OpenHydro

Green Economy Conference | May 2009

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Agenda

1. Tidal Energy
2. Open-Centre Turbine
3. EMEC
    - Research Structure
    - Subsea Installation
4. OpenHydro
5. Commercial Developments
6. Financials

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Tidal Energy

Why Tidal

	Predictability	Energy Density	Visual / Noise Impact
Tidal	✓	✓	✓
Wave	✗	✓	✗
Wind	✗	✗	✗
Bio Fuels	✓	✗	✗
Solar	✗	✗	✗

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Tidal Energy

Global Resource

- An industry estimated to be worth €128bn over the next decade.

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Open-Centre Turbine

Open-Centre Turbine

- The key to the Open-Centre Turbine lies in the simplicity of the design.
- If a turbine is to survive in the marine environment it is essential that it be both simple and robust.
- Technology under development since early 1990's.

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Open-Centre Turbine

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EMEC

European Marine Energy Centre (EMEC)

- Created by the UK & EU to support the Tidal & Wave industry; accredited marine laboratory.
- Global reputation as the centre for marine renewables.
- No ‘soft option’ with some of Europe's strongest tides (8.5 knots) and extreme weather climate (60° N).
- Only tidal developer to have installed a device.

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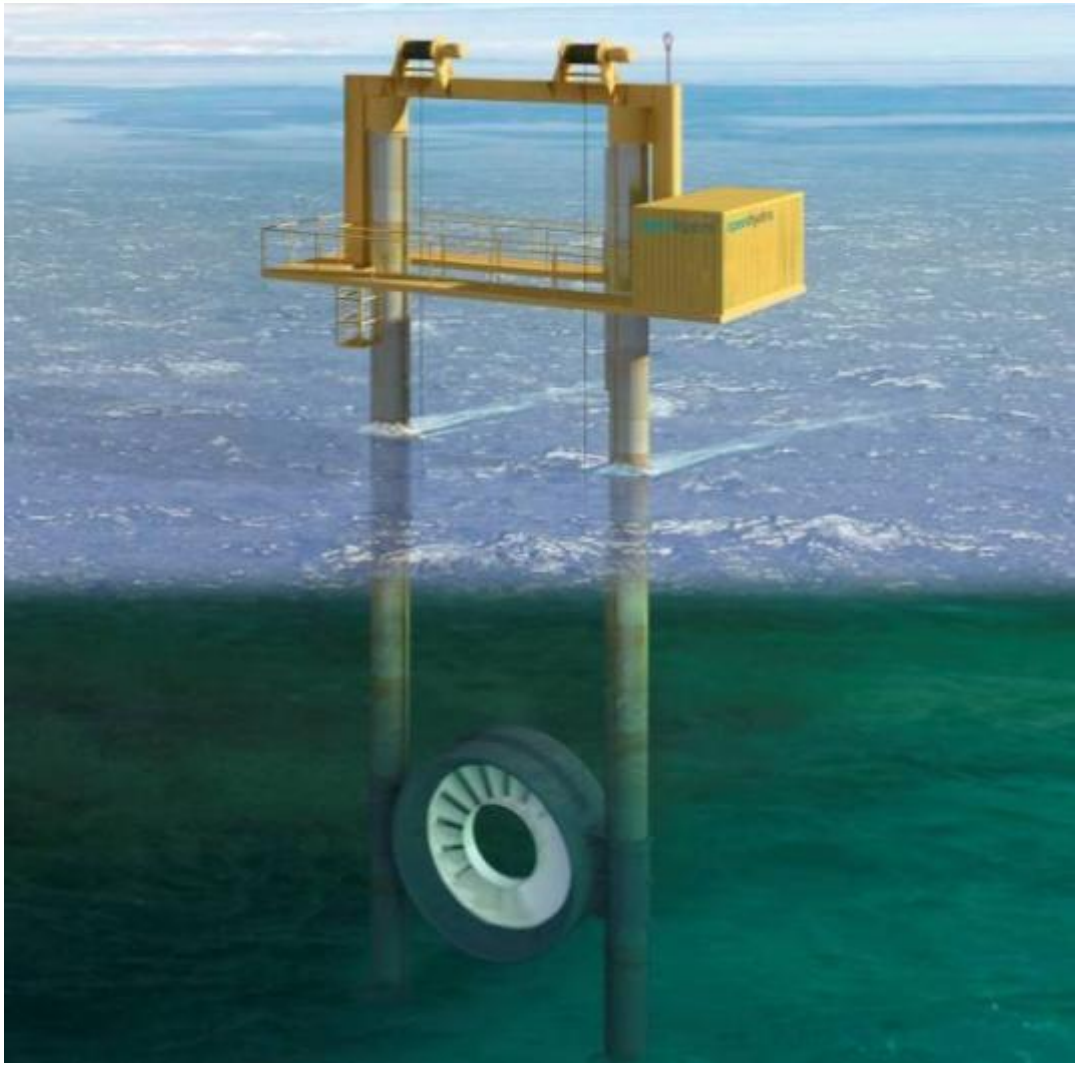
EMEC Research Structure

Tidal Turbine Research Structure

- Research & Development (R&D) structure for testing the Open-Centre Turbine.
- Ability to raise and lower turbines for inspection.
- Ability to exchange turbines to test latest developments.



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EMEC Research Structure

Installation Works (2006)

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EMEC Research Structure

Grid Connection

- 500m of subsea cable was recovered and relayed to OpenHydro's platform to complete the 11kV grid connection.

