marine renewables canada

ANNUAL REPORT

2022

marinerenewables.ca

WHO WE ARE

Marine Renewable 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, Marine Renewables Canada 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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Jason Hayman Sustainable Marine
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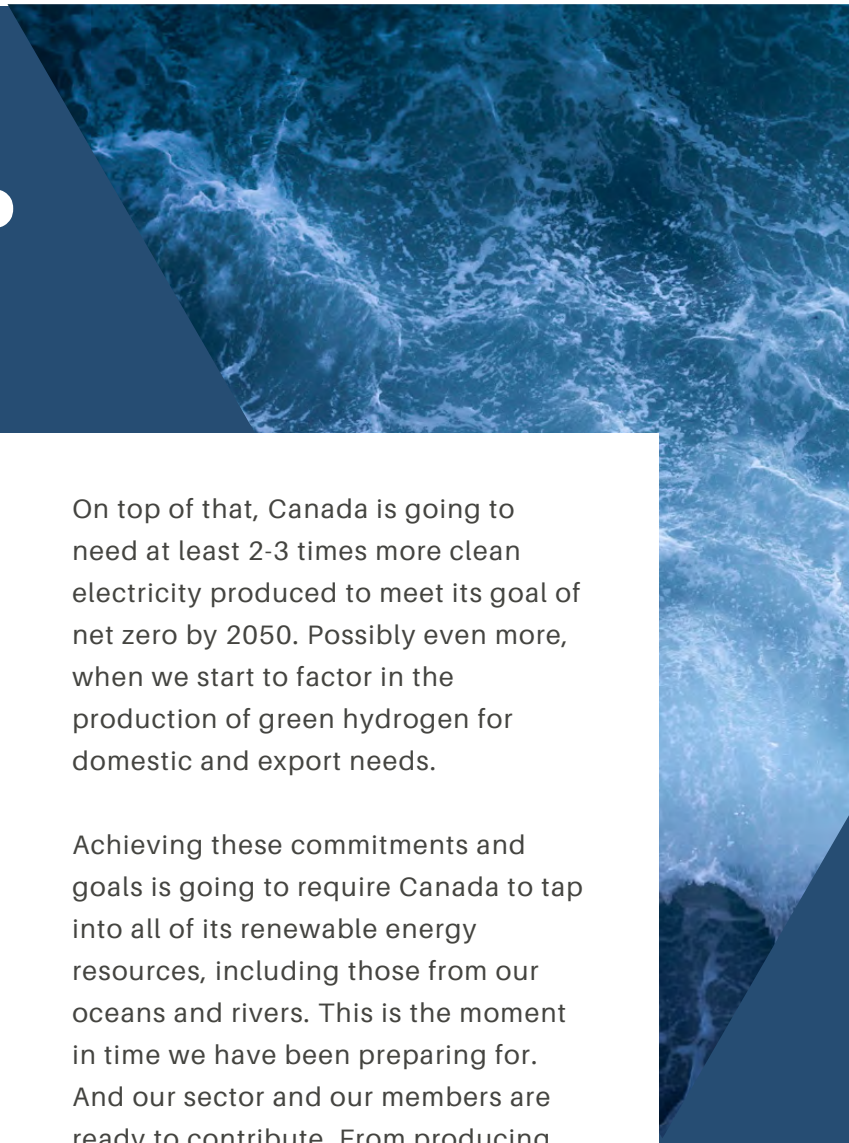
Abby Watson Mainstream Renewable Power - *Advisory seat*

STAFF

Elisa Obermann Executive Director
Amanda White Operations Director
Lisen Bassett Policy and Communications Lead

LEADERSHIP MESSAGE



Since last year, there have been dramatic changes in our energy sector, and in our thinking about clean energy overall. The International Energy Agency's World Outlook released in fall 2022 notes just that: the energy crisis sparked by Russia's invasion of Ukraine will transform the global energy landscape for decades, causing profound and long-lasting changes that could accelerate the transition to a more sustainable and secure energy system.

We are already seeing governments working to ensure a cleaner and more secure energy future – and this became very real in Canada after the signing of a Joint Declaration of Intent between Premier Trudeau and Chancellor Scholz, agreeing to co-operate on the export of clean hydrogen from Canada to Germany by 2025. This has had a significant impact on Canada's thinking around clean energy and what steps are needed to support this commitment. Developing more renewable sources is no longer just about reducing our emissions and fighting climate change at home, it's an opportunity and necessity to provide solutions globally.

On top of that, Canada is going to need at least 2-3 times more clean electricity produced to meet its goal of net zero by 2050. Possibly even more, when we start to factor in the production of green hydrogen for domestic and export needs.

Achieving these commitments and goals is going to require Canada to tap into all of its renewable energy resources, including those from our oceans and rivers. This is the moment in time we have been preparing for. And our sector and our members are ready to contribute. From producing green fuels like hydrogen, to displacing diesel in remote communities and providing clean electricity to the grid, our marine renewable energy resources offer clean solutions that Canada and the world are looking for.

2022 was truly a turning point, not just for energy transition but also for marine renewables in Canada. We have seen tidal energy devices successfully operating in the Bay of Fundy and delivering clean electricity to Nova Scotia's grid reliably, every day.

Members have made huge strides towards realizing the potential of marine renewables in remote and Indigenous communities with the deployment of river current technologies in Manitoba and ongoing R&D in British Columbia. We are also now on the map, as one of the top emerging offshore wind markets in the world with the governments of Canada, Nova Scotia, and Newfoundland and Labrador paving the way for future development.

