



AQUANET POWER

Powering a sustainable future

1MW airWAVE Turbine PTO System

OEE Conference October 2017

Richard Linley

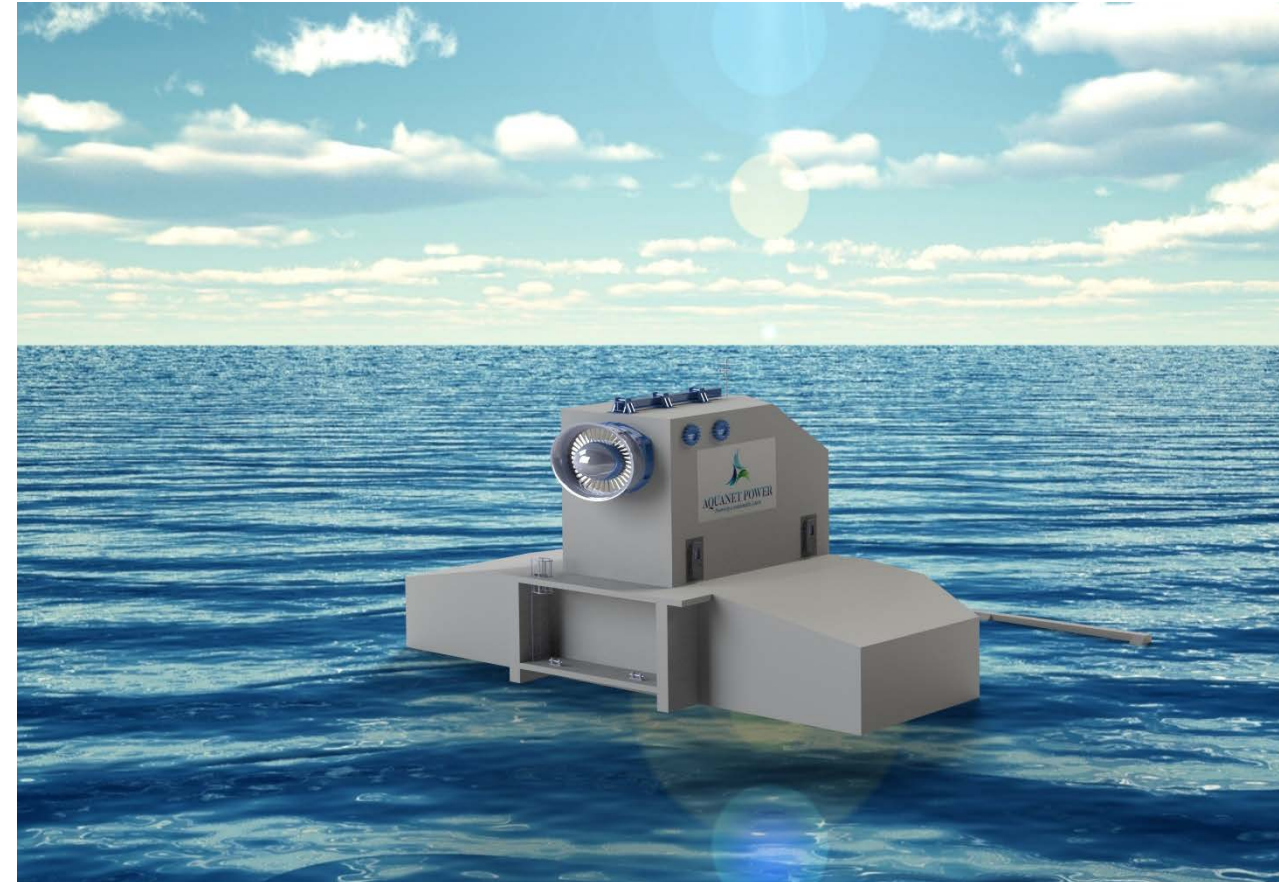


Aquanet Power

Who We Are

- In late 2014, company acquired the technology once known as Oceanlinx.
- Since the acquisition we have achieved further **10 granted patents** with 17 more under examination internationally.
- **Developed proprietary proven air turbine technology to work on any oscillating water column**
- Validated and proven plug-and-play power take-off (PTO) solution, ready for commercial application

1MW rated Air Turbine “airWAVE”