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EMEC Research Structure

Grid Operation

- First company to connect and generate onto UK national grid (May 2008).

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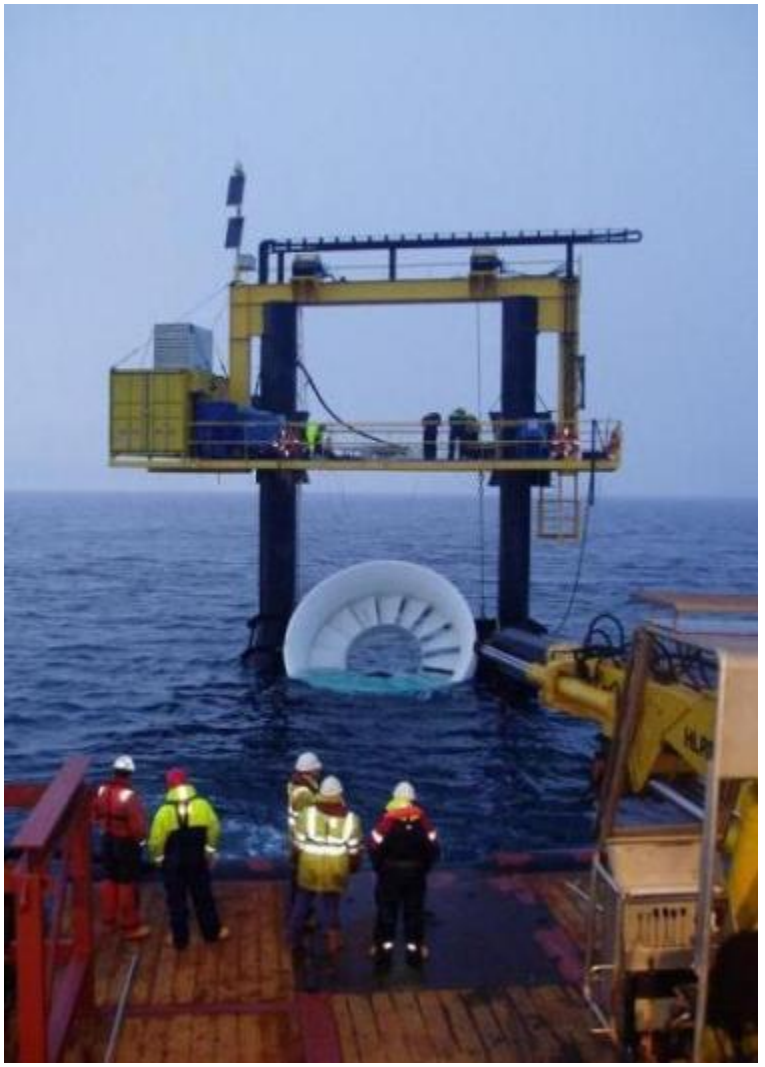
EMEC Research Structure

Turbine Exchange

- As part of OpenHydro's Technology Roadmap the turbine at EMEC has been successfully upgraded to test latest developments.



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EMEC Research Structure

Lessons Learnt

- The installation at EMEC provides OpenHydro with an invaluable test structure for the development of the Open-Centre Turbine.
- OpenHydro's team have unique knowledge and experience of operating in strong tidal sites and with grid connection.
- Long term the business see the future being turbines deployed directly on the seabed.

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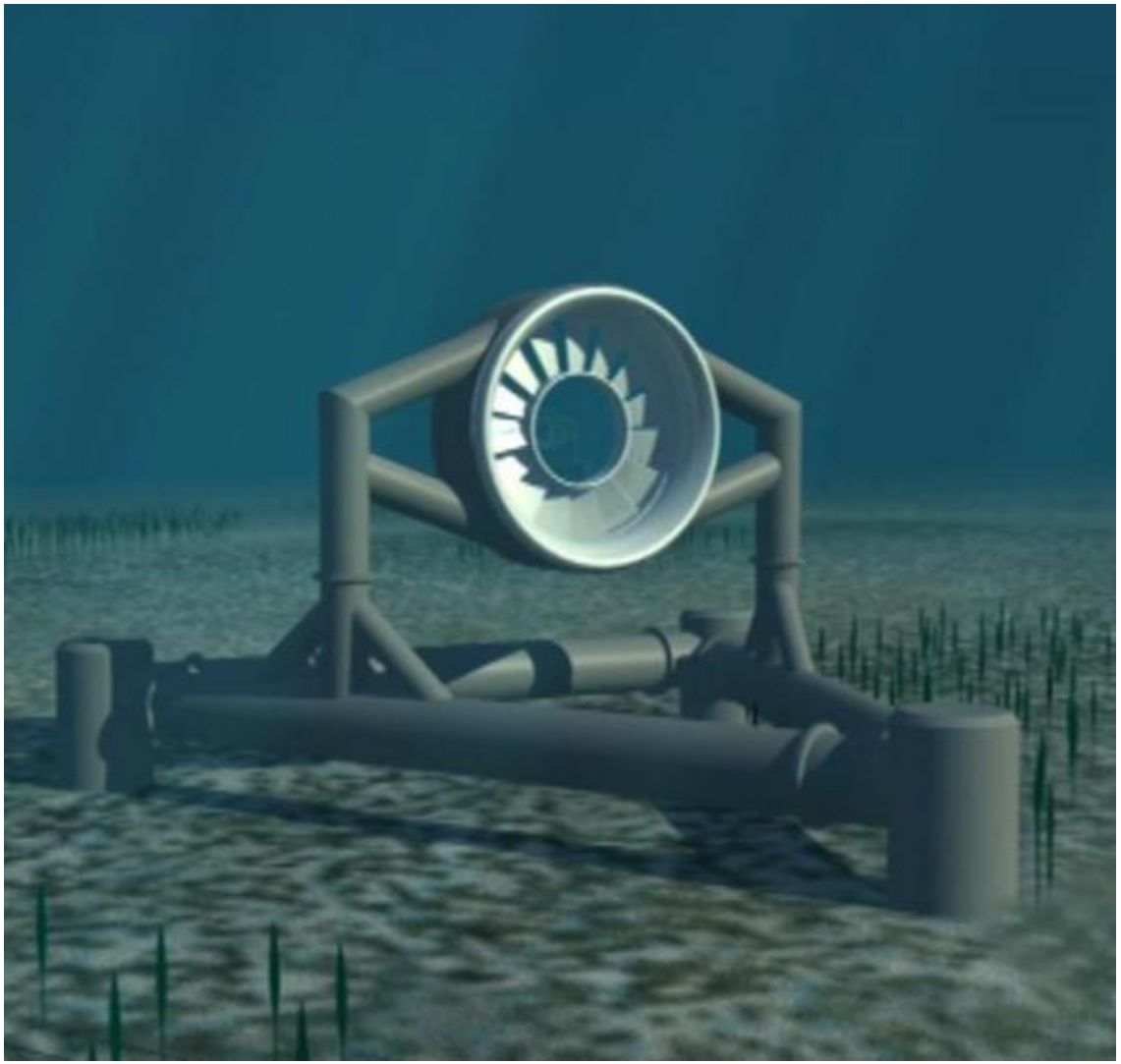
EMEC Subsea Installation

