

Institution of Mechanical Engineers



# INVESTING IN ALTERNATIVE ENERGY INVESTMENT CASE STUDY

Friday 1<sup>st</sup> February 2008

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## Investing in Alternative Energy

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- LIFE
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- Pulse Tidal
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  - Technology
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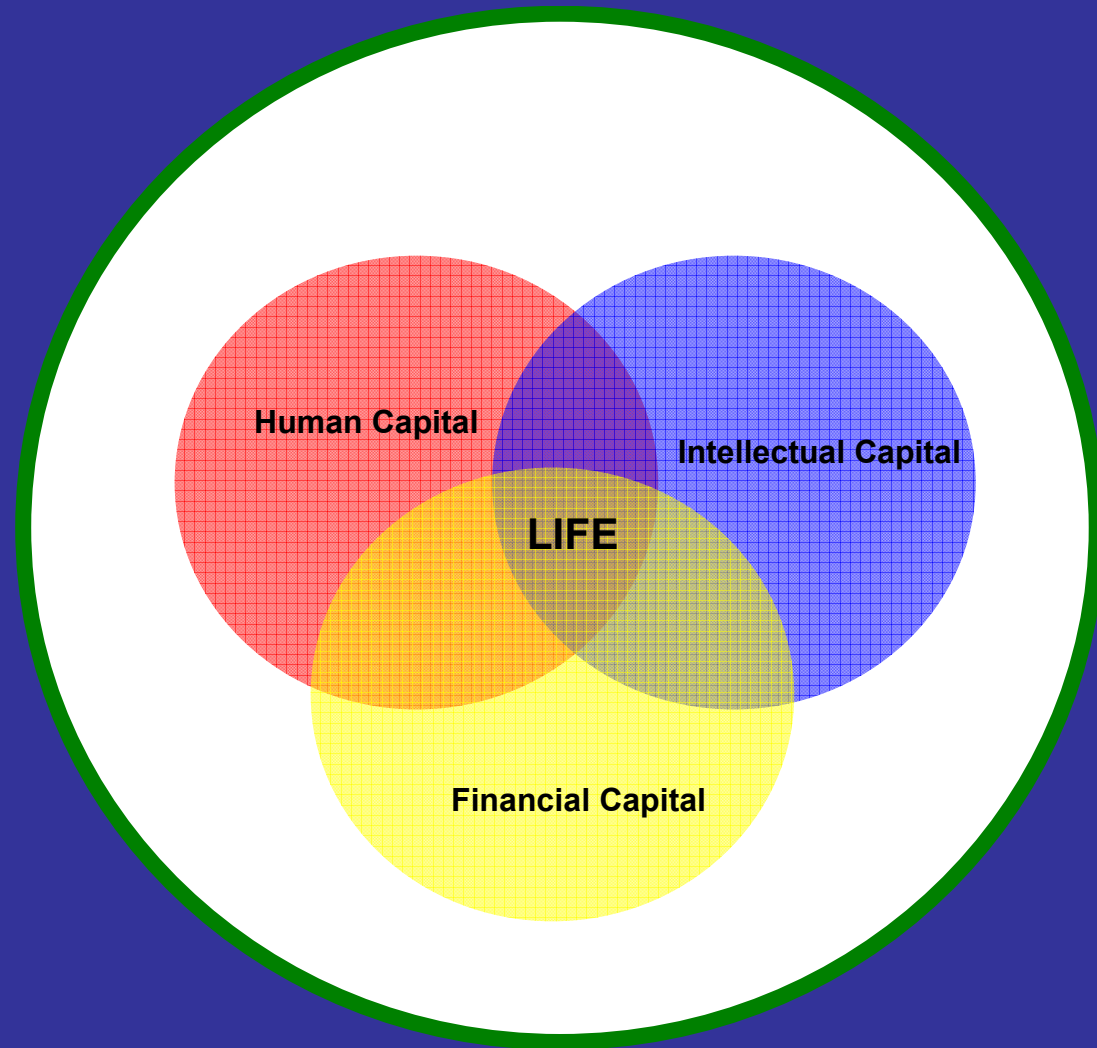
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# LIFE - Positioning

*LIFE is uniquely positioned in the Clean Energy sector.*

*LIFE's competitors include other technology incubators, accelerators and developers. However, nobody has LIFE's razor-sharp focus and track record*



