

# Blue Power

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## Message from Executive Director Chris Campbell

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A few short (or long, it depends on your perspective) years ago, the association and its members spent most of the time injecting ourselves into energy discussions with a plea "And wave and tidal energy"!

Mainstreaming in the November Scientific American article as a significant contribution to a worldwide move to clean energy, the bullish 200 GW target from Pike Research and the inclusion of ocean energy as one of the resource chapters in the upcoming IPCC climate change-mitigation Special Report on Renewable Energy, all reflect a broadened recognition of its widespread potential.

OREG has ensured that this emerging sector is being treated equally with other renewables in federal programmes culminating with the significant Clean Energy Fund awards this winter.

We are working to ensure that wave, tidal and in-stream are included in the new ecoLogo standard.

We finally got a federal minister at an OREG event last Fall and we are encouraged by the state of our relationship with ministerial and departmental staff. We will be working with NRCan and others on a Technology Roadmap. And of course, we continue to support provincial initiatives...

The new Nova Scotia government has just followed through on a report they commissioned from, then

Dalhousie Dean of Business, David Wheeler: *"The report envisages significant benefits for Nova Scotians through the active involvement of communities and renewable energy developers of all types, most notably developers of wind, biomass and ocean energy."*

Their aggressive strategy reflects an urgent plan to promote regionally distributed generation and to develop strategic opportunities like tidal resources. A Community-Based Feed-in-Tariff is expected to stimulate addition of 100 MW of capacity, mostly in the 2,5 or 10 MW range.

The Department of Energy also completed a report on an Economic Opportunity workshop in Halifax last November:

*"In general the workshop participants see the urgency of moving the development of this industry forward. If Canada is to have the 15,000 MW of marine electricity capacity it will need to achieve the National Roundtable's 2050 targets, the Maritimes may need to supply around 1,500 MW, primarily from tidal."*

*To fully benefit, time is of the essence and the provinces should move quickly to undertake the work necessary to provide the planning, policy, market and regulatory structures necessary to allow the private sector to advance tidal power development."*

With the first generator, Nova Scotia Power's Open Hydro machine in Minas Passage,

FORCE a big winner in the Clean Energy Fund round, and Fundy Tidal actively developing proposals for small scale projects, OREG has been asking for a focus on the next phase and it seems that we have got it!

April 28 saw the Government of British Columbia introduce a Clean Energy Act to support the development of a thriving clean energy industry in BC through a feed-in-tariff for emerging technologies, economic development opportunities for IPPs and green energy exports, and the use of other mechanisms such as regular calls for power, an improved Standing-Offer Program, and continuation of the Innovative Clean Energy (ICE) Fund.

The Transmission Inquiry launched last year seems to have been subsumed by the requirement for the newly (re-) combined BC Hydro to produce a long-term plan in the next 18 months. Since both BC Hydro and BCTC were looking at marine opportunities for the Inquiry, we will work to ensure that the new plan fully explores these resources.

Clearly we have achieved some objectives that eluded us in recent years. Even if there is an emerging market for ocean power, financing early projects and proving out technical and business approaches remain huge challenges. Expect us to be more about the tools needed to bring in finance, attracting larger industry and major power project developers.

## OREG and the World of Ocean Energy

Since the early days of OREG, our message has been that this is about building a clean power industry, not simply a technology development experience; to borrow one member's comment – "*This is not a science experiment*".

Its resonance is being reflected as we engage with our international members (still around 20%) and in our invitation to events in other parts of the ocean energy world.

This message that renewable ocean energy will be a significant part of the climate action agenda and a perfect example of the emerging low-

carbon coastal economy was delivered in a keynote address at the BWEA Wave and Tidal 2010 event in London, once again alongside UK Minister for Energy and Climate Change.

Needless to say, one of the reasons we engage in these events is to show political leadership at home that our messages are well received elsewhere!

For the past four years OREG has been working to hold a place for the Canadian sector as the worldwide interest in ocean energy has developed. This has meant appearances at international conferences and tradeshows and, when we

secured support, missions including members.

This visibility is paying dividends in that part of the service and support membership is already making international sales. A by-product is that we now have a network of trade commissioners across Europe, through the US and into Asia, individuals with whom there is a connection and who are looking for ocean energy partnership and business leads.

