



Minas Basin Pulp and Power Commentary
on
Marine Renewable Energy Legislation
November 15, 2010

This submission is a follow up to Minas Basin Pulp and Power's (Minas) participation in the stakeholder forum sponsored by the Nova Scotia Department of Energy and hosted by Mr. Robert Fournier at the Old Orchard Inn on November 2, 2010.

Mr. Fournier's approach to the session was to stimulate discussion around four (4) marine renewable technologies: tidal, wave, offshore wind, and tidal height. The following comments relate mainly to the first three.

#1. Public-Project Interface

Energy Literacy must be a fundamental building block woven into this marine renewable energy legislation. In addition to tidal energy, marine renewables appear in the form of wave, offshore wind and perhaps even energy from algae. All of these will create a sense of wonderment and excitement for some Nova Scotians, while posing a potential threat to others who use the sea for their livelihood.

The common stakeholder thread and motive woven throughout these conflicting and complementary interests must be Nova Scotia's requirement for an indigenous and clean supply of energy.

Minas finds itself presenting 'renewables energy' messages in increasing frequency at various venues (conferences, service clubs, schools, annual meetings, etc). Our observation (or better yet - conclusion) is that **Nova Scotians are not well informed about the precarious danger facing our provincial energy supply**. The larger question of security has been obscured for most of the past decade because all attention has been focused on escalating NSPI electricity rates. If the Halifax Chamber of Commerce's 2009 Energy report has validity, 90% of Nova Scotia's energy supply is imported and most of that comes in the form of fossil fuels. This is a significant matter for any economy and particularly for Nova Scotia.

Fortunately, we are blessed by our proximity to an ocean with seemingly infinite capacity to provide renewable energy in any combination of offshore wind, tidal or wave.

But before we look to the sea to secure our energy future, Nova Scotians must first firmly come to understand, believe in and commit to the need for a long term transformation. The transition to sustainability will not be easy, and particularly for those industries that have traditionally had unfettered use of the ocean for their livelihoods. Energy Literacy may be the best tool possible to mitigate perceived or real conflict as marine renewables emerge.

There is no need for scare mongering. Our interests are best served through a sustained, well-thought-out communication and education strategy that builds bottom-up support for a dramatic change in our energy course.

Once **Energy Literacy** takes hold, stakeholders found within the various economic sectors are more likely to embrace a cleaner, indigenous supply even if it means challenging traditional thinking, values and ways to life.

#2. Regional/Community Opportunities

How do we look after our own?

Most communities bordering the Bay of Fundy have been asking about benefits should tidal energy become a reality. Before long and as talk of offshore wind and wave energy grows, the same questions will be asked by communities along the Northumberland Strait, Cape Breton Island shoreline, the eastern shore and finally our south shore. To date and for good reason, answers have not been forthcoming; no one knows yet. But that does not necessarily have to be the case.

The recent (i.e. November 14, 2010) joint announcement by Defence Minister and Premier Dexter (at the FORCE facility near Parrsboro) essentially sent the message that the Federal and Provincial governments are seriously pursuing marine renewable energy as part of their respective long term supply strategies. This announcement should serve as the signal for key Nova Scotia groups and/or agencies to work together to plot the route for a marine renewables industry. We do not have to wait to be shown. We know enough to start moving.

To name a few, these stakeholders could/should include:

NS Departments of Energy, Natural Resources, Economic Development
Atlantic Canada Opportunities Agency
Industry Canada
Aboriginal interests
OTANS
Fishing Industry
Berth Holders and FORCE

Remaining with tidal energy for the moment, Nova Scotia has an issue with wet harbours versus dry harbours. Focusing solely on wet harbours will clearly disadvantage those that are dry. Another matter is wharf availability and condition. Parrsboro and Hantsport may be the only wharfs of significance in the Minas Basin area and likely neither is capable of coping with heavier loads.

A key question will be the ultimate route taken on tidal generator design and fabrication. For example, if future generators require gravity bases, then coastal communities may have to stand aside while bases are built in the larger centers. But one must keep a watchful eye on China who could conceivably fabricate and deliver bases at costs less than units produced here. We cannot assume that, due to our proximity, gravity bases will be the sole domain of our local economy.