Aquanet Background

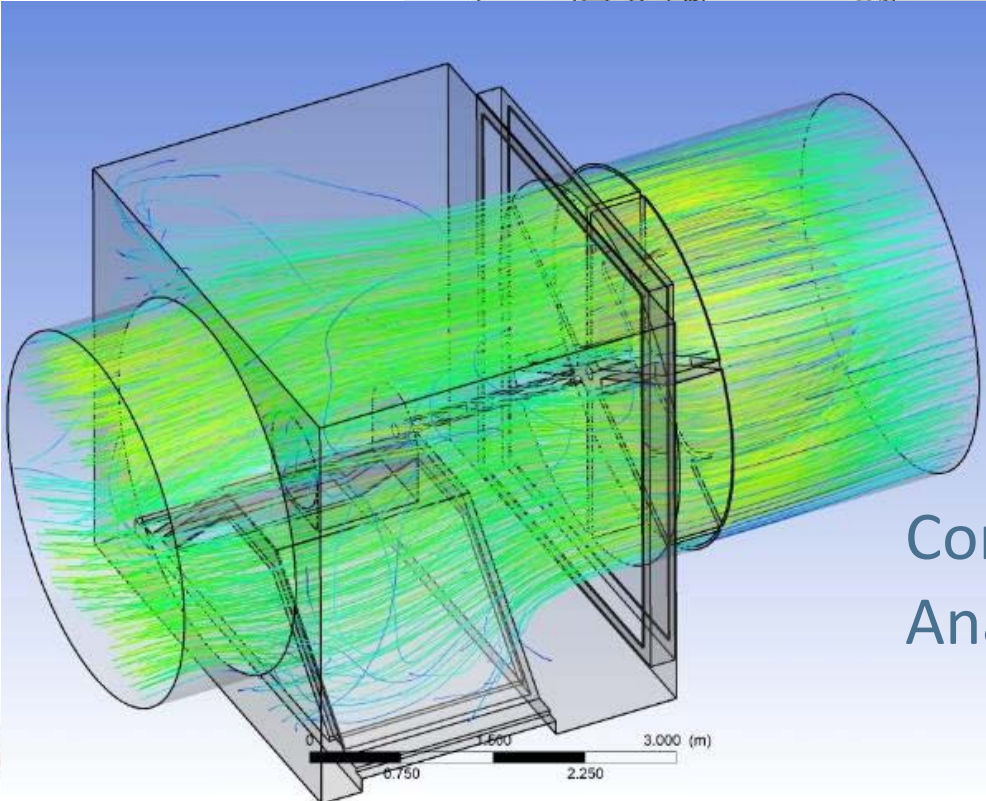
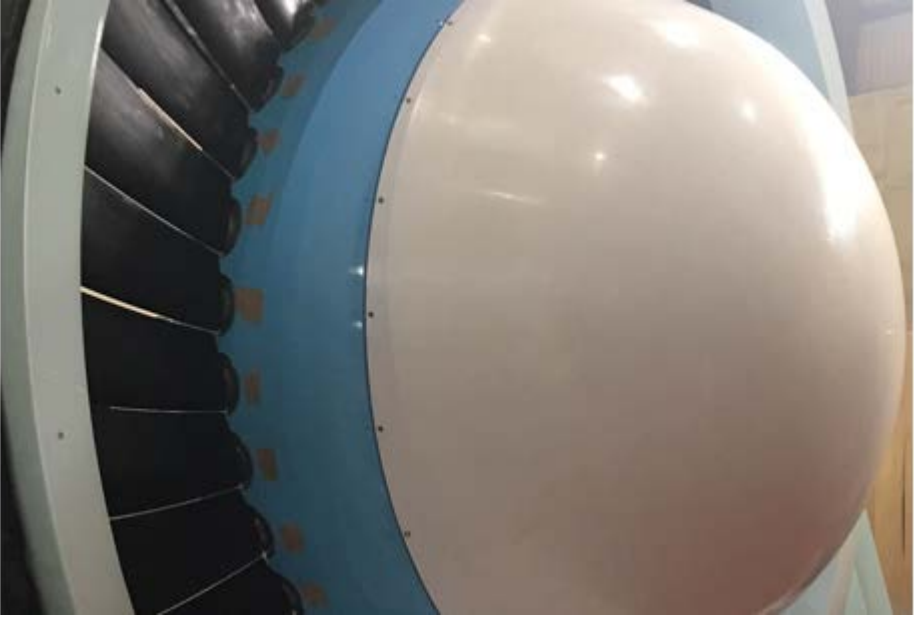
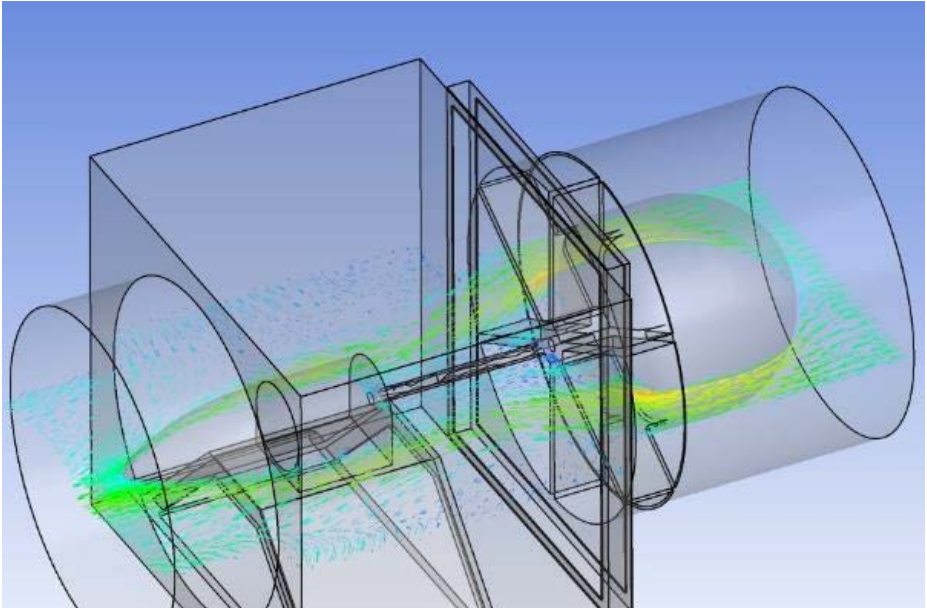
Technology Key Development Achievements