Subsea Deployment

- OpenHydro's vision is for turbines mounted on the seabed.

- During 2008, OpenHydro built and deployed its first subsea base at EMEC.



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EMEC Subsea Installation

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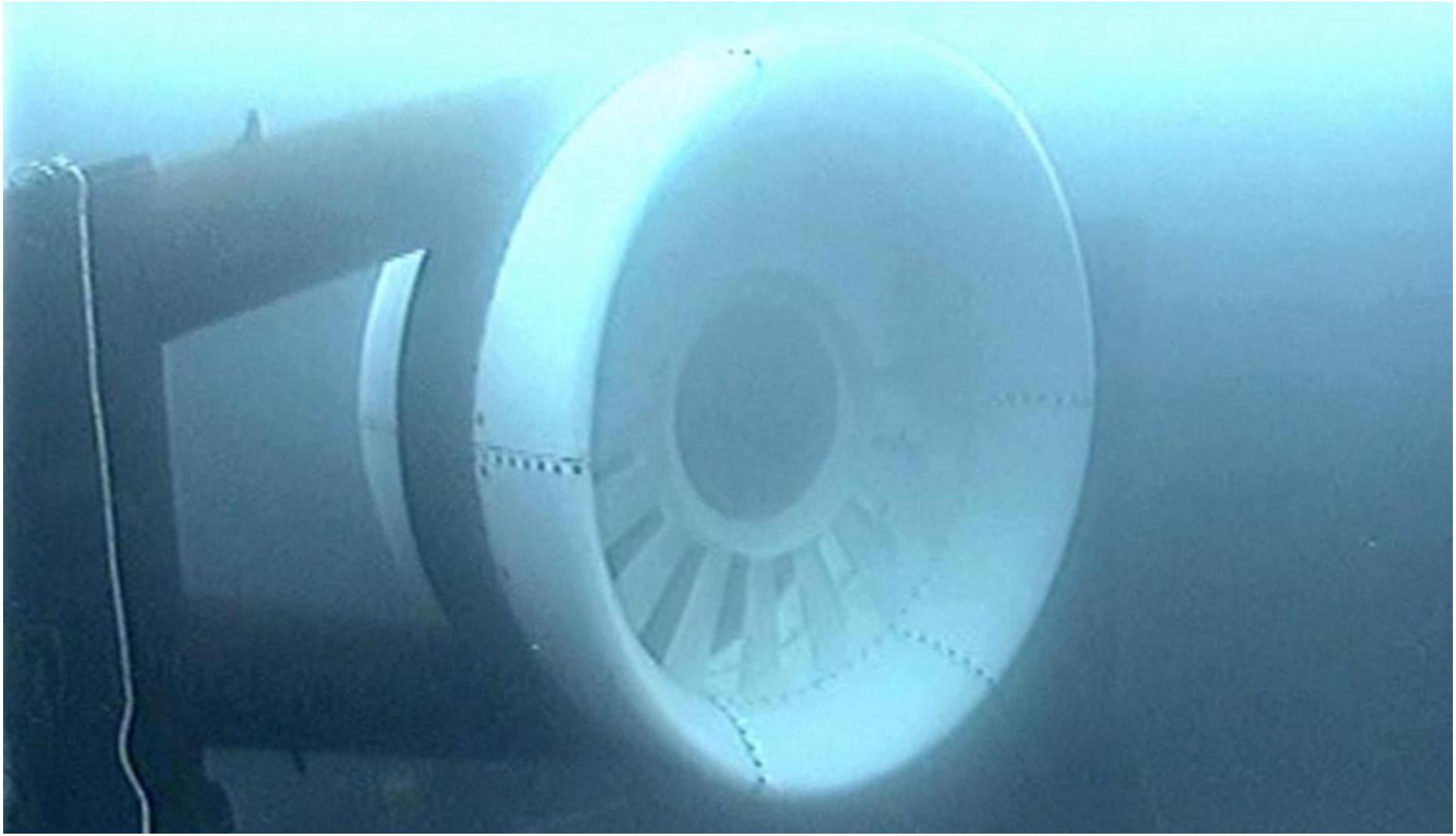
EMEC Subsea Installation



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EMEC Subsea Installation

Lessons Learnt

- Our experience has shown us that the appropriate equipment for installing tidal turbines does not exist in the general marine market.
- This new deployment method turns a difficult and lengthy project of many months into a quick and cost-efficient single day operation.
- A cost effective deployment method is essential for developing commercial farms.