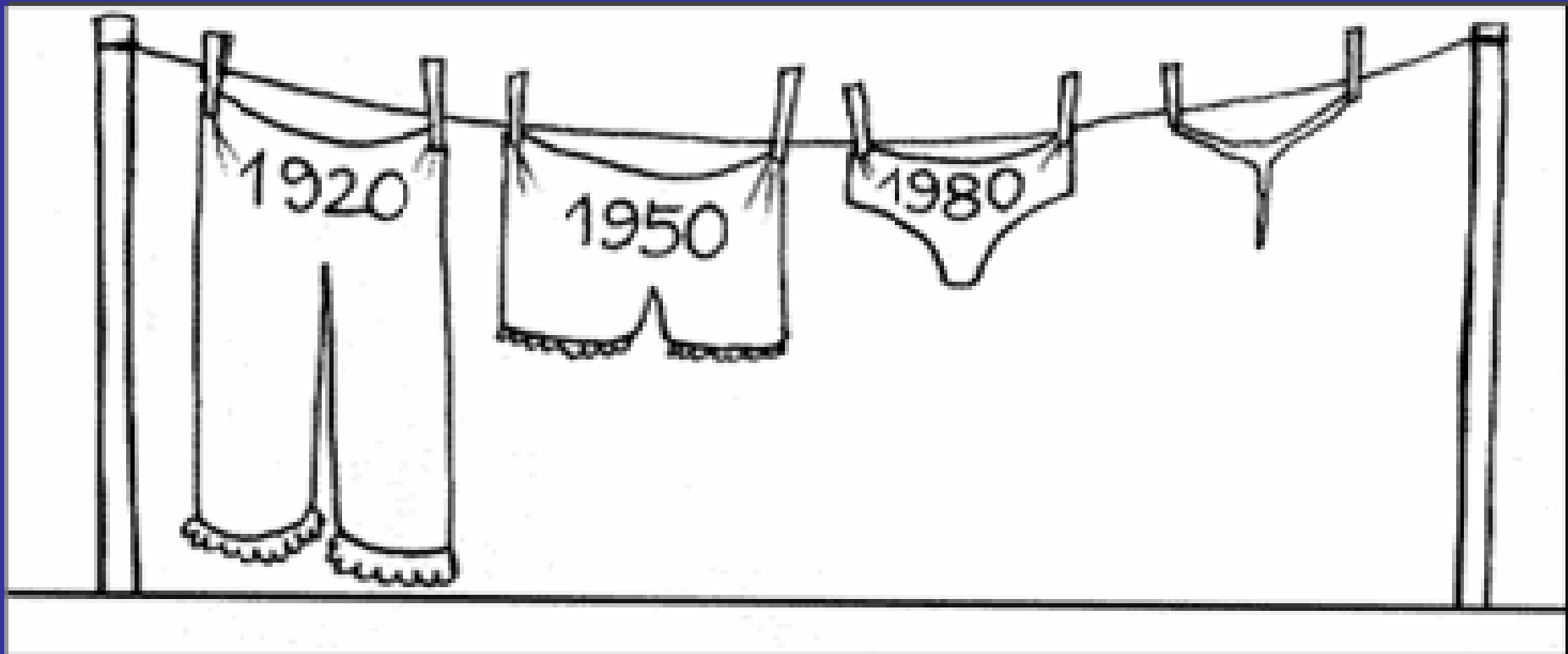
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# LIFE - Positioning

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## Climate Change / Global Warming



The Evidence!



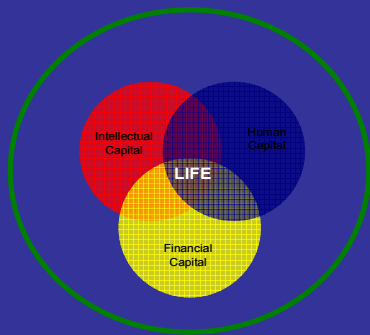
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# LIFE - Positioning

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*The LIFE portfolio covers a spread of technologies – all early stage, and all with significant economic potential.*



- Only do low carbon technology - clean energy
- Only do early-stage
- We take very early-stage businesses and build value
  - LIFE's processes & networks deliver cost effective services to low carbon technology companies
  - LIFE takes a minority stake in its companies as it helps them grow and move towards an eventual exit
  - LIFE realises / releases value through actively managing its investment portfolio



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# LIFE - Persuasion

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*LIFE takes diverse revenue streams and turns them into early-stage clean energy investments.*

*Varied income streams feed investment.*

- LIFE charges
  - Acceleration fees at cost, based on services delivered
  - Capital raising commissions; based on standard fee
  - Delta valuation fee, difference in the value of the business
- Where / when appropriate LIFE invests
  - Seed
  - Subsequent rounds
- LIFE currently has two foundation partners:



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# LIFE - Persuasion

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*LIFE provides a world-class product/service offering to companies on a no-win-no-fee basis.*

*Companies find it difficult to say no to LIFE*

- Human Capital e.g.
  - “LIFE Line” Supplier network with preferential rates
  - “LIFE Talent” Quality pool of executives
  - “LIFE Guard” Professional mentor network
- Intellectual Capital e.g.
  - Palpable clean energy sector experience
  - Hands-on business expertise, covering all functional business areas
- Financial Capital e.g.
  - “LIFE Monies” Seed and in subsequent rounds
  - “LIFE Cap” A capital network



# LIFE - Portfolio

Business	LIFEServices	Value
Solid Oxide Fuel Cell	Market research, business planning, management	H
Micro Hydro	Business planning, modeling, IP, strategy, PR, OD	L/M
Reformer technology	Market research, business plan	L/M
Superconductivity HT	Mentoring, market research, grants	H
Micro CHP	Management, tech transfer, supply chain, premises, grants	M/H
Building Product	OD, management, investment	M
Inert Electrodes	Business plan, market research, business model	M/H
Mini gasifier	Project development, market research	H
Mini CHP	Business Plan, IP, Market research	M
Hydrogen generator	Business plan, recruitment	H
Tidal stream generation	Management, project & business development, grants,	H
Carbon nano fibre	Positioning and technology strategy	H
Highly efficient electric motor	Market research, management	M
Nano heat engine	Proof of concept	M

**Value ratings** Greater than 100 million turnover per annum equals High 'H'  
 25 to 100 million equals Medium 'M'  
 Up to 25 million equals Low 'L'



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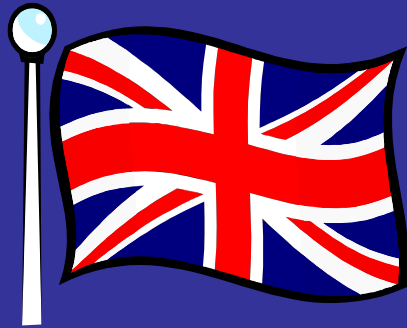
- LIFE
  - Positioning
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  - Portfolio
- **Pulse Tidal**
  - **Market**
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  - **Capability**