OREG members are encouraged to check with Jessica McIlroy if they are looking for in-country business intelligence; we may have just the contact for you.

## It Isn't Easy Being Green

Being a pioneer means being out there in front and breaking new trail. It brings with it the risk of stumbling into the unexpected or coming up against barriers.

In the context of Olympic athlete successes and setbacks, BC Premier Campbell said "To be a real leader means you will stumble from time to time or make mistakes in unfamiliar territory". He was actually talking about the BC Government's aggressive focus on clean energy and climate action.

As ocean energy becomes more of a reality it can expect to attract more of a critical review. Ocean energy is an unfamiliar new addition to the coast. It is a new user in an already crowded space. It is true that there is not yet enough experience to say that there will not be adverse effects.

It is true that ocean power plants will have to have leases and control over areas of seabed or water in what is the *last commons*. There will be setbacks and misfortunes despite the best of effort. Being a renewable clean energy source will not be protection from critics.

An essential task for all of us is to reach out and firm up our community of support and create an openness that will allow companion industries, communities and media to understand the likely staged and progressive development of modular ocean energy.

Our challenges are in reality shared by the entire coastal community and we are all in this together. Without addressing GHG-reduction, species at risk are well beyond risk. "Why is it taking so long to deliver the renewable clean energy?" is perhaps the question we might expect from environmentalists.

"If working around ocean energy installations is needed for me to eventually have an alternative to diesel" is the trade-off we have heard from a leading Oregon fisherman.

Although not all of the commentary will be positive, public discussion has the potential for education and engagement if sector players are open for it.

Ocean energy is new. Our pioneers will stumble and make mistakes. The sector will be unfairly challenged and have to defend itself against past *sins*, completely unrelated to the sector.

That comes with being a leader. When criticized, it will be fair for the pioneers to ask the critics what they are doing to combat climate change and launch the low-carbon economy. Being righteous while buying carbon offsets is definitely not leadership!

## Policy Advances in Nova Scotia and BC

The Nova Scotia Department of Energy recently released a Renewable Energy Plan focused on moving the province away from carbon-based energy sources. Currently, nearly 90% of the Nova Scotian electricity supply comes from fossil fuel-based sources.

The Plan includes an overall goal of 40% renewables by 2020, and a number of sector initiatives. Included is the establishment of a feed-in tariff (FIT) for small-scale and large-scale tidal energy projects.

The feed-in tariff will be in two forms: a community-based feed-in tariff (COMFIT) for distribution connected tidal projects; and a special FIT for the direct incremental costs related to device deployment

for developmental tidal arrays connected to the grid at the transmission level.

The Plan also announced the commitment to forming a Marine Renewable Energy Task Force. This interdepartmental task force will be assisted by the private sector, and will work to develop strategies for commercialisation marine renewable energy and the human resources needed to support them.

More information can be found on the Nova Scotia DOE website: [www.gov.ns.ca/energy](http://www.gov.ns.ca/energy)

The BC Ministry of Energy, Mines and Petroleum Resources has released a new Clean Energy Act, Bill 17, which advances 16 energy objectives

to set the foundation for a new energy future in the province.

The Act includes a focus on electricity for export and the development of BC's rich natural energy resources.

The Act also enables the implementation of a feed-in tariff program to foster the development of emerging technologies in renewable power production.

The government and BC Hydro will be working with industry to define the program, which will be established through regulation.

More information can be found at [www.gov.bc.ca/cleanenergyact](http://www.gov.bc.ca/cleanenergyact)

## Joint Wave Technology Project Receives Major Boost

Wave Energy and the Port of Hanstholm have taken a major step towards the full scale implementation and testing of the SSG breakwater wave energy technology in the Hanstholm harbour area in Denmark, after they agreed on the financing of a development project together with Innovation Norway.

The development project started on March 15, and the purpose is to come up with a solution for integrating the SSG breakwater technology, Wave Energy's patented and innovative solution for more efficient utilization of waves to generate electricity, into the development plans the Port of Hanstholm have for their new harbour area. The General Manager of Wave Energy, Monika Bakke is pleased that a financial package has been agreed upon.

"We came up with a solution where all three parties pay a third each of the total budget of 1.8 million NOKs. We are very happy with this arrangement, and feel it is a strong commitment from all parties to look at integrating sustainable and environmentally sound solutions in this major building project," Ms. Bakke said.

