

# **NRN-LCEE Research Development Fund Tidal Lagoon Research Workshop Marine Centre Wales, Menai Bridge, 17-18<sup>th</sup> May 2016**

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## **Background**

Tidal lagoons have clear potential in the future global energy mix, but their contribution and impact is not yet understood. In particular, resource assessments and resource optimisation have not been investigated to the same level as the tidal stream industry. No research has yet been conducted on multiple lagoon interactions, including feedbacks between energy extraction and the tidal energy resource, and there is considerable uncertainty in the environmental impacts of tidal lagoons. Addressing such research issues will help inform how tidal lagoons fit within the Welsh, UK, European and global energy mix beyond 2020. In addition, such research will remove barriers to the development of tidal lagoon technologies, by improving our knowledge of environmental impacts, and so streamlining the consenting process. Research into the global resource will better inform investors, so that this high tech, green, industry becomes globally exportable from Wales. To address this, the NRN-LCEE funded a 2-day tidal lagoon workshop at the newly opened Marine Centre Wales, Menai Bridge, Bangor University.

## **Attendees**

The event was attended by around 50 people, including 30 academics from institutions across the UK (Manchester, Imperial, Oxford, Lancaster, Plymouth, Liverpool, Edinburgh, Cardiff, Swansea, Bangor, and the National Oceanography Centre) along with industry and environmental representatives, including Tidal Lagoon Power, North Wales Tidal Energy, The Crown Estate, Black & Veatch, and Natural Resources Wales.



Attendees at the tidal lagoon workshop

## Format

The presentations at the workshop were structured around three key themes: Resource, Optimization and Impacts, with 8 presenters in each themed session. Each of the sessions was chaired by a member of the scientific steering committee and, after a few short questions at the end of each presentation, concluded with around 30 minutes of discussion based on the presentations and themes of each session. Presentations ranged from examining the tidal range resource over a range of timescales, including climate change, how best the resource can be optimized, impacts of lagoons on water quality, and the environmental impacts of multiple tidal lagoons.

After the themed sessions, the conference attendees divided into two groups: (1) Resource & optimization, and (2) Impacts, to discuss potential journal review articles. The workshop met in a final plenary session to discuss the next steps in taking these journal articles forwards.

In addition to the formal workshop sessions, a tour of the RV Prince Madog was provided, in addition to a very enjoyable workshop dinner in Dylan's, Menai Bridge.



Dr Tom Adcock, Oxford University, presenting at the lagoon workshop

## Outcomes and next steps

Resulting from discussions at the workshop are three draft review articles; one on resource and optimization (led by Dr Simon Neill), and two on the environmental impacts of tidal lagoons (led by Dr Reza Ahmadian and Prof. Dominic Reeve). The resource & optimization article was the most developed at the end of the workshop, and then plan is to submit this article to *Renewable & Sustainable Energy Reviews* by Autumn 2016. It is hoped that these peer-reviewed articles, or drafts of the articles, can feed into the forthcoming DECC independent review into the feasibility and practicality of tidal lagoons in the UK. In addition, mechanisms were discussed on how to sustain the tidal lagoon research network, e.g. for future events, and avenues such as EPSRC Network Grants and a special interest group of the existing EPSRC-funded UK Fluids Network were discussed as options.

Scientific Steering Committee: Dr Simon Neill (Bangor University), Dr Reza Ahmadian (Cardiff University), Prof. Dominic Reeve (Swansea University).

Local Organising Committee: Dr Peter Robins, Dr Matt Lewis, Dr Mike Roberts, Mrs Jennifer Roberts (all Bangor University)