Technology Key Development Achievements

- Extensive technology development over the past two years
- Highly matured and de-risked technology
- 12 granted patents with 17 more patents under examination process
- July 2017 - Validated 1 MW full-scale air turbine PTO system being launched as a plug-and-play system to the market

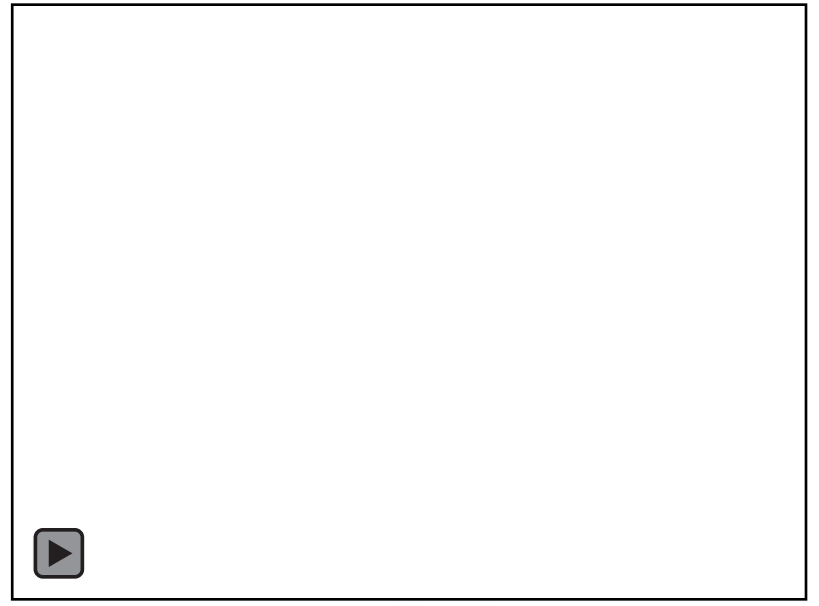
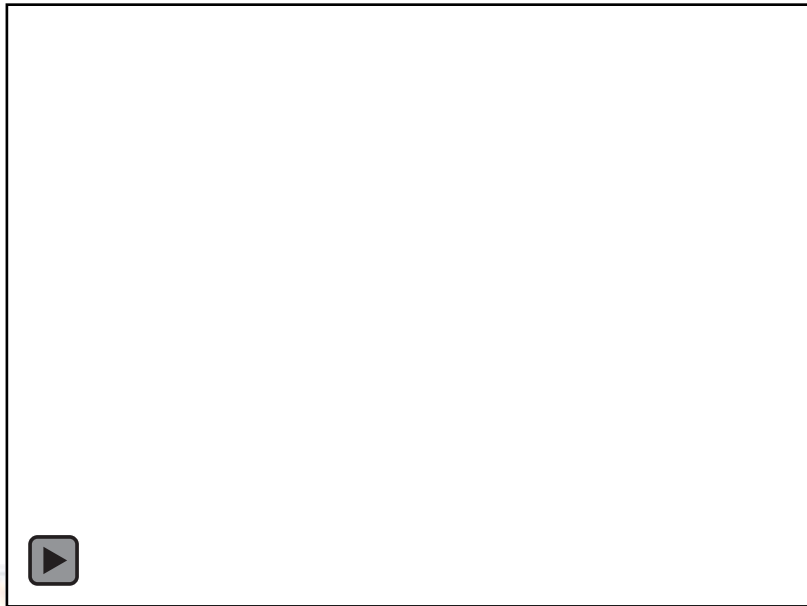
Aquanet Technology