A full scale implementation of the technology will require new solutions for design, construction and installation for Wave Energy, and Ms. Bakke believes it is a step in the right direction for her company.

"For us the project means raising our competency to a higher level and also a major step towards the international commercialization of our technology," she said.

There has been close

cooperation between the Port of Hanstholm management and Wave Energy for the past year to realise the project. Port Director of the Port of Hanstholm, Birgitte Klittenberg Juhl, believes implementing the technology is a natural consequence to them.

"As it happens we have the best waves in Denmark. Therefore there's a lot of interest from wave technology companies. In connection with the construction of our new piers, it was only natural that we, instead of regarding the waves as an enemy destroying our piers, see them as a resource from which we can create lasting energy," Ms. Juhl said.

The construction work on the new parts of the harbour is set to start in 2012.

## Oregon House Bill 3633

OREG member, and Oregon Legislative Representative, Deborah Boone submitted a bill during the February Oregon legislative session that will assist in allowing for development of wave energy projects.

The Bill states: The Legislative Assembly finds that community-based renewable energy projects, including but not limited to marine renewable energy resources that are either developed in accordance with the Territorial Sea Plan adopted pursuant to ORS 196.471 or located on structures adjacent to the coastal shorelands, are an essential element of Oregon's energy future, and declares

that it is the goal of the State of Oregon that by 2025 at least eight percent of Oregon's retail electrical load comes from small-scale renewable energy projects with a generating capacity of 20 megawatts or less.

It also states that the Department of Land Conservation and Development will support a study on how to best develop commercially viable marine renewable energy resources in the state.

The study may include: overall needs and constraints of development; potential economic impacts; environmental conditions and limitations; regulatory

structures; capacity and constraints of local utilities; and trends in energy conversion technologies.

A Marine Renewable Energy Resources Study Fund was created through the bill to support the study.

OREG would like to thank Representative Boone for her continued engagement in OREG and support for the advancement of the sector.



## Marine Spatial Planning

A number of marine spatial planning initiatives are underway around the world, and in regions where ocean energy is being either considered or planned.

It is important that ocean energy industry members engage in these initiatives so that energy project developments, and other human uses of the marine space, are taken into consideration.

The Scottish government has taken steps to recognise the difficulties faced in planning in the marine environment, and have released a document that sets out a framework for the future development of the Pentland Firth and Orkney Water marine spatial plan.

The document also sets out draft regional locational guidance for the development of wave and tidal resources.

This type of guidance and framework for how ocean energy fits into marine spatial planning is vital to the success of the industry, and would be extremely valuable for Canadian waters.

There are some initiatives in BC that members of the ocean energy industry may want to become engaged in.

These include the Pacific North Coast Integrated Management Area Initiative (PNCIMA). The process was launched by the federal government and is suppose to bring the region's stakeholders together to apply integrated management practices to the region.

More information on PNCIMA can be found online at [www.pncima.org](http://www.pncima.org).

PacMARA (the Pacific Marine Analysis and Research Association) acts as a catalyst for collaborative research and analysis, informing marine policy based on impartial evidence from the marine community.

They can be found online at <http://pacmara.org>.

The BC Marine Conservation Analysis is a collaborative project designed to provide information about marine biodiversity and human activity in BC's marine waters. The product will be a marine use atlas.

See: <http://bcmca.ca>

Contact OREG for more information.



### Canadian Social Networking for Clean Energy

A new website has been formed to provide news, a company directory, job postings, and an areas for online networking in the Canadian renewable energy sector.

Please visit  
<http://iscleaner.com>

is cleaner

Your Source for  
Canadian  
Clean Energy News  
and Information

## Upcoming European Events

### Offshore Renewable Energies: Unsolved Problem or Promising Future?

The Wave Energy Centre's next annual event will take place on the 14th of May 2010 at the Lisbon Congress Centre, integrated in the RENEXPO PORTUGAL, an International conference and Trade Fair on Renewable Energies and Energy Efficiency.

In the scope of present developments in the area of offshore renewable energy in the world, specifically regarding wave energy and offshore wind, namely fixed on floating platforms, WavEC's event puts the following question: Offshore Renewable Energies: Unsolved Problem or Promising Future?

