

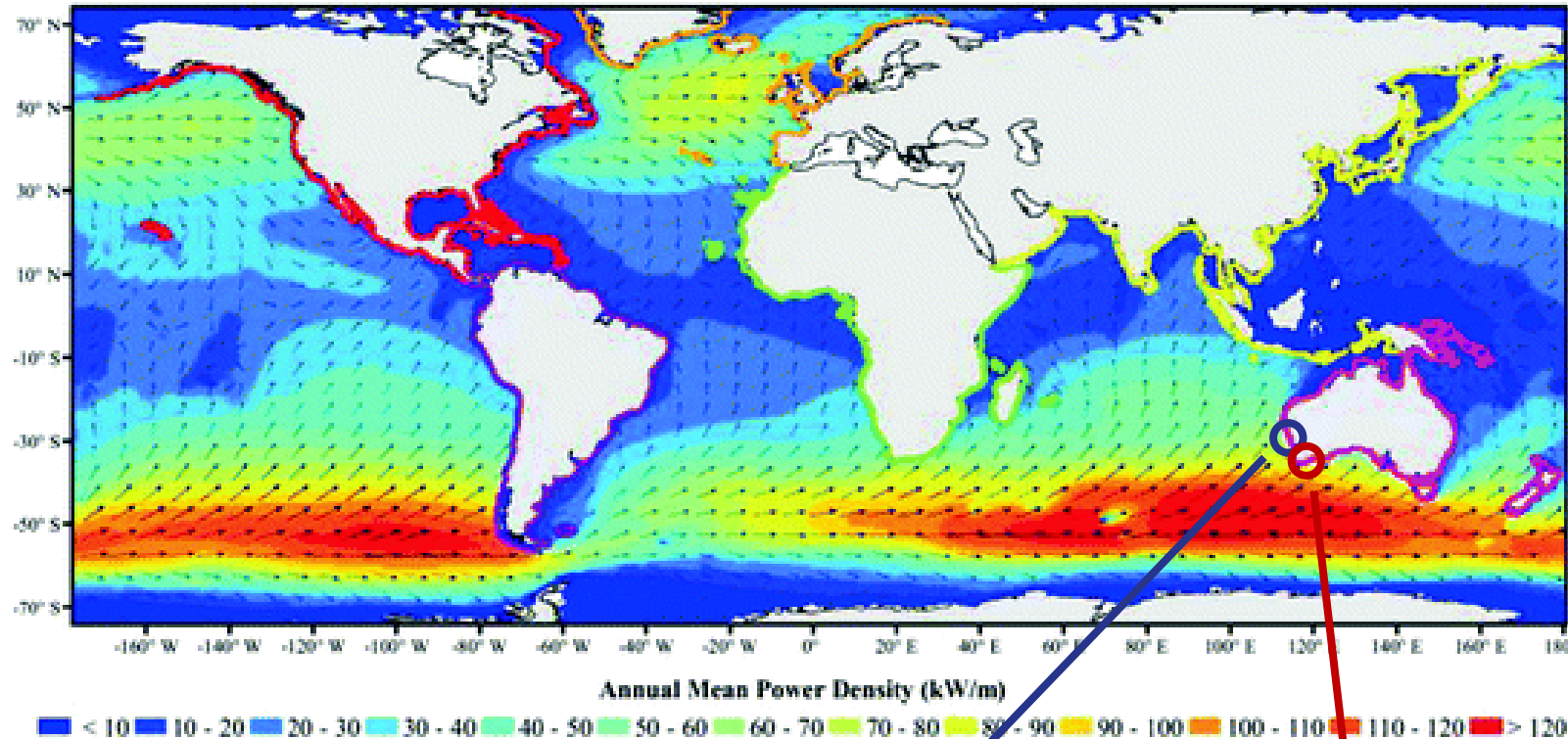
Seeding Marine Innovation with a WEC deployment in Albany, Western Australia

Dr Wiebke Ebeling
Centre Manager

Marine Energy Research Australia (MERA)
Supergen ORE Hub 4th Annual Assembly – 20/01/2022

MERA nodes are situated on Noongar country in Western Australia, and we acknowledge them as the First Australians and Traditional Custodians of land, waters and culture. We pay our respect to their Elders past, present and emerging.

