Ocean Energy Uptake

Solutions to Technical Challenges

IRENA International Renewable Energy Agency

Unlocking the potential of ocean energy around the globe

30 September – 02 October 2019 | Dublin, Ireland

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BME Consulting

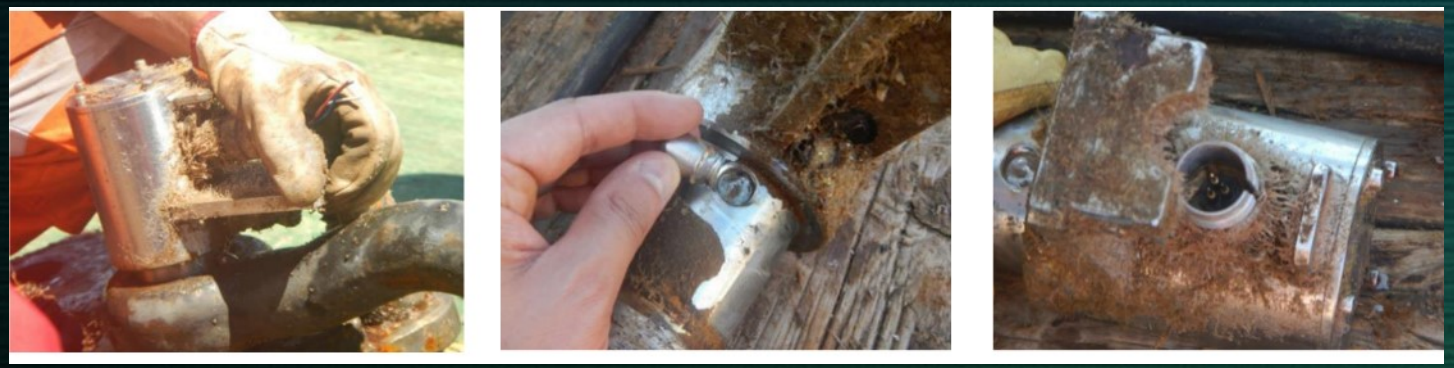
BACKGROUND

- University College Cork
  - Worked on over 30 small scale wave energy devices
- Oceanlinx
  - Permitting and community consultation; numerical and financial modelling; instrumentation and data analysis.
- Ocean Energy USA
  - Project Engineer

Technical Challenges

- Launching
- Survivability of Components
- Power Technology
- Grid Profile

Finding a suitable construction site in close proximity to the deployment site with the required supply chain



How will components and sub-systems survive in the harsh marine environment?

Technical Challenges

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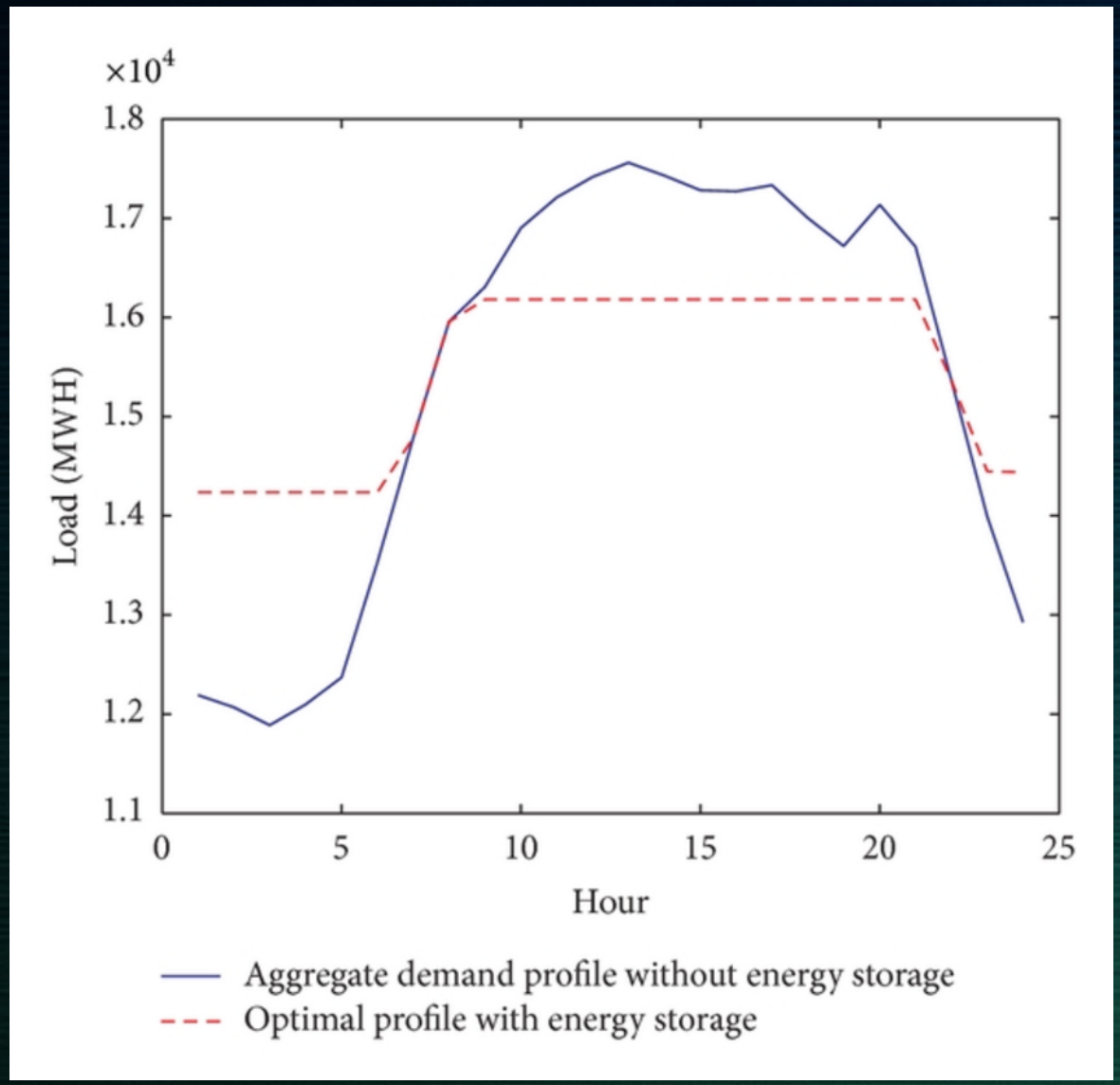
Adapting “off the shelf” components to the rigors of the fluctuating power being produced and suitable for the marine environment



