AUSTRALIAN
OCEAN ENERGY
GROUP

INTRODUCTION TO OCEAN ENERGY

Presented to:

Energy Group

Dept. of Environment, Land, Water and Planning

Victoria

INTRODUCTION

AUSTRALIAN OCEAN ENERGY GROUP (AOEG) was established in 2018 to accelerate commercialisation of Australia's ocean energy sector.

Our programmes and services are intended to create more successful commercial projects and more innovative ocean energy initiatives that build capacity for growth.

Our members are the leading source of knowledge and solutions to make ocean energy happen.

GOALS

- Increase collaboration
- Apply innovation
- Expand market opportunities
- Engage with government
- Inform and Connect
- Strive for cost reduction and efficiencies

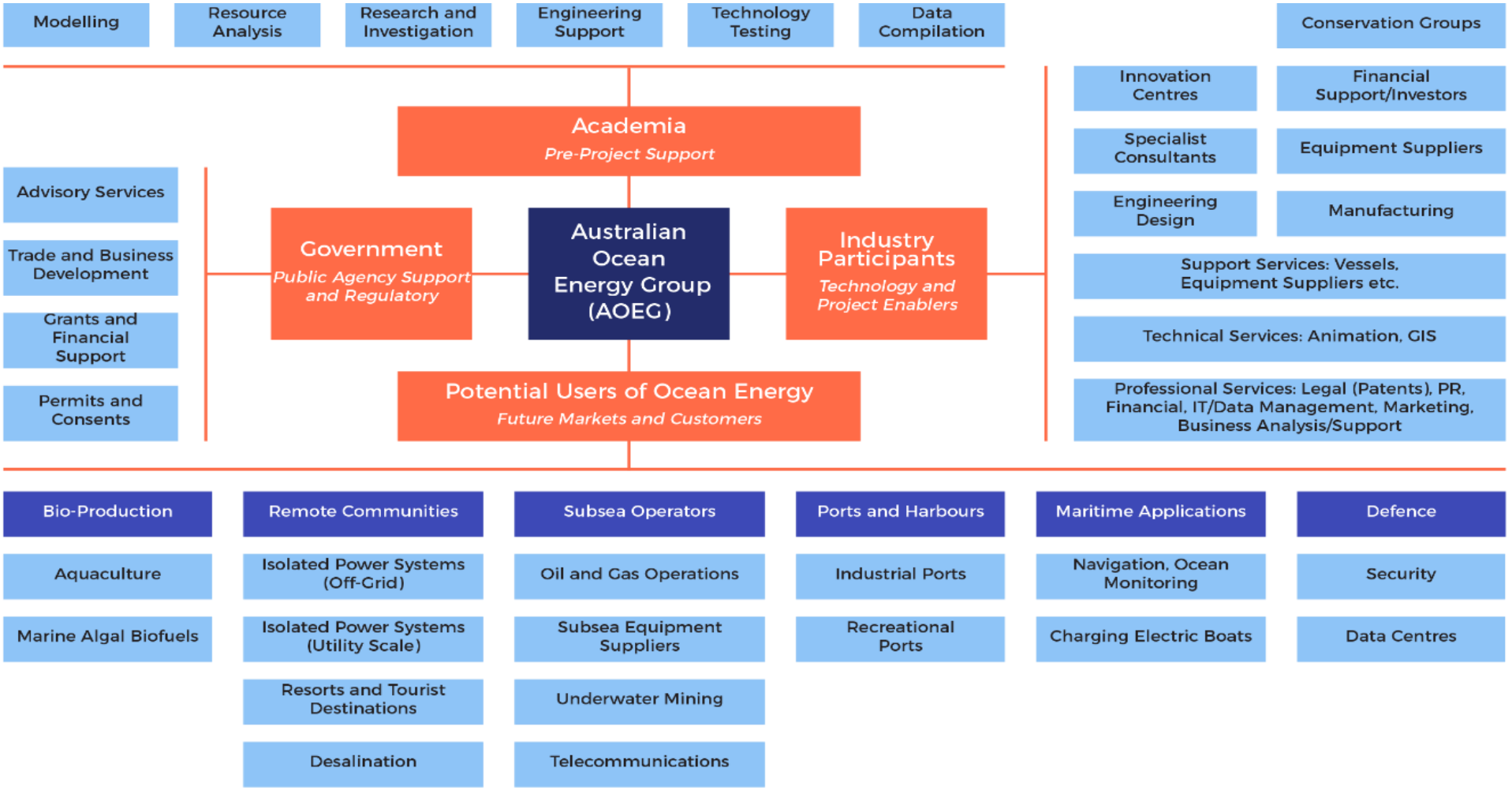
CLIMATE KIC AUSTRALIA

Founding Supporters

NERA NATIONAL ENERGY RESOURCES AUSTRALIA

MEMBERS

AOEG is a cluster, building a community of national and international members aligned with our mission *(AOEG has 21 members to date).*



WHAT IS OCEAN ENERGY?