Wave Energy Resource

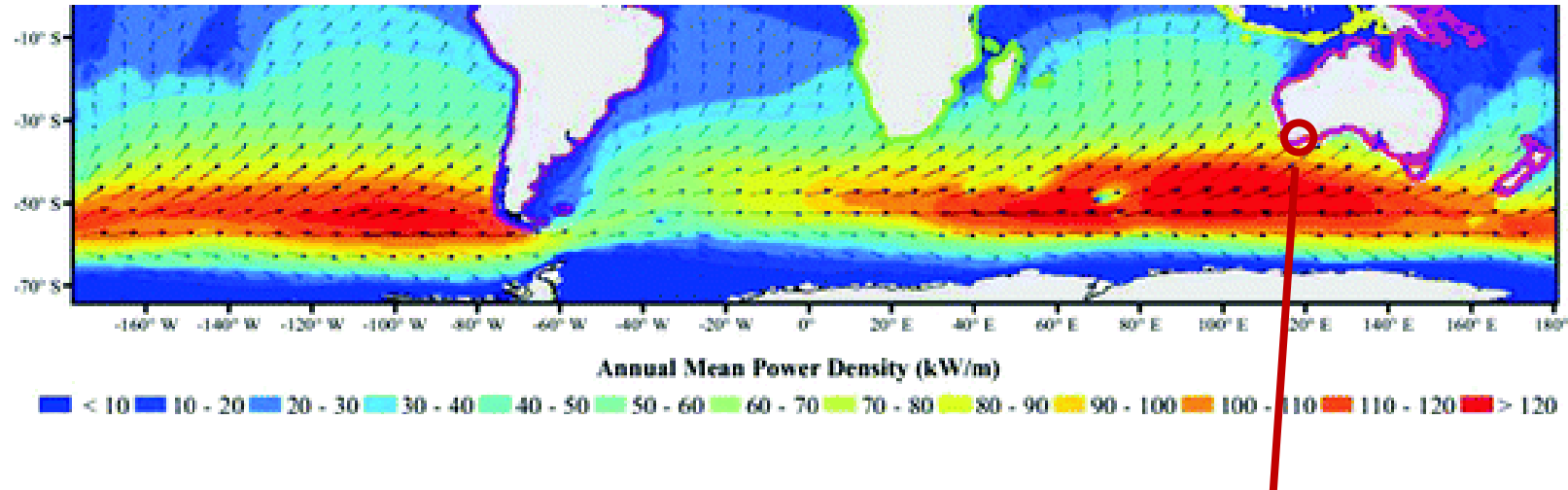


*The Australian Wave Energy Atlas (2016)
Commonwealth Scientific & Industrial
Research Organisation*

Perth, capital of Western Australia (WA);
Primary campus of the University of WA –
ranking among Top 5 in Ocean Engineering

Albany, UWA regional campus;
Wave Energy development site: Moodrenup/Sandpatch
(grid connection at 18-turbine onshore windfarm)