This is what MRC and our members have been working towards for over a decade. Even when times have been challenging and the path to market was not as clear, we worked together, with many of you, to make this industry a reality. MRC has been the only national association solely focused on growing the market for tidal, offshore wind, wave, and river current energy in Canada. There have been ups and downs, but 2022 was a year that should make us all very proud of what has been accomplished in the sector – and very excited for what's to come.

Peter Huttges
Chair

Elisa Obermann
Executive Director

SECTOR UPDATES & HIGHLIGHTS

Industry Activity

2022 was an exceptional year for marine renewable energy in Canada – marked with new tidal and river current device deployments, milestones being reached, and announcements that are catalyzing the beginnings of offshore wind development in Atlantic Canada. In addition to remote and utility-scale electricity projects, the sector increased its focus on opportunities to use electricity from marine renewable energy projects for the production of green fuels like hydrogen and ammonia for both domestic and export demand.

Tidal Energy

Big Moon Power (Nova Scotia)

BigMoon Power has been engaged in the assembly of its first device, with plans to build a total of 18 devices, each generating about half a megawatt of electricity. Each unit has a large wheel suspended between the pontoons of a 30-metre barge anchored to the ocean floor. The barge swivels to face the current in both directions. The "Falcon" was first launched in September 2022 and is currently in trials.

DP Energy (Uisce Tapa Project) (Nova Scotia)

From November 2021 to April 2022, Haligonia Tidal Energy (DP Energy) deployed and retrieved a small monitoring platform in Berth E of the Fundy Ocean Research Centre for Energy (FORCE). The monitoring platform contained sensors used to demonstrate equipment functionality at the FORCE site. DP Energy plans to deploy 6 Andrtiz Hammerfest Hydro (AHH) MK1s; the Mk1 has an 18.4 m diameter rotor and rated power of 1.5 MW for a project total of 9MW. The turbine is a horizontal axis, 3 bladed, seabed mounted tidal turbine, which has been successfully deployed (3 machines) at MeyGen in Scotland. The first of the MK1 turbines is scheduled to be installed and commissioned in mid 2024, subject to regulatory approval and final investment decision by the parties.

Jupiter Hydro (Nova Scotia)

Jupiter Hydro has continued planning for the development of its project in the Bay of Fundy which will unfold in two phases: the testing of a non-grid connected 1 MW prototype and the other for 2MW demonstration.

NewEast Energy (Nova Scotia)

NewEast Energy has been working towards the deployment of its 800 kW project in the Bay of Fundy's Minas Passage. Four of New Energy's EnviroGenTM Power generators will be installed as part of a floating grid connected array.

Nova Innovation (Nova Scotia)

Nova Innovation continued the development of its 1.5 MW tidal energy project in Petit Passage, Nova Scotia. The "Nova Tidal Array" will be developed in three separate 500 kW phases, allowing any environmental effects to be carefully monitored and managed. Fabrication has been completed and deployment for the first phase is targeted for spring 2023.

Sustainable Marine (Nova Scotia)

In May 2022, Sustainable Marine announced it had delivered the first floating in-stream tidal power to Nova Scotia's grid, using the 420kW PLAT-I 6.40 floating tidal energy platform built in Nova Scotia. The platform was deployed and supported by its multipurpose construction vessel called the Tidal Pioneer, and moored via the company's Swift Anchors technology. The Tidal Pioneer is a multicat, and is 26 metres long and 11 metres wide. Its offset superstructure allows for a large working deck area, and the square bow is equipped for pushing barges.

Sustainable Marine is preparing to deliver the world's first floating tidal array at FORCE, using its demonstration site at Grand Passage, Nova Scotia to further prove its technology and environmental monitoring systems, before commencing deployments in the Minas Passage. It has developed an advanced environmental monitoring system, completed the manufacture of the first rock anchors that will be used to secure the PLAT-I 6.43 at the FORCE site, and completed construction of the Tidal Pioneer to support next steps for the project at FORCE.

Sustainable Marine connects its first PLAT-I 6.43 to the Nova Scotia grid in May 2022 (image credit: Sustainable Marine)

Yourbrook Tidal Energy (British Columbia)

Yourbrook Energy Systems, a British Columbia based tidal energy technology developer, continues to work on its 500 kW Kamdis Tidal Power Demonstration Project in Masset Inlet, Haida Gwaii. Yourbrook gathered data at the site over the course of four months and worked towards refining technical aspects of the project including modelling of dynamic blades and platform design for testing and third party validation.

River Current Energy

ORPC Canada (Manitoba)

ORPC Canada successfully launched its first RivGen Power System, which generates electricity from free-flowing rivers and tidal currents, at the Canadian Hydrokinetic Turbine Test Centre in Manitoba. This project will serve to demonstrate the baseload renewable energy system to the Canadian market, particularly to off-grid and Indigenous remote communities. The launch at CHTTC included a number of "firsts" for ORPC – it was the deepest deployment of a RivGen device to date (approximately 12m/40ft to the riverbed) and the first bow-down deployment of a RivGen device. Leading up to deployment, ORPC ensured participation and inclusion of Indigenous communities' knowledge in open house activities as well as assembly site visits.

ORPC deploys its RivGen device at the Canadian Hydrokinetic Turbine Test Centre in Manitoba (Image credit: ORPC)

In 2022, ORPC Canada completed two years of community visits, resource assessment activities, and research and analysis of the hydrokinetic potential of the Qikiqtani region, Nunavut, working in partnership with the Nunavut Nukkiksautiit Corporation, which seeks to promote economic enhancement opportunities through renewable energy development for Nunavut Inuit.