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# Pulse Tidal Market



Potentially >£1 billion  
annually in UK

>£10 billion  
worldwide



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# Pulse Tidal Market

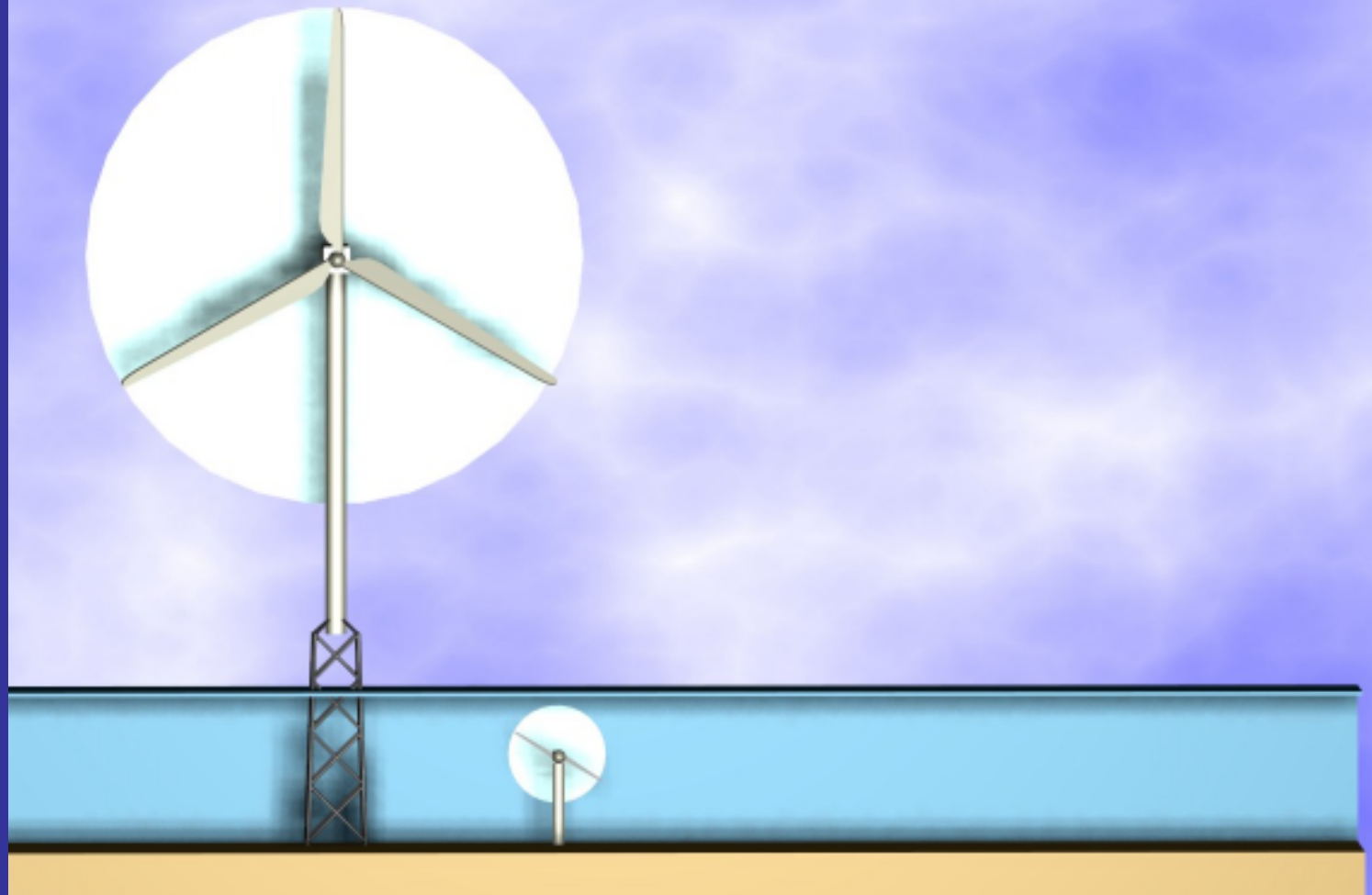
## HMG's Commitment ...

- Ambitious 20% target by 2020 in UK
- 40% target in Scotland
- Renewable currently only 3%
  - Wind cannot fill the gap
  - Need to develop marine energy
- Support mechanisms in place for marine
  - DBERR (DTI) Technology programme
  - Marine Deployment Fund
  - European Marine Energy Centre
  - Marine Energy Accelerator
  - Banded ROCs (Renewable Obligation Certificates)



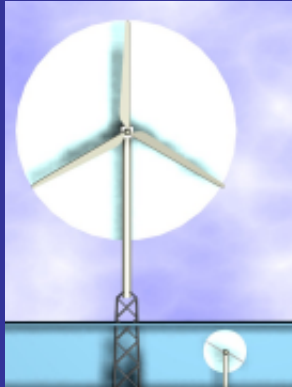
# Pulse Tidal Market - Why Tidal?

