marine renewables canada

ANNUAL REPORT 2023

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WHO WE ARE

Marine Renewables Canada (MRC) is the national association for tidal, offshore wind, wave, and river current energy, representing technology and project developers, utilities, researchers, communities, and suppliers. Since 2004, the association has worked to build the industry by advocating for supportive policies, identifying domestic and international business development opportunities, facilitating collaboration amongst its membership and broader ecosystem, and providing education and outreach. As part of its focus on developing the sector, MRC is active in catalyzing opportunities for how marine renewable energy can contribute to achieving emission reductions through production of green fuels such as hydrogen, as well as displacement of diesel in remote communities and marine industries.

OUR VISION

Marine renewables are accelerating Canada's clean energy transformation.

OUR MISSION

To champion Canada's growing marine renewable energy sector through advocacy, engagement, and education and expand market opportunities across the country and globally.

OUR TEAM

BOARD OF DIRECTORS

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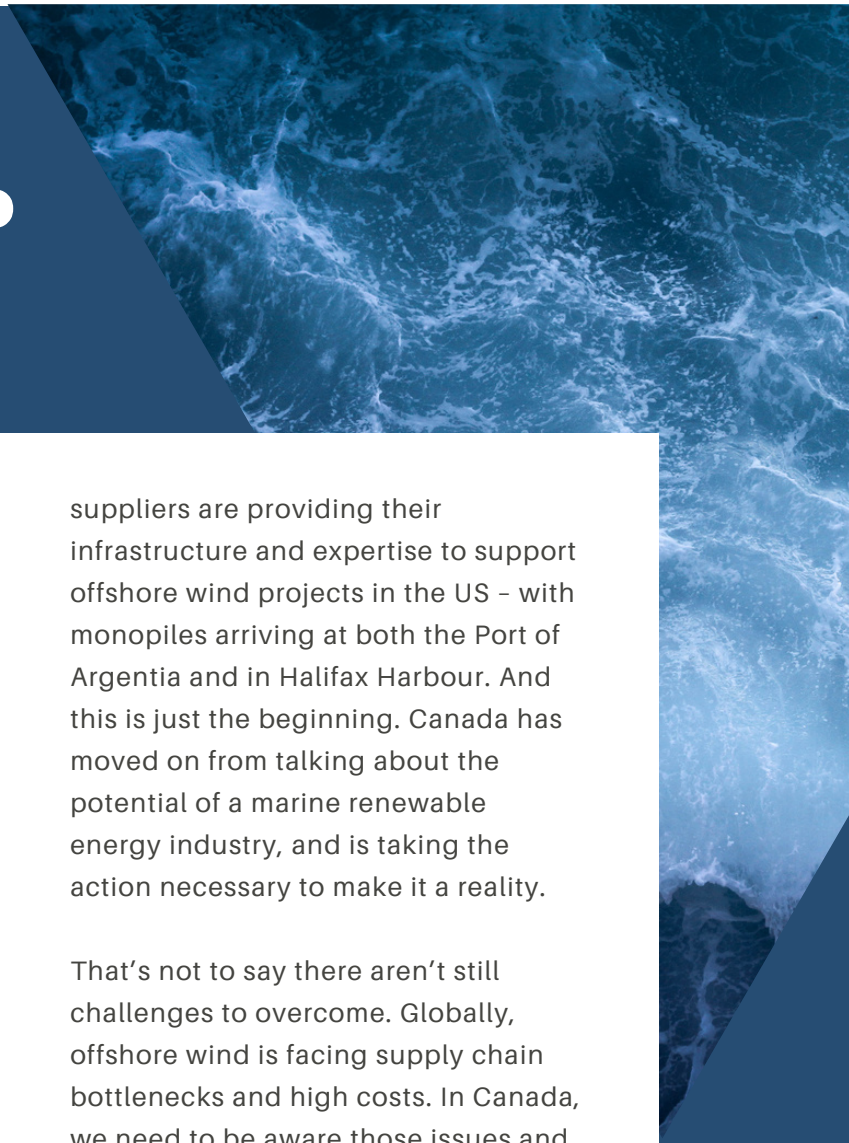
David Timm Northland Power - *Advisory Seat*

STAFF

Lisen Bassett Policy and Communications Lead
Chelsi Bennett Communications and Event Coordinator
Elisa Obermann Executive Director
Riley Richardson British Columbia Advisor
Amanda White Operations Director

LEADERSHIP MESSAGE



With the highest tides in the world, the longest coastlines, and some of the best offshore wind resources, Canada holds undeniable, untapped potential in marine renewable energy. Potential to help green the grid. Potential to help create local jobs and power the blue economy. And potential to make a real impact towards fighting climate change at home and globally.

In 2023, that potential has become a lot closer to a reality. In April, the federal government tabled the amended Accord Acts – a critical piece of legislation that is key to establishing a regulatory framework and leasing process for offshore wind. In parallel with this, a Regional Assessment of Offshore Wind officially kicked off in Nova Scotia and Newfoundland and Labrador. This will get us closer to defining wind energy areas that incorporate input from industry, Indigenous peoples and key stakeholders such as fisheries.

As we await the next steps for domestic development, many of MRC's members are already rolling up their sleeves and advancing this industry in nearby markets – and we are seeing the benefits here in Canada. Our ports and suppliers are providing their infrastructure and expertise to support offshore wind projects in the US – with monopiles arriving at both the Port of Argentia and in Halifax Harbour. And this is just the beginning. Canada has moved on from talking about the potential of a marine renewable energy industry, and is taking the action necessary to make it a reality.

