

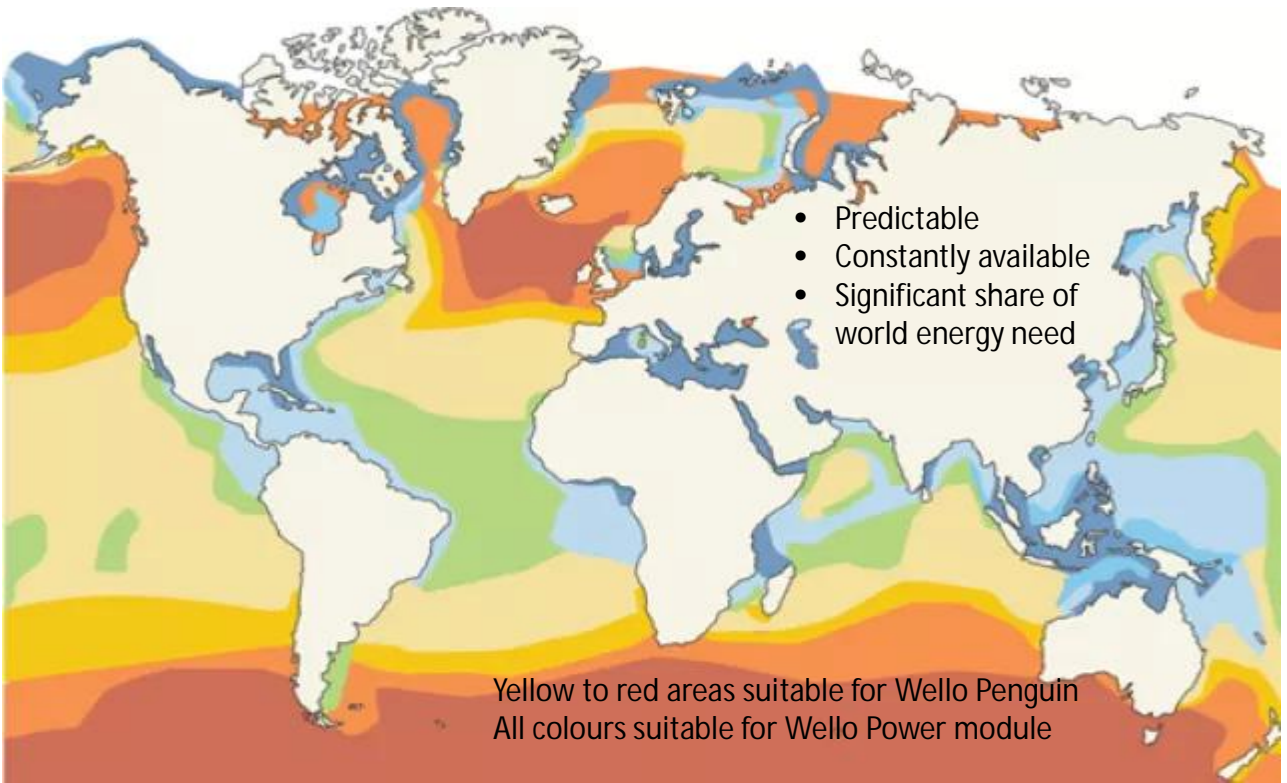
Penguin, the WEC – wave energy with direct conversion

March 22nd 2017 Heikki Paakkinen, CEO, Wello



Resource

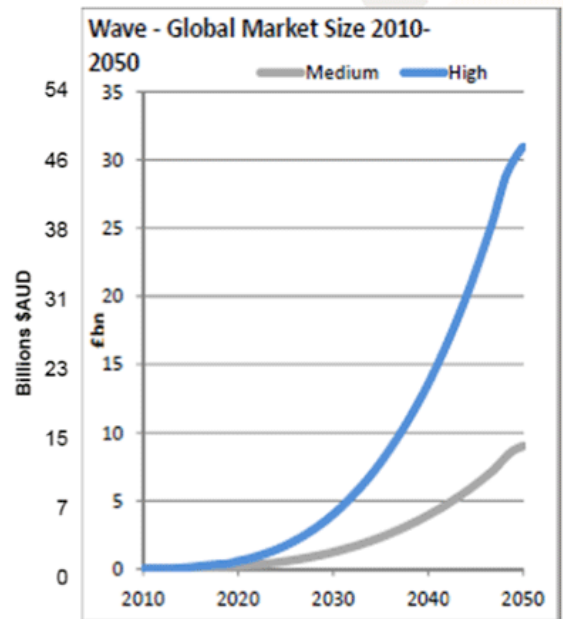
Ocean waves provide an endless resource of clean energy



- Predictable
- Constantly available
- Significant share of world energy need

Yellow to red areas suitable for Wello Penguin
All colours suitable for Wello Power module

“The wave energy market is forecast to be substantial by 2050”¹



¹ Graph & quote are from a report on the market for renewable energy by The UK Carbon Trust. The Carbon Trust Ltd is an independent not for profit company established by the UK Government.