- Tides are energy dense



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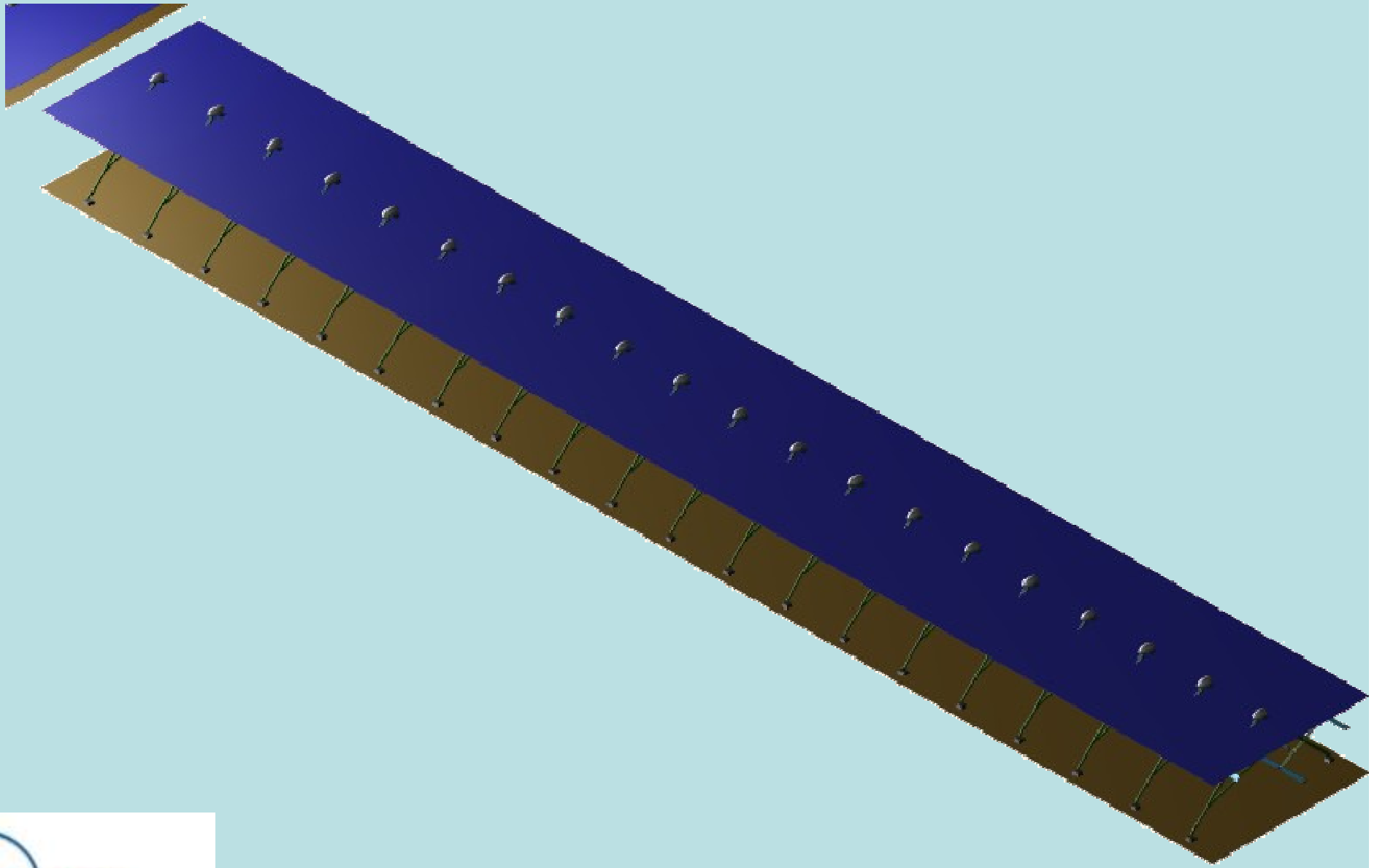


- Tides are bi-directional ...