That's not to say there aren't still challenges to overcome. Globally, offshore wind is facing supply chain bottlenecks and high costs. In Canada, we need to be aware those issues and design our strategy to overcome challenges and support sustainable development. We are fortunate that we can learn from other jurisdictions and implement best practices that can help accelerate development here.

Over the past year, we have also grappled with how to ensure Canada remains a leader when it comes to tidal stream energy. Following strong advocacy efforts by MRC, the Government of Canada established the Task Force on Sustainable Tidal Energy Development in the Bay of Fundy to address regulatory barriers

facing the tidal energy industry under the Fisheries Act. We must also keep in mind that despite challenges, we can't lose sight of what has been accomplished and how much promise tidal holds on our coastlines. Nova Scotia's 300 MW target has spurred 7 device deployments, the involvement of 300 Canadian businesses, and over $200M in project activity in the Bay of Fundy. On the west coast, British Columbia is building on early learnings from tidal energy deployments and invested $2 million this year to support the integration of tidal energy in coastal communities – an initiative that will help catalyze clean energy independence in rural and remote communities in BC and beyond.

What is clear from all of this – the achievements and challenges of the past year – is that collaboration, perseverance, and ingenuity are critical aspects to advancing Canada's marine renewable energy industry. And MRC is committed to working with all of you to keep up the momentum and get steel in the water.

Peter Huttges
Chair

Elisa Obermann
Executive Director

IN MEMORIAM

Remembering Chris Campbell

It was with great sadness this August to learn of the passing of Chris Campbell, one of the original founders of Marine Renewables Canada and unwavering champion of marine renewable energy across Canada. Chris worked to establish the Ocean Renewable Energy Group (OREG) in British Columbia beginning in 2004, when renewable energy was not the hot topic or growing market it is today. He worked to encourage governments' support of the sector, establish allies around the world, and build the community of members that are the foundation of MRC today.

Chris' passion for the sector and the association's mission was palpable – there wasn't an opportunity he didn't endeavour to realize or a challenge he didn't attempt to conquer. His tenacious approach to building the sector led to the association expanding beyond British Columbia, becoming a national association with international reach. At the very early stages of sector development, he spent countless days and weeks at international events and meetings to ensure that Canada and MRC's members were recognized as leaders in marine renewable energy worldwide.

In 2012, under Chris' leadership, OREG rebranded to Marine Renewables Canada, marking a new phase in the sector's evolution and the establishment of the association's Atlantic office. Chris had the foresight to see the immense growth opportunities for tidal, offshore wind and wave on the east coast.

Chris retired from MRC at the end of 2014, but he was always close by and ready to provide insight and support. He remained an advocate for the sector, but most of all, he continued to speak of MRC's members with enthusiasm and pride – truly believing in their strength and abilities to clinch Canada's position as a world leader in the industry.

All of us at MRC would like to add our condolences to Chris' family and friends, and voice our utmost respect and gratitude for the work Chris did to catalyze marine renewable energy in Canada.

SECTOR UPDATES & HIGHLIGHTS

Industry Activity

2023 was a momentous year for the marine renewable energy sector in Canada – marked with milestones that will catalyze offshore wind development in Atlantic Canada, challenges being addressed in the tidal energy sector, and more momentum building on the west coast in support of marine renewable energy uptake in remote communities.

Tidal Energy

Big Moon Power (Nova Scotia)

In 2023, Big Moon Power continued activities to prepare its "Falcon" tidal energy barge for deployment at FORCE. Preparations were made to transport anchors for Big Moon's device to the Fundy Ocean Research Centre for Energy (FORCE) site. The Falcon has a large kinetic wheel suspended between the pontoons of a 30-metre barge anchored to the ocean floor.

DP Energy (Uisce Tapa Project) (Nova Scotia)

DP Energy continued with the planning of and working with Department of Fisheries and Oceans Canada (DFO) on the consenting for Phase 1 of the 9 MW Uisce Tapa project, which will deploy 6 Andritz Hammerfest Hydro (AHH) Mk1 turbines at the FORCE site in Nova Scotia.

Jupiter Hydro (Nova Scotia)

In June 2023, Jupiter Hydro received a Letter of Advice from the Department of Fisheries and Oceans Canada after consideration of environmental risks and regulatory requirements the project must meet under the Fisheries Act. The company will move forward with its two-phased project in the Bay of Fundy, beginning with the testing of a non-grid connected 1 MW prototype followed by a 2MW demonstration.

New Energy Corporation (Nova Scotia, British Columbia, International)

New Energy Corporation, through its wholly owned subsidiary NewEast Energy, has been working towards the deployment of its 800 kW project in the Bay of Fundy's Minas Passage. New Energy is also developing two additional tidal energy projects on the east and west coasts featuring smaller 25kW EnviroGen turbine systems. The purpose of these projects is part of the off-diesel initiative in Canada and providing a clean, predictable energy source to remote communities along the coast and other major bodies of water.

Internationally, New Energy has been developing a foothold in the region of Southeast Asia and has recently delivered 5 turbines to Singapore for implementation in an industrial plant setting which are being installed through a local partner.

Nova Innovation (Nova Scotia)

Nova Innovation is continuing the development of its 1.5 MW tidal energy project in Petit Passage, Nova Scotia with fabrication complete and the first phase (500 kW) targeted for deployment in 2024. In 2023, Nova Innovation continued to make progress towards achieving Phase 1 of this project, including renewed community and Mi'kmaq engagement efforts.Nova Innovation is currently arranging the logistics, contractors, and scheduling necessary for a deployment in 2024 of the first of the Phase 1 turbines in Petit Passage.