The programme consists of a number of presentations, which will occur in four thematic sessions, namely:

- Session I: Goals and strategies in offshore renewable energies

- Session II: Demonstration Projects in Portugal

- Session III: Uses of the Sea and Synergies

- Session IV: Round Table: How to guarantee a Promising Future?

More information:  
<http://en.wavec.org/index.php/70/wavec-seminar-2010/>

### Workshop on Oceans as a Source of Energy

This two-day workshop is the first of a series of three workshops on the Oceans, jointly organized by Portuguese Academy of Engineering (Academia de Engenharia) and the Berlin-Brandenburg Academie of Sciences (Berlin-Brandenburgische Akademie der Wissenschaften).

The event will take place on May 17 & 18 in Lisbon, Portugal.

More information: <http://oceans.lx.it.pt/home>

### ICOE 2010

The upcoming International Conference on Ocean Energy will be taking place in Bilbao,

Spain on October 6 - 8, 2010.

The conference program is divided in to three themes: Moving to industrial stage; Ocean renewable energy development; and key research topics.

Chris Campbell from OREG has been working on the development of the conference with the ICOE committee. The possibility of holding a future ICOE conference in Canada is also being discussed.

OREG will also be participating in the **Sustainable Ocean Summit**, to be held in Belfast, Northern Ireland on June 15 - 17, 2010.

Chris Campbell will co-chair: Renewable Energy from Crowded Seas: What are the synergies and economies of scale in wind, wave and tidal energy development and how can interactions with other ocean industries best be addressed?

More information: <http://www.oceancouncil.org/site/>

## Canada's Marine Energy Technology Roadmap

OREG is working with NRCan and other partners to build a stronger foundation on which to advance the sector.

The roadmapping exercise will identify a vision for the industry, and a technology development and delivery strategy of marine renewable energy in Canada by:

Identifying development time lines and key knowledge gaps associated with technologies and power delivery systems;

Identifying strategies and targets for advancing technologies into manufacturable, deployable and reliable power production systems;

Identifying and addressing industry challenges and opportunities to accelerate development and deployment;

Prioritising Canadian research activity in accordance to the above timelines and challenges; and,

Prioritising key technology, sub-system and supply chain advantages for the efficient and effective progression of the industry.

OREG members and associates will be asked to participate in workshops and consultations over the next year. Input is critical to ensure the project launches the momentum needed to achieve our 15 GW by 2050 vision.

## DOE Funding Opportunity

The Marine and Hydrokinetic Technology Readiness Advancement Initiative has been announced by the US Department of Energy.

The mission of DOE's Water Power Program is to perform and sponsor the necessary research, development, test, evaluation, and demonstration of innovative water power technologies, in order to effectively generate renewable, environmentally responsible, and cost-effective electricity from marine and hydrokinetic

(MHK) resources.

Considering the early-stage of development of the industry and most MHK technologies, the Program will employ Technology Readiness Levels, or TRLs, as a means to assess the technical maturity of various types of marine and hydrokinetic water power technologies, in a consistent and uniform manner.

It is the intent of this Funding Opportunity Announcement (FOA) to advance the technical

and operational readiness of marine and hydrokinetic systems and components across a range of TRLs, with the unified goal of accelerating the development and deployment of these technologies to provide a domestic source of clean, affordable energy that is both economical and ecologically responsible.

More information is at [www.stoel.com/files/FY10\\_Water\\_MHK\\_FOA.pdf](http://www.stoel.com/files/FY10_Water_MHK_FOA.pdf)

## EquiMar Releases Marine Energy Protocols

Europe's fledgling marine energy industry has new guidelines to help governments and investors make better Investment decisions.

EquiMar project director Professor David Ingram launched protocols which will guide every part of tidal and wave energy device development from computer modeling, tank testing and scale model to full deployment at sea.

"EquiMar's protocols create a road map for governments and investors to make comparisons between the dozens of devices, proposed locations and management systems currently competing for funds. Presently that's as hard a task as treating patients without a thermometer."

The protocols are designed to ensure investors can be confident a device is an all round success and that developers are measuring and presenting,

That's why we need developers to measure work in the same way and progress steadily from computer modeling to tank testing, small scale testing and sea trials before moving to full scale deployment of marine devices.