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OpenHydro

Company Background

- OpenHydro was formed in 2004 following the acquisition of the world technology rights to the Open-Centre Turbine.
- The company employs 38 staff across two facilities (Dublin & Greenore).
- In the process of recruiting additional staff to support delivery of OpenHydro's Technology Roadmap and Site Development pipeline.

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Group Structure

- OpenHydro Group Ltd is organised into two principal operating groups:

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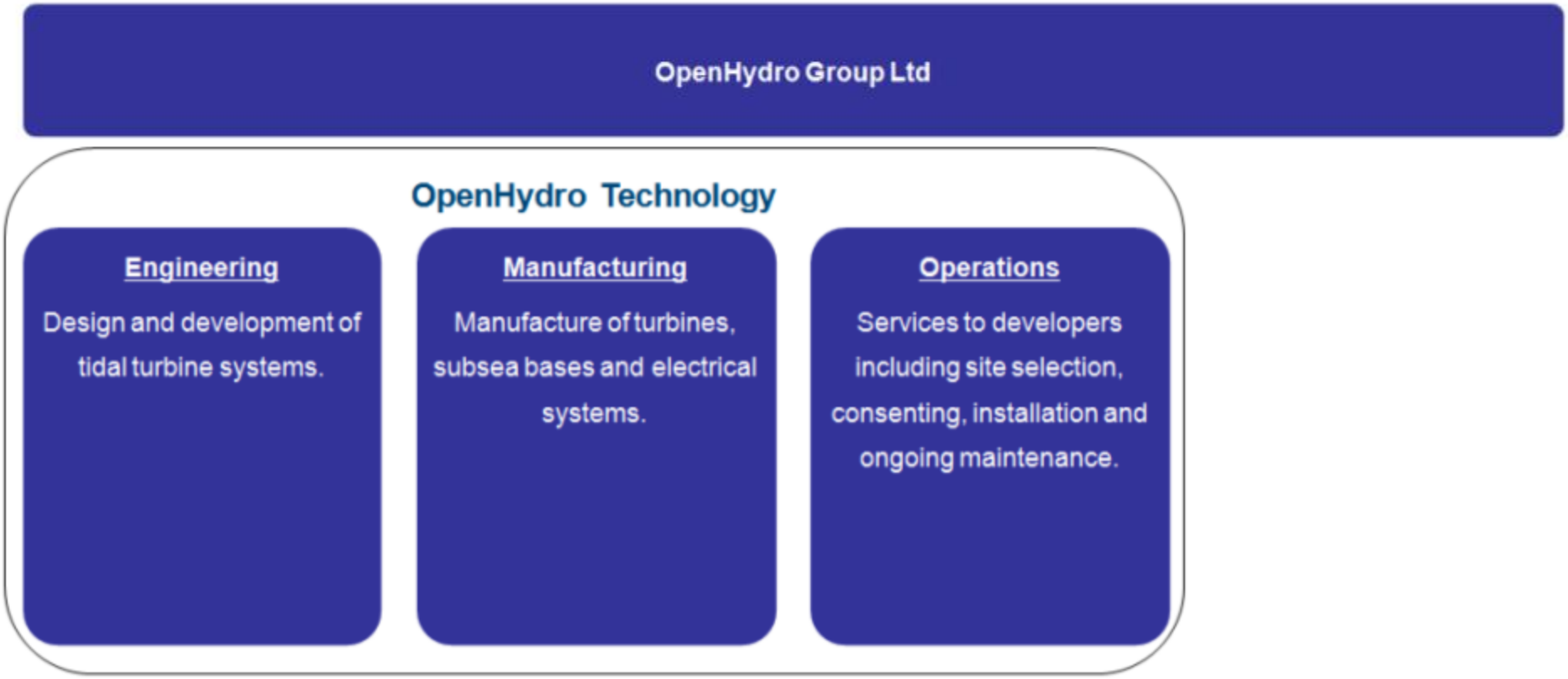

