Green Energy, Coastal Defence and Levelling up;
The case for a Morecambe Bay "Pathfinder" Tidal Range Energy Project

A. Conference Notes

I. That the United Kingdom arguably has greater potential for the exploitation of tidal range energy than any other country in the world, with a particularly favourable locations to be found in the North West of England and along other western UK coasts.

II. That worthwhile early-stage development of other forms of marine energy; tidal stream energy and wave energy has been supported in the UK, but we have no operational tidal range energy scheme.

III. The only operational tidal range energy scheme in Europe, La Rance, in Brittany has been onstream since 1966, has repaid its capital investment cost many times over and generates the cheapest electricity in France.

IV. That with an operational life of circa 130 years, which be extended through refurbishment tidal range energy schemes are unique in their longevity and may require a fresh approach to ownership and funding models compared to wind and nuclear.

V. The 2016 report by Charles Hendry, a former Conservative energy minister. This report;

- Recognised that the cost of raising capital for tidal range energy is a major factor in the price that consumers would need to pay for such energy.
- Noted that financing costs tied as closely as possible to Government borrowing costs may be desirable.
- Drew attention to, but failed conclusively to recommend, an ownership model based on a not-for-profit/reinvest surpluses business which could raise finance through bond issues.
- Proposed that the 'uncertainty premium' inherent in any new form of green energy generation should be addressed by means of a Pathfinder Project to kickstart a major programme during which costs would be progressively driven down.

V.1. In addition to providing a major new source of green energy to combat climate change tidal energy schemes can also help mitigate its effects. The seawalls constructed to house turbines for generating tidal range energy can also serve as coastal defences that would otherwise be unfeasible on cost grounds, offering protection from rising sea levels and storm surges.

V.II. This protection for the intertidal area, together with design features that help to protect habitats, mean that, as climate change accelerates, tidal range energy schemes could be viewed as having a positive rather than a negative environmental impact .

B. Conference Believes

a. That, in addition to the primary green energy objective, there are significant potential economic development advantages to be derived from the construction of tidal range energy schemes. These include.

- Direct employment in construction, and in the manufacture of pre-fabricated structures, turbines and other equipment.
- The possibility to incorporate within schemes, options such as energy storage facilities, or hydrogen production. There are also opportunities for the productive uses of green tidal energy generated during the night by high electricity consumption industries such as electric arc green steel production.

- Economic regeneration opportunities for areas adjacent to the sea wall including new tourism and leisure opportunities
- At some locations the construction of new transport links across the sea wall can significantly enhance the economic benefits.
- A tidal range energy scheme's grid connectivity can reduce the cost of exploiting other forms of green energy in closely adjacent locations. These could include other sources of power from the oceans (tidal stream energy, wave energy) as well as wind and solar.

b. A strategy for tidal range energy involving the sequential implementation of schemes should be developed as a matter of urgency with the objective of contributing a minimum of 10% of UK electricity needs by 2035.

c. Morecambe Bay and Duddon Estuary barrage is a prime candidate for a Pathfinder project to kickstart this programme for the following reasons;
   - If tidal range energy is to make a meaningful impact on climate change goals, then the time for promoting any smaller scheme as the first step has passed.
   - Morecambe Bay and Duddon Estuary is on a sufficient scale to serve as an exemplar for others.
   - It would provide an excellent demonstration of the coastal defence benefits and of developing an optimal strategy for protection of the intertidal zone environment.
   - The economic development benefits of a road across the barrage and the leveraging of economic regeneration potential are compelling. This would be a significant levelling up opportunity.

C. Conference condemns

Government failure to include tidal range energy from the UK energy mix by adopting the 'Micawber strategy' of waiting for something to turn up. What is needed is a clear implementation strategy involving recognition of the wider economic and coastal defence benefits and the opportunity to use a Pathfinder project to address the 'uncertainty premium' associated with early stage development of renewable energy programmes and help drive down the costs of subsequent projects.

D. Conference commends,

The Collaborative Offshore Wind Research into the Environment (COWRIE) programme supported by the Crown Estate as owners of the seabed. We believe that a similar scheme could make a necessary and valued contribution to the exploitation of tidal range energy. We welcome the decision to make surplus Crown Estate income generated from its offshore wind licences available for use in the public interest.

E. **Conference calls for**;

1. The urgent establishment of a task force involving all stakeholders to develop a strategy for the exploitation of tidal range energy, including the expediting of a Morecambe Bay/Duddon Estuary Pathfinder project. This task force to be the precursor of a Marine Power Development Agency. The MPDA would drive implementation of the complete strategy, evaluate progress, provide a regulatory framework for the emerging industry and help drive down costs.

Early tasks would include;

- Discussions with the Crown Estate both for licensing purposes and for the establishment of a collaborative environmental research programme for tidal range energy similar to COWRIE in the offshore wind sector.
- A design competition for a Morecambe Bay/Duddon Estuary barrage that would serve a coastal defence need, include a dual carriageway road connecting West Cumbria and North Lancashire and could incorporate additional features such as energy storage facilities within and adjacent to the structure.
- A call for proposals for developing an environmental impact assessment and strategy,
- A call for proposals for the establishment in the North West of a facility for the prefabrication of concrete substructures.
- The development of a substantive levelling up strategy to identify and pursue economic regeneration and tourism/opportunities, arising from or enhanced by, the construction of a Morecambe Bay/Duddon Estuary tidal range energy scheme .
- An evaluation and monitoring strategy for each stage of the Pathfinder to inform the development of subsequent schemes and drive down their construction costs.

2. A commitment from Government to provide financial support for the Pathfinder's wider public interest benefits; coastal defence, environmental protection, transport link and economic regeneration.
3. The dedication of surplus funding from Crown Estate offshore wind licences toward support to mitigate the 'uncertainty premium' associated with the early phases of a tidal range energy programme.
4. The establishment of a not-for-profit company UK Marine Power publicly owned but independently managed as a commercially focused business committed to reinvesting surpluses and capitalised by a special bond issue.