Eauclaire Tidal & Orbital Marine Power (Nova Scotia)

In 2023, Eauclaire Tidal partnered with Orbital Marine Power to deliver Orbital's floating tidal stream turbine technology to Eauclaire's berth at the FORCE site. The agreement covers one 2.4 MW O2-X machine to be deployed at FORCE following the permitting process under the Fisheries Act. Orbital's first O2 machine was deployed in the waters off Orkney, Scotland, and has been exporting electricity as the world's most powerful tidal turbine to the UK grid since July 2021.

Yourbrook Tidal Energy Systems (British Columbia)

In 2023, Yourbrook received funding from NRCan's Clean Energy for Rural and Remote Communities program for the Kamdis Tidal Power Demonstration Project on Haida Gwaii in British Columbia. The $1.3 million investment over 2 years will go towards Front End Engineering and Design.

Yourbrook Energy Systems tidal stream energy device being demonstrated in Haida Gwaii.

River Current Energy

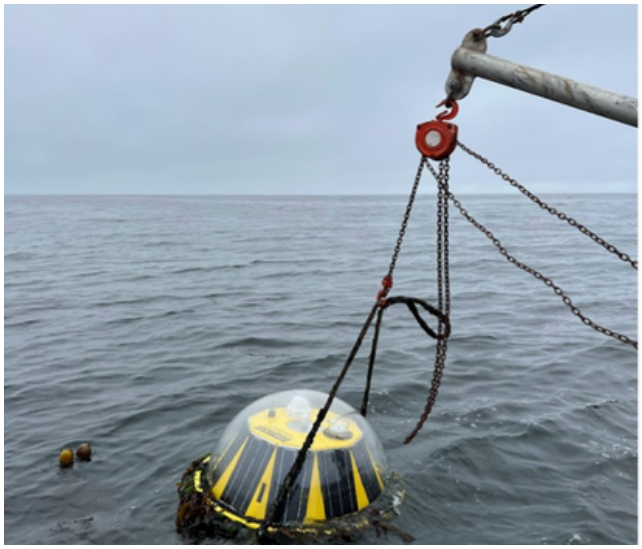
ORPC Canada (Quebec and Manitoba)

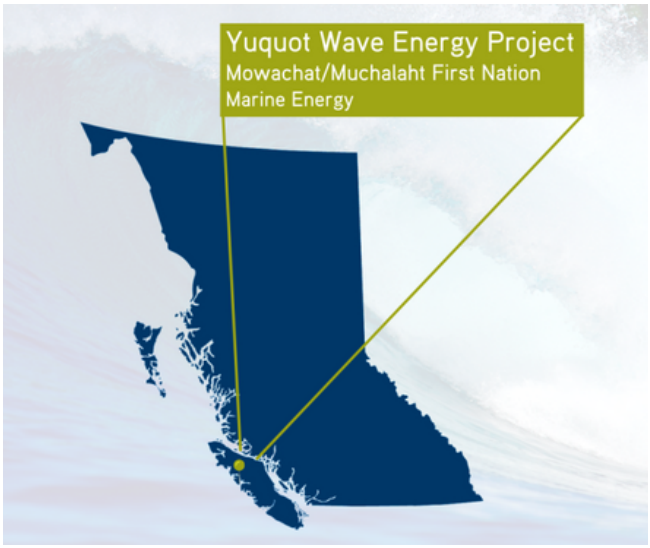
In 2023, ORPC Canada began working with clean energy developer Tarquti to assess potential for hydrokinetic power system use in Nunavik, the northernmost region of Quebec. A recent technical and economic study produced with global engineering consultancy Hatch shows that marine hydrokinetics could play a role in decarbonizing an off-grid coastal community in Nunavik heavily reliant on diesel generation. The company continued its demonstration project of a RivGen Power System at the Canadian Hydrokinetic Turbine Test Centre in Manitoba, installed in 2022.

Wave Energy

Yuquot Wave Energy Project (British Columbia)

The Mowachaht/Muchalaht First Nation-led Yuquot Wave Energy Project continues to progress with project partners Pacific Regional Institute for Marine Energy Discovery (PRIMED), Barkley Project Group, CalWave Power Technologies, Canpac Marine Services, and Environmental Dynamics Inc. Based on previously completed feasibility assessments, the proposed microgrid will be a hybrid system composed of diesel, solar, battery, and wave energy converter (WEC) technologies. CalWave was selected as the wave developer partner in August 2023 after a detailed request for information and selection process. The feasibility and design study, funded by the TD Ready Challenge, has an expected timeline of July 2023 to February 2025 and will progress the CalWave X100 point absorber WEC and associated infrastructure components to a pre-construction phase for integration into the developing microgrid.





Triaxys buoy recovery to support Yuquot Wave Energy Project.
Image credit (map): Barkley Project Group

Oneka Technologies (Quebec)

Oneka has continued to demonstrate its wave-powered desalination technology across the world. In 2023, on top of $13M in equity raised, Oneka received $14.1M in grant funding to scale up its technology to utility-scale, creating a desalination “Glacier” system. Oneka also received Canadian federal funding to deploy its technology in Chile and funding from the United States' Department of Energy to further accelerate the technology development and also develop a freshwater emergency relief application system. In 2023, Oneka also partnered with the City of Fort Bragg in California on the State’s first wave-powered desalination demonstration site.

