4. What opportunities are there for renewable generators in Wales of greater interconnection with other electricity markets?**

The East-West Interconnector already connects the UK and Ireland electricity markets; and represents a clear opportunity for inter-grid trade that renewables assets located in Wales could support with reduced transmission losses.

However, while not requested, it should also be considered what value renewables assets in Wales can offer other energy markets. Specifically the use of curtailed renewables power to generate hydrogen for energy storage and distribution to transport and other hydrogen grid systems. In this regard North Wales is in a unique position to collaborate with programmes such as Hynet; the Liverpool-Manchester hydrogen cluster.

#### **Q5. How can the UK Government facilitate Welsh contributions to COP26?**

Wales' leading role in the development of tidal energy should be highlighted at COP26.

The North Wales Tidal Lagoon is an exemplary example of the potential of a tidal lagoon to have a transformational impact on its region, economy and communicates:

- Significant contribution to CO<sub>2</sub> emissions reduction
- Industrial scale sustainable energy generation
- Grid security and stability
- Critical support for other intermittent renewable energy sources
- Coastal protection for critical infrastructure including mainline rail and the primary road link to the Republic of Ireland
- Multi-generational planning to benefit our children and grand-children.

#### **Q6. What implications is COP26 expected to have for Wales?**

The existence of COP26 in itself adds little value. It will be the actions that emerge before, during and after it that can help catalyse change and positive impact on Wales. Specifically:

- What happens in the year before COP26 to advance climate ambition? Related to Tidal Range and Tidal Power in general, UK initiatives related to the exploration and validation of the tidal range opportunities could establish Wales as a leading centre of excellence for development of infrastructure and project know-how;
- How successful the official negotiations are at COP26, including the high-level segment with Heads of State and Ministers from around the world? It is essential that nations acknowledge, beyond words, the clear and present danger presented by climate change; and that the response to it must be a collaborative one. Through shared political agendas and state sponsored technology development and collaboration, application of low carbon solutions can be accelerated significantly.
- What progressive coalitions and alliances emerge for action on climate change to implement the Paris agreement successfully? Hosting COP26 in the wake of COVID19 and the global green rhetoric of the past 12 months represents a unique opportunity for the UK to take a position as a leader in the global climate change response. Which if approached correctly could culminate in Memoranda of Understandings between specific nations to develop, deploy and disseminate low carbon technologies. The world cannot wait for competitive markets to create investment opportunities to deliver 2050 targets.
- These opportunities must be driven and it is conceivable that COP26 could yield such cross-border technology collaborations, including one covering tidal range.

#### **Q7. Has the COP26 Year of Climate Action had any significant implications for Wales?**

It is difficult to judge in advance of an event the value of that event on any geography. COP26 represents an opportunity for Wales to highlight its green credentials, both existing related to recycling, and potential related to tidal range.

**Q8. What opportunities are there for renewable energy to aid Wales post-COVID-19 economic recovery?**

The proposed North Wales Tidal Lagoon is strongly supported by Conwy and Denbighshire Councils as well as the North Wales Economic Ambition Board:

*“The Board recognises the benefits tidal lagoons can deliver including coastal protection, predictable renewable energy and socio-economic benefits.”*

Independent Economic Impact Assessment of the North Wales Tidal Lagoon by Glyndwr University shows that its development, construction and operation will generate in excess of 22,000 jobs.

Initiation of the required environmental, habitation and engineering work needed to obtain the full range of consents and licenses to build will not only provide high GVA employment in the Region but will also inject a much-needed boost of confidence in the future of North Wales’ economy.

The supply chain for the project will call on local, regional and national academic, commercial and industrial resources and has the potential to be transformational for North Wales.

*Henry Dixon*

*Chairman, North Wales Tidal Energy & Coastal Protection Ltd*

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