Wave Energy

Yuquot Wave Energy Project (British Columbia)

The Yuquot Wave Energy Project focuses on front end engineering and design planning for the integration of a wave energy device as a component of Yuquot's future renewable energy microgrid and is being led via a partnership between University of Victoria's Pacific Regional Institute of Marine Energy Discovery (PRIMED), Mowachaht/Muchalaht First Nation, Barkley Project Group and Environmental Dynamics Inc. A request for information from wave energy developers will be released in 2023 to determine an optimal technology partner for the community. This will be a first of its kind wave energy project in Canada that can pave the way for future projects and help prove wave energy as a component of community microgrid that could be replicated elsewhere.

The territory of the Mowachaht/Muchalaht First Nations (MMFN) on the west coast of Vancouver Island includes Nootka Island and the village of Yuquot, which means " where the wind blows from many directions."

Oneka Technologies (Quebec)

Oneka has been focused on producing and commercializing autonomous desalination units providing drinking water from the ocean using only waves as an energy source. In 2022, Oneka had a number of major achievements including winning the U.S. Department of Energy (DOE) Waves to Water Grand Prize, as well as the International Desalination Association's (IDA) innovation award which recognizes technology that is "likely to become a game-changer for the industry."

Offshore Wind

2022 was the year that offshore wind finally took hold in Canada with new initiatives, announcements and foundational work to support future development.

Federal and Provincial Government Announcements

In April 2022, the Government of Canada as well as the governments of Newfoundland and Labrador and Nova Scotia announced the intent to establish a **joint management regime for offshore renewable energy**, as well as the commencement of a **regional assessment of offshore wind** in both provinces.

Several months later, the Government of Nova Scotia announced a **target of 5 GW of offshore wind leasing by 2030** with the intent to drive industry investment and growth.
(More information on these initiatives in "The Policy Context" section of this report)

Canadian Offshore Wind Industry & Supply Chain

- **DP Energy & SBM:** DP Energy is working with SBM Offshore to identify an early commercial offshore wind development opportunity in Nova Scotia in response to the Province's stated ambitions in the sector. Both partners have direct and successful experience creating renewable energy projects globally and in offshore construction and operations using sustainable and environmentally responsible methods.

- **Port of Argentia:** In 2022, the Port of Argentia secured a significant contract to support offshore wind project development in the US, generating up to $65 million in new contracts for stevedoring, land preparation, heavy ground transport, security and other services within the port. In preparation for heavy transport vessels arriving from Europe in 2023, new infrastructure improvements will be made at the port including road widening, purchasing of utility lines inside the marine terminal, and the creation of 3-acres of new laydown lands adjacent to docking facilities.

Green Hydrogen

In the last year, there have been dramatic changes in the energy sector with the need for an energy transition becoming even clearer to governments globally. A key focus of the energy transition has been the development and use of green hydrogen, ammonia and other clean fuels. In Canada, this has created new opportunities for the marine renewable energy sector. The increased focus on green hydrogen opportunities was marked with new initiatives throughout 2022, including both government announcements as well as advancements to realize green hydrogen production from offshore wind by several of MRC's members.

Canada-Germany Hydrogen Alliance

MRC and many of its members participated in activities around the signing of a Joint Declaration of Intent between Premier Trudeau and Chancellor Scholz, an agreement to co-operate on the export of clean hydrogen from Canada to Germany by 2025. Many industry representatives gathered in Stephenville, Newfoundland and Labrador to showcase green hydrogen and offshore wind capabilities and project plans and to witness the establishment of the Canada-Germany Hydrogen Alliance.

Bear Head Energy (Nova Scotia)

Bear Head Energy, a wholly owned company of Buckeye Partners, L.P., is advancing the development of a large-scale green hydrogen and ammonia production, storage, and loading facility in Point Tupper, Nova Scotia. 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. It is anticipated that construction could begin in 2025 and be operational in 2028.

EverWind Fuels (Atlantic Canada)

Green hydrogen developer, EverWind Fuels purchased Nova Scotia's Point Tupper transshipment terminal in May 2022. In less than a year, landmark MOUs with the corporate entities of three Mi'kmaq communities have been signed and environmental approval was received to build the infrastructure to produce green hydrogen and green ammonia from 350MW of green power. EverWind is also developing a 2GW onshore wind farm, that includes exclusively allocated Crown Land, to produce a combined 1 million tonnes of green ammonia per year by 2026. Offtake agreements with German companies Uniper and E.ON are in advanced stages, with initial export to deliver on the Canada-Germany Hydrogen Alliance commencing in 2025. EverWind is also in the process of developing a project on the Burin Peninsula in Newfoundland and Labrador. 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)

FORCE is now in the third year of a $2 million research project, 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. FORCE's RAP has developed a science-based and transparent tool to address a key question in the permitting process: estimating the probability that valued fishes will encounter an offshore energy device at the FORCE site. While the current predictive models are applicable to the FORCE site, the models are designed to be easily modifiable and applicable to other sites with tidal energy potential. RAP is a collaborative effort between FORCE, the Ocean Tracking Network at Dalhousie University, the Confederacy of Mainland Mi'kmaq, Acadia University and Marine Renewables Canada, and fishing industry representatives.

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.