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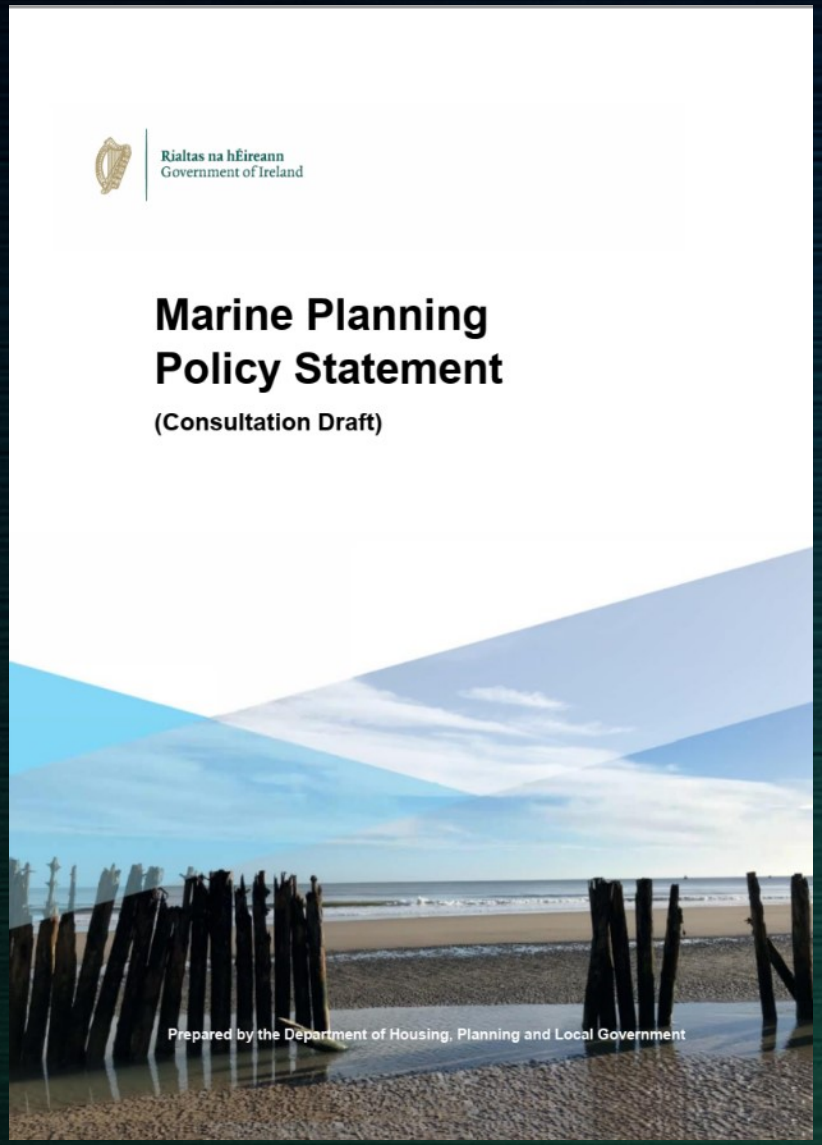
Matching the generation profile of your device to the grid it is connected to over different time scales.



Challenges For The Industry

- Permitting
- Device Capacity Range
- Insurance & Risk
- Convergence
- Standardisation

A Marine Spatial Plan for Ireland is not expected until 2021

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How can policy and funding mechanisms deal with devices that range from kW to MW capacities?

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7 Critical Risks Facing the Marine Industry

Onboard fires, cyber attacks and the risk that distracted captains will run vessels aground are all leading to increased cargo marine losses.

By: Dan Reynolds | January 7, 2019

WSJ LOGISTICS REPORT

Lloyd's of London Reviews Marine Insurance Market as Losses Mount

A review of unprofitable units could drive up costs for insuring the world's ocean carriers

The current insurance market is difficult to access for most industries, not only marine energy.

Convergence of technology might be expected from outside the industry, but that may not suit the diverse range of market opportunities available to the marine industry.

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Open Sea Operating Experience to Reduce Wave Energy Costs

Deliverable D5.2

Recommendations to TC114 from real-case applications of wave energy technical specifications

Compliance with existing standards can be challenging, so feedback is required. Technology qualification is necessary to de-risk devices and sub-systems.

Accelerate Development of Marine Energy Tech

- TRL/TPL
  - Follow the pathway to learn about your device
- Test Sites: Nursery to Full Scale
  - Use the test sites that are available and access the knowledge built up from previous experience
- International Standardisation: IEC
  - Get involved through implementation and feedback
- Adaptable Funding Mechanisms
  - Mechanisms are needed to support unexpected development costs during technology proving, especially at later TRL
- Lessons Learnt Dissemination
  - Marine Ops companies, Catapult, Wave Energy Scotland, OPERA, OPIN, ETIPOcean, IEA-OES