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Marine renewable energy – offshore wind, tidal, wave, and river current – offers Canada a uniquely powerful solution.

With vast coastlines, strong winds, and powerful tides, Canada is among the most abundant marine renewable jurisdictions in the world. These resources can deliver small-scale and large-scale, predictable and reliable clean power, strengthen grid resilience, reduce reliance on fossil fuels, and support economic development across coastal, remote, northern, and Indigenous communities.

While development remains at early stages, Canada has established research, demonstration, testing, and early commercial activity across several provinces and territories.



Tidal Energy

Canada has particularly strong potential in **tidal stream energy**, supported by some of the world's most powerful tidal resources. The **Bay of Fundy in Nova Scotia** has been the centre of Canadian tidal development, with the Fundy Ocean Research Centre for Energy (FORCE) hosting multiple technology demonstrations and generating important technical and environmental data.

Nova Scotia's early policy support, research funding, infrastructure and legislation helped attract **more than $200 million in international investment**. In 2025, the province issued tidal energy licences and power purchase agreements for **additional tidal capacity at FORCE**, following efforts to address regulatory and infrastructure barriers.

Tidal development is also advancing on Canada's **West Coast**. Companies and research organizations are working with First Nations on smaller-scale tidal systems designed to reduce diesel dependence in remote communities. Research and demonstration activities in British Columbia are focused on environmental monitoring, technology validation and regulatory development.



Wave Energy

Canada's **wave energy industry remains primarily focused on research, technology development and demonstration**, particularly on the West Coast.

The University of Victoria's Pacific Regional Institute for Marine Energy Discovery (PRIMED) is supporting wave and tidal resource characterization, technology development and community-scale deployment. A notable initiative is the **Yuquot Wave Energy Project**, led by the Mowachaht/Muchalaht First Nation, which the report identifies as potentially becoming the **first wave energy project in Canada to provide power to an off-grid community**.

Wave energy can complement other renewable resources with its energy output is expected to be strongest during **winter months**, which can align with periods of higher electricity demand.



River Current Energy

River current, or hydrokinetic, energy is being developed as a complementary part of Canada's marine renewable energy sector. Unlike conventional hydropower, river current systems can generate electricity from flowing water **without dams or significant alteration of waterways**.

The **Canadian Hydrokinetic Turbine Test Centre (CHTTC) in Manitoba** is identified as Canada's primary hub for river current technology testing and validation. It supports technology development and commercialization, particularly for applications in **northern and Indigenous communities**.

River current technologies have been demonstrated in **British Columbia, the Northwest Territories, Quebec and Manitoba**, indicating that the industry has applications across a range of Canadian geographic and community contexts.

Our Vision for Canada's Marine Renewable Energy Sector

In 2026, MRC released a Sector Vision 2050, setting out a practical, phased pathway for realizing Canada's marine renewable energy opportunity.

Our vision is that by mid-century, marine renewable energy is a key pillar of Canada's clean energy transition – supporting climate action, strengthening energy systems, and fostering resilient communities and sustainable economic growth.



This means that by 2050:

- Canada is a world leader in tidal energy, with expertise in both large- and small-scale projects.
- Canada is an established market for offshore wind.
- Canada establishes wave energy as a viable component of its clean energy system.
- Marine renewable energy powers remote communities and ocean industries.
- Marine renewable energy delivers reliable, predictable, and integrated generation that supports baseload needs, optimizes energy storage, and helps balance variability across Canada's net-zero electricity grid.

Realizing this Vision by 2050 would enable a thriving marine renewable energy sector that generates an estimated $12 billion GDP impact across Canada from construction activity alone.

To learn more about Marine Renewables Canada's 2050 vision for the sector visit: marinerenewables.ca/vision

Acadia Tidal Energy Institute

507 Patterson Hall, 24 University Av.
Wolfville, Nova Scotia, B4P1R3
Canada

The Acadia Tidal Energy Institute (ATEI) at Acadia University was established in 2011 to focus on tidal energy research and training to promote responsible approaches to tidal energy development in the Bay of Fundy. To further these efforts, ATEI members founded, and continue to support and lead, the Fundy Energy Research Network (FERN).

Contacts:

Dr. Anna Redden,
Professor and Co-Director
Ph: +1 902.670.6187
anna.redden@acadiau.ca

Dr. Richard Karsten
Professor and Co-Director
Ph: +1 902.670.3400
richard.karsten@acadiau.ca

ATEI's research, education and outreach activities over the last 15 years have focused on:

- Tidal Energy Resource Assessment
- Environmental Monitoring and Impacts of Tidal Energy
- Fish Migration and Tracking to Assess Risk of Turbine Encounters
- Socioeconomic Impacts of Tidal Energy Development
- Investment and Financing of Tidal Energy
- Sustainable Coastal Community Development
- Education and Public Engagement

ATEI is currently focused on conducting federally funded collaborative research to both advance environmental monitoring methodologies to detect fish interactions at tidal development sites and reduce fish-turbine "collision risk uncertainty" for tidal stream device installations at FORCEs site in Minas Passage, Bay of Fundy.