RAP is assessing the co-occurrence of fish and tidal turbines in the Bay of Fundy's Minas Passage, where the probability of encounter will be determined by combining two data sets: physical oceanographic (flow Atlas) and biological (fish atlas). The Flow Atlas represents breakthrough, radar-based data collection – delivering real-time ocean current distribution and visualization. RAP has established a high-resolution radar network in the Minas Passage, which is now generating spatiotemporal (space and time) data on physical oceanographic features. This is the basis for real-time mapping and flow atlas development for the primarily tidal currents in the Minas Passage. The Fish Atlas has been developed through a collaboration amongst many of the project partners noted above. Through this collaborative effort, RAP is building the largest spatiotemporal, multi-species fish distribution atlas in the Bay of Fundy ever created that collects, combines and analyzes multiple data sets from hydroacoustic fish-tagging studies – both existing and new.

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

A major goal of RAP has been to increase community and Indigenous participation in fish tagging, gathering visual material, learning from the results of the RAP program, combining traditional and scientific knowledge to understand how principles of Netukulimk (appropriate resource use) and Etuaptmumk (two-eyed seeing) align with the biological fish distribution atlas, and reaching out to community members for information sharing to support the graphic user interface.

National Research Council (NRC) (Ontario/National)

National Research Council Canada's Ocean, Coastal and River Engineering Research Centre (NRC-OCRE) embarked on a project to improve understanding of Canada's river current energy resources. The ongoing research leverages field data collection, numerical modelling, and analytical methods to improve broad understanding of river current resources across Canada, as well as detailed understanding of river current resources at several specific sites. Close collaboration with the University of Ottawa has led to detailed field data collection at several river reaches in Ontario and Québec and the development of numerical models that can be used to simulate flows and estimate theoretical energy resources at select field sites. Ongoing research in 2023 will be focusing on improving understanding of river current resources at the national scale, identifying opportunities for additional field data collection and detailed resource assessment in the Arctic, and dissemination and publication of research findings.

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

NRCan and CanmetENERGY-Ottawa (CE-O) continued to advance its research and development initiatives in tidal and river current energy projects. The focus of these efforts was on resource assessment and technical development, with the aim of providing clean energy to Northern and remote communities that lack access to the electrical grid and rely heavily on fossil fuels for their electricity supply.

The Hydrokinetic Resource Assessment using SAR Satellites (HyRASS) tool, developed in partnership with the University of Manitoba and NRCan's Canada Centre for Remote Sensing (CCRS), has been validated and used to identify high-energy areas in rivers for over 120 remote communities. Additionally, optical satellite datasets for river ice-free locations covering nearly all provinces and territories have been established. These open-water areas with sufficiently high-water velocities to inhibit ice formation during Canadian winters are potential sites for river current turbines.

Net Zero Atlantic (Nova Scotia)

Net Zero Atlantic has facilitated a number of studies focused on offshore wind with several being finalized in 2022. These have included a study summarizing policy and economic conditions needed to attract offshore wind investment and a report assessing the potential for export of electricity produced from offshore wind in Nova Scotia to the United States.

Net Zero Atlantic also partnered with the Confederacy of Mainland Mi'kmaq (CMM) and Unima'ki Institute of Natural Resources (UINR) to initiate an offshore wind capacity building project with support from Natural Resources Canada's Smart Renewables and Electrification Pathways (SREPs) Program. The goal of the capacity building project is to build knowledge, know-how, and networks and thus capacity within Indigenous, rural, and other equity deserving communities in Nova Scotia to participate meaningfully in regional and impact assessments and make informed decisions regarding future renewable energy projects, including offshore wind.

Strait of Canso Offshore Wind Task Force (Nova Scotia)

Recognizing the opportunity offshore wind holds for Nova Scotia, a broad group of organizations formed the Strait of Canso Offshore Wind Task Force – a group focused on promoting development of the offshore wind and clean fuel industry in the Strait of Canso. Since it was formed, the Task Force has been a volunteer-based, grassroots initiative with an intentionally diverse membership, representing the socioeconomic interests of the Strait Area.

Over the course of 2022, the Task Force engaged with all levels of government to ensure the Strait Area's role in shaping industry regulations in Nova Scotia. Building relationships and partnerships with Indigenous communities, government, ocean users, private organizations, as well as local communities, and continuing to foster these relationships is a priority of the Task Force. The Task force has been engaging with Nova Scotia Community College on training development needs; collaborating on research with the Cape Breton Partnership; working with Strait Superport to identify infrastructure needs and funding opportunities; and consulting with developers to identify opportunities and barriers to development in the region.

University of Victoria (IESVic) (British Columbia)

The University of Victoria (UVic) continued to make progress leading several projects and initiatives 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 its established Pacific Regional Institute for Marine Energy Discovery (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 2022 included:

- *Wave measurement buoy testing:* In partnership with AXYS technologies, PRIMED has been testing of a FLiDAR at Trial Island, British Columbia. The buoy was recovered in 2022 and re-deployed with the help of Salish Sea Industrial Services. In 2022, PRIMED also recovered the the WatchMate at Amphitrite Bank and the TriAXYS at Long Beach and replaced them with alternates so the originals could be brought back to shore for data collection and maintenance.

- *Marine Energy Atlas:* Work continues in collaboration with NRC on the Marine Energy Resources Atlas Canada (MERACAN). The website is live (meracan.ca) with additional datasets being added from PRIMEDs field work activities along with other project collaborators. The Atlas allows for easy access and analysis of marine resource data to support academia, industry, and stakeholders interested in marine renewable energy. The Atlas will be iteratively updated with measurement data to provide more information on Canada's marine energy resources.