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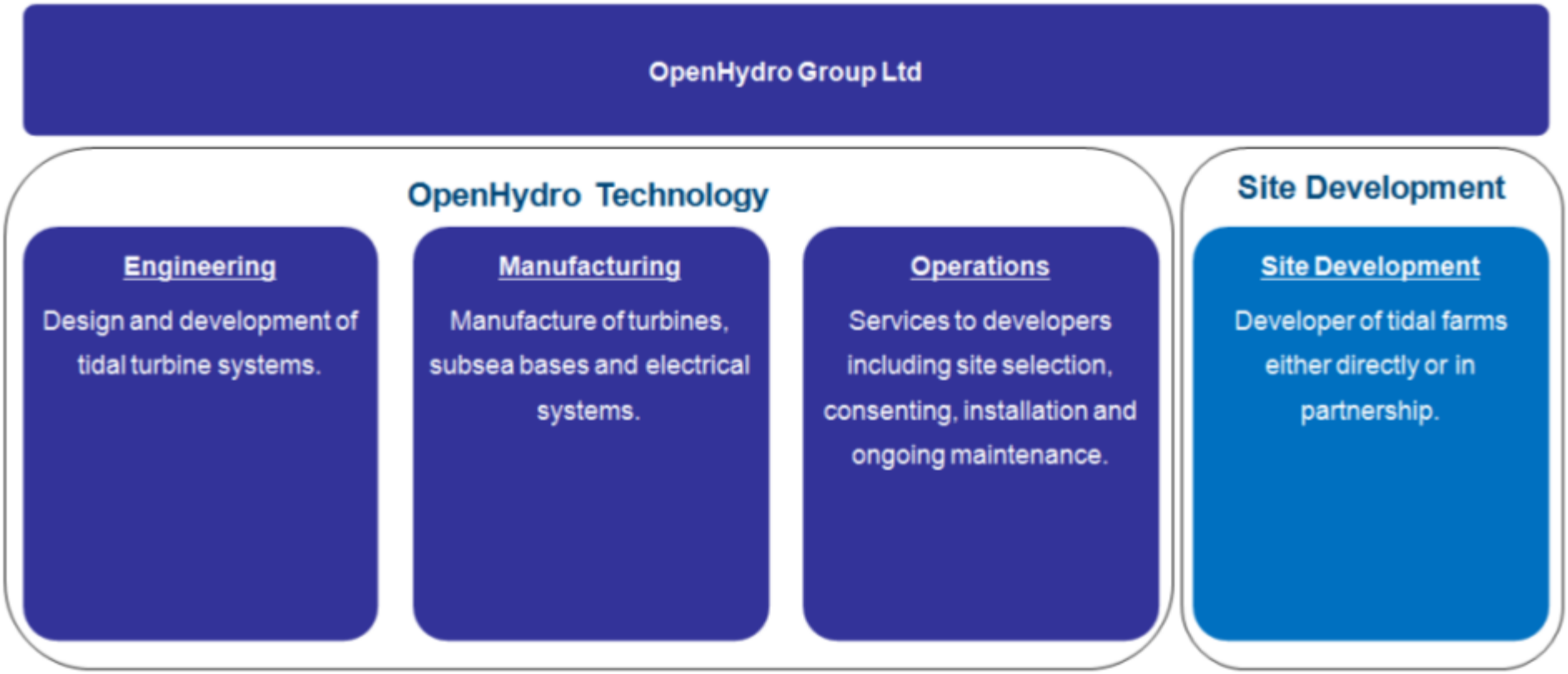

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OpenHydro

Greenore Technical Centre

- Dedicated R&D technology centre; capacity to manufacturing 6m, 10m and 16m turbines.

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OpenHydro

World Class Team

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open your horizons

In May 2008 OpenHydro became the first tidal energy company to complete the connection of a tidal turbine to the UK national grid and begin generating energy.

OpenHydro is an Irish technology business that designs and manufactures marine turbines to generate renewable energy from tidal streams. The company's vision is to deploy farms of tidal turbines under the world's oceans – silently and invisibly generating electricity at no cost to the environment.

We are continually expanding our organisation and are looking for:

Greenore Technical Centre,
Co. Louth, Ireland

- **Engineering Manager**
- **Operations Engineers**
- **Procurement Engineer**
- **Mechanical/Design Engineers**

Dublin Office,
Dublin City Centre, Ireland

- **Commercial Manager**
- **Project Managers**
- **Business Analyst**

For the full job specifications please visit **www.openhydro.com/careers**




silent, invisible, predictable, renewable energy

Please send your CV to Adam Coleman, HR Manager **adam.coleman@openhydro.com**

OpenHydro Group Ltd is an equal opportunities employer

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T +353 (0) 1 703 7305 F +353 (0) 1 703 7353 **E** careers@openhydro.com
www.openhydro.com

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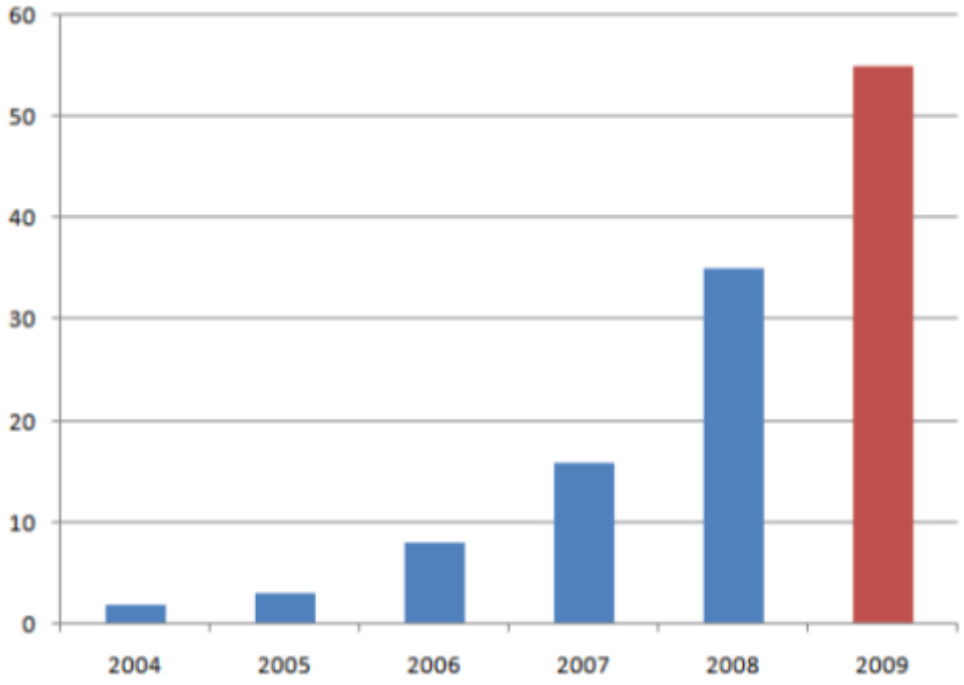
Recruitment