Minas believes the future will not see a continued reliance on gravity bases because a more cost-effective approach may be emerging (i.e. seafloor pins). Replacing the gravity base with piles (or sea floor pins) will achieve three key objectives:

1. Reduces the installed \$/MW cost to a point where tidal energy competes rigorously with onshore wind energy.
2. Lessens the likelihood that outside interests will frustrate the growth and development of our local marine renewable industry.
3. Increases opportunities for local wet and dry harbours.

Accordingly, development scenarios must include models that contain both technologies: gravity base and pin piles.

Electricity Infrastructure

Transmission availability greatly influences marine renewable energy projects.

The 'wires' side of the electricity industry has always been (and will always remain) a natural monopoly and, except when proposing transmission lines through residential neighbourhoods, the utility has seldom been challenged to any degree on the need for transmission lines.

In this case, and due to its enormous impact on the emerging renewable energy industries, transmission planning **MUST** be conducted in an open, transparent and all-inclusive, comprehensive environment. Transmission planning must not default solely to the utility.

To properly and respectfully serve the interests of Nova Scotians (and even Atlantic Canadians), the planning team should include:

- Social planners
- Land planners
- Economic development specialists
- Strategic planners
- Aboriginal interests
- Industry stakeholders
- Electric utility

Minas is, in no way, implying the utility is not capable of planning and constructing transmission capability. On the contrary, the utility has been doing this well for a century. The point is that a strong and viable marine renewable industry benefits from a transmission system that has had input from all parties having strategic interest in the final location, capability and flexibility.

Royalties & Rentals

Legislative-based polices that lead to royalties or rent becoming an imbedded component of a subsea lease should be carefully re-considered before implementation. Creative schemes to create new revenues for governments can sometimes be counterproductive and in this case, almost certainly so.

Developers will go to great lengths to fully understand the costs (hidden or otherwise) associated with royalties and/or rents. Once understood, these costs will immediately be built into business models where they must eventually be recovered through higher energy rates to consumers. In a fledgling marine renewable energy industry, it may not be wise to ask electricity ratepayers to subsidize tax payers. In the pending transition to greener electricity over the next decade, Nova Scotia ratepayers will be experiencing a relatively long period of what may be called 'rate shock'. Accordingly, parasitic royalties will only exacerbate an already serious condition.

Landfall and Expropriation rights

Distasteful or not, marine energy renewable legislation must include expropriation powers to ensure the energy can come ashore in the most cost effective manner.

The FORCE project has demonstrated that deployed submarine cable costs in the range of \$1.1 million/kilometer. This, coupled with the fact that cables experience line losses measurably greater than aerial conductors, encourages developers to make landfall in as short a distance as possible.

However, most waterfront property is privately owned.

Land expropriation is not a new concept and is strategically used when the public good outweighs the interests of private citizens (e.g. public roadways, urban renewal, public water systems, etc).

Within the context of marine renewable electricity projects, the onus for identifying the most cost effective landfall falls to the developer. The developer would make the case for a particular location and then apply to the Province to obtain landfall on behalf of the project.

Landfall compensation cannot be calculated on the principle of a royalty on energy passing through but rather based on traditional approaches for property transactions. In some cases, a perpetual right-of-way may only be required, and not an outright purchase. Presumably, the submarine cables will be buried to eliminate visual impacts and to soften negative reactions.

The FORCE landfall was obtained through a perpetual right of way, with the property itself remaining with the original owners.

#3. Research and Development

Resource Limitation (tidal, offshore wind, wave)

The more we know of the magnitude and nature of our marine renewable energy resources, the greater the international exposure and investor interest.

