

Cllr Dr Stuart Anderson

From: Hugh Hunt [hemh1@cam.ac.uk]
Sent: 22 February 2014 12:45
To: Cllr Dr Stuart Anderson
Subject: blackpool notes and detailed maps for Blackpool and N Wales (fwd)
Attachments: blackpool notes and detailed maps for Blackpool and N Wales

FYI - from David MacKay

----- Forwarded Message -----

Date: 25 November 2013 11:34 +0000
From: David MacKay <djcml@cam.ac.uk>
To: hemh@eng.cam.ac.uk
Cc: djcml@cam.ac.uk
Subject: blackpool notes and detailed maps for Blackpool and N Wales

Dear Hugh

the following information was found in a Morgan Horne document that was classified as commercial/confidential, so I wasn't able to use it in my book.

Morgan Horne are now part of Pell-Frischmann (london based engineering company)

```
@misc{MorganHorne,  
  title={Open Coast Tidal Energy},  
  subtitle={A report on the potential  
    economic energy yield of the British coast line and  
    on the likely costs and benefits of two of the most promising schemes},  
  author={{Morgan Horne Consulting Engineers}}  
}
```

I reckon we should build on what they did.
I am attaching their documents but please NB I don't have permission to make these public.

see especially pages 13 and 15 in MorganHorne1993.pdf

David

- - - My summary of their document - - -

```
\subsection{Other barrage locations}  
Morgan Horne  
%% now part of Pell-F  
estimate that  
tidal barrages in the open  
sea could generate economical  
electricity,  
with at least  
% 57\,TWh/y available  
% at a cost of  
% 3.5--5.3p per kWh  
% in four sea locations:  
% Lancashire, North Wales,  
% Lincolnshire, and The Wash.
```

% 57\,TWh/y is 6.5\,GW, or
% 2.6\,kWh/d per person.
64\,TWh/y available
at a cost of
3.5--6.4p per kWh
in six sea locations:
Lancashire, North Wales,
Lincolnshire,
Southwest Wales, East Sussex,
and The Wash \citep{MorganHorne}.
64\,TWh/y is 7.3\,GW, or
3\,kWh/d per person.

One of their favoured barrages
encloses 157\,km² off Blackpool.
The 32\,km of barrage would cost
\pounds 850\,million. Total cost
\pounds 2.5\,billion.
A two-basin scheme with two 130\,km² basins sharing a single set of
turbines would cost 2.4\,billion.

An entirely offshore lagoon for North
Norfolk enclosing 250\,km²
was costed at \pounds 3.2\,billion
and would produce about 2.5\,TWh/y
of energy at a cost of about
10p per kWh.
A similar offshore lagoon
at Manquiers would cost 2.6 billion
and deliver about 4\,TWh/y at a cost of about 5p per kWh.

--

David J.C. MacKay FRS To contact me, see tinyurl.com/DJCM2009

Department of Engineering Chief Scientific Advisor,
Trumpington Street, Department of Energy and Climate Change,
Cambridge CB2 1PZ, UK 3 Whitehall Place, London SW1A 2AW

Book: "Sustainable Energy - without the hot air" - withouthotair.com

----- End Forwarded Message -----