



*Biologically Inspired Ocean  
Power Systems*

Alternative Energy For  
Coastal Cities

Town Hall House  
Sydney  
May 27 2009

# Ocean Power

- › Global resource
- › More consistent and predictable than wind
- › Low environmental impact – low (no) visual impact
- › Higher energy density compared to solar, wind
- › Higher capacity factor
- › Could be cheapest of all renewables
- › Equipment market of 1.1 Billion AUD p.a. by 2020, and 3 Billion by 2025 (MI, SEI, 2006)

## In-Stream Tidal Power

- over 5 TW
- ~10 companies
- \$700M pa. market potential (2020)

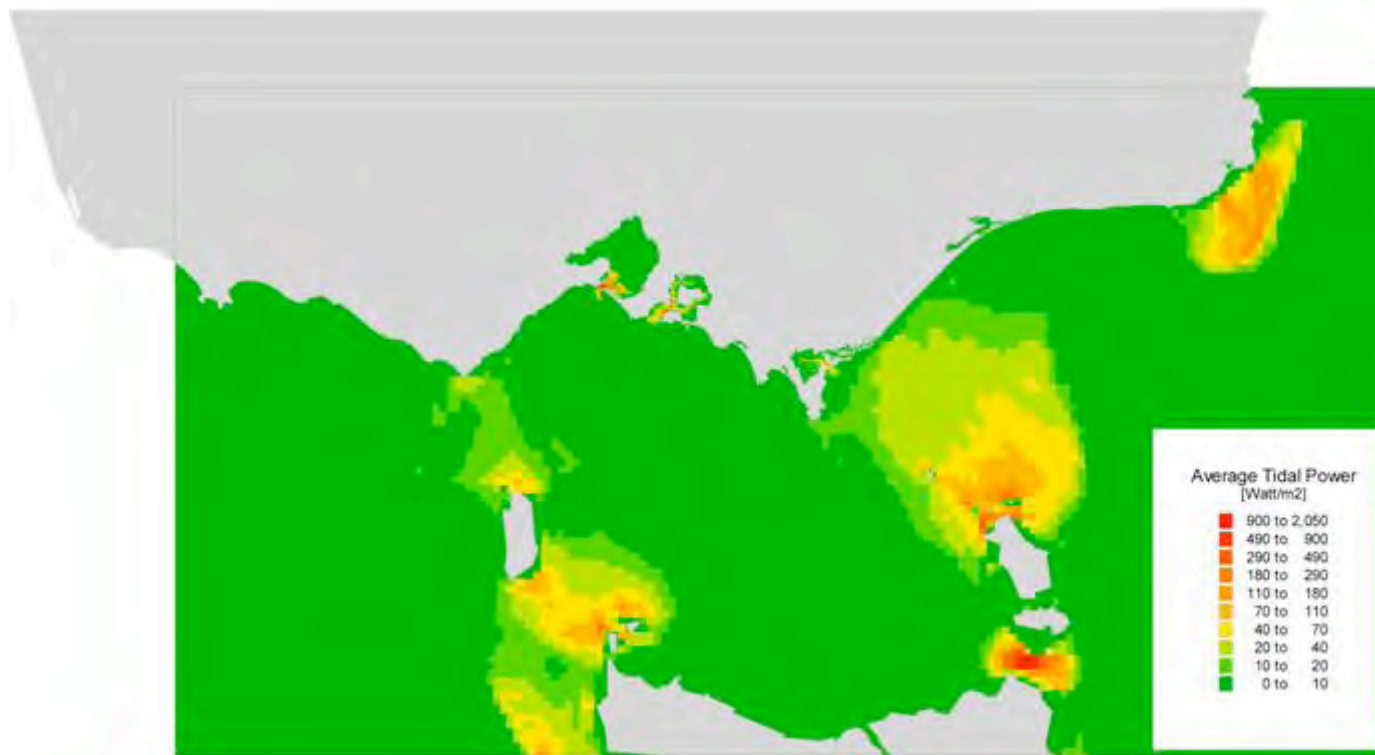
## Wave Power

- 1-10 TW, globally
- ~20 companies
- \$1 Billion pa. market potential (2020)