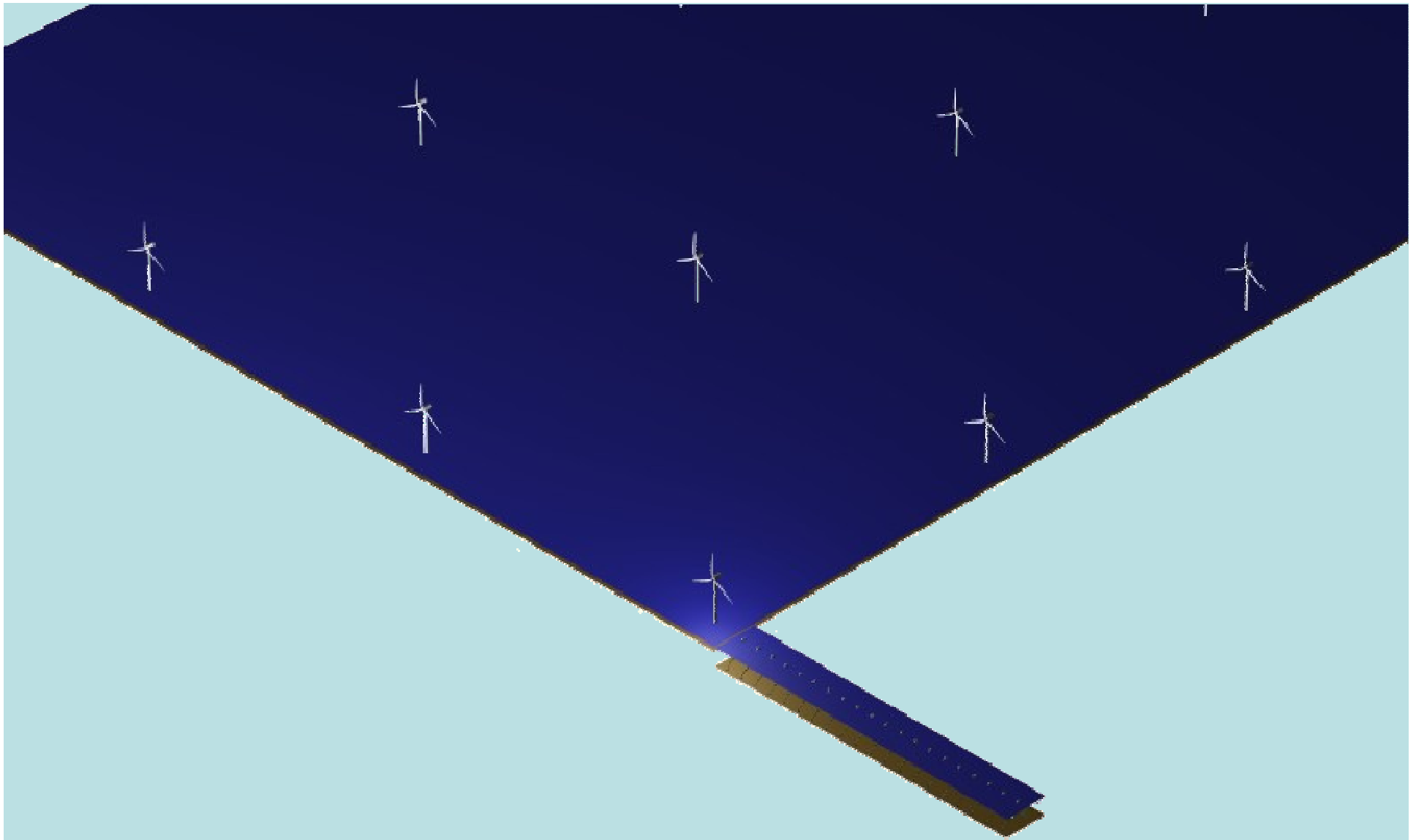
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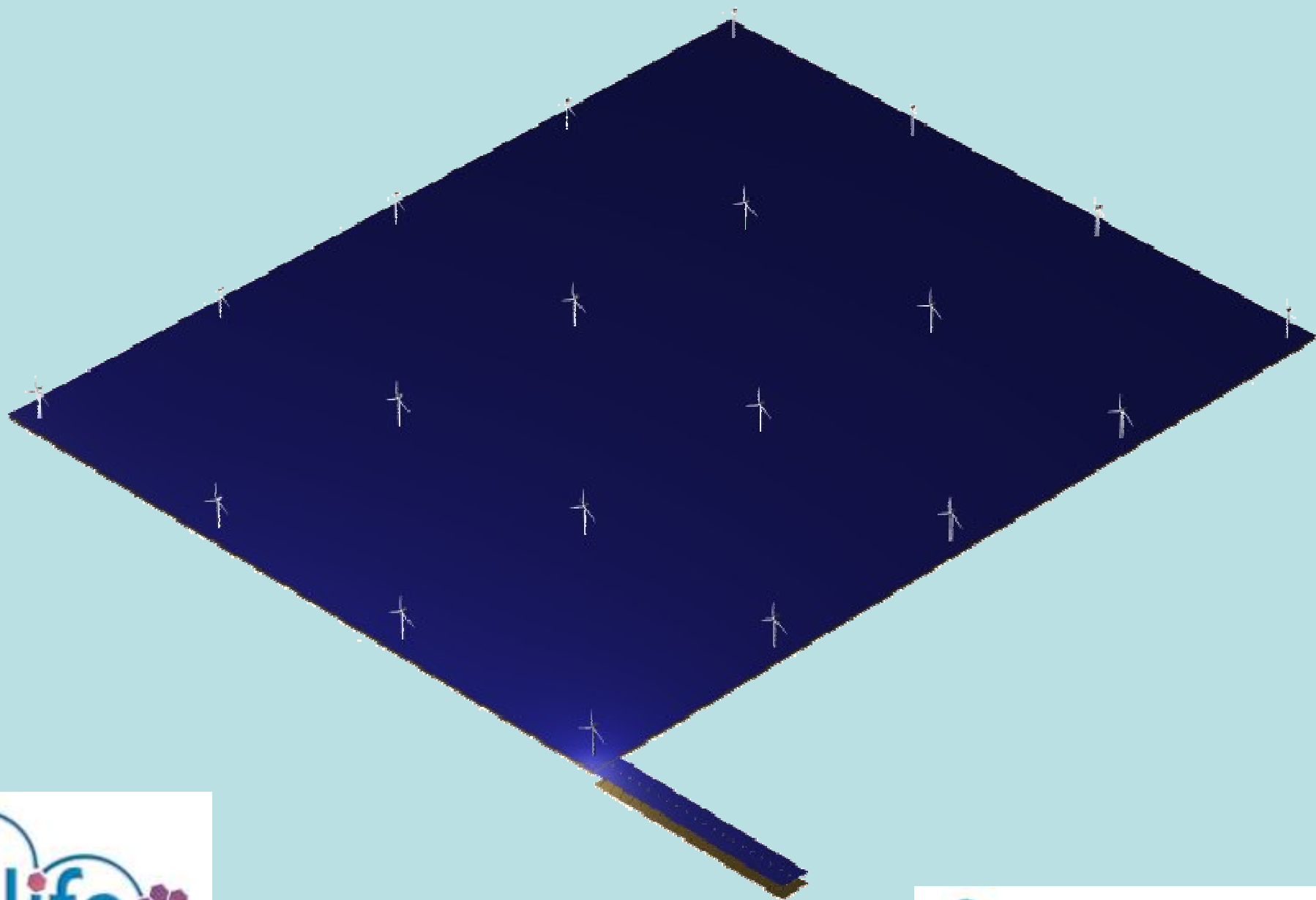
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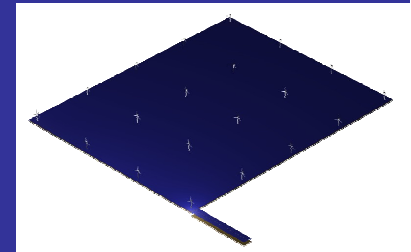


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# Pulse Tidal Market - Why Tidal?