Wave Energy Resource

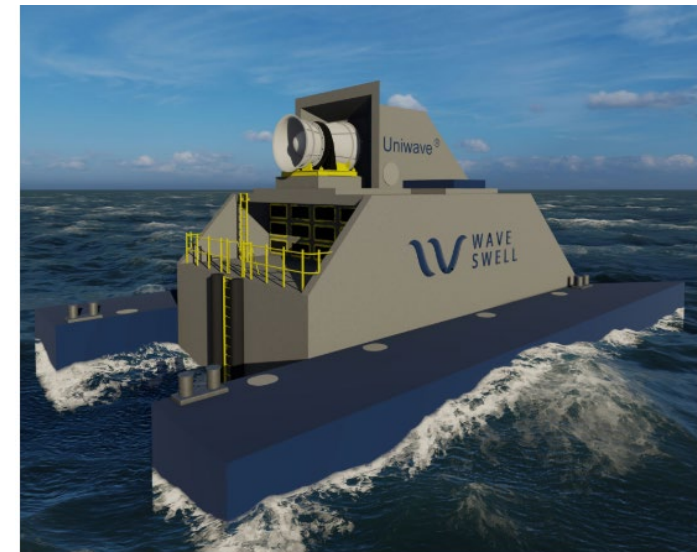
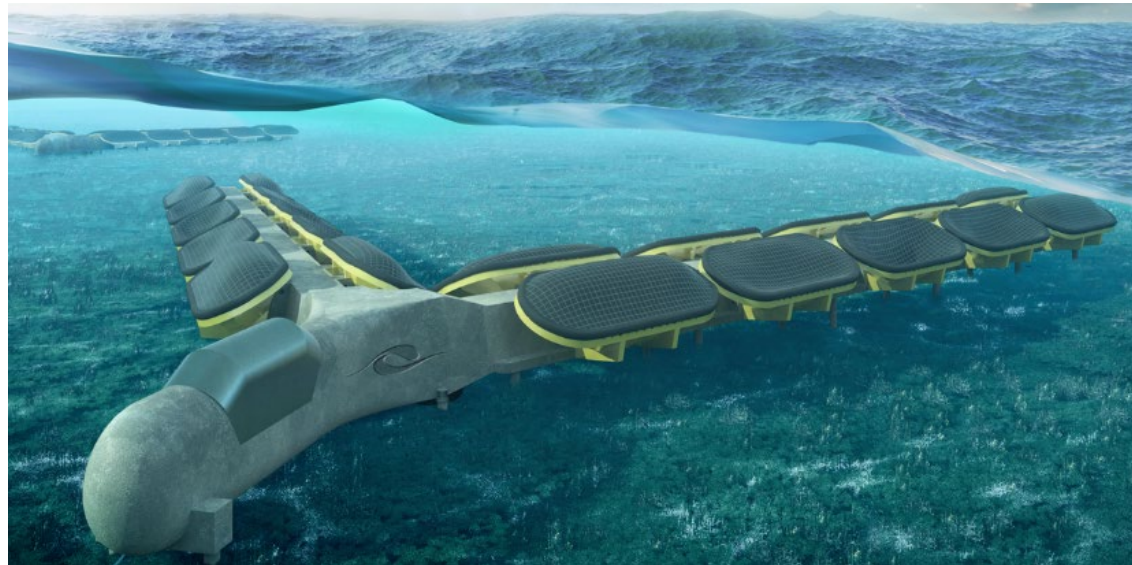


Albany, UWA regional campus;
Wave Energy development site: Moodrenup/Sandpatch
(grid connection at 18-turbine onshore windfarm)



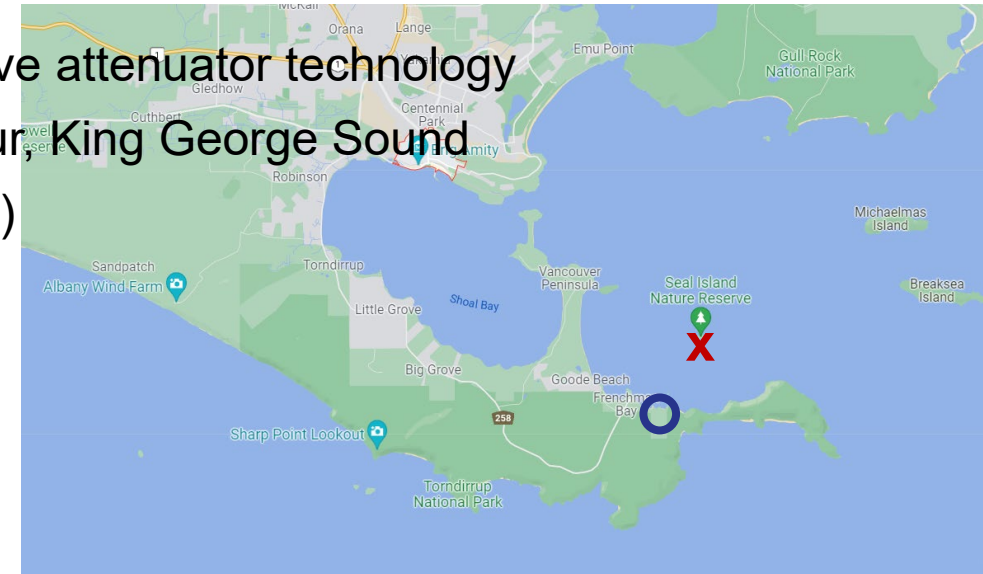
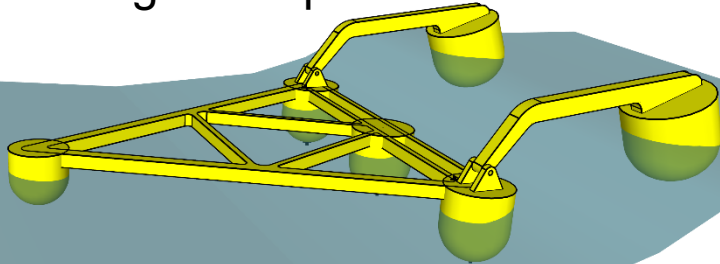
AUS Projects

