

Submission of Evidence Form – National Development Framework

Name

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Contact details

[REDACTED]

Date

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Title of evidence

Tidal lagoons

Summary of evidence

See letter.

Summary of key issues/conclusions

See letter.

Consider Hendry Review on tidal lagoons (and potential opportunity for Wales – plan to enable/facilitate).

Consider strategic issues such as climate change, infrastructure, economy, wellbeing, natural resource management.

Why have you submitted this evidence?

See letter.

How should this evidence inform the development of the NDF?

See letter.

How does this evidence and any actions it recommends help achieve the 7 well-being goals?

See note on WFG Act.

Why is the evidence of national significance?

See letter.

Do you agree for your evidence to be made public? (Only evidence that can be made public will inform the development of the NDF)





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Call for Evidence and Projects - National Development Framework

Introduction

Tidal Lagoon Power is driving a critical change in the energy mix with the development of low-cost, low carbon, predictable electricity sources that are sustainable, UK based and deliver long-term energy security for 120 years. Swansea Bay Tidal Lagoon, the pathfinder nationally significant infrastructure project (NSIP), gives Wales and the UK a necessary new option for energy generation, required now, and into the future if we are to secure a low carbon transition to meet 2050 emissions reduction targets, foster economic growth and competitiveness, and achieve wellbeing objectives. Although a tidal lagoon is a power plant, as our plans for Swansea Bay demonstrate, a tidal lagoon can deliver and enable a range of significant additional national, regional and local economic, social and environmental benefits.

Independent Review of Tidal Lagoons

The Independent Review of Tidal Lagoons, led by Charles Hendry ("Hendry Review") has concluded, a final report was published in mid-January 2017. The Hendry Review concluded positively about the pathfinder project at Swansea Bay, and the potential for lagoons to make a significant contribution to the energy sector and the economy:

"tidal lagoons would help deliver security of supply; they would assist in delivering our decarbonisation targets; and would bring real and substantial opportunities for the UK supply chain."

"they could play a competitive role as part of the UK's energy mix"

"a tidal lagoon programme offers a significant economic opportunity for Wales and the UK more generally. There are few other energy sectors where the UK can realistically aspire to have such a significant supply chain, where the skills already exist for a 'pathfinder' project"

or where there is such commitment to large scale manufacturing in the UK from the world's largest firms in this sector."

The Hendry Review report includes analysis of the significant potential value to the economy from industry¹, jobs, supply chain, regeneration, coastal and flooding protection.

We now await the UK Government's response to the Review's findings.

Call for Evidence

We refer you to the Hendry Review as a comprehensive and relevant report of evidence to inform development of the NDF. The Hendry Review was informed by a significant body of evidence, including many reports submitted by Tidal Lagoon Power. Tidal lagoon projects and associated developments including industry development are clearly of national significance. They are also projects that span marine and terrestrial environments, therefore relevant to both the emerging Welsh National Marine Plan and the NDF. It is not clear what specific evidence on tidal lagoons would be useful at this stage to inform development of the NDF. We would be happy to discuss this further with you.

However, there are important and strategic issues that should be considered early in the process of preparing the NDF. Commentary on some of these key strategic issues is set out below.

Wellbeing of Future Generations

The consultation documents appropriately emphasises the central role of the Wellbeing Goals. It would be insightful to understand how the 'ways of working' are to be applied to the process of preparing the NDF, and whether it is being considered whether the NDF has a role to support the 'ways of working' in addition to the more outcome focused Wellbeing Goals.

Climate Change

We note that the intention is to publish the 20-year NDF in 2020. Climate change should be a central consideration for preparation of the NDF, particularly in the context of the Wellbeing of Future Generations Act (Wellbeing Goals and Ways of Working). Planning for climate change means planning for 2050. The 2008 Climate Change Act commits the UK to reducing carbon emissions by at least 80% in 2050 from 1990 levels. The Act also established a system of five-yearly carbon budgets, to serve as stepping stones on the way, with the fourth carbon budget requiring a 50% reduction by 2025. The UK has since signed up to the Paris Agreement², a more

¹ Tidal Lagoon Power (2016) *Ours to Own: From First Mover to Mass Manufacture, Building a New British Industry from Our Natural Advantage*, October 2016.

² FCCC/CP/2015/L.9/Rev.1 <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

ambitious aim than the basis of the UK's statutory 2050 target. Whilst UK commitments are relevant to Wales, and Wales has its own commitments under the Environment (Wales) Act, Welsh Government has embedded energy and decarbonisation with economic strategy for Wales with a focus on a low carbon transition.

