



Leading Collaborative
Energy Research



THE PATHWAY PROGRAM: UNLEASHING POTENTIAL

OERA created The Pathway Program to solve a critical problem impeding the in-stream tidal energy industry: a lack of reliable and validated technologies and methods to monitor and report fish-turbine interactions in high-flow, highly turbulent environments, leading to regulatory uncertainty and increased project-developer expense and delay. The program is one example of how OERA identifies practical problems and assembles expert teams to create real-world solutions, resulting in outcomes that benefit industry, regulators and the community.

REALIZING INDUSTRY PROMISE

In-stream tidal energy is a potential source of clean, predictable energy for Nova Scotia and beyond. But what could become a \$500 million+ industry for our region has been stalled in part by a lack of regulatory certainty. The federal regulator requires that tidal energy developers use demonstrated, validated and reliable methodologies and equipment to collect data about fish-turbine interactions and to report results in a timely manner. Developers want all this too and at an affordable price, but none has the resources to solve the problem independently.

HARNESSING EXPERT KNOWLEDGE

To get the job done, OERA engaged top researchers from around the world – subject matter experts in active sonar detection of fish in challenging environments – to work collaboratively with local researchers, tidal energy developers, monitoring technology suppliers, machine learning experts and regulators. OERA is leading the team to deliver a series of interconnected sensor research and development projects that will produce a science-based, regulator-accepted monitoring solution with reduced reporting times and lower compliance costs.

AMPLIFYING INVESTMENT

OERA's status as an independent, science-based non-profit means we can access funding from a variety of sources. OERA secured 70% of the Pathway Program budget from federal and provincial government sources. Industry participants in the project contributed 30% in cash and in-kind contributions. This financial arrangement achieves a multiplier effect, with public funds invested now resulting in long-term, future benefits far exceeding the initial expenditure.

SALEABLE SOLUTIONS

An outcome of the research and testing being conducted through The Pathway Program is new intellectual property that Canadian suppliers can market globally to the tidal energy, offshore wind and other sectors of the ocean economy. Far from being simply an academic science project, this initiative is advancing tidal energy sector development and reducing barriers through technical innovation.



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RESEARCH PROJECTS

The Pathway Program is a series of interconnected sensor research and development projects that will result in reliable and validated technologies and methods to monitor and report fish-turbine interactions in high-flow, highly turbulent environments. Once project outcomes are known and compiled and the program is complete, it will be possible to:

- Reliably detect fish and marine mammals and provide data that is relevant for understanding their relative frequency, abundance and distribution within 100 metres of an individual bottom-mounted tidal energy turbine or floating tidal energy turbine platform.
- Integrate various sensors and account for interference between instruments.
- Include sensor mounting solutions appropriate for monitoring floating and bottom-mounted tidal turbines.
- Advance data automation to ensure timely (quarterly or better) reporting of monitoring results.
- Provide extended power supply and submarine-to-shore data transfer.

KEY DOCUMENTS

Key findings related to Pathway Program areas of study have been captured in the following downloadable documents:

- [The Pathway - A program for regulatory certainty for instream tidal energy projects.pdf](#)
- [David Barclay Report - Passive acoustic monitoring in tidal channels and high flow environments.pdf](#)
- [David Barclay Presentation - Passive acoustic monitoring in tidal channels and high flow environments.pdf](#)
- [James Joslin Report - Imaging sonar review for marine mammal and fish monitoring around.pdf](#)
- [James Joslin Presentation - Imaging sonar review for marine mammal and fish monitoring around.pdf](#)
- [John Horne Report Scientific Echosounder Review for In-Stream Tidal Turbines.pdf](#)
- [John Horne Presentation Scientific Echosounder Review for In-Stream Tidal Turbines.pdf](#)
- [Pathway Workshop 1 Cabling and Platform.pdf](#)
- [Pathway Workshop 2 Data Automation.pdf](#)
- [Pathway Workshop 3 Passive Acoustic Monitoring Final Report.pdf](#)
- [FORCE - Data Analysis Component of Comparative PAM technology assessment - Final Report.pdf](#)

At OERA (the Offshore Energy Research Association), we enable expert energy research that includes input from industry, academia, government, regulators and others. Our scope encompasses all energy-related research, including onshore and offshore petroleum, cleantech and renewable energy. We're helping Nova Scotia move toward a more sustainable energy future by providing the unbiased information and insight needed to plan a path forward. We support economic growth in our region by exploring and assessing cleantech opportunities. We are a non-profit organization serving as an independent and impartial knowledge and capacity builder.