# Wave Energy Resource

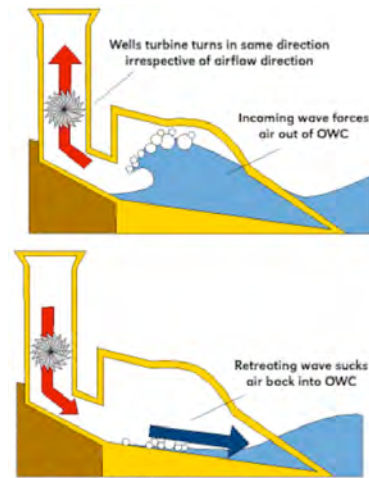


# *Tidal Energy Resource*

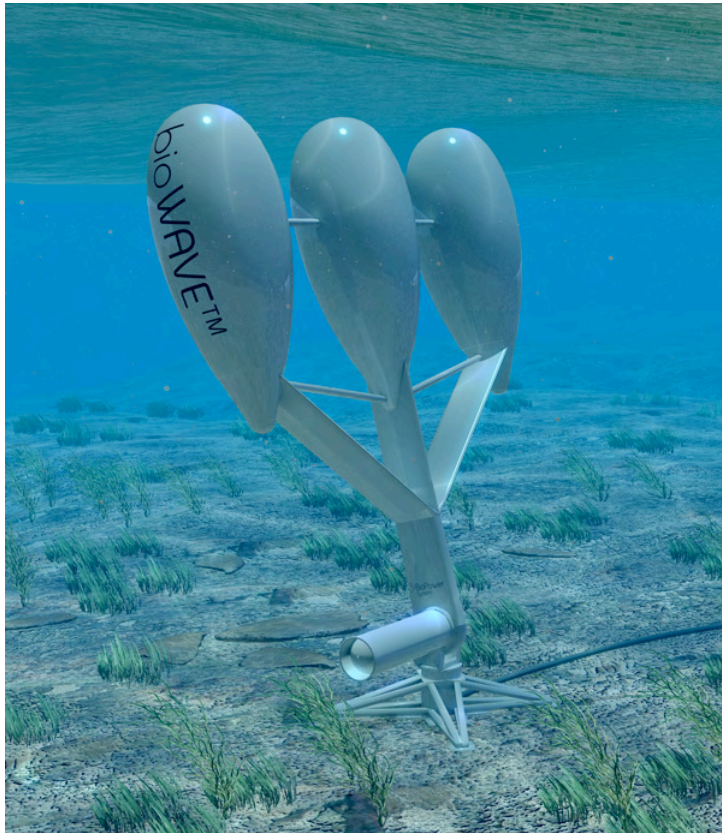




# Wave Energy Technology



# bioWAVE™



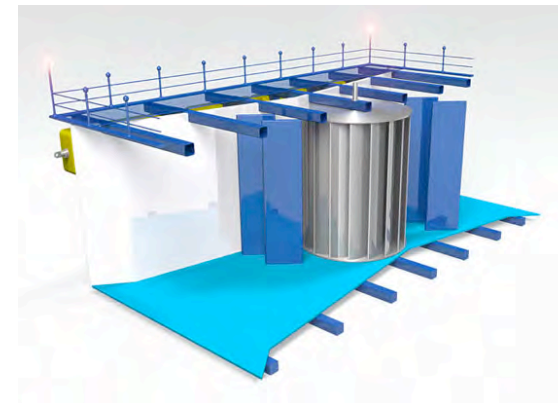
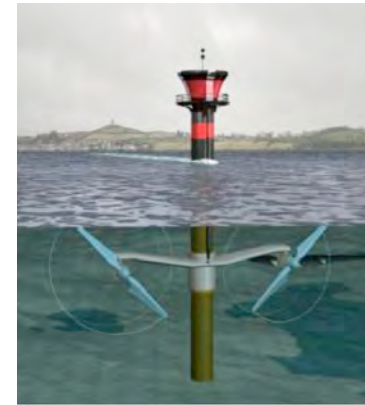


