

# EVOLVE

Place, Time and Value study  
for Blue Energy across Europe

## EVOLVE: Partner Capabilities



[www.aquatera.co.uk](http://www.aquatera.co.uk)

Supported by:



THE UNIVERSITY of EDINBURGH  
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# Aquatera – Who are we

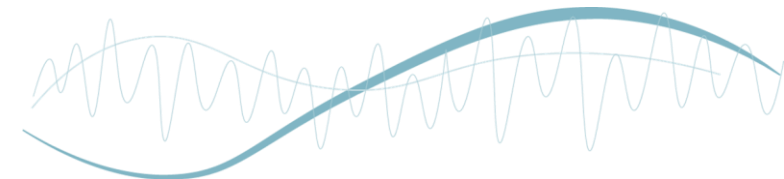


*Aquatera is an environmental consultancy company with its head office in Orkney which has some of the premier marine energy test sites and innovations in the world. Although a small privately owned organisation, Aquatera has a truly global reach, with staff; partners; associates and successful project delivery spanning every continent.*

*A multi disciplinary consultancy service, Aquatera specialises in:*

- *decarbonisation*
- *energy innovation (marine and terrestrial)*
- *environmental sustainability*
- *climate change response and*
- *environmental impact assessments*

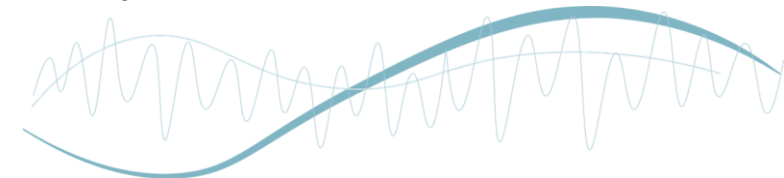
**EVOLVE**



# Aquatera – Role in EVOLVE

*Aquatera are the project managers, overseeing the coordination of the consortium partners, leaders on work packages:*

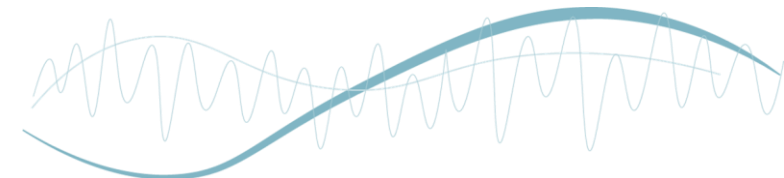
- WP1 Designated project manager to include primary report compilations and coordination of consortium partners
- WP2 Scenarios Formulation and TVME Methodology. Development of a suitable methodological framework for developing new models, learning and building from existing tools and experience
- WP4 Strategic Energy Scenario - Create new strategic model architecture for the project scope, populate the model framework and operate the model, establish a strategic scenario presentation and comparison report



- WP6 Output, consolidation and reporting - Compile report on energy scenario outputs and associated foresight
- WP7 Communication of Dissemination and Exploitation – Coordinate team dissemination activities

Contributors to:

- WP3 Energy resources, power production and electricity supply/demand characterisation – Contributing to provision of existing data finding and creating new sets
- WP5 Detailed Economic Energy Modelling - Contribute to data dense modelling effort



# Related projects

- VALID- Verification through Accelerated testing Leading to Improved wave energy Designs. VALID project is to develop and validate a new platform (and procedures) for accelerated hybrid testing that can be used across the entire wave energy sector to improve the reliability and survivability of the components and subsystems that form Wave Energy Converters.
- <https://www.validhttp.eu/>