The work of the Acadia Tidal Energy Institute is driven by a multidisciplinary team of Acadia University faculty, research associates, staff, students, and by partnerships with industry, research centres, communities, First Nations, other academic institutions, NGOs and both provincial and federal governments.

www.tidalenergy.acadiau.ca

https://www.linkedin.com/in/anna-redden-41b8bb16/

Bluedot Environmental Ltd.

8124 Forest Grove Drive
Burnaby, British Columbia, V5A4G9
Canada

Benjamin Wheeler
Principal
Ph +1 778.877.3476
ben.wheeler@bluedotenvironmental.com

Bluedot Environmental is a specialized marine consulting team that brings rigour to the data and care to the dialogue. We support projects across Canada's Pacific, Atlantic, and Arctic coastlines, guiding projects from uncertainty to approval through regulatory processes with clear pathways, plain-language evidence, and deliverables built for scrutiny.

Bluedot specializes in marine renewable projects, and in particular, tidal energy. We are experts on potential impacts to fish and marine mammals, the mitigation measures to protect these species and monitoring to confirm that the mitigation has been successful.

Services:

- Impact assessment and permitting
- Project strategy and issues scoping (to inform project budgets and schedules)
- Marine biological surveys (fish, mammals, marine vegetation, benthic infauna, crabs)
- Expert review
- Shoreline resiliency planning
- Marine habitat offsetting and restoration
-

Bluedot is a Canadian marine renewables specialist trusted to guide first-of-their-kind projects through Canadian regulatory approval. With Canada's Atlantic offshore wind sector now opening — under new federal legislation (Bill C-49) that requires developers to deliver Canadian content and local benefits — Bluedot is well positioned as the local environmental and regulatory partner for international developers and technology providers entering Canadian waters.

www.bluedotenvironmental.com

https://www.linkedin.com/company/bluedot-environmental-ltd/



Bourque Industrial Limited

85 Industrial Drive
Saint John, New Brunswick, E2R 1A4
Canada

John Bourque
President
Ph: +1 506.647.2399
jbourque@bourqueindustrial.com

Featuring state-of-the-art equipment, Bourque Industrial responds and delivers to a variety of markets. From fabrication through quality control and safety, we employ proven processes and technology to create lasting solutions to our client's fabrication requirements. With a proven track record in the fabrication and the repair or replacement of existing parts and equipment, we cater to a diverse clientele.

Working with carbon steel and many other alloys including aluminum and stainless steel, our certified and experienced workforce deliver precise cutting, shaping, welding and painting using the latest processes. We work with clients to determine the best process and technology for each job then ensure that every component is fabricated to exacting standards the first time. Our quality control processes means that every component meets specifications and will withstand the use it was intended for.

With an unsurpassed attention to customer needs and a strong commitment to every production schedule, coupled with our commitment to continuous improvement, Bourque Industrial has been rewarded with a long list of satisfied clients who count on us to meet their ever-evolving fabrication needs.

www.bourqueindustrial.com

www.Linkedin.com/in/John-Bourque

@JohnBourque2

Envigour Policy Consulting Inc.
845 Tower Rd
Halifax, Nova Scotia, B3H 2Y1
Canada

Bruce Cameron
Principal Consultant
Ph: +1 902.497.8823
bruce.cameron@envigour.ca

Envigour Policy Consulting Inc. is based in Halifax, NS, serving a wide variety of clients seeking advice on energy policy, plans, strategies and program implementation. Bruce Cameron, MBA, provides these advisory services and has 20 years of government experience leading energy policy and decarbonization strategies. He led the development of Nova Scotia's Marine Renewable Energy Strategy, the Marine-renewable Energy Act, and numerous legislative, regulatory, and program design projects. Envigour partners with others on complex assignments.

Over the past decade, Envigour has conducted supply chain studies in tidal energy and OSW for Canadian companies in Asia, Latin America, and Atlantic Canada. While much of Envigour's work is for Governments in Canada, industry seeking insights into Canadian policy and regulatory processes, and not-for-profit industry associations, it also works in the Caribbean, advising governments on energy transition, regulatory policy, and legislative development.

www.envigour.ca

Fundy Energy Research Network (FERN)

507 Patterson Hall, 24 University Avenue
Wolfville, Nova Scotia, B4P1R3
Canada

The Fundy Energy Research Network (FERN) is a collaborative "hub" dedicated to advancing and sharing tidal energy research and developments in the Bay of Fundy and elsewhere. Membership is international and free. FERN members include academia, researchers, First Nations, industry leaders, government, resource users, and interested others.