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

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 were launched in 2022 with relevance and importance to the marine renewable energy sector.

- ***Accord Act Amendments***: In April 2022, the Government of Canada and the provinces of Nova Scotia and Newfoundland and Labrador announced the intent to establish a joint management regime for offshore renewable energy by amending legislation that would expand the mandates of the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) and Canada-Newfoundland and Labrador Petroleum Board (CNLOPB). The Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act and Canada-Newfoundland and Labrador Offshore Petroleum Resources Accord Implementation Act ("The Accord Acts") will be amended accordingly, establishing both existing boards as the regulator for offshore renewables for their respective provinces. These changes will impact offshore renewable energy projects such as offshore wind, wave, and tidal energy proposed to take place on federal seabed.

- ***Regional Assessment of Offshore Wind for Newfoundland and Labrador and Nova Scotia:*** In April 2022, the Government of Canada as well as the governments of Newfoundland and Labrador and Nova Scotia announced a commitment to conduct a regional assessment for offshore wind. The Regional Assessment will be conducted for areas offshore Newfoundland and Labrador and Nova Scotia. The Impact Assessment Agency of Canada (IAAC) has been working with the Governments of Newfoundland and Labrador and Nova Scotia, Indigenous groups, federal authorities, non-government organizations and the public to plan the Regional Assessment, including defining its goal, objectives, geographic boundaries, activities, outcomes and governance structure. The Regional Assessment will help inform future project-specific federal impact assessments and decisions for offshore wind projects in these areas. It is expected that the Regional Assessment will officially start in early 2023.

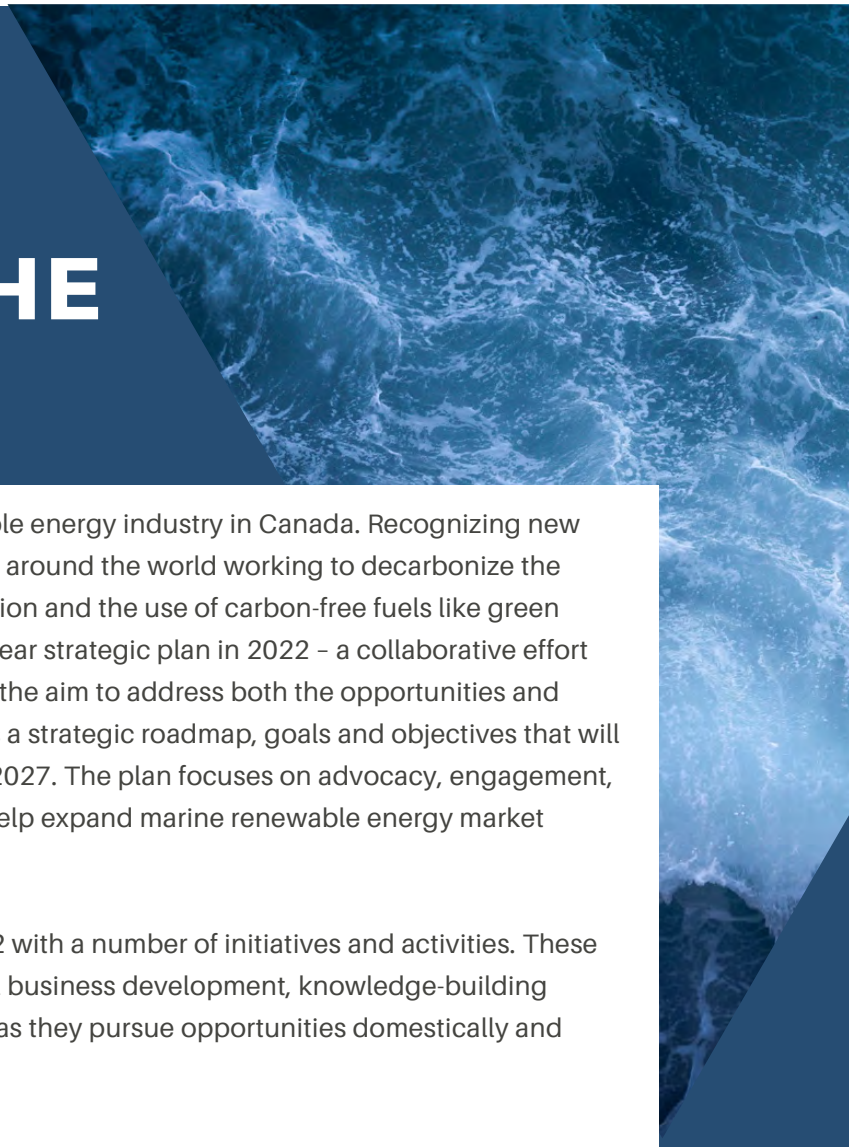
- ***Offshore Renewable Energy Regulations (ORER) Initiative:*** The Government of Canada commenced Phase Two of its Offshore Renewable Energy Regulations (ORER) Initiative. The ORER initiative aims to develop safety and environmental protection regulations that will apply to exploration, construction, operation and decommissioning activities related to renewable energy projects and power lines in Canada's offshore areas. The ORER are being developed under the Canadian Energy Regulator Act. This legislation enables the Canada Energy Regulator to review and authorize activities related to offshore renewable energy in Canada's offshore areas. Phase Two of engagement on the ORER closed in early 2022 and focused on soliciting feedback on the technical requirements and proposed structure of the regulations. The next step will be pre-publication of the ORER in Part 1 of the Canada Gazette for public comments.