The logo for the VALID project, featuring the word "VALID" in a bold, blue, sans-serif font. The letter "V" is stylized with a small cluster of blue dots to its upper left.The logo for CORPOWER OCEAN, featuring a stylized wave icon with a red and orange shape above it, and the text "CORPOWER OCEAN" below.The logo for AVL, featuring the word "AVL" in white on a blue rectangular background, followed by a circular icon containing several white dots.The logo for IDOM, featuring the word "IDOM" in a bold, blue, sans-serif font.The logo for ALBORG UNIVERSITET, featuring a stylized blue wave icon and the text "ALBORG UNIVERSITET" in a circular arrangement around it.The logo for YAVIN FOUR CONSULTANTS, featuring the text "YAVIN FOUR CONSULTANTS" in a green, sans-serif font.The logo for RISA, featuring the word "RISA" in a bold, blue, sans-serif font, with a stylized blue arrow pointing to the right.The logo for WAVEPISTON, featuring a stylized blue wave icon above the text "WAVEPISTON" in a blue, sans-serif font.The logo for BiMEP Biscay Marine Energy Platform, featuring the text "BiMEP" in a bold, blue, sans-serif font, followed by "Biscay Marine Energy Platform" in a smaller font.The logo for tecnalia, featuring the word "tecnalia" in a grey, sans-serif font, followed by a stylized orange and yellow wave icon.The logo for JULIA F. CHOZAS CONSULTING ENGINEER, featuring the text "JULIA F. CHOZAS CONSULTING ENGINEER" in a blue, sans-serif font.The logo for RI SE, featuring the letters "RI SE" in a bold, black, sans-serif font.The logo for TU Delft, featuring a stylized blue and orange wave icon above the text "TU Delft" in a blue, sans-serif font.The logo for EVOLVE, featuring the word "EVOLVE" in a bold, blue, sans-serif font, with a stylized blue and orange wave icon behind it.The logo for aquatera, featuring a stylized green and blue wave icon above the text "aquatera" in a green, sans-serif font, followed by "environmental services and products" in a smaller font.

# Related projects

- SEA Wave- The SEA Wave project incorporates future environmental monitoring campaigns around the CorPower Ocean, Ocean Energy and Laminaria wave energy converters. The data collected will be analysed and used within ecological models to provide deeper insight into the response of host environments to the presence of this emergent technology.
- <http://www.emec.org.uk/projects/ocean-energy-projects/environmental-monitoring/sea-wave-strategic-environmental-assessment-of-wave-energy-technologies/>



# Related projects

- WEP+ - This project will demonstrate the implementation of a reliable and cost effective mechanism for integrating wave energy and storage technologies into established electricity grids, tackling key challenges facing the ocean energy sector worldwide. This innovative project will help unlock development opportunities for similar technologies across the EU and worldwide. There are significant opportunities for each of the partners to export the technologies and expertise that will be further developed through the project's core R&D activities.

## WEP+



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# Aquatera – RADMAPP tool

INPUT: Baseline & future scenario data

Outcomes are determined by place, market and timescales

Data is gathered, filled and created on a common spatial, units and temporal basis to allow for easy use and manipulation across all modelling activities

Wide range of existing data available, gaps can be filled and additional scenario related data can be created

**The model needs to function structurally so that it can be used as circumstances arise. It does not need to foresee all scenarios from the start**

**Model input data**

- Wind
- Wave
- Tide
- Solar
- Conventional generation
- ↓
- Power curves
- Technical constraints
- Planning constraints
- ↓
- Distance
- Variability
- Predictability
- Technology
- Performance
- ↓
- What & where
- When & who
- Energy efficiency
- ↓
- Cost of energy
- Market structure
- Energy services
- Economic development
- Community development

**Model input factors**

- Place
- Timing pattern
- Change
- ↓
- Technology
- Sites
- Suitability
- ↓
- Connectivity
- Balancing
- Storage
- ↓
- What & where
- When & who
- ↓
- What price
- Incentives
- Other value

**Scenario modelling modules**

- Resources
- ↓
- Generation
- ↓
- Supply
- ↓
- Demand
- ↓
- Economics

Modelling modules are replicated across different place, market and timescale scenarios to generate range of future outcomes

OUTPUT: Future scenario outcomes

Future scenarios may alter established market forces, through evolution or through intervention

