



Biome Renewables®

Biome Renewables in Joint Development with the University of New Brunswick and ANDRITZ to design enhanced PowerCone® Rotor for the Tidal Market

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Partnership and innovation alert!

Canadian cleantech company Biome Renewables (Biome) is collaborating with the University of New Brunswick and ANDRITZ on an innovative new tidal power project which promises to push tidal rotor and turbine design to the next level.

Utilizing Biome's patented PowerCone® technology, this numerical study will investigate the design, implementation, and impact of a completely reconceived and fully embedded novel rotor design.

Utilizing ANDRITZ's experience and wealth of knowledge in tidal and hydro energy and the University of New Brunswick's computational excellence in state-of-the-art Computational Fluid Dynamics (CFD), this multi-year project will investigate changes in hydrodynamics, design-driving loads, operational and maintenance considerations, manufacturing impacts and overall Levelized Cost of Energy (LCOE) for the reconceived turbine.

Biome CEO / CTO [Ryan Church](#) explains, "the project will involve a re-think in conventional tidal rotor design. Testing has shown a marked improvement in power performance, especially in lower flow velocities and an improvement in design-driving loads. The full potential of this impact has not been explored to date, and that's what this project is all about. At the end of the day, we can see how this positively impacts LCOE from a number of angles, so I'm excited to see what the final outcome will be."

Craig Love, Engineering Manager from ANDRITZ notes, "this project represents the state of the art in CFD modelling and data exchange between different scale of models - i.e. regional scale to turbine scale, and as such, aims to provide the greatest level of design optimisation targeting increased performance and reduced structural loading, both of which contribute towards the objective of minimizing the cost associated with instream tidal projects."

The project may also investigate other hydro-dynamic devices to improve the performance of tidal turbines in a variety of numerical site conditions, with a focus on CAPEX and OPEX.

Church added, "Partnerships like this help to explore, develop and commercialize energy technologies that enable the Global Energy Transition. At Biome Renewables, we call it the power of Evolved Design."

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Biome Renewables is a Canadian CleanTech company that leverages the intelligence of evolution to create a sustainable future. Our mission is to develop and commercialize the critical energy technologies that enable the Global Energy Transition and play a key role in how the world generates power in the 21st century.

biome-renewables.com

University of New Brunswick is the oldest English-language university in Canada, boasting an impressive engineering and Graduate Studies faculty within core research. UNB researchers are helping develop the next generation of alternative energy technologies, helping lay the groundwork for smarter, safer computing, aiding in the protection of the environment and assisting in furthering humanity's understanding of outer space.

International technology group ANDRITZ offers a broad portfolio of innovative plants, equipment, systems, services and digital solutions for a wide range of industries and end markets and is one of the globally leading suppliers of electromechanical equipment and services for hydropower plants. ANDRITZ is also a developer of instream tidal energy devices, some of which are presently in operation at the ground-breaking MeyGen Phase 1A tidal energy project in Scotland. The company has also developed and tested tidal energy devices in Kvalsund, Norway and at the European Marine Energy Centre in Scotland and is currently involved with the Uisce Tapa project in Nova Scotia, Canada.