- Plan to grow workforce by 20 additional staff during 2009.



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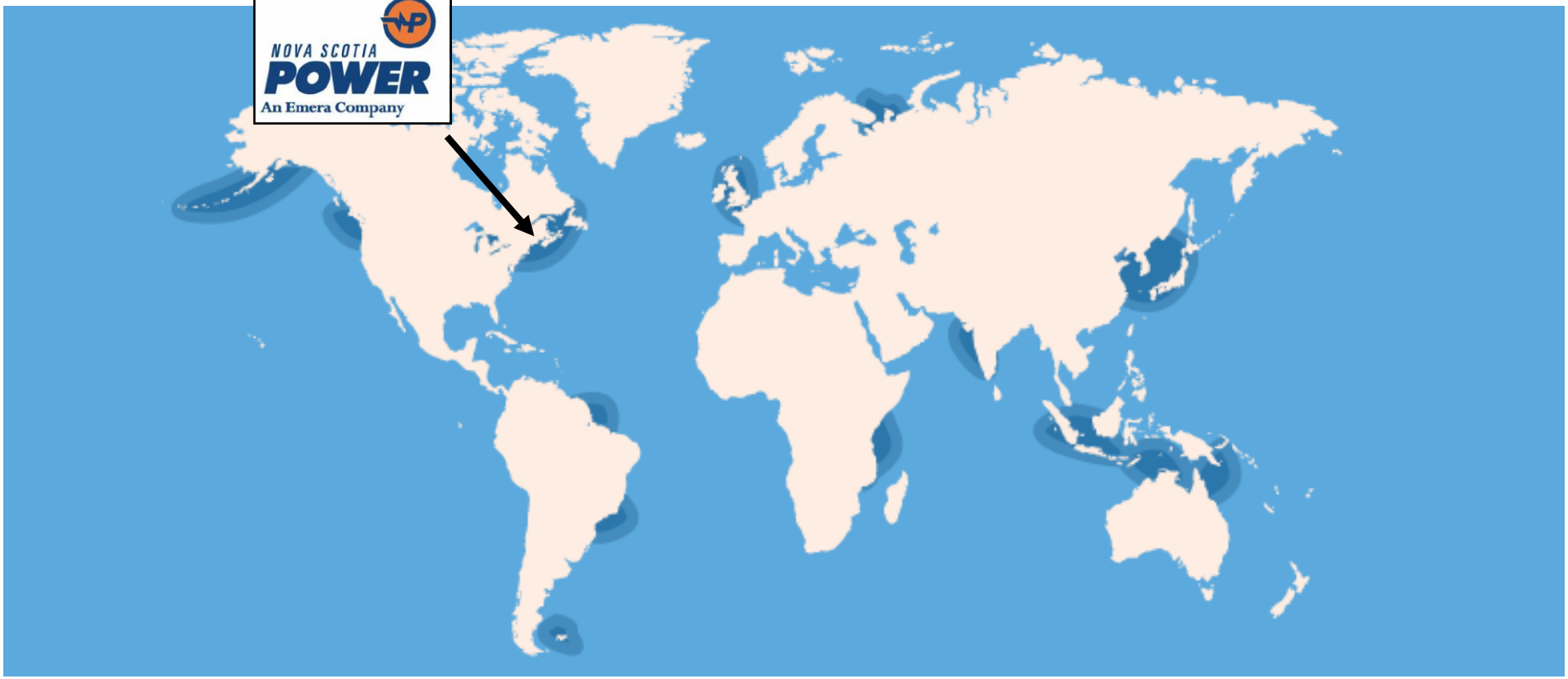
Commercial Developments

Nova Scotia Power Inc (NSPI)



- Install 1 MW in Bay of Fundy (October 2009); plans to scale up to utility scale farm.