airWAVE Turbine – 1MW



Computational
Analysis





Aquanet Technology - 2017

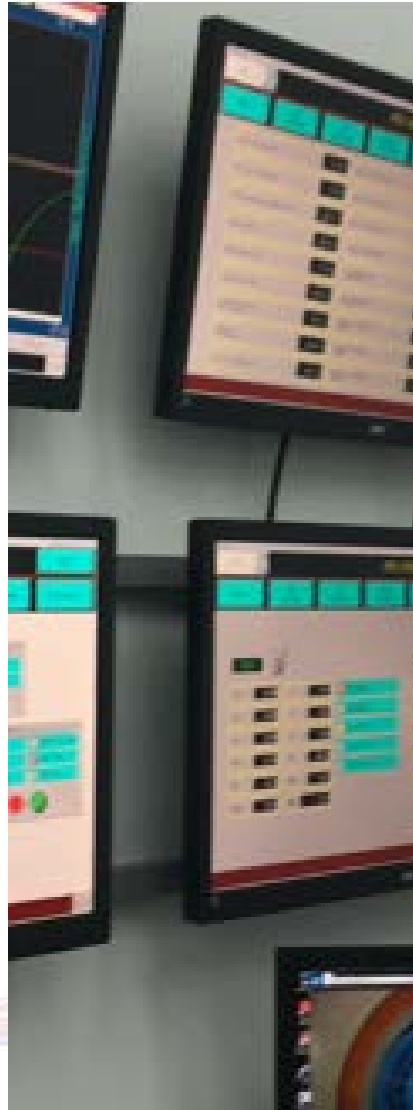
Proven and Validated PTO System



- Onshore demonstration facility in Taoyuan Taiwan. Capable of **simulating any given wave condition** in the world
- Allows us to analyse the system performance and function of prospective sites **from Metocean data prior to deployment**

Aquanet Technology - 2017

Proven and Validated PTO System



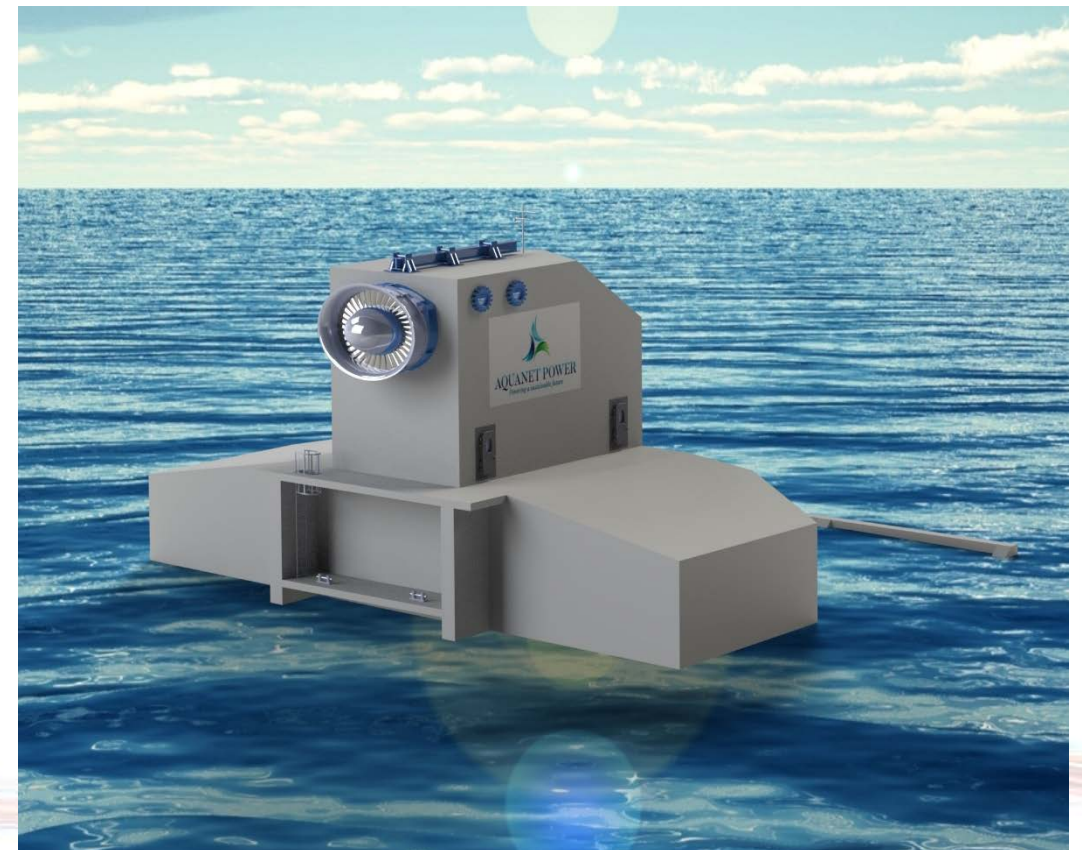
- Onshore demonstration facility in Taoyuan Taiwan. Capable of **simulating any given wave condition** in the world
- Allows us to analyse the system performance and function of prospective sites **from Metocean data prior to deployment**
- Allows us to **optimise yield against the system CAPEX**