- **Carnegie Clean Energy** – completed 12-month “Perth Wave Energy Project” with 240kW array of 3 *CETO5* units in 2012; grant for 12-month single *CETO6M* “Albany Wave Energy Project” (2018) terminated in 2019.
- **Bombora Wave Power** – founded in Perth WA in 2012; now operating from Pembrokeshire (Wales, UK) with 1.5MW *mWave* deployment scheduled for 2022; contract for 3MW Canary Island wave park.
- **Wave Swell Energy** – current 12-month project with 200kW *Uniwave* device deployed off King Island, Tasmania; integrated with onshore renewables in island’s microgrid.



Marine Innovation in Albany

- New non-commercial, university-led 30-month R&D project
- University of Manchester “**Moored MultiModal Multibody**” (M4) wave attenuator technology
- Development of second wave energy site in Albany’s outer harbour, **King George Sound**
- Deployment of reduced-scale M4 WEC demonstrator (4-6 months)
- Modelling of virtual microgrid system for aquaculture operations
- Demonstrating the capabilities of the local supply chain



Albany M4 Project



Western Australian Government \$1.55m

- Ocean engineering knowledge hub, research support to ORE tech developers
- Expansion of the regional UWA campus, promotion of the Albany sites
- Industry engagement, community outreach, innovation, leadership