# bioWAVE

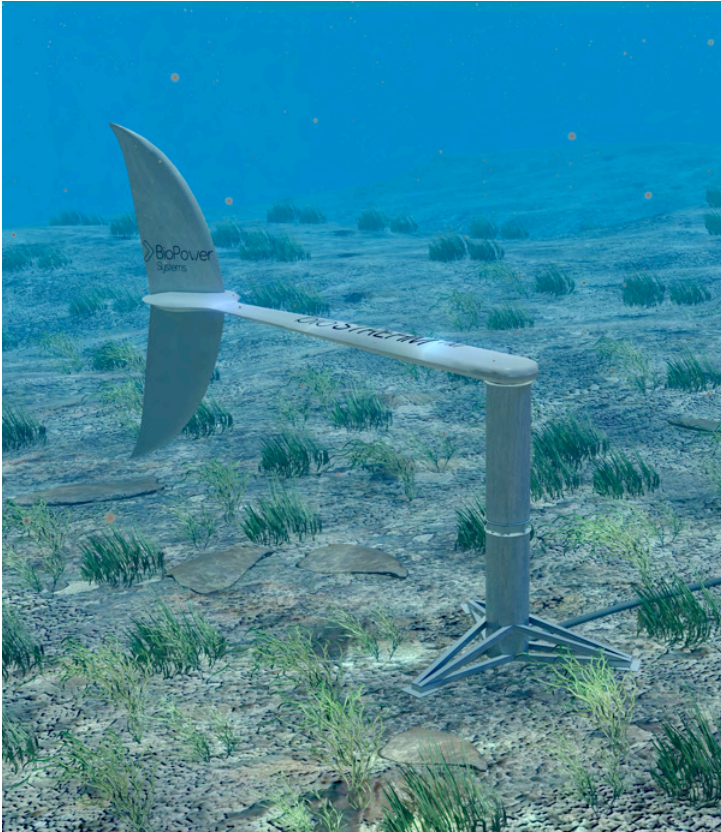
tank tests



# *Tidal Energy Technology*







bioSTREAM™

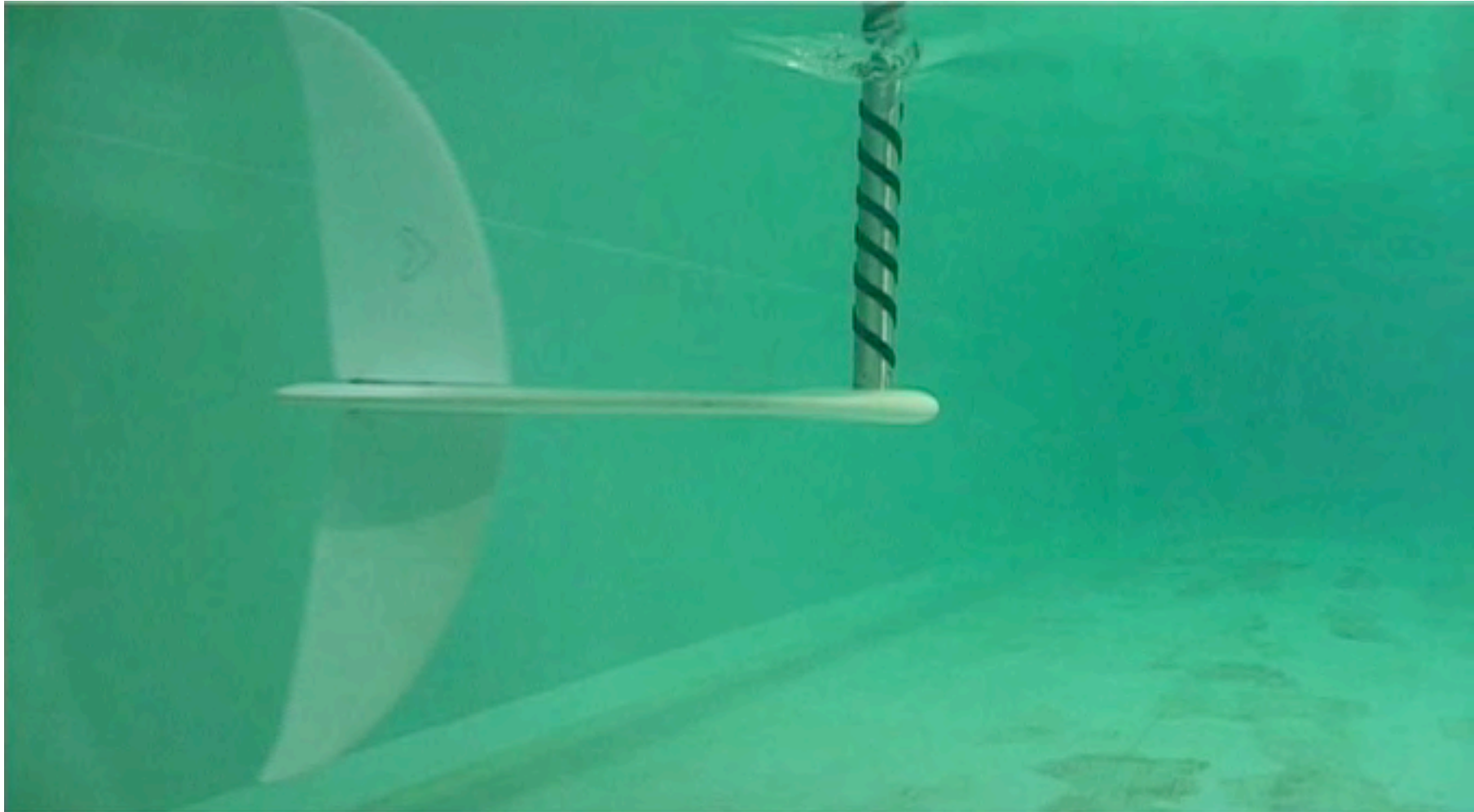


 BioPower  