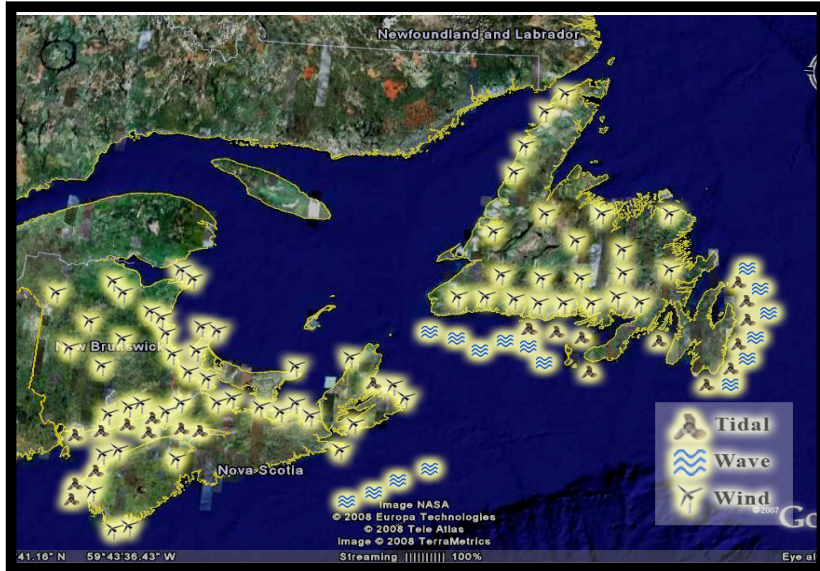
To that end, marine legislation should make reference to and support the creation of credible and proven models for tidal, offshore wind, and wave energy resources. The models should:

- Be defensible and compatible with international standards
- Be living, changing and tunable representations
- Have their homes in Nova Scotia, and remain in the public domain

External consultants could be engaged to develop the models but again, all associated intellectual property must belong to Nova Scotians. A possible ideal team could consist of the Bedford Institute of Oceanography, Acadia University, Dalhousie University, and some private sector modelers.

Cooperation with neighbouring jurisdictions

The ocean is common to the four Atlantic provinces. Consequently, we have a collective interest and obvious benefits in working together on marine renewable energy initiatives including: resource assessments, mathematical modeling, R&D, and supply chain support to name a few. For the past several years, Minas has stimulated inter-provincial dialogue about cooperation at conferences by exhibiting the following artistic rendering of Atlantic Canada's shared resources. Our conservative assessment places this combined resource at 17,000 MW.



OEER/OETR

For the past several years, the research community has worked closely with Minas and FORCE to unlock the unknowns associated with the extraction of Fundy energy. Most notable amongst this has been the closeness by which the various research constituents have come together for the benefit of the collective good. Cohesiveness has been remarkable.

Their dedication, focus, maturity and organization since the beginning of the demonstration project, pooled with the initial Strategic Environmental Assessment, the decades-old reputation of Bedford Institute of Oceanography and the rigor shown by OEER have gelled this magnificent resource into an intellectual capital asset that may not have been seen before. Taken together, this science family (government and private sector) has the capacity to catapult Nova Scotia into a global leadership position on marine renewables.

The marine legislation must find ways of recognizing this achievement and must support programs that will continue to encourage progress in this area.

#4. Regulation

Governance

Minas has limited knowledge of the Canada Nova Scotia Offshore Petroleum Board and therefore cannot advise on its suitability for a governance model. At a minimum, Nova Scotia should consider adopting their relevant occupational, operational, and safety standards

Closer to home, our experience tells us that we should strive for a one-stop regulatory approvals process where we would have relatively efficient access to:

- Fisheries and Oceans: fish and mammals
- Transport Canada: navigable waters
- Industry Canada: subsea cables
- Canada Environmental Assessment Agency (overall Federal coordination)
- NS Depts. of Energy, Environment, and Natural Resources

Most importantly and regardless of the chosen governance model, it is imperative that Nova Scotia does not relinquish any of its existing or future rights in an emerging marine renewable energy industry.

Awarding rights

As stated in the background document, the basic criteria for awarding development rights are identified in the Regulatory Flow Chart found on the Energy website.

Key to this process are the criteria that will be contained in the Request for Proposals from Industry stage when Government chooses to place strategic emphasis that influence desired outcomes (e.g. allocating higher values to say offshore wind and wave projects that bring economic stimulus to Guysborough County).

In response to Section 10.2 (page 51) of the Backgrounder where the subject of awarding rights is raised, Minas would look for consideration of its proven and significant contribution in advancing marine renewables in Nova Scotia. We prefer the **Non-competitive, First Right** approach to awarding of development rights.

Finally, having legislative and regulatory certainty over development rights creates a favourable climate for investment purposes. Raising capital will be a fundamental factor for success for marine renewables.

Respectfully submitted by:

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