Aquanet Technology - Applications

Shallow & Deep Water Devices – One Common PTO System

**Common Power take-off
system on all devices**

Shallow Water - 1MW
“aquaWAVE”



Aquanet Technology - Applications

Shallow & Deep Water Devices – One Common PTO System

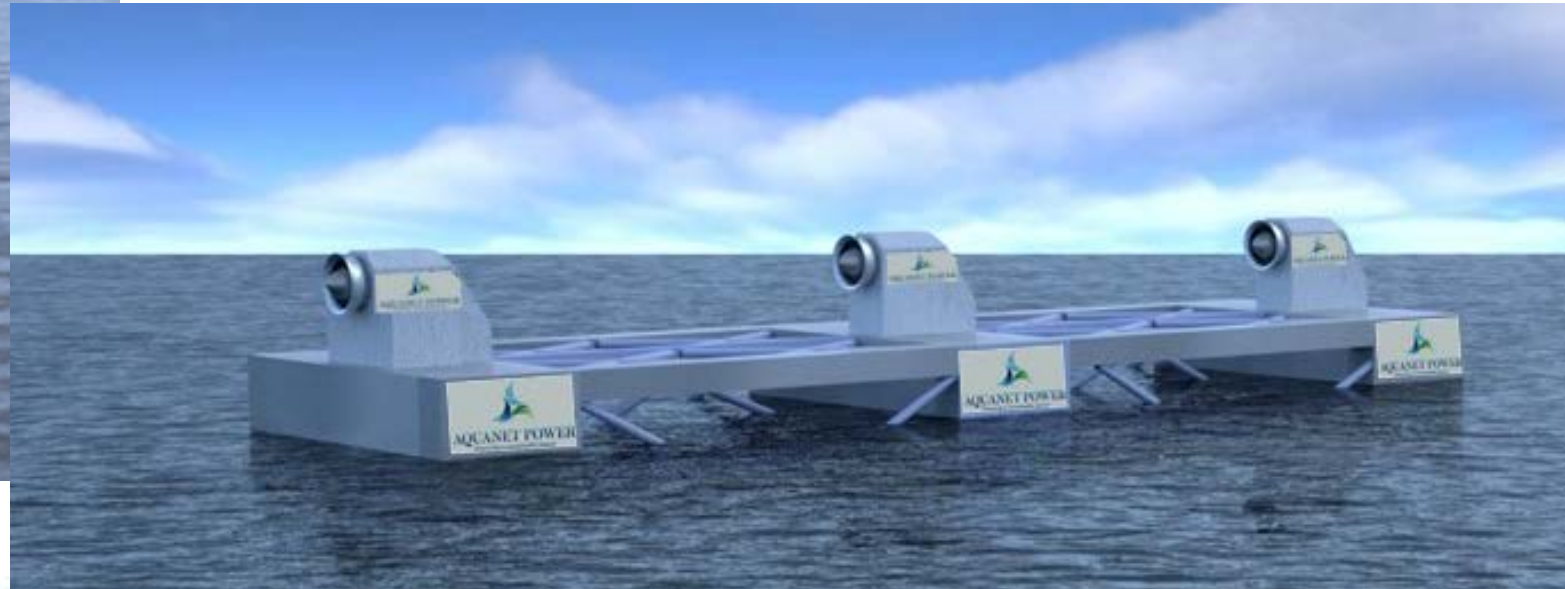
Deep Water – 500KW

“ogWAVE”