Decarbonising the electricity sector may be progressing better than other sectors (e.g. heat and transport), however predicted energy scenarios to 2030 (by National Grid) coupled with new demand from transport and heat sectors means that *'the search for low-carbon sources of electricity generation becomes more urgent'* (see Hendry Review section 3.3). The UK's decarbonisation commitments are challenging. By 2030 the UK will have closed 82% of its existing fossil fuel based power station capacity³. At the same time electrification policy calls for more transport (cars, trains) and heat fuelled by electricity – all net new demand. It is widely acknowledged that easiest way to decarbonise the heating and transport sectors, if the UK is to meet the statutory 2050 target, is to use electricity to power domestic heating, cars and the other users of energy in these sectors⁴.

We would encourage consideration of the findings of the Committee on Climate Change for a meaningful analysis of the infrastructure needs and priorities in the long-term to 2050 and beyond, which accounts for the lead times associated with infrastructure delivery. They advised Government⁵ that in the 2020s up to 200 TWh/year of new generation will be required to replace generation from retiring coal and nuclear capacity and to meet possible increases in demand; beyond 2030, more generation is likely to be needed as electricity provides a route to reduce emissions from heating, transport and parts of industry. Their analysis found that the lowest-cost path to the 2050 target will involve deep decarbonisation of the power sector by 2030 (e.g. to below 100 gCO₂/kWh).

The Hendry Review concludes that tidal lagoons would contribute positively to the UK's decarbonisation goals. This is already recognised by the Welsh Government in *'Taking Wales Forward'*. A new tidal lagoon industry, established by the pathfinder lagoon at Swansea Bay, is also aligned with the UK Government's emerging Industrial Strategy, across many of the identified pillars including *'delivering affordable energy and clean growth'*.

Also, in respect of resilience and adaptation to climate change, a longer-term perspective is necessary.

³ Tidal Lagoon Power (2016) *The New Power Cost League Table: A clear view of the consumer cost of new build power stations*.

Bircham Dyson Bell (2016) *The Energy Crunch: Will decreasing capacity in UK energy cause the lights to go out?*

⁴ *'The Energy Crunch'*, Bircham Dyson Bell, February 2016.

⁵ *Power sector scenarios for the fifth carbon budget*, Committee on Climate Change, October 2015.

Infrastructure

A strategic understanding of infrastructure requirements to meet national objectives should be fundamental to the NDF. You may wish to draw on the work to date by UK National Infrastructure Commission, and in future the emerging National Infrastructure Commission for Wales.

The infrastructure investments that will realise the most value for regional economies to drive sustainable growth will be infrastructure that can realise multiple benefits. A recent report by the Cardiff Capital Region (CCR) City Deal Growth and Competitiveness Commission⁶ (led by Professor Greg Clarke) provides analysis of different city region growth strategies and the relationship with infrastructure investment. The report provides a comprehensive suite of recommendations to drive forward sustainable growth of a city region; highlighting investment principles, growth sectors and specialisation potential, and the importance of energy infrastructure and assets as a driver of growth, particularly large-scale energy projects. These considerations are entirely relevant to the development of the NDF. Our response to the call for evidence by the CCR Growth and Competitiveness Commission is enclosed.

Although tidal lagoons are first and foremost power stations, tidal lagoons can act as a barrier to potentially damaging and disruptive storm surge and waves that threaten coastal communities and infrastructure vulnerable to flooding and coastal erosion, likely to be exacerbated by climate change and sea level rise⁷. Tidal lagoons:

- Are designed to be resilient to at least 1 in 500 year storm surge and wave;
- Have an asset life of 120 years, with the ability to increase the height of the structure to adapt to sea level rise;
- Have the potential to support FRM with the operating cycle.

Also, Tidal Lagoon Power's model for delivering lagoons includes creating a strategic network of wetlands through managed realignment along the coast, a natural approach to coastal protection and flood risk management (with reference to TLP's *Ecosystems Enhancement Programme*).

Please note that the Hendry Review report also includes analysis of the potential of tidal lagoons to support flood risk and coastal erosion management.

Economy

Blue growth and the maritime economy should be a focus for the NDF. Please refer to National Assembly for Wales Enterprise and Business Committee report on *'The Potential of the Maritime*

⁶ Cardiff Capital Region City Deal Growth and Competitiveness Commission (2016) Report and Recommendations.

⁷ See appended report on how tidal lagoons can support flood risk and coastal erosion management.