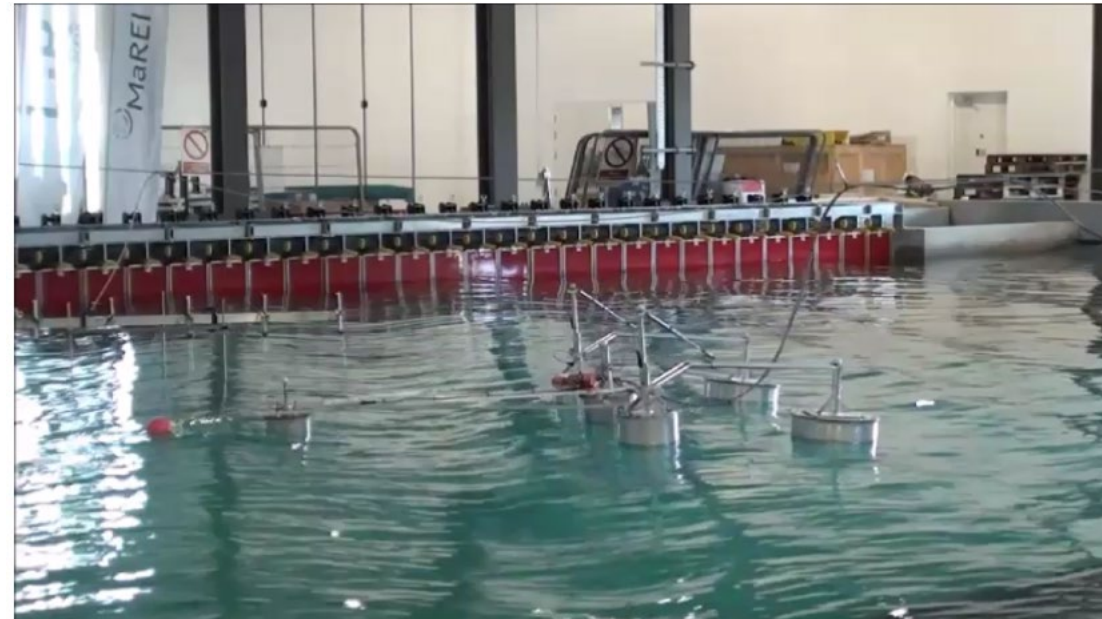


Blue Economy Cooperative Research Centre \$1.62m

- WA-based project with applications to aquaculture
- Engagement of membership for device design and testing
- Data publication to advance ORE sector

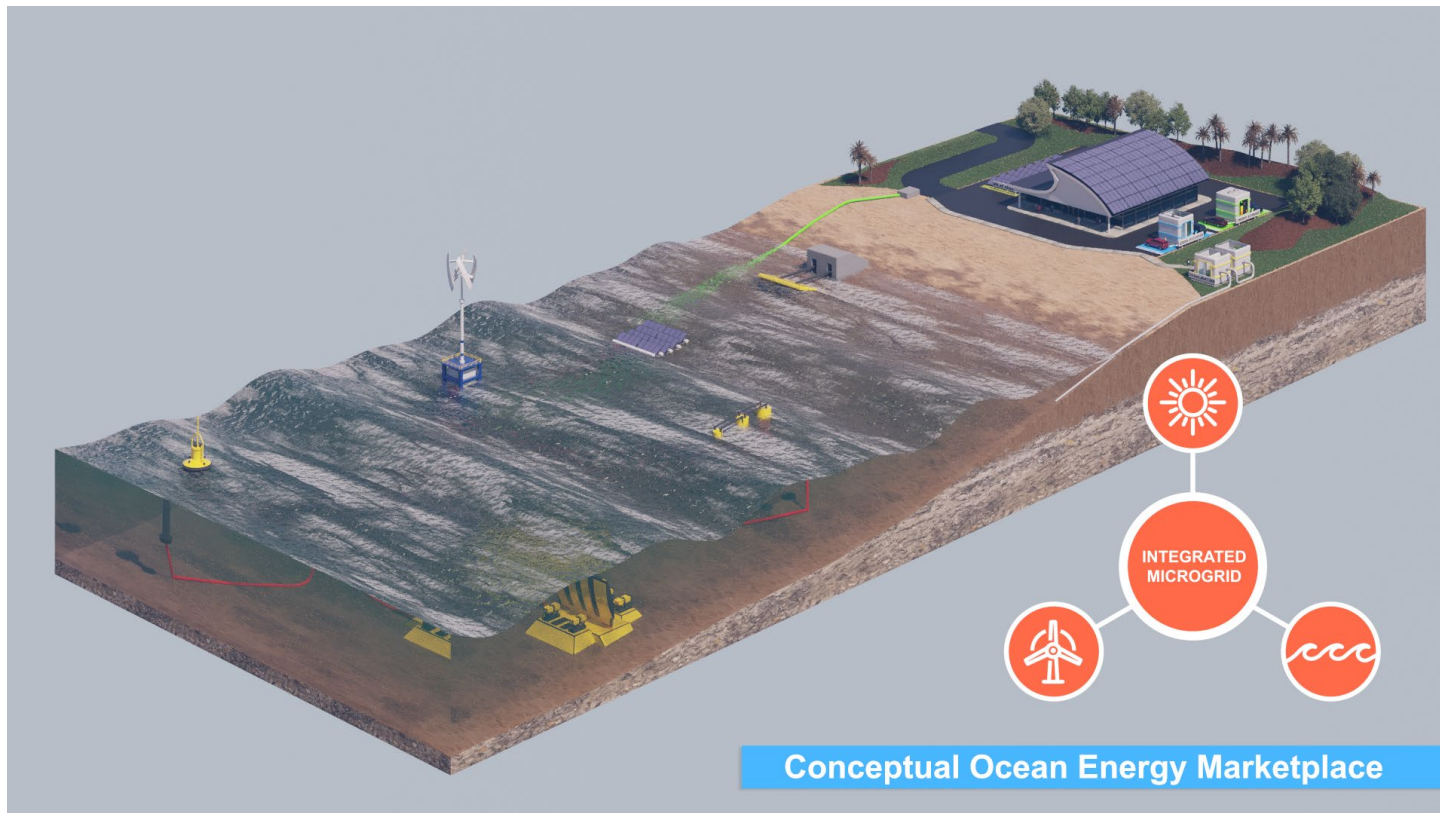
Australian Ocean Energy Group \$1m (in-kind)