Deep Water – 3MW

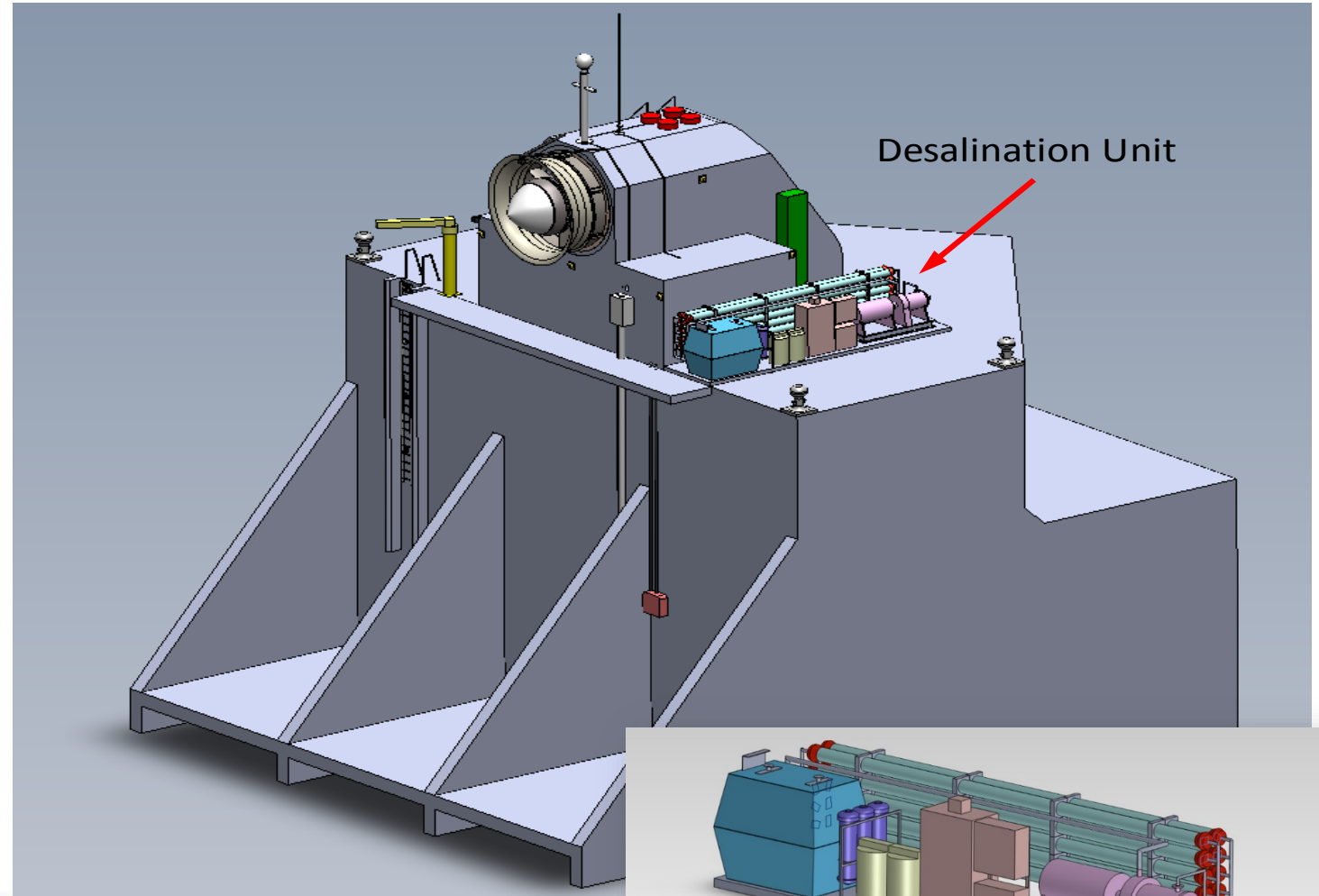
“bluWAVE”



Aquanet Technology - Applications

Desalination Solution

- Off the shelf plug and play reverse osmosis plants
- Ideal for remote locations
- May prove more attractive to produce water than electricity
- Capable of producing fresh water at \$0.0002/ litre