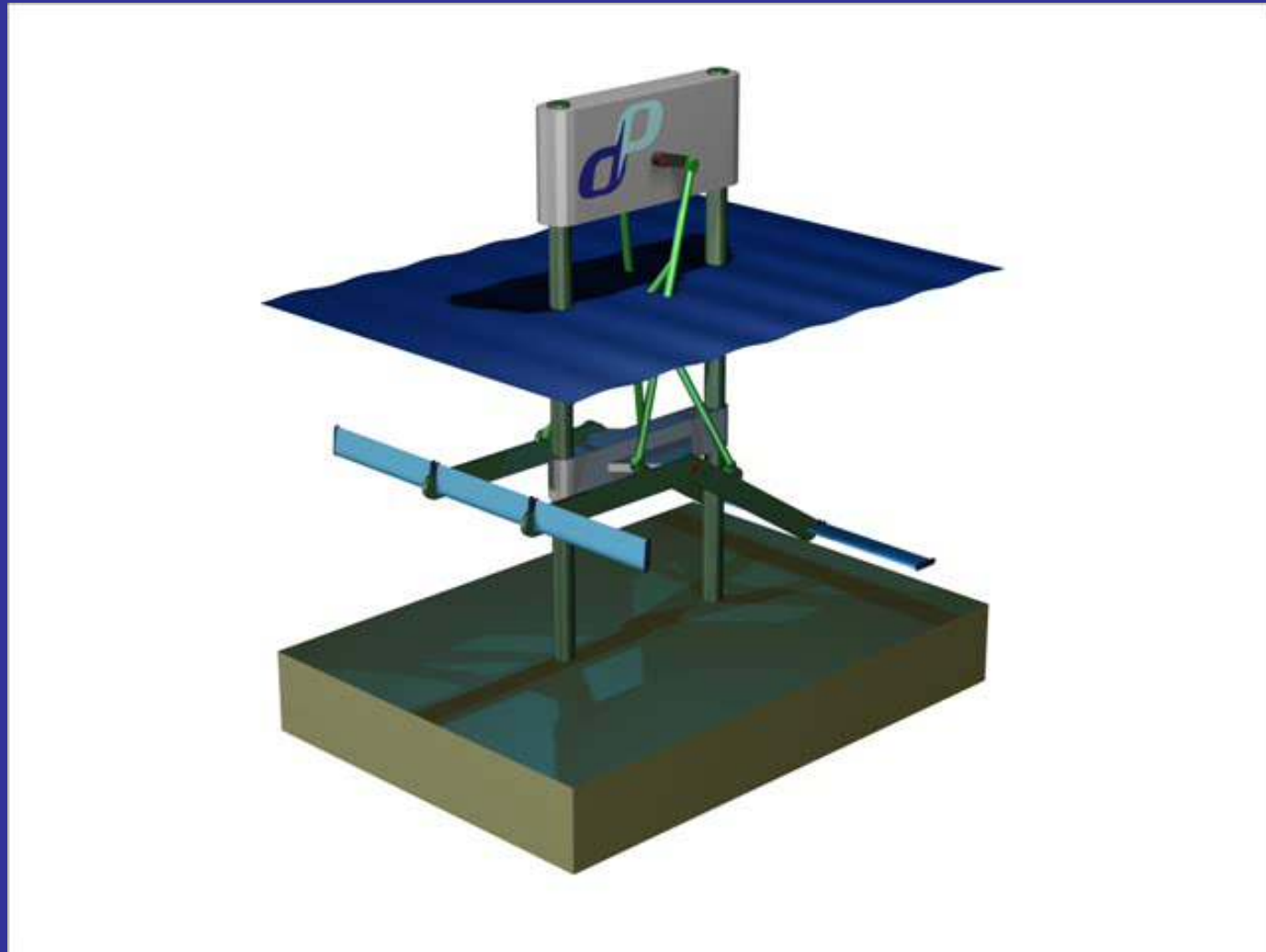
- Tides are energy dense
- Tides are bi-directional
- Tides are predictable
- A plentiful resource close to shore
- Lower cost than wave
- UK is leading the world



