

UWA Wave Energy Research Centre

SUPERGEN – ORE Hub Annual Assembly

Panel Session

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Director

The University of Western
Australia

Wave Energy Research
Centre

21/10/2021

State Government investment into ocean renewable energy – “Royalties for Regions” grant awarded in October 2017 (4-year program)

Why ocean renewables will be an important part of the energy mix:

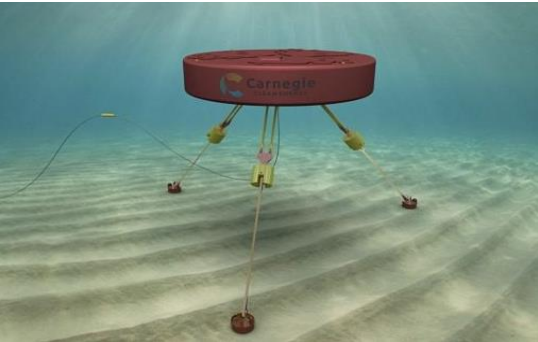
- More highly concentrated energy than wind or solar
- More consistent and predictable (unlike wind and solar)

Why ocean renewable energy technology is challenging:

- Offshore deployment and maintenance in high energy spots
- Harsh environment including risk from storms

Why UWA can deliver a regional knowledge hub:

- Multi-disciplinary expertise in offshore engineering (Oil & Gas)
- Albany campus since 1999 (only truly regional campus in WA)





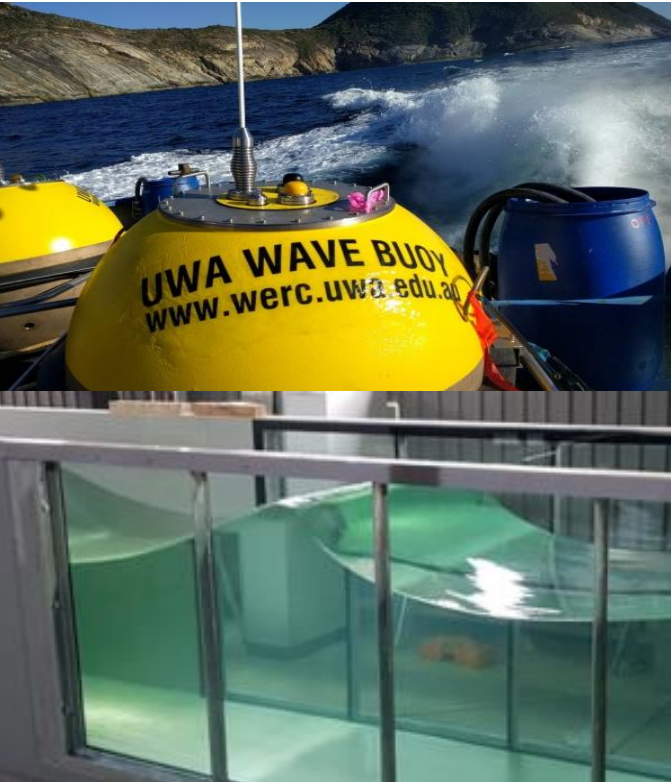
Headquarters of a new ocean renewable energy knowledge hub in the Great Southern region of WA

Natural fit with the City of Albany's bigger picture:

- Existing infrastructure, including port and wind farm
- City committed to 100% renewables by 2026
- Excellent wave resource (consistent height, small tidal range)

Natural extension of Albany's university environment:

- Lease and refurbishment of iconic railway station near UWA
- 6 staff located in Albany, supplemented by 20+ staff in Perth
- Project links with natural resource management, marine science
- Space for partners (academia and industry) and outreach events
- **Great Southern Marine Research Facility** – new launch pad for marine based operations and fieldwork in south-western WA



Multi-disciplinary research – “Surface to Seabed” – to support industry in harnessing and commercialising ocean renewable energy

Oceanography / Coastal Processes:

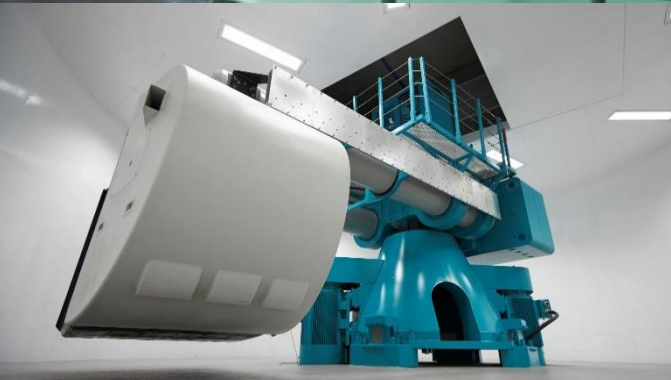
- Investigating and characterising the wave and current conditions for successful deployment of wave energy converters (WEC) in coastal regions.

WEC Hydrodynamics / Wave-Structure Interaction:

- Develop models to predict wave-WEC interactions and inform optimal WEC design for power generation and survivability.

Geotechnics / Foundation Design:

- Developing foundation engineering solutions to meet the specific requirements of the ocean renewable energy industry.