Systems

Biologically Inspired  
Ocean Power Systems

# bioSTREAM

tank tests

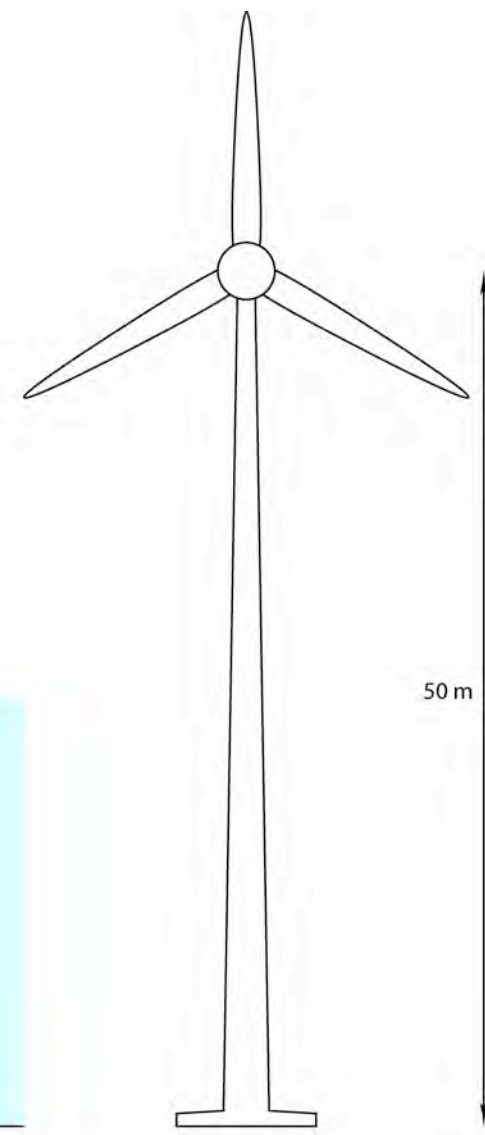
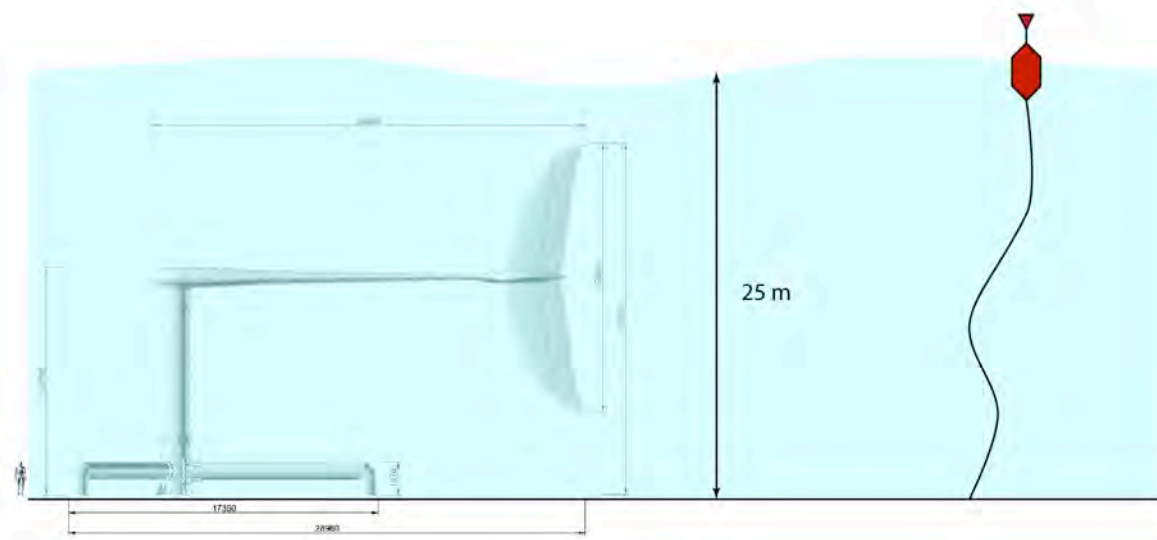