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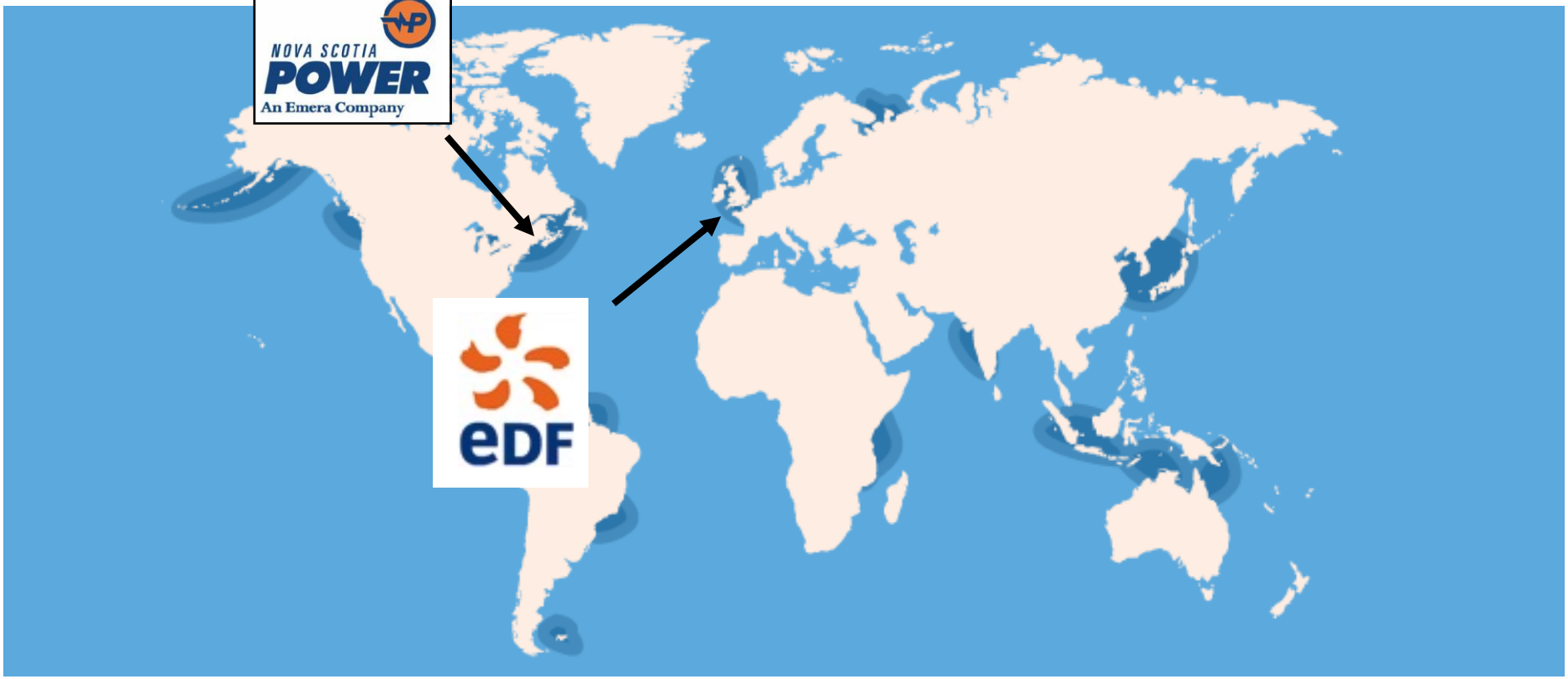
Commercial Developments

Electricite De France (EDF)



- Installation of array of large Open-Centre Turbines for EDF in Brittany site (2011).

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Commercial Developments

Alderney Renewable Energy (ARE)

- OpenHydro holds 20% investment in ARE; site with potential to develop 3GW.

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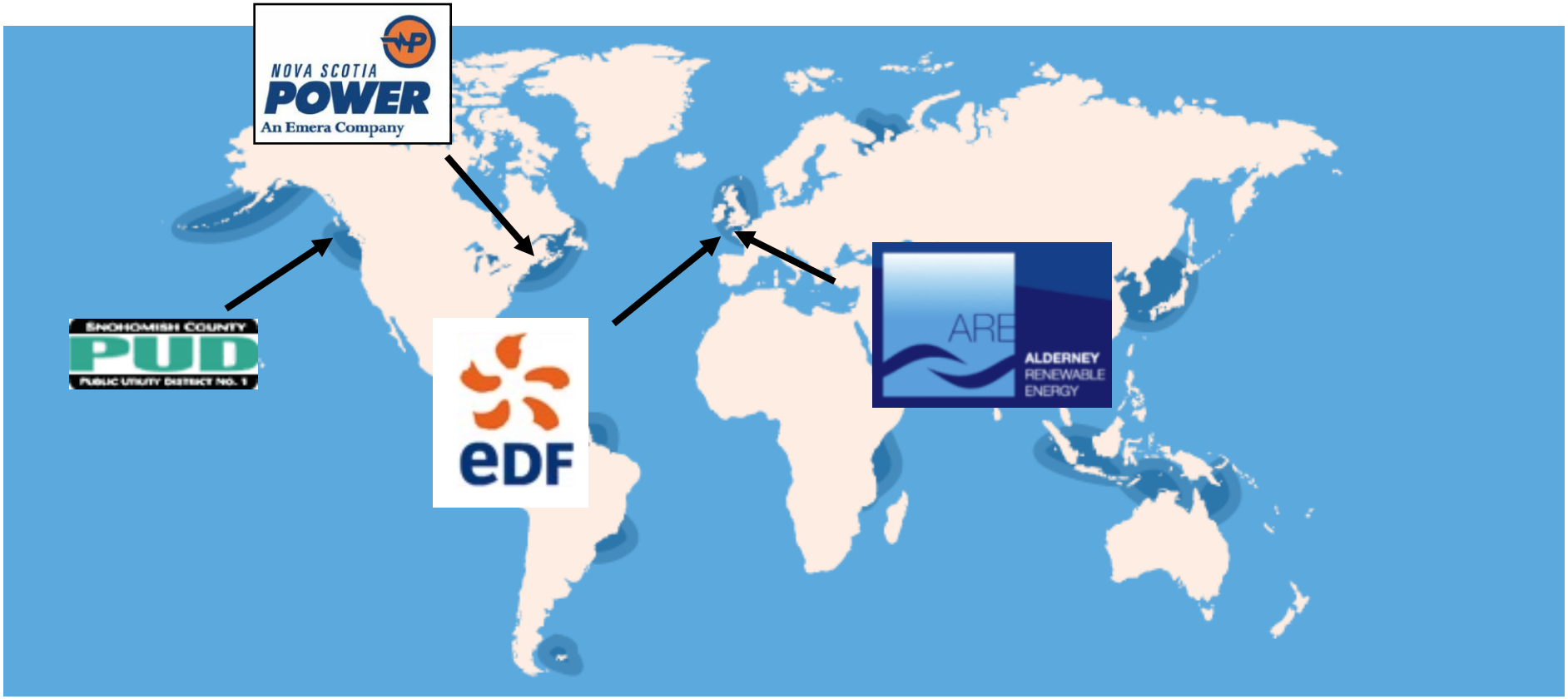
Commercial Developments

