Hydrokinetic energy experience

Hydrokinetic energy workshop

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Aquatera: a world-leading business in hydrokinetic energy

250 hydrokinetic energy projects

30 hydrokinetic technologies supported

20 strategic energy plans

10 marine array projects

Based in Orkney

Formed in 2000
How we work

**Collaboration partners**
We collaborate with companies and organisations in a range of countries to incorporate local and specialist knowledge as required.

**Associates**
Aquatera has built a network of trusted and experienced associate consultants who support our projects.

**Employees**
Our permanent team of staff leads our marine and onshore projects from our bases in Orkney (UK), Chile and Kazakhstan.
Environmental Services

- Environmental impact assessment and monitoring

> 300 days of environmental monitoring for hydrokinetic projects

> 25 licenses successfully obtained for hydrokinetic projects
Marine operations

> **400** days of marine operations

> **100** installation and maintenance operations

> **150** seabed surveys
Practical innovation

• Aquatera recently led a USD 2m project with local Orkney partners to modify a catamaran barge for cable laying on tidal sites.

• At present, innovation is essential to every hydrokinetic project.
Research and Development

- Aquatera leads the marine physical resources competence node of the EU Columbus knowledge transfer project, with a focus on ocean energy and marine mining.

- We collaborate with European and international partners to combine practical experience with high impact research.
Strategic planning

> 20 hydrokinetic strategy projects

Integrated project support

- Aquatera supports technology and project developers to plan, implement and learn from hydrokinetic energy deployments.
In this image three wave power technologies can be seen using the Lyness pier in Orkney:

A – Wello Penguin
B – Pelamis II
C – Aquamarine Oyster 800
In this image four tidal energy devices can be seen using the Hatson Pier in Orkney:

A – Tidal Generation Limited (Alstom)
B – Scotrenewables Tidal Power
C – Voith Hydro
D – Andritz Hydro Hammerfest
Aquatera has supported Voith to install their device foundations, with concept design, environmental and risk management services.
Aquatera provided installation and maintenance support to Andritz Hydro for the installation of their 1MW device at EMEC’s Fall of Warness site in Orkney.
Since 2002 Aquatera has supported the development of the Scotrenewables floating tidal technology.

Services provided include:
• Business case preparation
• Environmental review of technology
• Environmental scoping and impact assessment
• Development of monitoring plans
• Remotely Operated Vehicles (ROV) surveys
Renewable power in Scotland

- Renewables provided 57.7% of Scotland’s electricity in 2015

• Active Network Management (ANM) switched on in 2009.

• Power flows are monitored, and input from renewable generators controlled.

• This has allowed more than 20MW of new renewable to connect to the Orkney system.

• 107% of power demand
Based on local success, Aquatera has expanded a range of environmental services to more than 20 different countries worldwide.
Hydrokinetic technology clients (wave, tidal and run-of-river)
## International activities

<table>
<thead>
<tr>
<th>Country</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Chile</td>
<td>Range of hydrokinetic energy services and project since 2012</td>
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<tr>
<td>Barbados</td>
<td>Energy management and strategic energy planning</td>
</tr>
<tr>
<td>Peru</td>
<td>Hydrokinetic strategy proposal</td>
</tr>
<tr>
<td>Colombia</td>
<td>Knowledge transfer for marine and run of river energy</td>
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<tr>
<td>Indonesia</td>
<td>Strategic planning and development of the regulatory framework for marine energy with the Indonesian Government, the British Embassy in Jakarta, and Robert Gordon University.</td>
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<tr>
<td>Philippines</td>
<td>Development of tidal energy sites</td>
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<tr>
<td>USA</td>
<td>Aquatera is working with the Annex IV programme to improve understanding of the environmental impacts of marine energy.</td>
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</tbody>
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30 overseas clients, 18 delivery partners, 10 international collaborations, 70% of turnover international, earnings of £3M over 2 years, travel to 30 global destinations, 16 nationalities within our team.
Obrigado

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