- ***Clean Technology and Clean Hydrogen Investment Tax Credits:*** In December, Finance Canada launched a consultation on the investment tax credits (ITC) that were proposed in Budget 2022 and reaffirmed in the Fall Economic Statement. The proposed ITCs for Clean Technologies was up to 30% and for Clean Hydrogen, up to 40% . Marine renewable energy (tidal, river, wave, and wind) were eligible under the proposed ITC. "Wind" was also proposed under the ITC, but it was unclear whether this also included "offshore wind." MRC provided a submission aimed at ensuring that Finance Canada's use of "wind" encompassed "offshore wind" and that both fixed and floating technologies as well as project components were encompassed under that definition. MRC also encouraged the exploration of a production tax credit (PTC) in the future.

- ***Nova Scotia 5 GW Offshore Wind Target:*** In September, the Nova Scotia announced that it will be pursuing five gigawatts (GW) of offshore wind development by 2030, a target that will drive growth of the industry in Canada - and the first offshore wind target in Canada. It is expected that a competitive bid process jointly managed by federal and provincial governments will be launched in 2025.

Announcement of 5 GW offshore wind target for Nova Scotia in September 2022.

OUR WORK: GROWING THE SECTOR



MRC is driven to help grow the marine renewable energy industry in Canada. Recognizing new opportunities created by Canada and countries around the world working to decarbonize the economy through measures such as electrification and the use of carbon-free fuels like green hydrogen, MRC worked to develop a new five year strategic plan in 2022 – a collaborative effort amongst MRC Board of Directors and staff with the aim to address both the opportunities and challenges facing the sector. The plan provides a strategic roadmap, goals and objectives that will help guide directions and activities over 2022-2027. The plan focuses on advocacy, engagement, and education actions and initiatives that will help expand marine renewable energy market opportunities across the country and globally.

MRC began implementation of this plan in 2022 with a number of initiatives and activities. These included targeted advocacy work, international business development, knowledge-building workshops, and ongoing support for members as they pursue opportunities domestically and internationally.

Advocacy, Engagement, and Collaboration

Policy Development and Advocacy

To grow the sector, MRC has made its policy work a priority and increased its government relations and outreach efforts over the course of 2022. Throughout the year, 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 a number of federal and provincial government initiatives:

- *Letter to the Minister of Environment and Climate Change Canada & President of the Impact Assessment Agency RE: Regional Assessment for Offshore Wind Energy* (January)
- *Submission to Natural Resources Canada's Offshore Renewable Energy Regulations Initiative – Phase II Proposed Technical Requirements* (February)

- *Letter to Minister of Natural Resources Canada RE: Legislation and certainty for offshore wind development* (June)
- *Op-ed: Canada-Germany hydrogen agreement signals increased role for Atlantic Canada's ocean energy resources* (September)
- *Submission for the Pre-Budget Consultations in Advance of the Upcoming 2023 Federal Budget* (October)
- *Comments on the draft Agreements and draft Terms of Reference for the Regional Assessment of Offshore Wind Development in Newfoundland and Labrador and Nova Scotia* (November)

Tidal energy roundtable with Minister Guilbeault, Environment and Climate Change Canada

MRC was also worked to create opportunities for in-person meetings with key federal officials to discuss opportunities and challenges in the marine renewable energy sector. This year staff and MRC members had the opportunity to participate in roundtables with Deputy Prime Minister Chrystia Freeland, Minister Wilkinson, and Minister Guilbeault.

Offshore wind roundtable with Minister Wilkinson, Natural Resources Canada

Alliances and Strategic Partners

In working to support the development of a new industry, collaboration and partnerships continue to play a key role in MRC's efforts. As the world works towards energy transition, it has become even more important to collaborate for the benefit of members and the sector. In addition to working with existing partners, Marine Renewables Canada established new alliances and collaborations in 2022:

- ***European Leaders in Blue Energy (ELBE):*** In June, MRC signed an MOU with the European Leaders of Blue Energy (ELBE) Alliance focused on the marine energy and offshore wind sectors. ELBE gathers seven European clusters with top expert companies and research and development organizations in blue energy to tackle the expansion of marine renewable energy beyond Europe. As part of the partnership, MRC will work with ELBE to support partnerships, knowledge transfer and supply chain growth in tidal energy, offshore wind and wave energy amongst their collective memberships.

- ***Canada's Ocean Supercluster (OSC):*** MRC and OSC announced a new, collaborative partnership to share knowledge and support the advancement of marine renewable energy in Canada. MRC will work with OSC to generate increased awareness, innovation, investment, and opportunity in the development and use of marine renewable, and in particular offshore wind, wave, and tidal energy.

Signing of MOUs with ELBE (left) and Canada's Ocean Supercluster (right)

- ***Existing partnerships and collaborations:*** MRC continued work with existing partners and collaborators on projects, membership connections/business development, advocacy, and events throughout 2022 including: Business Network for Offshore Wind, econext, Electricity Alliance Canada (EAC), FORCE, Women in Renewable Energy (WIRE), Marine Energy Wales, and Smart Grid Innovation Network (SGIN).

Engaging in the Global Market – International Business Development

2022 was the first year since the pandemic that MRC was able to fully engage in the international market with in-person events and trade missions. As many members had not been able to get into market and develop connections, leads and partnerships, MRC focused its efforts on supporting priority market opportunities identified in the US, Latin and South America, and Europe.