EquiMar Director Cameron Johnstone, Director of Strathclyde University's Institute of Energy Systems Research Unit said: "Tidal or wave developers tempted to short circuit the tried and trusted development process run the risk of incurring huge losses and undermining confidence in the ability of tidal and wave devices to deliver significant amounts of power to the grid.

Of course, it's tempting to miss out the crucial middle steps -- but Europe's banks provide a strong, cautionary example of what can go wrong with mass deployment of an idea that simply looks good on paper."

"Political pressure to deliver wave and tidal farms quickly,

means there's an impatience to get out into sea trials because marine scientists and developers have been researching ideal devices and locations for such a long time -- but it would be a very false economy.

A week of testing in a tank or on a computer model can save months of very expensive downtime after premature deployment at sea. That's also why it's vital to develop ways to measure and compare success so investment can follow results."

The EquiMar project is a European group of 61 scientists, marine device developers, marine biologists and energy companies from eleven countries, charged by the European Commission with devising industry protocols by 2011.

The seven "high level protocols" are available at [www.equimar.org](http://www.equimar.org)

***"Political pressure to deliver wave and tidal farms quickly, means there's an impatience to get out into sea trials..."***

## Member Profile: Seawood Designs

Seawood Designs Inc. is moving forward with the development of SurfPower.

SurfPower is a patented near-shore wave energy conversion system with unique wing shaped pontoons each coupled to a seawater pump that anchors the assembly to the seabed.

The long axis of the pontoon automatically aligns itself with the crest of oncoming waves, irrespective of the wave direction. The seawater piston pump is unlike any other in that it discharges pressurized

water through a hollow rod to a collection main located on the sea bed.

Seawood Designs is currently entering into a collaborative agreement with NRC Institute for Ocean Technology to conduct wave tank trials scheduled for May, 2010. NRC-IRAP is also participating in this effort.

Recently, a study designed to computer model SurfPower performance was undertaken between Seawood Designs and Dynamic Systems Analysis. This work was

enabled by NRC-IRAP.

With the belief that an increased sharing of technical information among all OREG members would be mutually beneficial, Seawood Designs would be pleased to make a copy of the report available to interested members. Please call 250-743-7107 or email [seawood@shaw.ca](mailto:seawood@shaw.ca).

More information on SurfPower can be found at [www.surfpower.ca](http://www.surfpower.ca)

## Upcoming OREG Events

OREG will be hosting two community open houses in BC at the beginning of June. Each event will highlight the regional project and resource opportunities and how ocean energy could play a role in regional and provincial energy and economic development.

The goal is to not only provide information, but to also solicit input and build a broad community of support for ocean energy in BC.

A wave energy-focused open house will be held in Ucluelet at the Community Centre, on June 1st at 7:00 pm.

Following remarks from the Mayor, OREG will provide an introduction to ocean energy, and presentations will be given on the West Coast Wave Collaboration Project, and the SyncWave demonstration project. Remarks will also be made by BC Hydro and the BC Provincial government.

A tidal energy-focused open house will be held in Campbell

River on June 2nd at 7:00 pm, at the Community Centre.

Opening remarks will also be given by the Mayor, and an introduction by OREG. Presentations will be made by Triton Consultants and Canoe Pass Tidal Energy. Remarks will be made by BC Hydro and the Provincial government.

Significant time will be left at the end of presentations for questions and discussion, and each event will conclude with a networking reception.

Sponsors for the event are BC Hydro, Fred.Olsen Renewables, Stantec, Mavi Innovations and Roper Resources. Further sponsorship opportunities are available.

OREG is also looking into holding an open house or one-day forum in Nova Scotia in the fall.

OREG's 2010 Annual Conference will be held at the Sheraton Wall Centre in Vancouver, BC on October 27 & 28, 2010.

This year's event is focused on Charting the Course to 2050: Canada's 15 GW Ocean Energy Opportunity.

The program will look at defining that future target, the potential routes for getting there, how to accelerate the process, what lessons can be learned, and how to get there in a responsible and effective manner.

Expressions of interest for speakers who feel they can contribute to the program are now being taken.

OREG will also be handing out a "Navigator" award to an individual who has made significant contributions to the advancement of ocean energy and will continue to pursue the goal of a thriving industry.

Registration and venue information can be found online at

[www.oreg.ca/2010\\_Annual\\_Conference.html](http://www.oreg.ca/2010_Annual_Conference.html)

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