SnoPUD



- OpenHydro selected by SnoPUD for showcase tidal project in the US.

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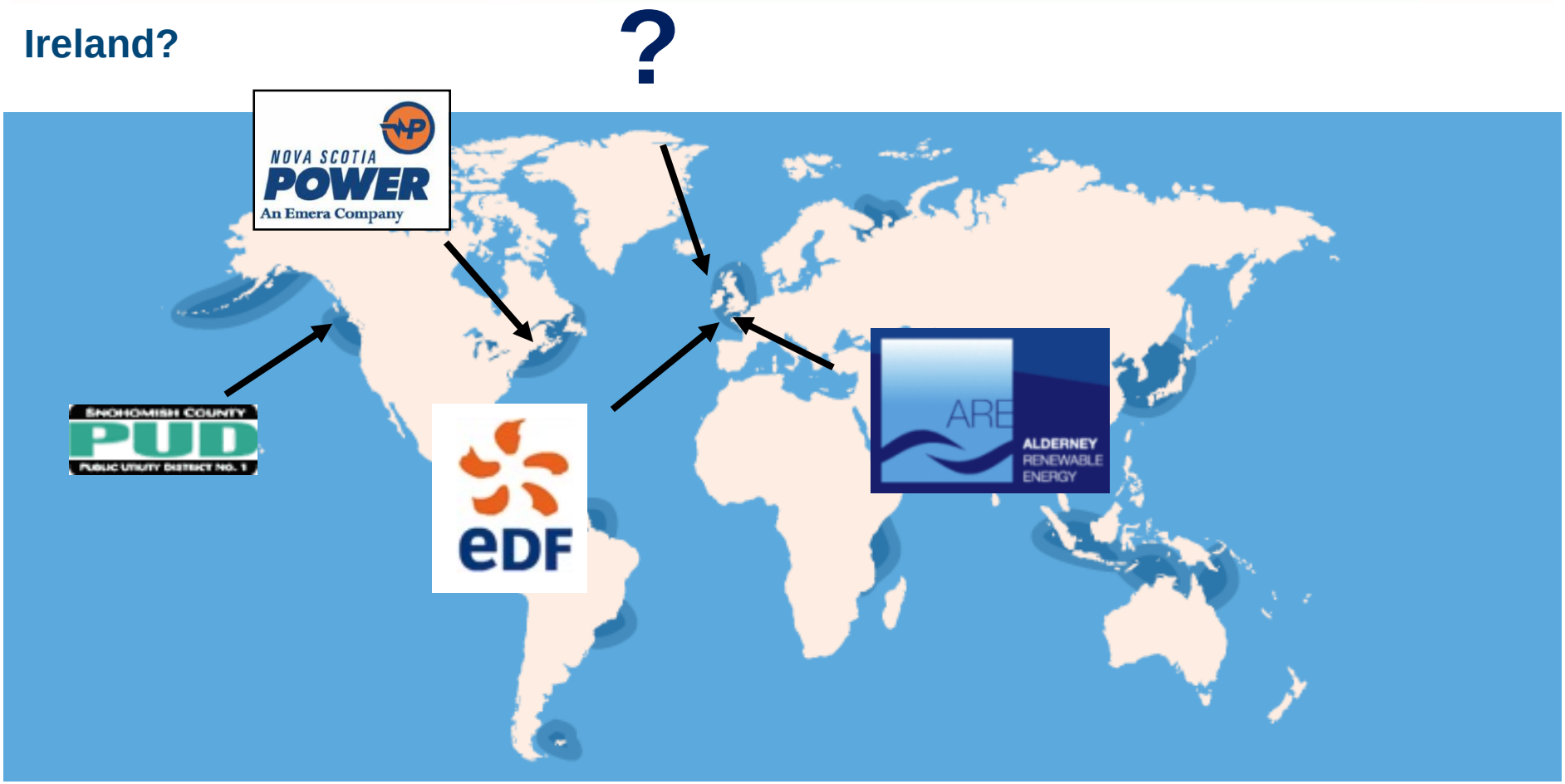
Commercial Developments

Ireland?



- Ireland has significant tidal resource; potential to provide 10% of energy.

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Financials

Funding

- Raised €52m since 2004.
- Key investors include:
  - Founding shareholders.
  - One51.
  - Emera (leading Canadian energy company).
- Plan to raise additional finance in 2009/2010.

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Financials

Economics

- OpenHydro will initially produce energy at offshore wind levels.
- Energy produced is predictable.
- Cost / kWh fixed for life of tidal farm.

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Thank You

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