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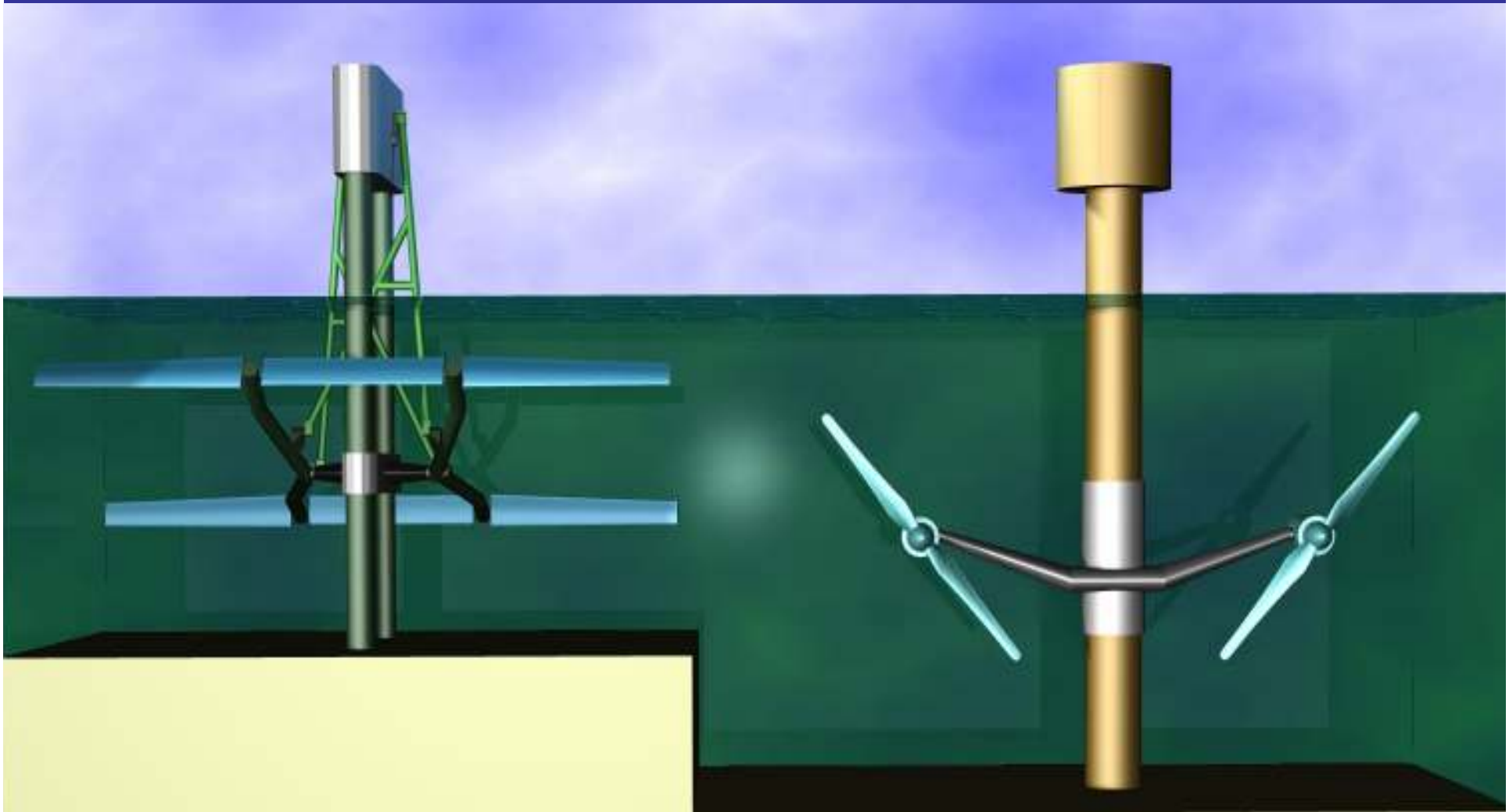


# Pulse Tidal – The Technology



# Pulse Tidal – The Technology

Unique shallow water capability means closer to shore lower cost installations



# Pulse Tidal Capability

Demonstration

Technical Partnerships

Finance

Timeline

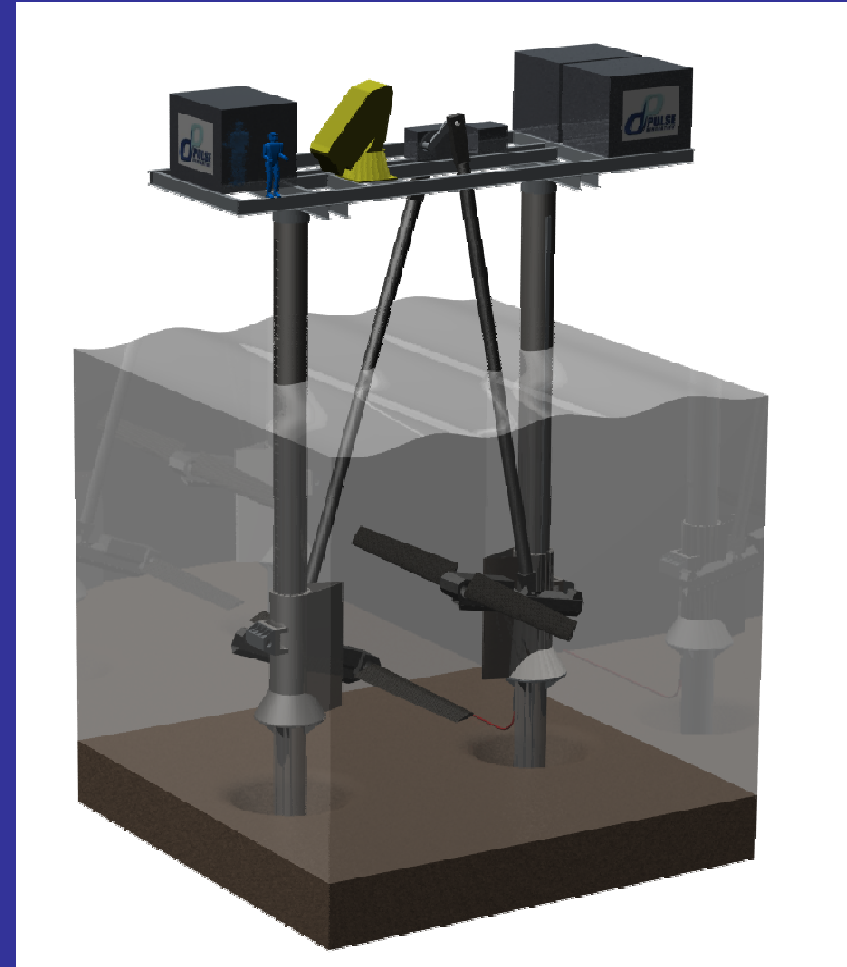


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# Pulse Tidal - Demonstration