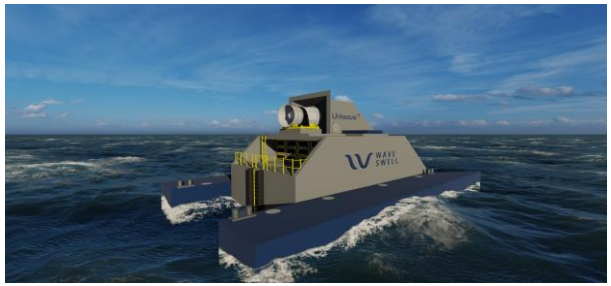
The natural movement of water within oceans creates a vast resource from which energy can be extracted and transformed into electricity and other useful purposes.

OCEAN ENERGY GENERATION TECHNOLOGIES

Ocean energy technologies are specially engineered devices designed to harness and transfer the massive energy from natural movement of water within oceans into electricity.

AOEG Technology Members

Sabella Tidal Energy (France)

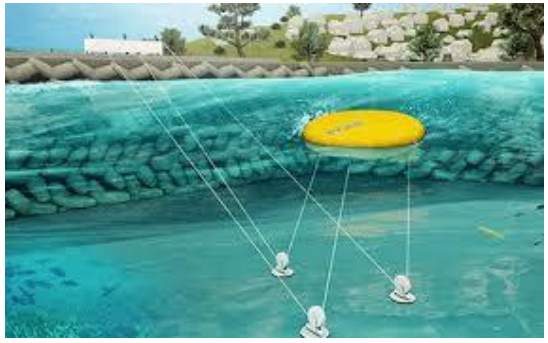


Wave Swell Energy (Australia)

MAKO Tidal Turbines (Australia)

Bombora Wave Energy (Australian company operating in Wales)

Carnegie Clean Energy (Australia)



Ingine Wave Energy (Korea)

AUSTRALIAN OCEAN ENERGY SECTOR Current State

CONCEPT
Technology designed and components validated in lab

PROTOTYPE
Scaled technologies validated in controlled conditions

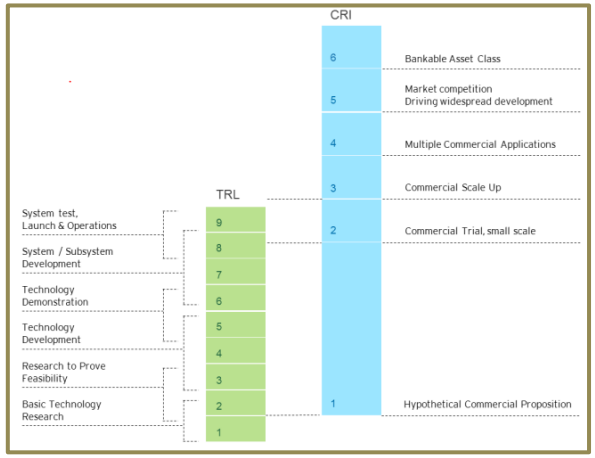
DEMONSTRATION
Technology, subsystem and systems validated in relevant environment

PRE-COMMERCIAL
Complete system (multiple devices) tested and qualified at sea for extended periods of time with early market "pull"

COMMERCIAL
Multiple commercial applications (commercial sales of devices and/or electricity)