- Feasibility study into Albany's potential to host Integrated Wave Energy Marketplace



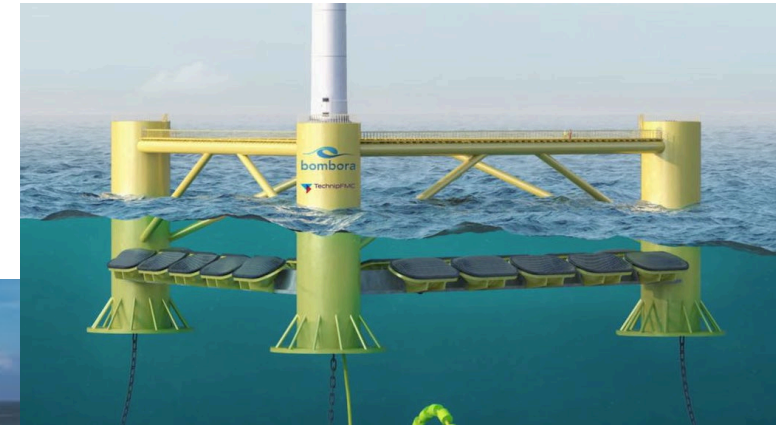
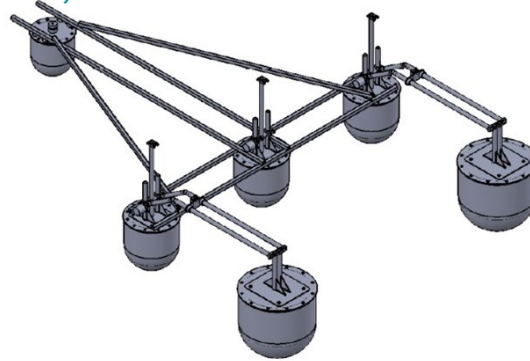
Integrated Marketplace

- Centralised microgrid that supplies electricity directly to specific applications or end users;
- Place to explore innovation and to turn “**technology push**” to “**demand pull**” for commercial ORE projects;
- Initial digital knowledge base and resource for modelling and developing commercial ORE projects;
- Liaison with local stakeholders to gauge interest in hosting physical Marketplace.



AUS Projects – fast forward

- **Carnegie Clean Energy** – new *MoorPower* project with the Blue Economy CRC for wave power take-off units on moored feeder barges; demonstrator off Fremantle scheduled for December 2022.
- **Bombora Wave Power** – new project for 6MW integrated floating offshore wind & wave platform (2MW wave + 4MW wind power), deployment of grid-connected demonstrator scheduled for late 2023.
- **Wave Swell Energy** – development of coastal protection technologies.
- **M4** – validation of performance models, advance current Technological Readiness Level 5 to TRL 6; attract commercial projects to Albany.



Seeding Marine Innovation with a WEC deployment in Albany, Western Australia

<https://marineenergyresearch.com.au/>
wiebke.ebeling@uwa.edu.au

Dr Wiebke Ebeling
Centre Manager

Marine Energy Research Australia (MERA)
Supergen ORE Hub 4th Annual Assembly – 20/01/2022

MERA nodes are situated on Noongar country in Western Australia, and we acknowledge them as the First Australians and Traditional Custodians of land, waters and culture. We pay our respect to their Elders past, present and emerging.