Trade Missions & International Activities

Mission to the 2022 Pan American Marine Energy Conference (PAMEC) – June 19-22, Ensenada, Mexico

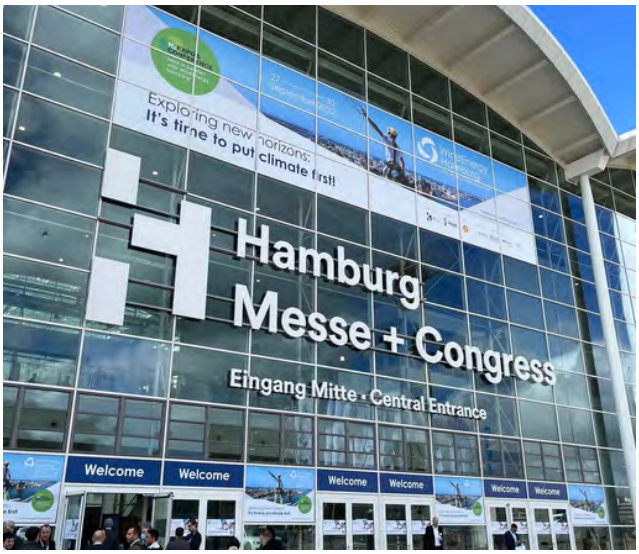
Building on a successful 2020 mission to PAMEC in Costa Rica, MRC led a mission to Ensenada, Mexico for PAMEC 2022 with support from the Government of Canada. MRC's mission was designed to profile expertise in project support, coastal/remote community project development, and identify potential supply chain gaps in the Latin and South American market. Mission activities included a mission information webinar, pre-mission briefing, presentations by mission delegates, as well as participation in various pre-conference workshops focused on the role of test centres in facilitating marine renewable energy development, international data-sharing, and environmental effects.

Mission to the 2022 International Partnering Forum on Offshore Wind (IPF) – April 26-28, Atlantic City, New Jersey, USA

Since 2019, MRC has been leading an international business development strategy to support Canadian companies endeavouring to engage in the US and European offshore wind market. Building on activities over the past several years, MRC led a mission to the International Offshore Wind Partnering Forum (IPF) in April 2022, with support from the Government of Canada. 18 Canadian companies and organizations participated in the delegation. Mission activities included multiple pre-mission webinars and virtual meetings with key organizations in the US, onsite pre-mission prep briefing session, a booth in the conference exhibition, participation in the conference WindMatch B2B program, and attendance to multiple networking events.

MRC-Nova Scotia Reception at WindEnergy Hamburg – September 29, Hamburg, Germany

To build on the momentum of the newly established Canada-Germany alliance, MRC partnered with the Government of Nova Scotia to host a side event at WindEnergy Hamburg on September 29th. The event featured remarks from senior government officials as well as MRC members and Nova Scotian projects focused on green hydrogen development. The overall objective was to continue building the relationship with Germany as well as profiling Nova Scotia and Canada as an optimal place for offshore-wind-to-green-fuels development and investment.



Mission to the 2022 International Conference on Ocean Energy / Ocean Energy Europe (ICOE-OEE) – October 17-20, San Sebastian, Spain

Canada has been building a profile at ICOE and has ongoing success leading large Canadian missions to the event since 2012. In 2022, ICOE partnered with Ocean Energy Europe (OEE) to deliver ICOE-OEE 2022 to host the largest, dedicated marine renewable energy (tidal and wave) event globally. MRC, with the support of the Government of Canada, led a successful mission to the event with 15 organizations participating in the delegation. Mission activities included pre-mission webinars and virtual meetings with key organizations in Europe (Basque Energy Cluster, Trade Commissioner Service, Ocean Energy Europe), onsite delegate prep session, a large booth in the conference exhibition, organized matchmaking/B2B, Canadian presentations in the ICOE-OEE conference program, Canada Reception, and attendance to multiple networking events.

Association-led Events & Outreach

East Coast Summer Event – Business & Supply Chain Forum / Summer Social on the Lake – Halifax, Nova Scotia, August 2022

With a lot of excitement around prospects and activity in tidal, offshore wind, and green hydrogen in Atlantic Canada, MRC decided to bring back its East Coast Summer Event for 2022, which provided an afternoon business and supply chain forum followed by an evening summer social and lobster dinner. The forum explored the opportunities presented by marine renewable energy development in the Atlantic region and provided insight on supply chain development created by early tidal energy projects, growing business opportunities in the US offshore wind market, and the future potential for offshore wind development in Atlantic Canada. This event could not have been possible without the support of its sponsors and partners: The Strait of Canso Superport Corporation (Presenting), Bear Head Energy, Bourque Industrial, McKeil Marine, Waterford Energy Services Inc., and the Province of Nova Scotia.

Marine Renewables Canada 2022 Annual Conference – Halifax, Nova Scotia, November 2022

MRC's 2022 conference proved to be the largest to date with 350 industry leaders and experts in attendance, and featured over 30 local, national, and international speakers providing information on key issues of importance to Canada's marine renewable energy sector. Conference sessions focused on how offshore wind, tidal, wave, river current energy can help power a sustainable and inclusive future in Canada and globally. Over the course of three days, the conference provided ample networking opportunities, featured insights from industry leaders and experts, provided information on market opportunities and industry activity, and fostered dialogue on key actions and critical next steps. This year, MRC wanted to grow the conference offerings and featured new pre-conference events.