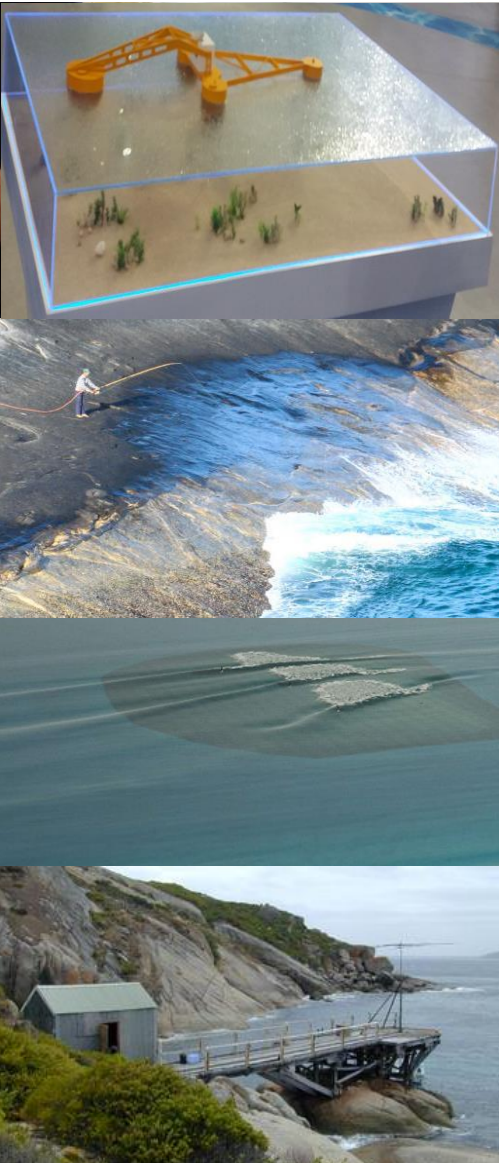
Impact through collaboration in regional “Blue Economy” research projects and strong community networks

Collaboration with industry and marine science opportunities in the region:

- Carnegie Clean Energy, CorPower, Echo Wave Power,
- Coastal Processes – rocky shorelines, Great Southern temperate reef
- Hydrodynamics – Aquaculture (shellfish hatchery), wave prediction (rockfishing)
- Impact modelling of artificial surf reef (economy and beach dynamics)
- Ecotourism – vessel berthing (lessons from offshore floating facilities)

Attracting and leveraging new opportunities :

- Great Southern Marine Research Facility now a node of the Integrated Ocean Observatory System (IMOS)
- Assisting Western Australian Marine Science Institute in defining priorities for the Great Southern Coast
- Participants and contributor to the Cooperative Research Center in Blue Economy



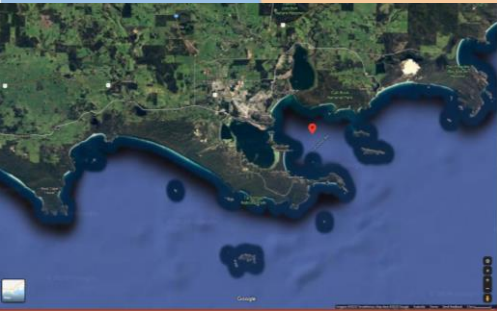
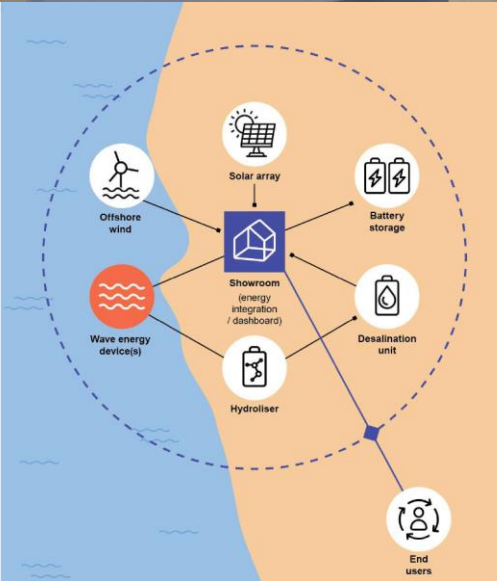
M4 demonstration project - \$2.5M – 2021/2022

Multidisciplinary collaboration:


- Peter Stansby, University of Manchester, Paul Taylor, Oxford University
- Australian Ocean Energy Group
- BMT Australia
- Southern Port Authority
- Huon Aquaculture and Shellsih Hatchery
- Blue Economy Cooperative Research Centre


Ambition:

- Push the M4 wave energy converter through the TPL
- Run a virtual electricity generation exercise with key stakeholders
- Trial all steps from conception to decommissioning, including licensing, deployment, etc.
- Develop an Ocean Energy Market Demonstration Site in Albany, WA



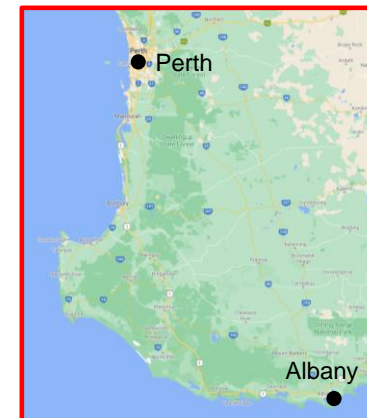
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<https://marineresearch-gs.com/>

Click here for our Activity Report
(Published November 2020)



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