Offshore Wind

As the opportunity for offshore wind development in Canada grows, many of MRC's members are starting to engage in pre-development activities that will support future projects. In addition to the beginnings of offshore wind at home, Canadian businesses and suppliers continue to be well recognized in the global market for their expertise and solutions. MRC has numerous members actively supporting international industry projects and development.

Nova East (Nova Scotia)

DP Energy and SBM Offshore formalized a joint venture, Nova East Wind, to develop an early-commercial floating offshore wind project. Both companies have direct and successful experience developing energy projects using sustainable and environmentally responsible methods.

Nova East Wind is proposed with a generation capacity of 300-400 MW, located approximately 20-30km off Goldboro, Nova Scotia. The project is designed to kick start the offshore wind industry in Nova Scotia and will supply renewable electricity to Nova Scotians in response to the Province's stated decarbonization ambitions. The precise location of the wind farm will be determined following further engagement with key stakeholders and right holders such as First Nations, governments, commercial fishers, local communities, environmental groups, and industry regulators.

Monopiles at Port of Argentia.

Port of Argentia (Newfoundland and Labrador)

The Port of Argentia established North America's first monopile marshalling port in support of U.S. offshore wind projects. Argentia's strategic location and proximity to U.S. offshore wind developments are key factors in securing contracts to receive monopiles for laydown and storage prior to eventual installation. Port of Argentia has been working with two Dutch companies since 2021 and throughout 2023 – Boskalis has been transporting monopiles to the port and Mammoet will be the cargo's stewards while the monopiles stay at the port. Next year the monopiles will be retrieved and delivered to their final destination, where they will be installed at an offshore wind farm site 22 kilometres off Rhode Island, U.S.

The Port of Argentia also received a commitment of $38 million in funding from the Government of Canada under the National Trade Corridor Fund, coupled with the Government of Newfoundland and Labrador's commitment of $15.1 million in support of the Cooper Cove Marine Terminal Expansion Project under the Innovation and Business Development Fund (IBDF). This expansion will double quayside capacity, adding approximately 430m of berthing space for three new berths to accommodate larger vessels, as well as increasing available dockside storage space by approximately 10 hectares.

Green Hydrogen

The production of green hydrogen and ammonia from marine renewable energy continues to be a significant opportunity being pursued by MRC members. The increased focus on green hydrogen opportunities was marked with new initiatives over the last two years, with several of MRC's members focused on using offshore wind for future phases of green hydrogen production.

Bear Head Energy (Nova Scotia)

Bear Head Energy has been advancing the development of a large-scale green hydrogen and ammonia production, storage, and loading facility in Point Tupper, NS. The facility will be constructed in phases driven by the availability of renewable power. At full buildout and peak power inflow of up to three gigawatts, including two gigawatts of electrolyzer capacity, Bear Head Energy could produce 350,000 tonnes of hydrogen and two million tonnes of ammonia annually. In 2023, Bear Head reached a significant milestone by receiving Environmental Assessment Approval from the Government of Nova Scotia.

EverWind Fuels (Atlantic Canada)

EverWind Fuels continues to progress its green hydrogen and ammonia storage facility in Point Tupper, with significant milestones being reached in 2023. In February, the EverWind received Environmental Assessment Approval from the Government of Nova Scotia. In November, the Government of Canada announced an agreement in principle between Export Development Canada and EverWind on terms for a $125M debt facility to support the project, pending final due diligence. This loan will support clean power generation and clean hydrogen production that will be able to be exported to markets in Germany and around the world, as well as for domestic consumption.

EverWind's Newfoundland and Labrador project also achieved a significant milestone. In August, the Province announced that EverWind had been awarded the exclusive right to pursue the development of its green fuels project on the Burin Peninsula.

Both projects are strategically positioned to support offshore wind development, and the Canadian clean energy transition, with Point Tupper also serving as a hub for international export.

Research, Innovation, and Enabling Initiatives

Fundy Ocean Research Centre for Energy (FORCE) (Nova Scotia)

In 2023, FORCE served as co-chair of the Risk and Monitoring Working Group to the Government of Canada's Task Force on Sustainable Tidal Energy Development in the Bay of Fundy. The primary role of the working group is to build a work plan to evaluate and monitor the collision risk of fish with different designs of tidal stream energy devices during 2024-2026. In service of this core mandate, FORCE has partnered with Acadia University to advance a proposed Tidal Collision Risk Evaluation (T-CORE) project. This project supports the advancement of Canada's marine renewable energy sector by evaluating the risk of tidal stream turbines to fish. T-CORE proposes to address significant data gaps and concerns raised by DFO and others in relation to collision risk of marine animals with the rotating parts of tidal stream energy devices in Minas Passage especially regarding risk to fish species of conservation concern, the effectiveness of monitoring technologies, and the accuracy and precision of collision risk models.

In 2023, promising research led by Dr. Brian Sanderson at Acadia University suggests the FORCE tidal test site is low risk for Atlantic salmon post-smolts. Sanderson's team conducted a number of experiments, including attaching fish tags to drifting buoys ('drifters'), to examine how well the acoustic tag transmissions are detected by receivers in the extremely turbulent waters at the FORCE test site in Minas Passage. Findings suggest that the strong currents of Minas Passage are expected to sweep most Atlantic salmon post-smolts to the south of the FORCE site.

FORCE also continued its work on the Risk Assessment Program (RAP) for Tidal Energy funded by NRCan's Emerging Renewable Power Program (ERPP) to support greater regulatory clarity around tidal project development. Through RAP, a science-based tool has been developed to address a key question in the tidal energy permitting process: estimating the probability that valued fishes will encounter an offshore energy device at the FORCE site. To date, RAP has acquired tag detection data from 22 different telemetry projects and environmental data, demonstrating FORCE's ability to coordinate with dozens of collaborators and synthesize multiple types of data to answer questions about marine species interactions with ocean energy devices.

