EVOLVE
Place, Time and Value study for Blue Energy across Europe

EVOLVE: Partner Capabilities

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www.aquatera.co.uk

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Policy and Innovation Group

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*

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

Aquatera – Role in EVOLVE

- 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.validhtp.eu/

VALID

CORPOWER OCEAN

AVL

IDOM

AALBORG UNIVERSITET

YAVIN FOUR CONSULTANTS

RINA

WAVEPISTON

BiMEP Biscay Marine Energy Platform

tecnalia

JULIA F. CHOZAS CONSULTING ENGINEER

RISE

TU Delft

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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+

Neureus Technologies

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Autoridad Portuaria de Las Palmas

PLOCAN consorcio PLATAFORMA OCEÁNICA DE CANARIAS
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Aquatera – RADMAPP tool

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INPUT: Baseline & future scenario data

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

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Outcomes are determined by place, market and timescales

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