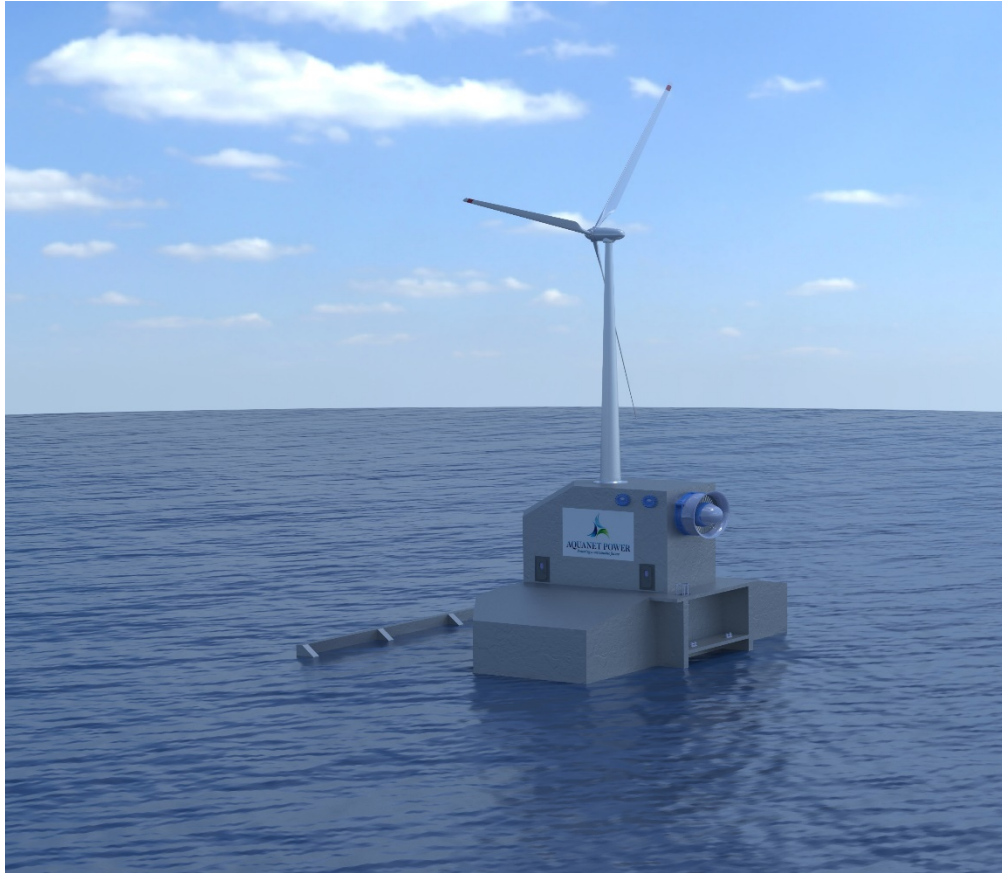
Aquanet Technology - Applications

Coastal Defense Walls and Jetties



Aquanet Technology - Demonstration

Demonstration Project - Nuclear Plant 2 Taiwan



aquaWAVE and Wind Turbine Hybrid

- Under development by project partners **AAG**
- Combined output of 2.3GWh per year
- 100% remote controlled
- No mooring or anchoring needed.
- Sits on its own weight on the seabed
- No moving parts under the water with no contaminants

Aquanet Technology - Projects

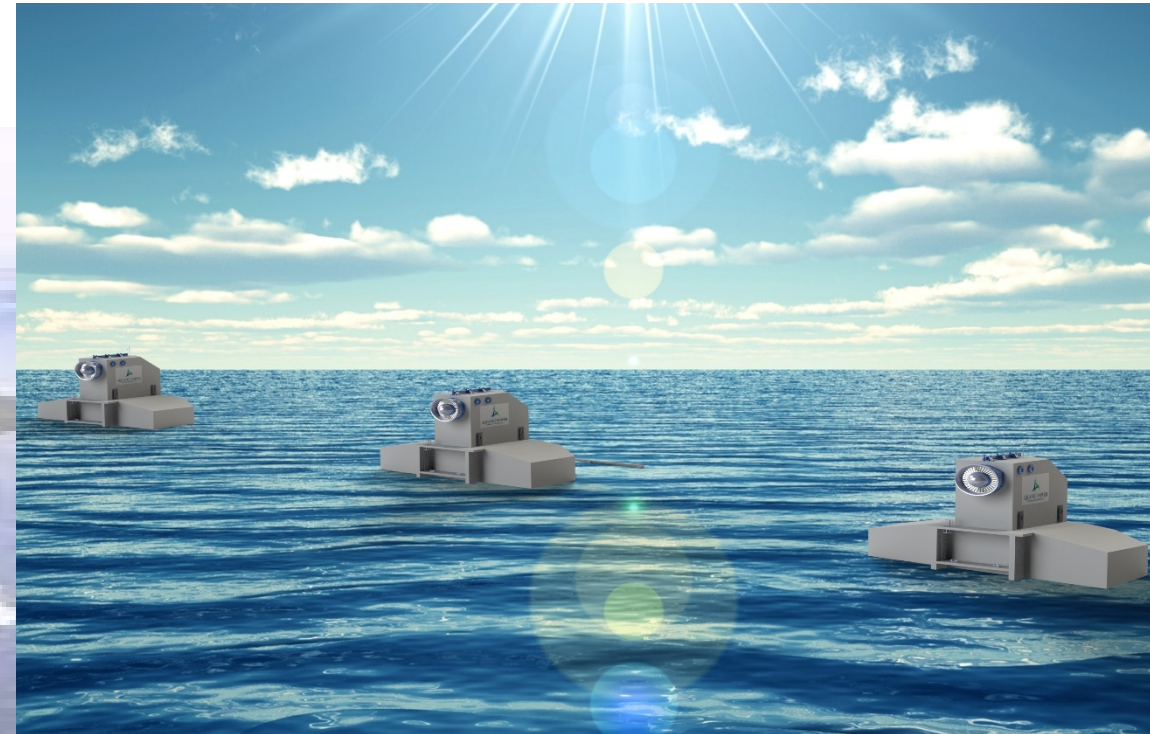
Array Project – 10MW Wave and Offshore Wind Hybrid