Penguin



Penguin is a wave energy converter developed to capture the ocean energy

Penguin



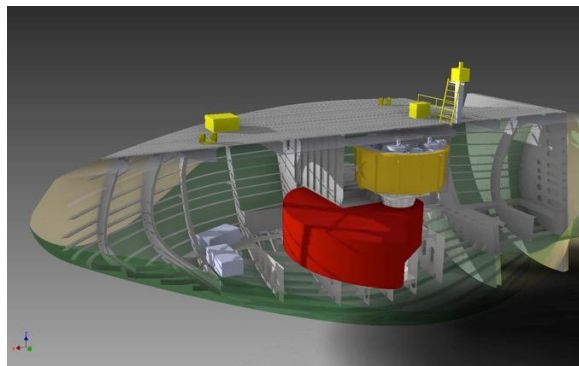
Penguin, the wave energy converter

- Wello's patented technology is able to convert the movement of waves directly into rotary movement. The rotating eccentric mass actuated by waves is driving a generator similar to those used in wind turbines.
- The device is fully encapsulated and has no moving parts in contact with water. This ensures durability in any kinds of weather conditions.
- The hull construction is similar to a conventional vessel, only the shape is different. This enables scaling up the cost-efficient production: it can be manufactured by practically any shipyard.

Penguin superiority

Wello's WEC has several advantages compared to competing solutions:

- Wello's technology is the only technology that has proven survivability in harsh ocean conditions. It is the only full scale device that has been operational on site with over 13 metre waves, and still, five years after manufacturing, has original components inside.
- It is the only technology that does not have any moving parts touching sea water. This guarantees durability.
- Ongoing multi-device pilot with Scandinavian utility company Fortum
- Wello's unique innovation enables direct continuous rotation.



Technology development

Wello follows an accelerated technology development method. Parallel to full scale activities there is active small scale and simulations activity.

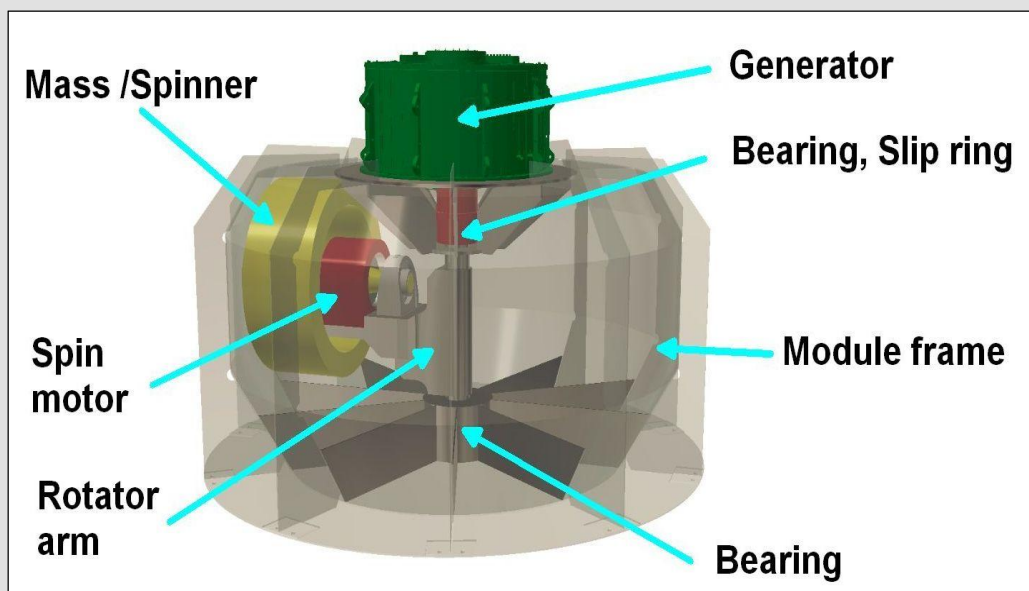


- Survivability
- Operations
- Maintenance
- Moorings



- Hull shape
- Control, automation
- Dimensions
- Proportions
- Moorings
- "Extreme conditions"

Power Module Concept Illustration



Technology is patented

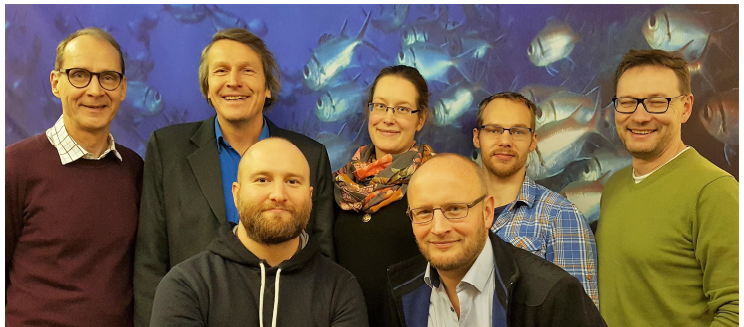
Application of Power Module

- Industrial processes
- Algae cultivation
- Desalination
- Hydrogen production
- Recycling
- Fisheries
- Breakwaters
- Energy storage
- Beacons/lighthouses
- Military applications
- Vessels, yachts
- Generic PTO to flap and Attenuator type WEC:s