 BioPower  
Systems

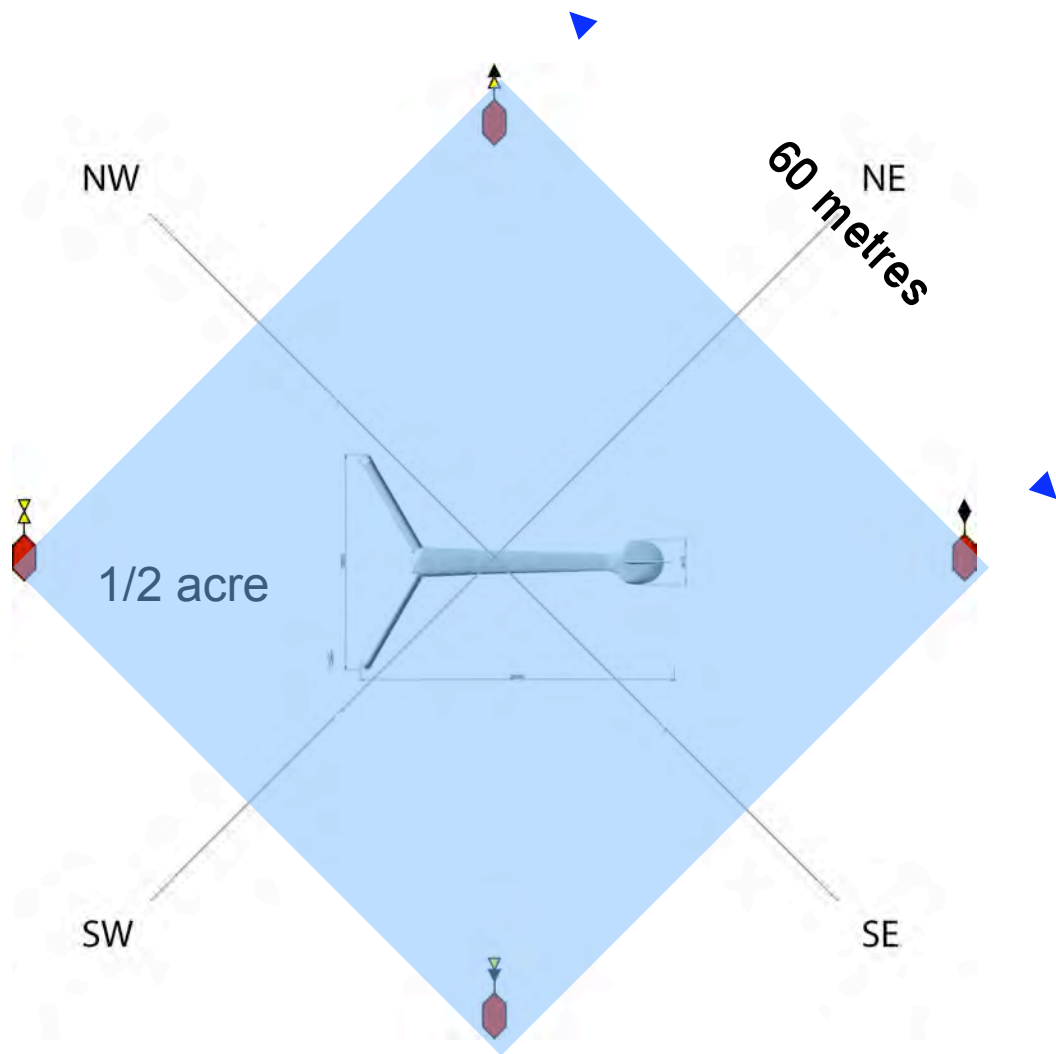
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# Size Comparison