MRC Member Sessions

MRC Member Sessions were designed to provide members with exclusive access to training and information sessions that could assist with future project planning and development, business development, and relationship-building. Sessions featured included "Working with Indigenous Peoples and cultivating relationships" hosted and presented by Indigenous Treaty Partners and "How to communicate effectively about marine renewable energy" hosted and presented by Sean Kelly Consulting. Thanks to Indigenous Treaty Partners and Sean Kelly for offering your knowledge and expertise to make these sessions a success.

Women in Marine Renewables Networking Event

MRC once again teamed up with Women in Renewable Energy (WiRE) to host a networking event in conjunction with the conference. Over 80 attendees had the opportunity to network, make connections, hear from women working in the marine renewable energy sector, and learn more about how and why they got involved in the sector as well as the opportunities and challenges involved. Guest speakers featured were association members – Desiree Stockermans of Ocean Sonics and Ruth Donald of Northland Power.

Taste of the Tides: An Evening of Tidal Bay Wine & Local Seafood

MRC partnered with the Wine Growers Association of Nova Scotia (WGNS) to launch a new and unique networking event in conjunction with the 2022 conference. Taste of the Tides included a guided tasting of several Tidal Bay wines, Nova Scotia's very own wine appellation, paired with local oysters and seafood hors d'oeuvres. Four Nova Scotia wineries were showcased - Benjamin Bridge, Grand Pre, Avondale Sky and Eileanan Breagha. Thanks to event sponsor, Bourque Industrial.

The 2022 conference could not have been possible without the support of its sponsors and partners: DP Energy (Presenting Sponsor), Northland Power, Bear Head Energy, Simply Blue Group, EverWind Fuels, Nova Scotia Department of Natural Resources & Renewables, Worley, Waterford Energy Services Inc., Sustainable Marine, Cape Breton Partnership, DOF Subsea, Cox & Palmer, ABL, Dovre Group, Atlantic Towing, Bourque Industrial, Rhenus Logistics, Strait of Canso Superport Corp., COVE, Baird, Cherubini, Ocean Sonics, HydroQuest, Iris Communications & Public Affairs, Taut Solutions, Seaforth Geosurveys, XOCEAN, and Stantec.

Information and Market Intelligence Webinars

MRC hosted several webinars in 2022 to support its members' efforts in pursuing domestic and international market opportunities. Topics included federal procurement, US offshore wind industry, and offshore wind in Atlantic Canada. Five webinars were developed and hosted:

- *Myth Busting Federal Procurement: Learn how to sell to the Government of Canada* (February)
- *Offshore Wind in the US: Market insight and updates* (March)
- *Offshore Wind in Atlantic Canada: Opportunities & Challenges* (April)
- *Offshore Wind Energy in Atlantic Canada: Geological Constraints and Opportunities* (May)
- *World Oceans Day webinar, co-hosted with US National Hydropower Association* (June)

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:

- *EnergyNL Conference & Tradeshow – St. John's, Newfoundland & Labrador* (June)
- *PROBUS presentation – New Minas, Nova Scotia* (June)
- *UN Ocean Conference "Offshore Renewables for a Global Blue Economy" IRENA panel presentation – Virtual* (June)
- *H2O Conference & Exhibition – Halifax, Nova Scotia* (June)
- *Offshore wind 101 presentations to various organizations (CNSOPB, Fisheries Advisory Committee, Department of Fisheries and Oceans Canada) – Virtual*
- *Ecology Action Centre and Conservation Council of New Brunswick's webinar "Holistic Network Design for Offshore Wind in Eastern Canada" presentation – Virtual* (October)
- *Flux Capacitor podcast "The future role and prospects for marine renewable energy" podcast guest – Virtual* (November)
- *International Ocean Institute Workshop on Ocean Governance for Indigenous Peoples presentation – Halifax, Nova Scotia* (December)
- *The Transition Accelerator "Thinking Ahead: The Way Forward for Hydrogen in Canada" webinar panelist – Virtual* (December)

OUR MEMBERS

Marine Renewables Canada is pleased to welcome new members who have joined the association in 2022:

Aon, Atlantic Canada Offshore Developments (ACOD), AzSpecd Solutions Inc., Baird & Associates, BlueFloat Energy, Canada-Nova Scotia Offshore Petroleum Board (CNSOPB), Canada's Ocean Supercluster, Cape Breton Partnership, C-CORE, Dana Morin - Individual, DNV, Dovre Group, Eauclaire Tidal Limited Partnership, EDF Renewables, EverWind Fuels, Fugro Canada Corp., Global Maritime, Glooscap Energy, Hexicon USA LLC, Hydrogen Optimized, Iris Communications & Public Affairs, Lloyds Register Canada, Long Pond Harbour Authority Inc., Lorneville, Mainstream Renewable Power, Marine Institute of Memorial University, Mark Butler - Individual, Newfoundland Offshore Services Limited (NOSO), NSCC SEATAC , Philip Bassil - Individual, Port of Argentia, Power Advisory, Public Affairs Atlantic, QSL, Rhenus Logistics Canada, Sabella, SBM Offshore, Sensor Technology Ltd., Siem Offshore Canada Ltd., Simply Blue Management Canada Ltd., SSE Renewables, Starboard Wind Energy, Svitzer Canada Ltd., TerraSond Limited, UH2, Wesben Global

As always, thank you to all members for your dedication, support, and perseverance. We look forward to working with you in 2023!

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