- Under development by project partners **AAG**
- 10MW Wave and Wind Offshore Hybrid generation system
- **Strong synergies** between equipment and control system
- **Extremely attractive levelized cost of energy.**

Investment Level – Scotland Project

3MW Wave Project, EMEC Scotland - USD\$14m



Investment Level – Scotland Project

3MW Wave Project, EMEC Scotland - Returns

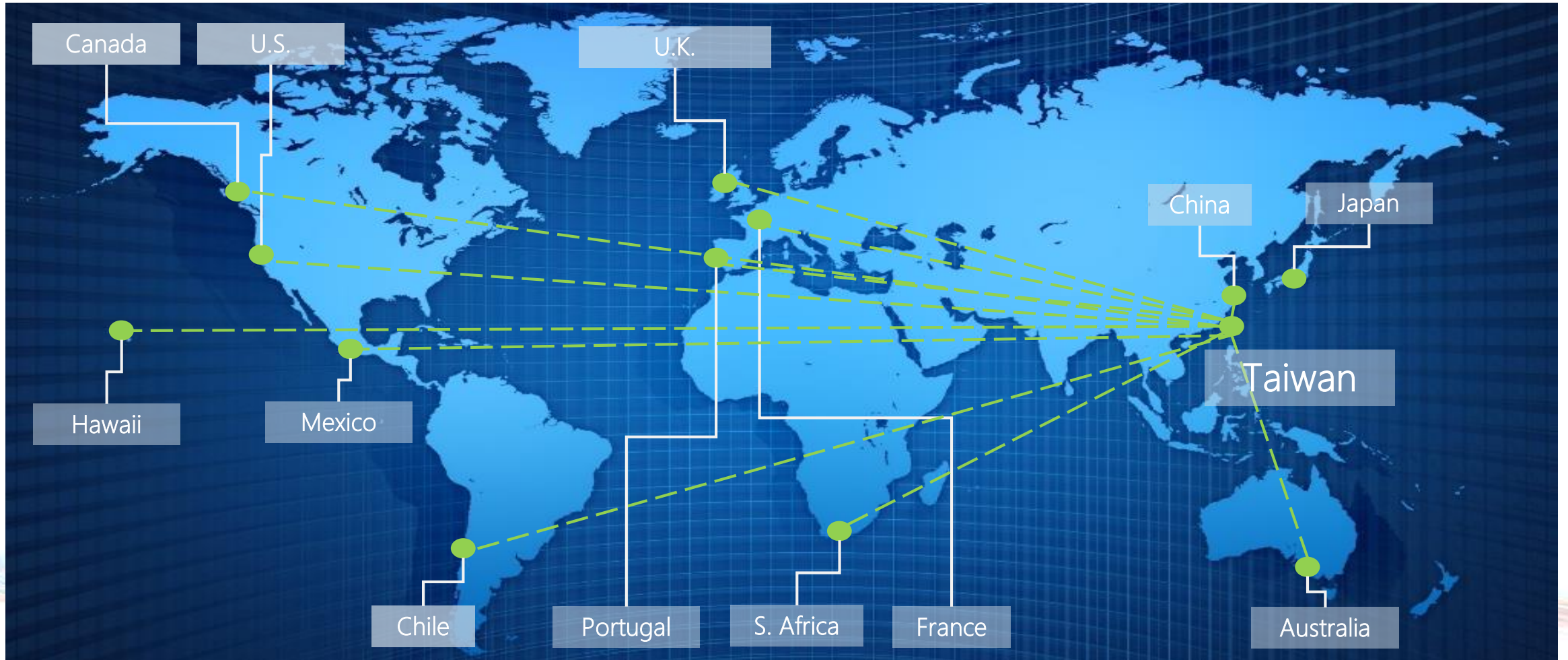
Total project cost	USD\$14M
Project life	30 Years
Average output	7.5GWh/ Annum
Breakeven	XXXX XXXXX
IRR in addition to the residual value	XXXX XXXXX

Project Status:

1. Construction partners sourced
2. Consents mostly in place
3. Support for \$500K obtained via grant
4. Construction start: late 2018
5. Operations start: mid 2020

Wave Energy Global Market

USD\$4 trillion / Year



Aquanet Technology - Economics

Levelised Cost of Energy (LCoE) Comparison - 100MW

LCOE Comparisons (USD/kWh)	
	Utility Scale Project (100 MW)
Aquanet 'aquaWAVE' device	0.127
Solar Photovoltaic	0.170
Concentrating Solar Power (CSP)	0.215
Wind Offshore	0.145
Wind Onshore	0.090

Ref: DECC (UK)
 NREL (USA, by Black & Veatch)
 IRENA (USA)
 MOEA (Taiwan)
 Aquanet Cost Model



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Thank you !