250kW tidal stream generator vs 250kW wind turbine

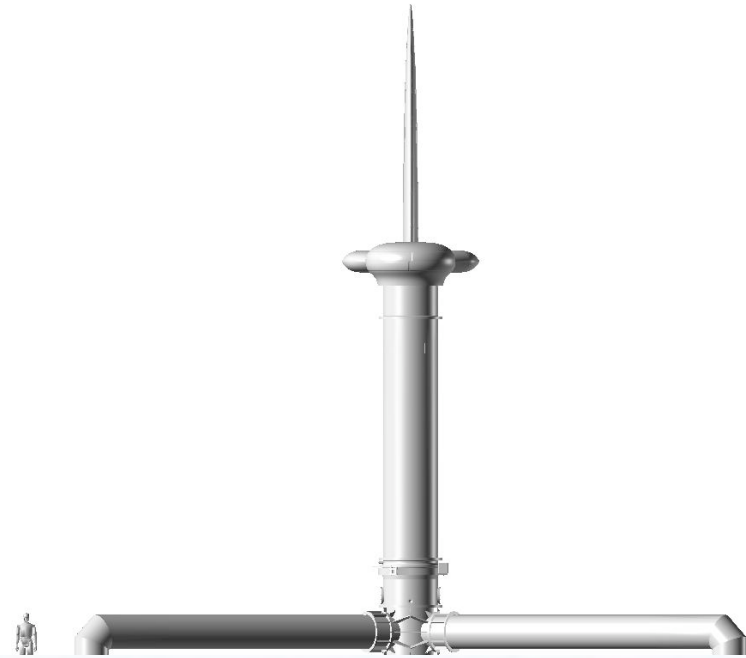






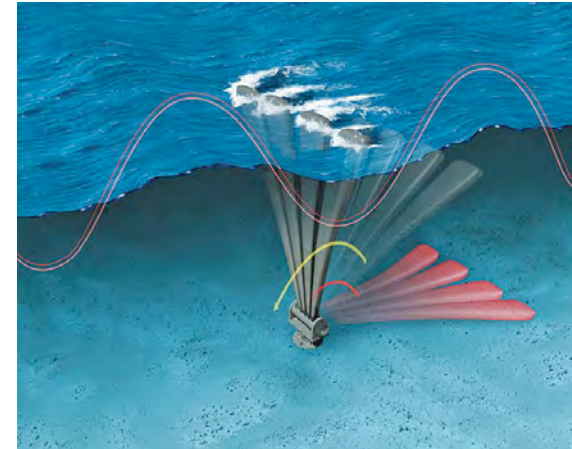
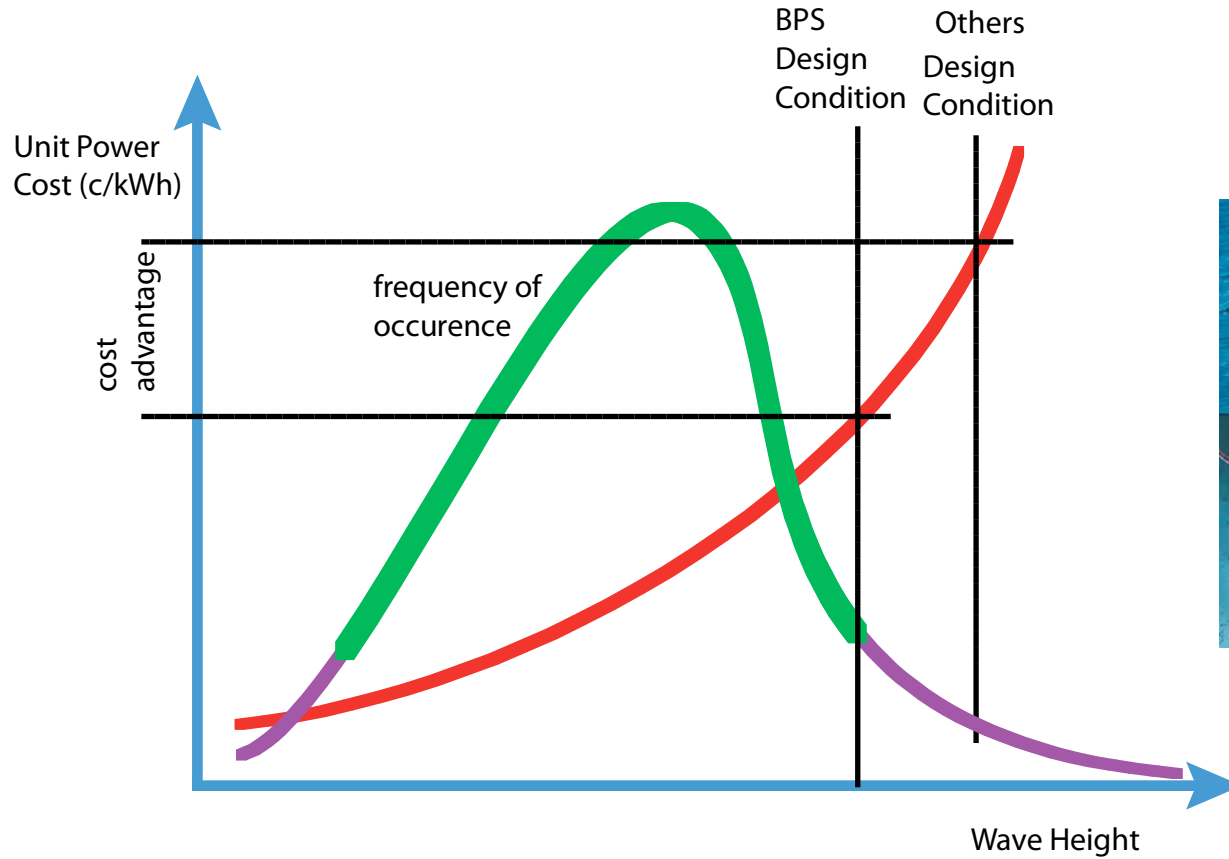
# *Advantages*