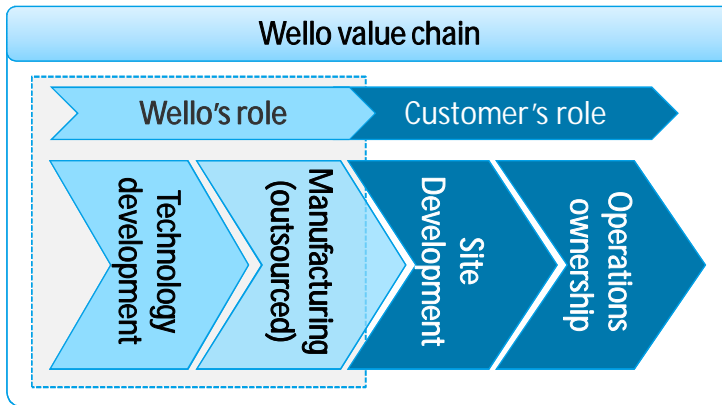


Wello, the company

- Wello provides the converters manufactured by Wello's partners.
- Wello is a Finnish company founded 2008 and at the moment it is active in following countries:
 - Italy
 - Great Britain
 - Spain
 - Ireland
 - Finland
 - Republic of Korea



Wello is responsible for the technology and the WEC manufacturing. The customer will be in charge of site, deployment and operations.



Customer project ongoing

- Multi device site up to 10MW with focus on long term operations, first phase funding €9M secured.
- Staged deployment over next 4-5 years (2017-2020)
- Funding in total €18M for consortium



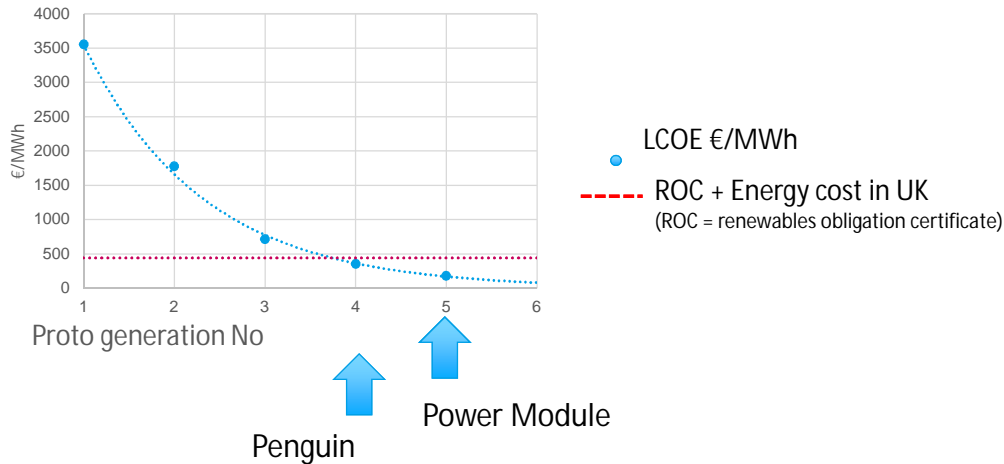
Building pipeline for additional deliveries

- Wello is shortlisted for ESB West Wave project (5MW) to be implemented 2018-2019
- Ongoing dialogue with European utilities
- LOI with Korean BSR CO Ltd for a pilot project
- Offer for ENI Tecnomare for 6 M€ and option for additional 20 M€ out



LCOE – Levelized Cost of Energy

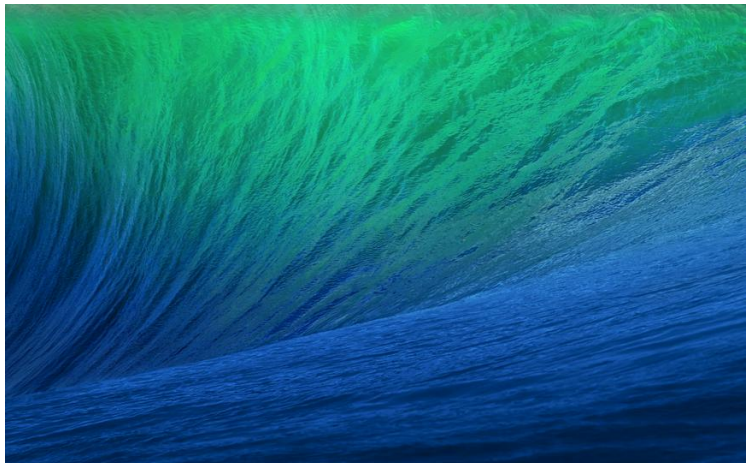
Wello is looking to reach LCOE of 100-150€/MWh by 2020, and below 100€/MWh by 2025. In Wello's Power Module technology the LCOE at the moment is approximately 200 €/MWh



Serial production is expected to bring the cost down another 40%

Wello Penguin Summary

- Emerging worldwide business similar to wind power, untouched market
- Scalable business model
- Unique product, 14 patents worldwide
- Proven technology
- Low maintenance cost and long life span
- Low LCOE



Values



Nature First

Striving for simplicity

Professionalism

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