Economy in Wales' (February 2016), and work by the New Economics Foundation (www.bluenewdeal.org). Alongside the Welsh National Marine Plan (WNMP), the NDF has the potential to facilitate sustainable development of coastal communities. Key areas include development of renewable energy, ports, and aquaculture sectors. There is an ambition, as articulated by the Welsh Government, for a tidal lagoon industry in Wales, capitalising on the excellent tidal range resource to at the forefront of a global export industry. Tidal lagoons are also recognised as a key opportunity for Wales to unlock the commercial potential of the marine energy industry. There is also a recognition through the emerging WNMP that tidal lagoons can support other sectors, or other outcomes through co-location of activities, and that the WNMP can provide the strategic steer to help facilitate this. The same is true of the NDF as there will be development and other opportunities on land arising from tidal lagoon infrastructure development.

The industrial opportunity arising from tidal lagoons is addressed in some detail by the Hendry Review. With reference to the *'Ours to Own'* report, the immediate opportunity is for the engineering, construction, steel and manufacturing industries to win contracts totalling over £800m for a world first tidal lagoon project at Swansea Bay and over £6bn for the first project to employ its template at full-scale at Cardiff. The roll out of further tidal lagoon infrastructure in the UK will see industrial growth cluster around the two principal UK tidal lagoon deployment zones in South and West Wales, and North Wales and Liverpool Bay. More than £20bn of private capital could be invested into tidal lagoon infrastructure in Welsh waters over the coming years.

The anticipated clustering of industrial growth is likely to further grow Wales' stake in the tidal lagoon industry with investment in up to seven new manufacturing facilities in Wales (including a new £22m turbine manufacturing plant and a new £25m steel fabrication facility in the Swansea Bay City Region; a new £50m concrete pre-casting facility; a second £40m Turbine Manufacturing Plant, and a new £100m generator manufacturing facility in the Cardiff Capital Region; a new £250m caisson yard (options at Welsh ports). In a report to Tidal Lagoon Power, extending on its earlier work for Welsh Government, Miller Research and Semta found that the development of the four tidal lagoons in Welsh waters would support 22,846 direct FTE jobs in the manufacture and assembly of the main component parts of the turbines, generators and sluices. This equates to 15.7% of the total number of people employed in the manufacturing industry in Wales in 2014. Please refer to the *'Ours to Own'* report for further analysis.

As our plans for the Swansea Bay tidal lagoon demonstrate, if approached in the right way, a tidal lagoon can also deliver a wide range of economic, social and environmental benefits. As stated in the Hendry Review report *'I think it is beyond question that, in the case of Swansea Bay, local economic regeneration would follow a tidal lagoon'* (section 3.5.2).

Sustainable Natural Resource Management

Accelerating progress towards decarbonising the economy, including energy and transport sectors to meet decarbonisation targets will have a strategic contribution to protecting the natural environment. This is commonly understood, though not directly integrated with policy on protecting and enhancing the natural environment (therefore logic is often lost when it comes to local level implementation).

Planning policy provides clear frameworks for decision-making to ensure sequential steps are taken to minimise, mitigate, compensate and offset impacts, particularly in the case of priority habitats and species. Enhancement opportunities should also be encouraged, for example our Ecosystem Enhancement Programme⁸. Increased strategic integration of infrastructure planning with planning for the natural environment may be a way to facilitate such opportunities (please refer to our response to the recent consultation on development of the natural resource management policy).

Call for Projects

Although a number of potential tidal lagoons sites have been identified for development in Wales (see Offshore Energy Strategic Environmental Assessment report, table 2.1; and the Hendry Review report). There are four main locations for feasibility of nationally significant infrastructure projects:

- Swansea Bay (consented)
- Cardiff (Cardiff to Newport)
- Colwyn Bay
- Newport

We can provide further information in relation to these projects at an appropriate point in time. In the meantime, I would be happy to discuss further.

In addition, as referred to earlier and in the 'Ours to Own' report, significant new manufacturing and assembly facilities are required to support the new industry. Infrastructure for skills and training, research and development may be required. The larger lagoons may have significant associated infrastructure requirements to support project elements such as transportation and

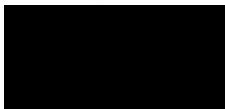
⁸ Tidal Lagoon Power (2016) *Ecosystems Enhancement Programme: Strategy, June 2016*.



logistics. Other projects arising from the multi-functionality of lagoons may also come forward. Further information can be provided at an appropriate time or by request.

Finally, I was pleased to be involved in a workshop on the NDF last month in Cardiff. We welcome further engagement and involvement with the process of preparing the NDF. If you have any queries, wish to discuss further or be provided with further information (as indicated in this letter), please contact me at 07867129796 or catrin.jones@tidallagoonpower.com.

Yours faithfully,



Catrin Jones

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