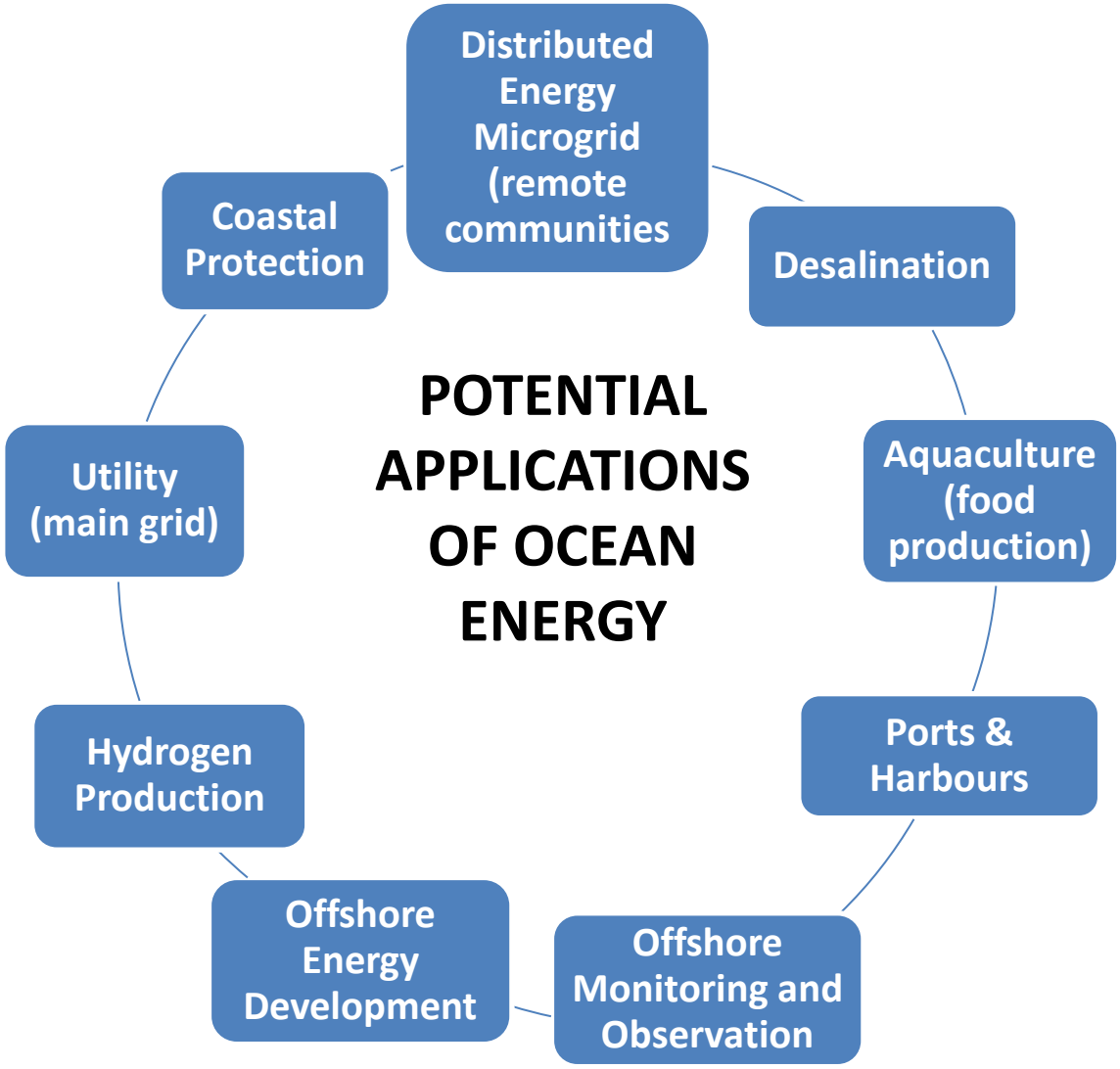
Australian marine energy companies are at various stages of maturity and preparing to push through to the pre-commercial stage

Internationally accepted Technology and Commercial Readiness Standards



OCEAN ENERGY MARKETS

Ocean energy industry stakeholders can work together to fulfill a number of important markets locally, nationally and internationally



CARNEGIE CLEAN ENERGY'S INTEGRATED ENERGY SYSTEM

PROPOSED AOEG MARKET DEMONSTRATION PROJECT: A showcase facility in Albany, similar to Carnegie's Energy System below, where solutions can be explored without the risk of meeting commercial revenue and operating requirements.

Desalination Unit

2MW Solar Array

Offshore wave terminal with cable to shore

Battery Storage

Electric integration system & dashboard

Electricity sold to the Department of Defense ("customer") via Electricity Supply Agreement

BARRIERS TO DEVELOPMENT

- Lack of market understanding about OE leading to lack of demand
- Device developers not building for the end-user (*solving end-users energy problem*)
- Ocean energy not part of an energy system
- Perception of high cost of ocean energy (LCOE)
- Permitting and consent uncertainty hinders investment

OCEAN ENERGY IN VICTORIA
Opportunities






Significant wave, tidal and offshore wind resources

Diversity of potential end users or markets for ocean energy systems

Access to high-calibre R&D

Spin-off synergies with Star of the South Offshore Wind Project

---

Infrastructure & Supplier Network

Victorian Marine Spatial Plan

OTHER BENEFITS

Jobs

Community economic development

Carbon reduction

CONCLUSIONS

Ocean energy need to be planned throughout the entire sector (eg, device developers, supply chain, end-users or markets), not as stand-alone devices.

There will not be a one-size fits all technology. To achieve cost competitiveness, it will be necessary to align the right ocean energy **system** with the end-user.

Engage early with the developers to get to the right energy solution.

Consistency in the permitting and regulatory process will provide predictability leading to increased investment.

Also, industry needs a means for permitting temporary demonstration projects.

CONTACT

Stephanie Thornton,
Cluster Manager
P. 0458 684 018
E. stephanie@oceanenergygroup.org.au

AUSTRALIAN OCEAN ENERGY GROUP

oceanenergygroup.org.au