Fish tagging as pat of FORCE's Risk Assessment Program (RAP) (Image credit: FORCE)

National Research Council (NRC) (Ontario/National)

National Research Council Canada's Ocean, Coastal and River Engineering Research Centre (NRC-OCRE) is conducting ongoing research to characterize the hydrokinetic energy resources of Canadian rivers and to improve the performance of river current/hydrokinetic energy turbines. To aid hydrokinetic developers and communities in locating areas of high resource potential, remotely sensed data and analytical methods were leveraged to estimate the hydrokinetic energy in all Canadian rivers at 100-meter spacing intervals. Additionally, the hydrokinetic energy at specific promising river sites was explored in Ontario, Quebec, and Nunavut via field data collection, numerical modelling, and close collaboration with the University of Ottawa. Most notably, through field investigation and hydrodynamic modelling, the river current potential in the Canadian Arctic, which was originally thought to be not feasible for development because of cold weather conditions, has been found to have the potential for resource development at specific river sites.

Natural Resources Canada (NRCan) - CanmetENERGY (Ontario/National)

In 2023, CanmetENERGY has sustained its commitment to technical development and resource assessment activities. CanmetENERGY and ORPC have launched a site characterization project on the St. Lawrence River aimed at enhancing and broadening hydrokinetic resource assessments. This involves the collection of specialized river flow data using Acoustic Current Profiler (ADCP) and Remotely Piloted Aircraft System (RPAS). The gathered data will play a crucial role in developing calibrated numerical models and pioneering techniques for assessing river current resources.

NRC, CE-O and Laval University have collaboratively commissioned general guidelines for simulating hydrokinetic turbine arrays and for the layout of hydrokinetic turbine arrays in rivers, as well a comprehensive study to evaluate the impact of cavitation on the performance of hydrokinetic turbines, focusing particularly on crossflow turbines.

Net Zero Atlantic (Nova Scotia)

In 2023, Net Zero Atlantic (NZA) advanced several projects to support Canada's marine renewable energy sector. Notably, this included "Capacity Building for the Sustainable and Inclusive Development of Nova Scotia's Offshore Wind Resource," an initiative led by NZA, UINR, CMM and CBP to build local capacity in rural, Mi'kmaw, and other equity-deserving Nova Scotia communities. In 2023, activities under this initiative included visits to rural and Mi'kmaw communities for initial offshore wind information sessions and meetings. NZA also published several offshore wind related reports in 2023 including: "Value Mapping of Nova Scotia's Offshore Wind Resources," "Workplan for Offshore Wind Pathways to Market Studies," and "Socioeconomic Impacts of Hydrogen Production in Nova Scotia."

University of Victoria (IESVic) (British Columbia)

The University of Victoria (UVic) continued to make progress leading several projects and initiative focused on wave energy and clean energy for remote community development working with local suppliers, industry, researchers, and Indigenous communities. UVic continues to lead this work through PRIMED, which is aimed at eliminating the uncertainty and risk for "first-of-a-kind" community based marine renewable energy projects. Key projects and activities over 2023 included:

- ***Accelerating Community Energy Transformation Project*:** In 2023, UVic received $83.6M in funding from the Government to launch the Accelerating Community Energy Transformation (ACET) project. This is a collaborative initiative led by UVic that brings together over 40 partners, including Indigenous knowledge keepers and community leaders, to create innovative place-based solutions for energy system transformation.

- ***PRIMED*:** PRIMED has been working with partners Mavi Innovations Inc. (Mavi) and Blind Channel Resort (BCR) on the development of a tidal demonstration centre and an integrated hybrid renewable energy system (HRES) at Blind Channel. This project builds upon the 2017 Mavi turbine deployment to create a unique demonstration site focussed on developing and proving the technical and economic pathways for integrating tidal energy devices into community-scale hybrid energy systems. The demonstration tidal turbine (referred to as the resident turbine) will be integrated into the onshore HRES: consisting of diesel generators, solar PV, battery energy storage, power conversion and conditioning equipment, and local and global controllers. Longer term planning is also underway for the expansion of the site to allow for additional developers' devices to be swapped with the resident turbine and trialled at the site.

The Policy Context - key initiatives and enabling activities for sector growth

2023 marked another year of significant policy developments that will help facilitate marine renewable energy development in Canada. As governments increase their focus and activities to achieve net-zero by 2050, the policy environment is becoming more supportive and conducive to realizing the potential of Canada's marine renewable energy opportunities. Several initiatives, programs and policies in 2023 were launched with relevance and importance to the marine renewable energy sector.

- ***Regional Assessment of Offshore Wind of Newfoundland and Labrador and Nova Scotia:*** In March 2023, the Regional Assessment of Offshore Wind Development in Nova Scotia and Newfoundland and Labrador (Regional Assessments) was launched, with the Terms of Reference finalized and Committee members chosen. The Regional Assessments will help inform future project-specific federal impact assessments and decisions for offshore wind projects in these areas. Throughout 2023, the Regional Assessment Committees in Newfoundland and Labrador as well as Nova Scotia engaged with local communities, Indigenous groups, and stakeholders like the fishing and offshore wind industries to gather input on potential development areas for offshore wind and other considerations. Interim Reports on the Committees' work are expected in March 2024 and after extensions were requested by the Committees, Final Reports are now expected in January 2025.

