

Draft Press release: 23rd February 2009

Tapping the Tidal Power Potential of the Eastern Irish Sea

- **Providing half the North West's electricity
for the next 120-years**

Summary

With concerns mounting over the UK's energy future and the effects of climate change, it will soon become paramount that all viable sources of renewable energy are fully exploited. Towards this goal, researchers from the Engineering Department at the University of Liverpool, working with colleagues at the Proudman Oceanographic Laboratory (POL), have recently completed a 2-year study entitled 'Tapping the Tidal Power Potential of the Eastern Irish Sea'. The project, commencing in October 2006, was awarded by the Joule Centre, a recently established partnership of North West Universities, commercial organisations and other stakeholders with interests in energy research, with funding from the Northwest Development Agency (NWDA).

The study has examined the scope for reliable and fully predictable electricity generation from estuary barrages, tidal lagoons and tidal-stream generator arrays. The emphasis was towards conjunctive operation of major estuary barrages, incorporating allowances for other schemes including a 'Severn' barrage outside the region, with the ultimate aim to approach a 24-hr base-load generating capability for the electricity grid.

Through the study, it has been confirmed that with 4 major barrages across the Solway Firth, Morecambe Bay and the Mersey and Dee estuaries, and possibly also the Ribble (figure 1), the waters of the North West (NW) should be capable of meeting more than 5% of present UK electricity demand. This places the NW tidal resource in scale on a par with the Severn estuary, and these two regional developments would be fully complementary in respect to the timings of their twice-daily pulsed inputs to the electricity grid (figure 2).

This renewable energy capture could reliably meet about half of the North West's daily electricity need, over a 120-year operational life, whilst providing:-

- substantial estuarial sea defence and flood risk protection extending up-river beyond tidal limits;
- road/rail crossings reducing travel distances and so encouraging socio-economic development;
- substantial employment during the design and construction phases;
- tourism interest and greater recreational opportunity;

There would be a degree of environmental modification through changes in tidal flow, but this does not necessarily imply significant physical nor ecological degradation. Outline costing studies suggest that with governmental (Treasury) funding at favourable discount rates (~3.5%), these developments should be competitive against alternative renewable sources. Arising from the study, a future contribution of 20% to UK electricity supplies from tidal energy can be reliably envisaged (with a combination of barrages/lagoons [~ 15%] and tidal stream devices [~ 5%]).

Richard Burrows
BEng, PhD, CEng, FICE, MCIWEM
Professor of Environmental Hydraulics

Department of Engineering

Brodie Tower
Brownlow Street
Liverpool
L69 3GQ

T 0151 794 5235
F 0151 794 5218
E r.burrows@liverpool.ac.uk

The studies continue as part of the activity base of the recently formed Northwest Tidal Energy Group (NWTEG) administered through the NWDA.

For more information: www.liv.ac.uk/engdept/tidalpower

or contact:

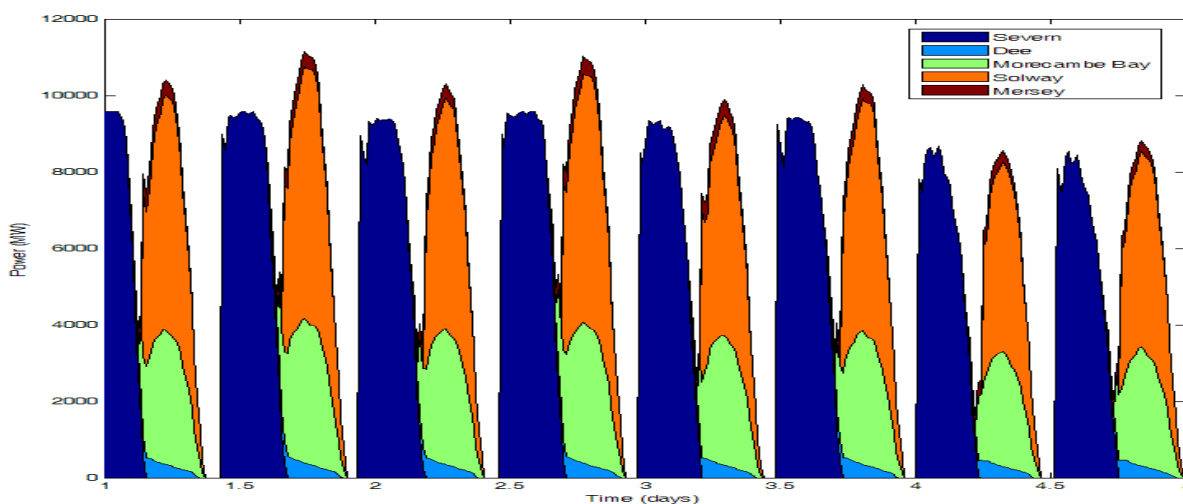
Professor Richard Burrows tel: 0151 794 5235 e-mail: r.burrows@liv.ac.uk

Dr Judith Wolf (POL) tel: 0151 795 4849 e-mail: jaw@pol.ac.uk

Figure 1 Potential NW tidal barrages



Figure 2 Power pulses generated under spring tides



La Rance tidal barrage operating successfully for over 40 years