- Lightweight, modular systems
- In-built survival mechanisms
- Low-cost transport
- Common wave/tidal components
- Low environmental impact
- Biomimicry



COST

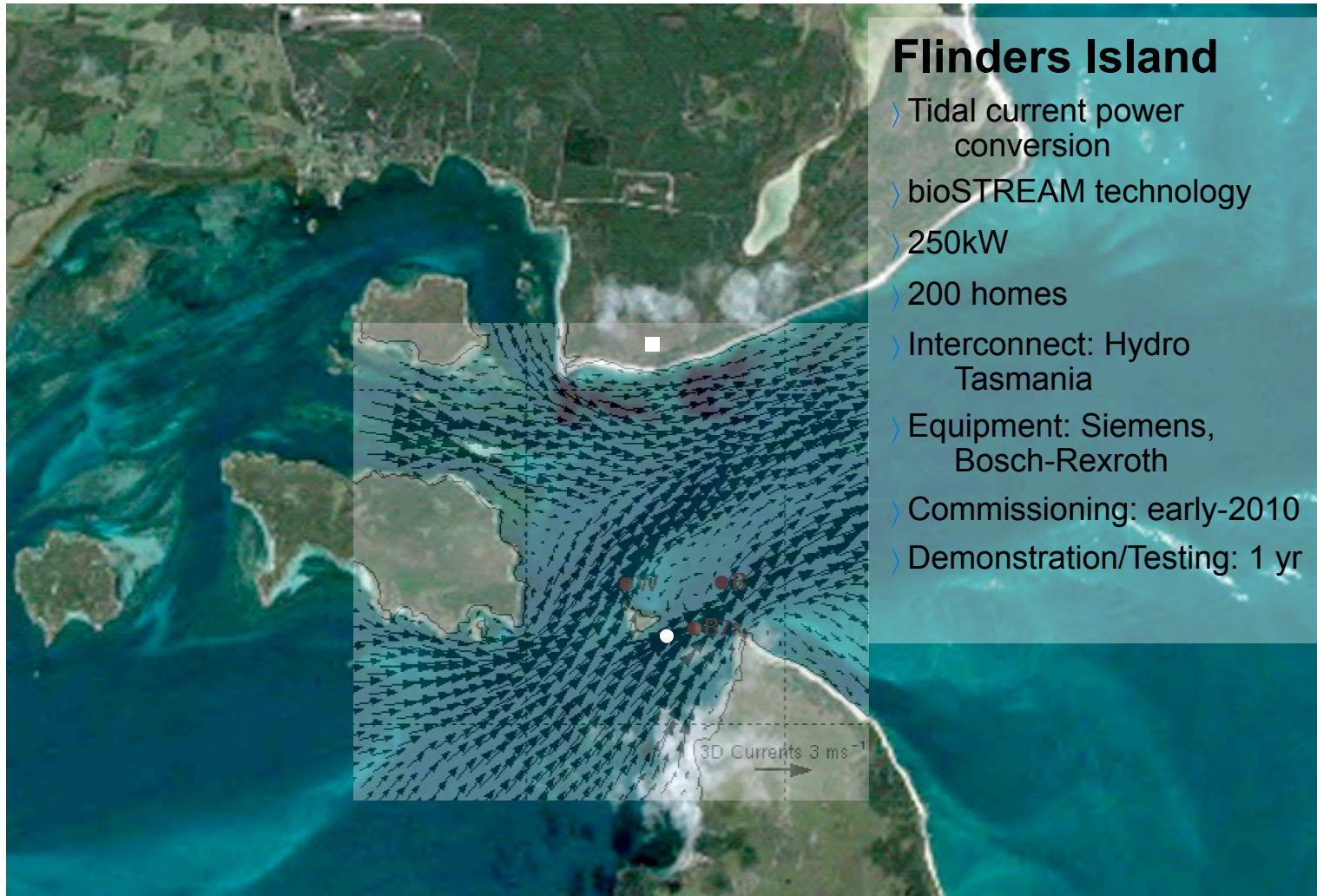
# Design Approach





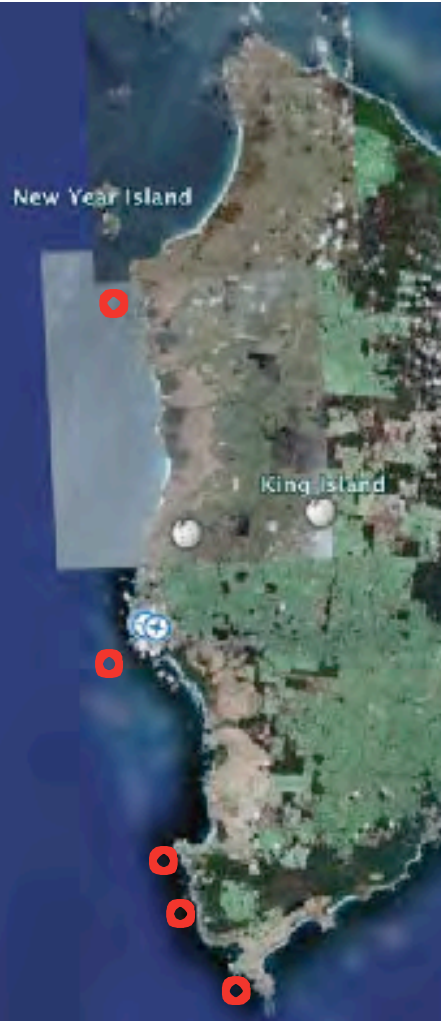
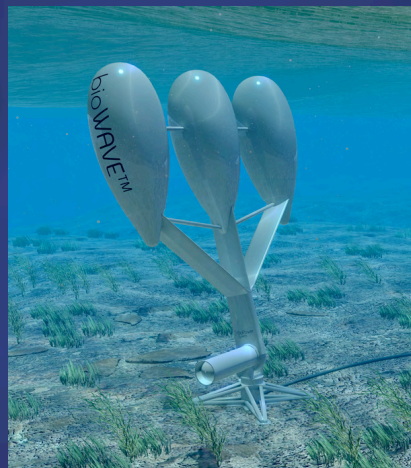
# Pilot Project

Flinders Island, Tasmania



# Pilot Project

King Island, Tasmania

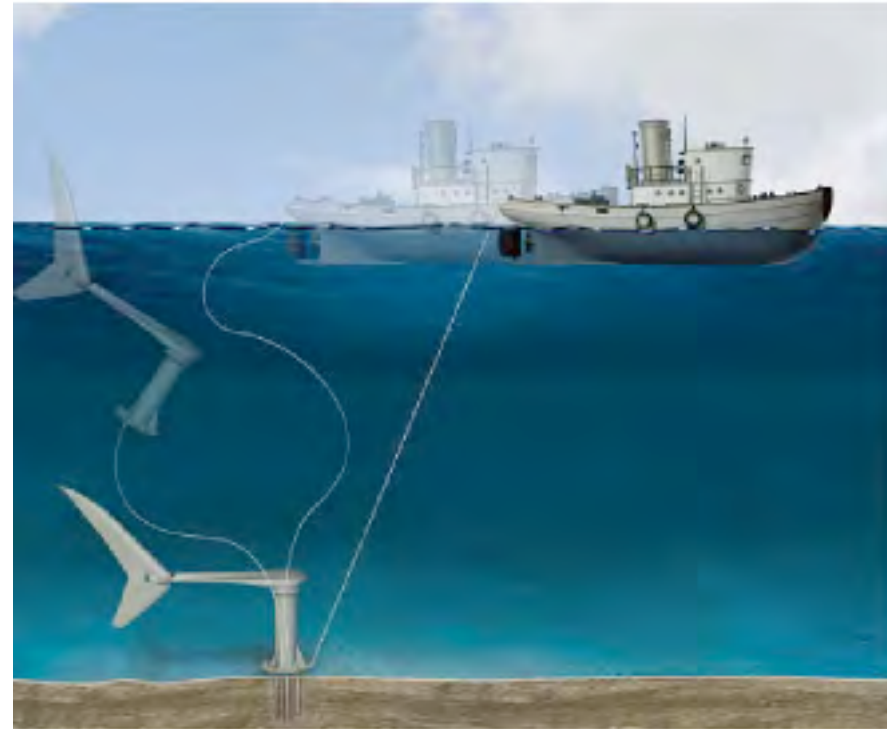


## King Island

- › Wave power conversion
- › bioWAVE technology
- › 250kW
- › 200 homes
- › Interconnect: Hydro Tasmania
- › Equipment: Siemens, Bosch-Rexroth
- › Commissioning: early 2010
- › Demonstration/Testing: 1 yr

# *Installation Method*

- Cost-effective
- Reliable
- Repeatable
- Flexible





# Company



- Founded in 2006, based in Sydney
- Funded by:
  - CVC REEF & CVC Sustainable Investments
  - Lend Lease
  - Federal Govt. Grants
- Business Model:
  - Production of commercial systems for energy extraction from ocean waves and tidal streams
  - Technology licensing and product sales
- Currently:
  - mature R&D
  - two 250kW pilot projects underway in Australia
  - projects in Australia and Europe in pre-development phase

[www.biopowersystems.com](http://www.biopowersystems.com)