Contacts:

Dr Anna Redden
Professor and FERN Director
Ph: +1 902.670.6187
anna.redden@acadiau.ca

Elise Malicki
FERN Network Manager
Ph: +1 289.971.9311
elise.malicki@acadiau.ca

FERN's focus is on knowledge dissemination (e.g. webinars, newsletters, meetings, reports, website), tidal sector engagement, and the fostering of innovation and informed decision-making toward the responsible harnessing of tidal energy. Discipline areas typically highlighted include:

1. Engineering, Hydrodynamics and Modelling
   - Technological and physical environment considerations of tidal energy development
   - Improving the efficiency, cost-effectiveness, and longevity of tidal energy technologies

2. Environmental Effects and Monitoring
   - Recognizing the importance of tidal energy development that respects marine life and habitat
   - Striving to ensure that harnessing tidal energy proceeds in an environmentally responsible manner

3. Socioeconomics and Community
   - Consideration of the social,economic, and culturaldimensions of tidal energy development
   - Commitment to fostering a transparent, inclusive and respectful network

www.fern.acadiau.ca

www.linkedin.com/company/fundy-energy-research-network/

Fundy Ocean Research Centre for Energy Ltd. (FORCE)

1156 West Bay Road
Parrsboro, Nova Scotia, B0M 1S0
Canada

Established in 2009 and located in Minas Passage, Bay of Fundy, FORCE is Canada's leading facility for tidal stream energy research and development. FORCE advances tidal energy as a shared priority for Nova Scotia and Canada with:

Contacts:

Lindsay Bennett
Executive Director
Ph: +1 902.209.9559
Lindsay.bennett@fundyforce.ca

Rodrigo Menafra
Director of Strategic Operations
Ph: +1 902.229.3519
Rodrigo.menafra@fundyforce.ca

- A technology site, connected to the grid
- Environmental monitoring data, shared with the public
- Services and solutions to help projects succeed safely, bringing together industry, government, Rights Holders, academia and other partners

To date, a total of seven devices have been built in Nova Scotia; most recently, Eauclaire Tidal and Orbital Marine Power were awarded 16.5 megawatts (MW) at FORCE, including licences and power purchase agreements, which enables the deployment of up to six floating 2.4MW O2-X devices.

FORCE's electrical assets include four 34.5kV subsea power cables, each 2 to 3 km in length, a 30MW substation and revenue class metering, and 10km of overhead 69kV transmission line connecting the FORCE substation to the provincial power grid.

FORCE's science program, which includes both in-house expertise as well as partnerships with world-leading marine scientists, is designed to support informed discussion among government, regulators, Rights Holders, industry, and other partners.

FORCE's monitoring reports are available publicly at https://fundyforce.ca/document-collection.

www.fundyforce.ca

JASCO Applied Sciences (Canada)

520 Mount Hope Avenue
Dartmouth, NS, B2Y 4S3
Canada

Scott Carr
CEO
scott.carr@jasco.com

JASCO Applied Sciences (Europe)

Lise-Meitner- Straße 9
24223 Schwentinental
Germany

Federica Pace
Director, Applied Sciences Europe
Ph: +31 6 1538 6533
europe@jasco.com

JASCO Applied Sciences is a global leader in underwater acoustics and marine environmental science, supporting the development of sustainable ocean energy solutions worldwide. Since 1981, JASCO has helped industry, government, and research organisations understand and manage the interaction between human activities and the marine environment.

For the wave and tidal energy sector, JASCO provides specialist expertise in underwater noise assessment, acoustic modelling, environmental impact assessment, monitoring design, and regulatory support. Our multidisciplinary team combines expertise in marine acoustics, oceanography, bioacoustics, and marine ecology to help developers evaluate potential environmental effects, support consenting processes, and advance responsible ocean energy deployment.