- ***Accord Act Amendments:*** In May 2023, the Government of Canada introduced Bill C-49, An Act to amend the Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act and the Canada-Newfoundland and Labrador Offshore Petroleum Resources Accord Implementation Act and to make consequential amendments to other Acts (Bill C-49) before the House of Commons. If passed, Bill C-49 will create a streamlined joint management regime for the regulation of offshore wind by expanding the mandate of the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) and Canada-Newfoundland and Labrador Petroleum Board (CNLOPB) to include offshore wind. The Committee is expected to review Bill C-49 and any proposed amendments in 2024, with the ultimate goal for enacting the Bill in 2025.

Marine Renewables Canada's Lisen Bassett, was present at the introduction of Bill C-49 to the House of Commons and delivered remarks on behalf of the association, alongside federal ministers, CNSOPB and CNLOPB officials, and others.

- ***Offshore Renewable Energy Regulations (ORER) Initiative:*** NRCan continued its pre-engagement efforts on the proposed federal ORER, which will establish comprehensive requirements related to safety, security, and environmental protection for the offshore renewable energy sector under the *Canadian Energy Regulator Act*. The proposed *Canada Offshore Renewable Energy Regulations* will provide industry and other stakeholders with a clear understanding of the regulatory expectations and ensure project proponents adopt best practices and best available technologies throughout the lifecycle of offshore renewable energy projects, from site assessment through construction, operations, and finally, decommissioning and abandonment. The next step is pre-publication of the draft regulations in Part 1 of the Canada Gazette for public comments in early 2024.

- ***BC Hydro Call for Clean Power:*** In June, the Government of British Columbia and British Columbia's utility company, BC Hydro, made an exciting announcement - for the first time in 15 years, BC Hydro will release a call for clean power. The call is expected to launch in 2024 in response to a forecasted increase in electricity demand, attributed to economic and population growth in addition to electrification policies. Only 100% renewable electricity will be acquired through the call, with wind and solar mentioned explicitly. In addition, the Province will provide $140 million to the BC Indigenous Clean Energy Initiative to support smaller scale Indigenous-led power projects.

- ***The Task Force on Sustainable Tidal Energy Development in the Bay of Fundy:*** In June 2023, the Government of Canada established the Task Force on Sustainable Tidal Energy Development in the Bay of Fundy (the "Tidal Taskforce"), an initiative aimed at addressing regulatory challenges faced by the tidal industry. The purpose of the Task Force is to:
  - build on work to date to clarify requirements for fish protection
  - improve transparency and methodology of risk assessment and decision making on tidal turbine deployments; and
  - reduce turnaround time for regulatory decisions for tidal energy projects in the Bay of Fundy

The Tidal Task Force is chaired by DFO and Natural Resources Canada (NRCan), and includes MRC, FORCE, and the Province of Nova Scotia as members.

In September, an Interim Report on the work underway by the Tidal Taskforce was released, providing details on the group's work to date and key areas of focus. A final report is expected to be released in early 2024.

- ***Joint Policy Statement on Developing and Transmitting Clean Reliable and Affordable Power in Nova Scotia and New Brunswick:*** In October 2023, the Governments of Canada, New Brunswick, and Nova Scotia have established a two-track approach to collaborative work on the clean energy transition, with the aim to facilitate the phase out of coal-fired electricity generation by 2030 and achieve net zero targets. Track 1 will address the phase out of coal-fired electricity generation by 2030. To achieve this, the provincial and federal governments will identify key investments needed to transition to a clean energy supply, including a modified Atlantic Loop between New Brunswick and Nova Scotia. Track 2 will address net zero targets by coordinating support for Small Modular Reactors in New Brunswick and Offshore Wind in Nova Scotia.

- ***Blue Economy Regulatory Review:*** After being mandated in 2019 to lead the development of a Blue Economy Strategy, DFO led a public engagement process, which closed in 2023. A What We Heard Report is forthcoming from this engagement period. A Regulatory Roadmap is also being developed in partnership with several other government departments to tackle regulatory and operational challenges and explore innovative approaches to seize emerging opportunities and foster a sustainable blue economy.

- ***Clean Energy and Green Hydrogen Action Plans:*** In December of 2023, New Brunswick and Nova Scotia released strategies surrounding clean energy and green hydrogen, outlining the provinces' plans to invest further in the sectors. Nova Scotia's Green Hydrogen Action Plan identifies several goals and actions to foster both domestic use and export of green hydrogen. New Brunswick's Clean Energy Strategy establishes the province's goal to elaborate a regulatory framework for offshore wind in 2024 and release a green hydrogen roadmap in the near future.

- ***Clean Electricity Regulations:*** In August 2023, the Government of Canada announced draft Clean Electricity Regulations, designed to help Canada achieve a net-zero electricity grid by 2035, in close collaboration with provinces, territories, Indigenous partners, industry, and others. The draft regulations aim to support the decarbonization of the remainder of Canada's grid, while meeting the needs of increasing demand for electricity.

OUR WORK: GROWING THE SECTOR

MRC's mandate is to champion the growing marine renewable energy sector in Canada through advocacy, engagement, and education and expand market opportunities across the country and globally. Outreach to government and stakeholders, international business development, knowledge-building workshops, and ongoing support for members as they pursue opportunities are key elements of the association's sector-building efforts.