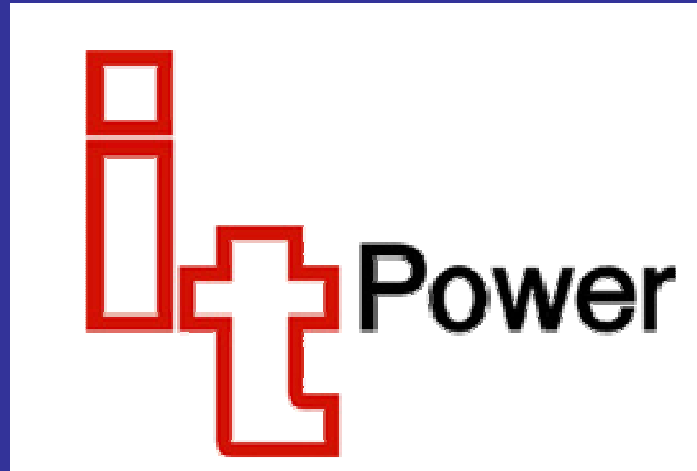
- £2 million project
- Patent protected
- Successful trials
- Deploy Q1/Q2 2008
- Estuary location
- Grid connected
- Collaborative project



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# Pulse Tidal - Technical Partnerships



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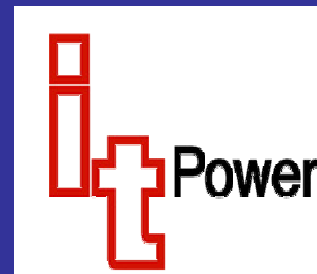


# Pulse Tidal - Finance

## Monies

- £1.1 Million in grants
- £1.1 Million in equity (cash and sweat)

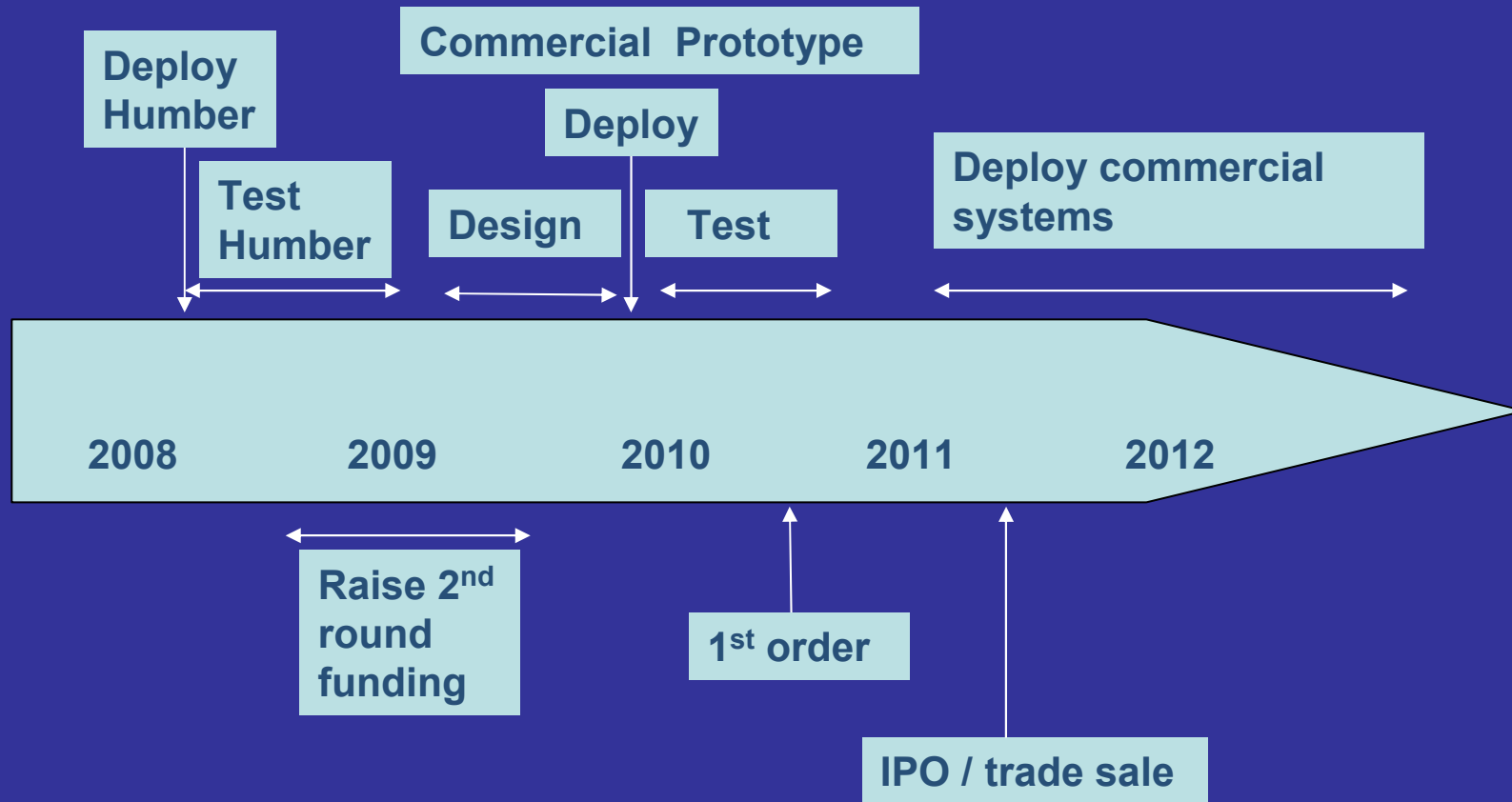
## Shareholders



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# Pulse Tidal - Timeline



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