JASCO's science-based approach integrates advanced modelling tools with field measurements and environmental expertise to deliver robust, evidence-based solutions throughout the project lifecycle, from site selection and permitting to operation and environmental monitoring. Our experience across offshore renewables, shipping, and marine infrastructure provides valuable insight into cumulative underwater noise and broader marine environmental challenges facing the ocean energy sector.

www.jasco.com

www.linkedin.com/company/jasco-applied-sciences/

Marine Institute of Memorial University of Newfoundland and Labrador

8155 Ridge Road
St. John's, NL, A1C 5R3
Canada

Paul Ryan
Ph: +1 709.778.0335
paul.ryan@mi.mun.ca

The Fisheries and Marine Institute of Memorial University (MI) is Canada's most comprehensive Centre for education, training, applied research, and industrial support for the ocean's industries. MI provides more than 20 industry-driven programs ranging from technical certificates to master's degrees. It also offers advanced diplomas, diplomas of technology, and technical certificates.

The Institute has three Schools – the School of Fisheries, the School of Maritime Studies and the School of Ocean Technology - and a number of specialized centres and units that lead the Institute, both nationally and internationally, in applied research and technology transfer and training to a variety of industry clients.

Students enjoy a learning environment were competitive tuition rates, small class sizes, and hands on instruction put an internationally recognized education well within reach. MI also runs a variety of short courses and industrial response programs designed to provide students with knowledge and skills required for success in the workforce.

www.mi.mun.ca

www.linkedin.com/school/fisheries-and-marine-institute-of-memorial-university-of-newfoundland

@mistudents

@marine.institute **@mi.students**

https://www.facebook.com/marine.institute

Marine Renewables Canada
PO Box 46011
Halifax, Nova Scotia, B3K 5V8
Canada

Amanda White
Senior Director - Operations & Member Services
Ph: +1 902.717.0716
amanda@marinerenewables.ca

Claire Kleinknecht
Policy Analyst
Ph: +1 902.817.4276
claire@marinerenewables.ca

Marine Renewables Canada is the national association for tidal, offshore wind, wave and river current energy, representing over 200 members including technology and project developers, suppliers, utilities, Indigenous organizations, researchers, and communities.

Since 2004, the association has worked to build the sector by advocating for supportive policies, identifying domestic and international business development opportunities for its members, facilitating collaboration amongst its membership and broader ecosystem, providing education and outreach, and disseminating market intelligence. As part of its focus on developing the sector, Marine Renewables Canada is active in catalyzing opportunities for how marine renewable energy can contribute to achieving decarbonization goals through the production of green fuels such as hydrogen, as well as displacement of diesel in remote communities and marine industries.

www.marinerenewables.ca

www.linkedin.com/company/marine-renewables-canada

The Nova Scotia Department of Energy
PO Box 2664
Halifax, Nova Scotia, B3J 3P7
Canada

Matthew Baker
Manager, Marine Renewables
Matthew.Baker@novascotia.ca

The Nova Scotia Department of Energy supports the use and development of energy resources to help increase energy security, create jobs, grow the economy, and create social benefits. It helps develop local, renewable energy and clean energy solutions to create new economic opportunities, reduce greenhouse gas emissions, and increase energy affordability.

Nova Scotia is home to one of the world's most significant tidal energy resources in the Bay of Fundy and has established itself as a leader in tidal energy research, innovation, and technology demonstration. The Department promotes and supports responsible and sustainable development of marine renewable energy resources through policy and legislative frameworks, marine and environmental science, and collaboration with partners to advance research and innovation and grow the sector.

The Department also oversees the development of marine renewable energy resources in provincial waters through licensing and permitting, and works to promote efficient, effective, and environmentally responsible project development that supports Nova Scotia's transition to a low-carbon economy.

www.novascotia.ca/government/energy

Ocean Sonics Ltd

110 Parkway Drive
Truro Heights, Nova Scotia, B6L1N8
Canada

Ralph Bastarache
Chief Commercial Officer
Ph: +1 902.655.3300 (ext 177)
ralph.bastarache@oceansonics.com

Ocean Sonics designs and manufactures accurate, reliable, and easy-to-use smart hydrophones for researchers and professionals working in the oceans. Founded in 2012, our products are used in every ocean on the planet, as well as in many seas and lakes.

Our flagship product, the icListen HF, captures, records, and can stream in real-time broadband sound from 10Hz to 200kHz. This acoustic range makes it ideal for monitoring any sound in the ocean, whether from natural or man-made sources.

Ocean Energy production and transmission require real-time acoustic monitoring, and Ocean Sonics hydrophones, paired with its proprietary software Lucy II, accomplish exactly this. Whether monitoring construction noise levels or monitoring Critical Underwater Infrastructure, the icListen family of products' real-time streaming of acoustic data allows for immediate, informed decisions.

Ocean Sonics offers a full complement of accessories to enable the deployment and use of its digital hydrophones. From seabed tripods to acoustic buoys, cabling and float collars, we offer a complete range of products to enable project success.

www.oceansonics.com

www.linkedin.com/company/ocean-sonics-ltd

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