Advocacy, Engagement, and Collaboration

Policy Development and Advocacy

MRC has worked to be a strong advocate for its members and the sector, prioritizing increased government relations and advocacy efforts. Over the course of 2023, the association focused on advocacy to help emphasize the need for predictable regulatory pathways, establish the critical path for offshore wind development, and support both domestic and international market entry. Input and engagement efforts included several federal and provincial government initiatives:

- *Submission on Budget 2023 Draft Legislative Proposals concerning Investment Tax Credits (January)*
- *Letter to federal Minister of Natural Resources and Nova Scotia's Minister of Natural Resources and Renewables outlining priorities for offshore wind development in Canada (February)*
- *Submission for the Blue Economy Regulatory Review (March)*
- *Letter to federal Minister of Fisheries and Oceans regarding regulatory challenges faced by the tidal energy industry under the Fisheries Act (March)*
- *Op-Ed: Government-wide solution required to allow tidal energy to move forward (April)*
- *Submission for the Coastal Marine Strategy for British Columbia Policy Intentions Paper (April)*
- *Submission on Draft Offshore Renewable Energy Regulations (June)*
- *Submission on Budget 2023 Draft Legislative Proposals concerning Investment Tax Credits (September)*
- *Submission Consultation on Focus Area for Regional Assessment of Offshore Wind Development in Newfoundland and Labrador (September)*
- *Letter to federal Minister of Environment and Climate Change RE: the Regional Assessment of Offshore Wind Development in Newfoundland and Labrador (November)*

Education and Engagement

Offshore Wind and Fisheries Engagement

As part of MRC's ongoing Stakeholder Engagement work for offshore wind, MRC co-hosted an Offshore Wind 101 workshop with the CNSOPB for their Fisheries Advisory Committee (FAC). The workshop brought together FAC representatives from across Nova Scotia, government and industry-leading experts to present on a wide variety of topics surrounding offshore wind, including policy, technologies, industry co-existence, environmental effects, and more.

An outcome of this initial workshop was interest to hold a follow-up workshop for fisheries, with the aim of taking a deeper dive on aspects of offshore wind development and connect fishing and offshore wind industries. MRC worked with its Offshore Wind Working Group as well as fisheries industry representatives to design and host an Offshore Wind-Fisheries Educational Workshop in August. The workshop brought together offshore wind developers and 50+ representatives from the fishing industry to learn more about offshore wind and discuss priorities and concerns.

(Left) Offshore Wind and Fisheries Workshop in Halifax, August 2023 (Right) Promotion for MRC's Ask an Expert about Offshore Wind Webinar Series.

Offshore Wind Education: Ask an Expert Offshore Wind Webinar Series

MRC launched its Ask an Expert webinar series, which aims to address key topics about offshore wind to provide critical information about the industry to the Canadian public. In the spring of 2023, MRC surveyed Canadians to determine their biggest questions about offshore wind and designed a series of webinars featuring experts from around the world to tackle these questions. The first webinar was held in October 2023, and gave an overview of offshore wind basics featuring Mark Severy from the Pacific Northwest National Laboratory. This was followed by a second webinar in December addressing the environmental impacts of offshore wind, featuring Dr. Sarah Courbis from the Worley Group.

Engaging in the Global Market – International Business Development

As the global marine renewable energy market grows, MRC's membership has capabilities and experience that can service projects around the world. To date, member companies have engaged in international offshore wind, tidal, wave, and river current energy projects and MRC aims to continue fostering and facilitating these opportunities for trade and export. In parallel, marine renewable energy is largely untapped in Canada and presents opportunities for inward international investment and development. In 2023, in consultation with members, MRC established its new International Business Development (IBD) Plan, targeted at identifying and supporting opportunities for trade and export as well as foreign investment in Canada. Activities led by MRC in 2023 served to launched the IBD plan and capture opportunities for MRC members.

Trade Missions & International Activities

Mission to the 2023 International Partnering Forum on Offshore Wind (IPF) - Baltimore, Maryland, USA (March)

MRC, with the support of the Government of Canada, led a Canadian delegation of 24 companies and organizations to the 2023 International Offshore Wind Partnering Forum (IPF), that took place in Baltimore, Maryland. Hosted by the Business Network for Offshore Wind, IPF is the premier offshore wind energy conference in the US, connecting global leaders and businesses in the supply chain and offering tremendous networking opportunities.

The Canadian delegation had broad representation including service providers, consultants, project developers, ports, ocean technology manufacturers and research associations. Mission activities included multiple pre-mission webinars and virtual meetings with key organizations in the US, onsite mission briefing session, a contracted consultant to assist mission delegates, a booth in the conference exhibition, participation in the conference WindMatch B2B program, and attendance to multiple networking events.

Offshore Wind Canadian Expert Delegation Trip to Germany - Germany (June)

As part of Germany's efforts to foster the production of green hydrogen in Canada, MRC attended an expert delegation trip to Germany to learn about their thriving offshore wind sector. The delegation included 11 other key players in Canada's offshore wind industry, including representatives from MRC, the CNLOPB and CNSOPB, Newfoundland and Labrador government, Natural Resources Canada, Strait of Canso Offshore Wind Taskforce, Cape Breton Partnership, Edgewise, Net Zero Atlantic, Indigenous Clean Energy, and the Unama'ki Institute of Natural Resources. The Canadian delegation met government officials, offshore wind operators, utility providers, municipalities, economic development agencies, ports, and companies throughout the supply chain on best practices and lessons learned.

Mission to the 2023 American Clean Power Association Offshore Windpower Conference and Exhibition - Boston, Massachusetts (October)

In October, MRC led a mission of 20 companies from across the marine renewable energy supply chain to the American Clean Power Association's Offshore WINDPOWER 2023 Conference & Exhibition in Boston. The conference drew nearly 2,500 attendees, over 30 exhibitors and more than 150 speakers. As members of MRC's Canadian Mission, delegates were well represented in the exhibition with a Canada booth and had the opportunity to partake in two offshore wind port tours in Providence, Rhode Island and New Bedford, Massachusetts, along with receiving expert briefings and support from Power Advisory, the mission consultants.

Strategic MOU with UK Marine Energy Council

In its commitment to foster growth of the sector, MRC works to establish strategic collaborations and alliances. In May, MRC signed an MOU with the UK Marine Energy Council to share knowledge and support development of marine renewable energy resources in the UK and Canada. The organizations hope to collaborate on key challenges, build partnerships amongst memberships, and share information and best practices that can help accelerate sector development.

Association-led Events & Outreach

British Columbia Member Roundtable – Victoria, British Columbia (March)

With the aim of supporting MRC members in British Columbia, growing the sector in the region, and providing an opportunities for members to connect, MRC held a roundtable and lunch in Victoria. The roundtable featured an overview of sector activity and MRC's activities, as well as a presentation from the Ministry of Energy, Mines and Low Carbon Innovation on the current context for marine renewable energy in BC.

Summer Social on the Harbour - Halifax, Nova Scotia (August)

MRC hosted its annual summer networking event on board the Tall Ship Silva this year. The sold out event created an opportunity for members to connect during an evening cruise on Halifax Harbour. The event was made possible with the support of its sponsors: Atlantic Towing, Bearhead Energy, Bourque Industrial, Fugro, Hydrogen Optimized, Northland Power, Simply Blue Group.

Marine Renewables Canada 2022 Annual Conference – Ottawa, Ontario (December)

Each year the Marine Renewables Canada Conference brings together an ever-increasing number of industry, policymakers, research experts, and the broader marine renewable energy sector for lively discussions about growing the sector, industry achievements, and market opportunities. This year, the conference was held in our nation's capital, creating an optimal opportunity to showcase the sector's strengths and opportunities to federal elected officials and key decision-makers. The event featured 330 attendees, 21 sponsors, 29 local, national, and international speakers, 64 international delegates, and MRC member-exclusive sessions. MRC welcomed its inaugural Sustainability Sponsorship, supported by AECOM which provided a donation to Tree Canada.

The conference also featured a fireside chat hosted with the Honourable Jonathan Wilkinson, Minister of Energy and Natural Resources, and the Honourable Dr. Andrew Furey, Premier of Newfoundland and Labrador.

The 2023 conference could not have been possible without the support of its sponsors and partners: DP Energy (Presenting Sponsor), Bear Head Energy, Simply Blue Group, Worley, DOF Subsea, ORPC Canada , Province of Nova Scotia, Waterford Energy Services, AECOM, Cox & Palmer, WSP, Dovre Group, Atlantic Towing, Bourque Industrial, Nova East Wind, COVE, Baird, Focal Technologies, Cherubini, and Fugro; and with support from the Government of Canada.

Reception on Parliament Hill – Ottawa, Ontario (December)

To optimize the week in Ottawa around MRC's conference, MRC held a Reception on Parliament Hill hosted by Deputy Speaker Chris d'Entremont, an exclusive opportunity for MRC members to connect with Members of Parliament, Senators, and staffers.

Information and Market Intelligence Webinars

MRC hosted and partnered on several webinars in 2023 to support its members efforts in pursuing domestic and international market opportunities. Topics included international offshore wind opportunities and optimizing trade mission participation:

- *Offshore Wind Supply Chains – A Canada/Norway Webinar (in partnership with econext) (March)*
- *US Offshore Wind Market Intelligence and Mission Preparation (March and September)*
- *Brazil-Canada Workshop on Offshore Renewable Energy (April)*

Additional Events Participation and Speaking Engagements

MRC participated in a number of conferences, workshops, and events delivering presentations that provided education on the opportunities of Canada's marine renewable energy sector, industry progress, and strengths of members and the supply chain:

- *Belgium & Atlantic Canada, partners towards Net Zero: exploring avenues of cooperation in hydrogen and offshore wind energy - Halifax, Nova Scotia (February)*
- *Canadian Bar Association Environmental, Energy and Resources Law Summit presentation on state of the sector - Ottawa, Ontario (May)*
- *H2O Conference & Exhibition – Halifax, Nova Scotia (June)*
- *Nergica Annual Symposium Offshore Wind State of the Sector presentation - Quebec/virtual (June)*
- *Strait of Canso Superport Days - Dundee, Nova Scotia (June)*
- *Indigenous Clean Energy Forum - Vancouver, British Columbia (July)*
- *Atlantica Centre for Energy Offshore Wind presentation (August)*
- *Ocean Energy Systems' Ocean Energy Outlook in the USA & Canada Webinar (September)*
- *Atlantic Canada Climate Network's Innovation Speaker Series (September)*
- *econext Conference Offshore Wind State of the Sector presentation - St. John's, Newfoundland and Labrador (October)*
- *Clean Energy BC First Nations Energy Summit - Vancouver, British Columbia (November)*
- *COVE Lunch and Learn Offshore Wind in Atlantic Canada presentation - Dartmouth, Nova Scotia (November)*
- *CNLOPB Town Hall Offshore Wind presentation (December)*

OUR MEMBERS

Without our members' dedication, perseverance and passion, the association would not be what it is today. Thank you all! MRC is also very pleased to welcome new members who have joined the association in 2023:

marine
renewables
canada

marinerenewables.ca