

# Marine Renewable Energy Legislation for Nova Scotia

Tidal Electric Canada (TEC) – Comments

October 2010

Re: a) A Discussion Paper  
b) Policy Background Paper (July 2010)

Tidal Electric Canada (TEC) appreciates the opportunity to offer the following comments and observations on these documents. The province is to be commended for the quality of their planning and the progress being achieved in delivering results measured against very ambitious legislation requiring 25% renewable energy by 2015, and a goal of 40% renewable energy by 2020. The documents clearly reflect many of the issues raised by TEC during an extensive period of discussion and consultation over the past few years. Of particular importance is the concept of provisional site leases, essential for the development of tidal range technology in evaluating commercialization opportunities and to engage in a meaningful public consultation process. .

## Executive Summary:

### 1. Unique Resource

The most unique characteristic of the Bay of Fundy is the extreme height of its tides. Tidal range technology (tidal basins or lagoons) can most effectively address this fundamental fact and provide for optimum efficiency of energy extraction. The province should manage the tidal resource in a manner that maximizes the long-term benefit, efficiency and utilization of all tidal technologies, both in-stream and tidal range. Legislation addressing all approaches to tidal energy production, will take advantage of the opportunity to be a global leader in tidal range technology, as Scotland has with tidal in-stream technology. The province's approach to marine renewable energy legislation and regulation should reflect the mature nature of the components that form the basis of tidal range technology as opposed to the more experimental and pre-commercial nature of developing in-stream tidal devices.

## 2. Two Step Rights Allocation

The concept of “investigative permits” or “conditional licenses” is essential to fostering the development of marine renewable energy technology in the province of Nova Scotia. Rights allocation must recognize that certain technologies, particularly tidal range, do not require in the water testing of new devices, but rather require a developer to have the opportunity to access specific sites to perform measurements during the Planning and Project Design Phase (Phase #2 Appendix C of the Policy Background Paper) and the Project Development Phase (Phase #3 Appendix C). In the case of a tidal range project, bathymetric, topographic, geological, and geotechnical studies are needed. Environmental engineers have indicated that they would require one to two years for environmental analysis and marine engineers indicate that measurement buoys would be put in place for some time for tidal measurements (amplitudes, cycles, waves, storms) before completing the design the marine and coastal infrastructure.

Given the high cost of research and development of tidal technologies, serious proponents will be relatively few and that mechanisms such as “first - come-first - served”, “rolling leasing/licensing” and “exclusive use” will be manageable within a well coordinated application of existing provincial and federal legislation and regulations.

The granting of conditional site development permits early in the process will also provide technology developers the flexibility to adopt the most transparent and comprehensive public consultation and engagement processes.

## 3. Provincial Financial Participation

The Province has to date focused on in-stream tidal technologies through its participation and support of the FORCE project, providing financial as well as regulatory incentives. Similar incentives for large-scale tidal range commercial projects would encourage the significant private investment required. Because of the high up-front costs, the financial support of these projects is more difficult to secure during the first years of operation than later when loans and plant and equipment is amortized. Potential incentives and tax regulations (amortization rules, corporate taxes, right and fee to use the water) should take into account the financial stress of the first years.

## 4. Provincial Market Support

The Province should take an active role in the process of securing power purchase agreements (PPA's) for technology development proponents, given that the provincial utility as a privately operated, government regulated entity. Feed-in Tariffs (FIT) should cover larger tidal electricity projects as well as small, and a Renewable Energy Certificate system should be developed.

## 5. Grid Quality and Connectivity Issues

The Transmission and System Operator Study (SNC-Lavalin, December 2009) acknowledges that the grid system will need to be upgraded to accommodate the renewable energy supplies chosen, including the projected 230 kV or 345 kV line to connect Tidal Power from the collection point to Onslow and then down to Halifax area and a second 345-kV intertie between NS and New Brunswick with access to US markets. Costs for this reinforcement and extension of the transmission grid should be born by the whole electricity system. A provincial or quasi-governmental entity should be in place to oversee the connectivity process itself.

#### 6. Rents and Royalties

Site lease, licensing, permits and/or royalty payments should be calibrated to long term facility profitability recognizing the extremely high initial capital costs for development and construction, along with investor expectations for like investments. Investors and banks are very sensitive to the return on investment in the first years. The province should structure these fees in a manner that encourages early stage investment while ultimately sharing in the long-term profitability of commercial projects. Lease terms must also reflect the longevity of the technology employed and provide for appropriate extension.

#### 7. Regulatory Structure

An attempt to integrate the jurisdictional permitting process could devolve into an unnecessarily drawn out process, thereby jeopardizing the main goal of encouraging timely development of a vibrant marine renewable industry in Nova Scotia. As previously pointed out, qualified proponents will most likely be few in number, making integration less needed as a management tool. In addition, with the main sites for tidal development located in the Bay of Fundy, federal-provincial jurisdictional issues are less evident and integration less important than for offshore locations.

#### 8. Time is of the Essence

The province must strive to recognize that “time is of the essence” for private sector investments without compromising the fundamental values established by the province.

Comments specific to Background Paper:

## 1. Leases:

A two-step tenure process (10.1.2 & Appendix A), providing for a lease option and subsequently a commercial lease (7.3.2.1) is essential for investor security as a project goes through the development and approvals process (Appendix C). A provisional lease, or lease option period (Phases 2 and 3 Appendix C of the Policy Background Paper) should be from three to five years. Milestones could be defined in a limited allotted period of time so that progresses made by the developer can be checked and controlled in order to eventually reclaim the land if the development is not progressing sufficiently fast. The application process best designed to encourage development is the “Open Area Site Choice” model (10.2.1) and the “First Right Approach” proposal (10.2.2) which would result in an exclusive use based on performance conditions (Appendix A). Expressions of Interest (EOI) would be entertained from qualified applicants. In addition to the “pros” set out in the paper, the Open Area and First Right combination allows the technology proponent to suggest the sites most likely to fit its technology, rather than attempting to force a technology into a site where it cannot work effectively or economically. The “con” of the First Right model can be addressed by requiring only qualified applicants be eligible to submit an EOI.

The term of a final lease for construction, operation and maintenance (Phase #4 Appendix C of the Policy Background Paper) should reflect the life cycle of the underlying technology and not be statutorily set. For tidal basin technology, a 75 to 90 year period would be more appropriate.

The province should consider the reference to “ocean space” (Appendix A) and consider a separate definition for Bay of Fundy waters that may be subject to fewer national / provincial jurisdictional issues.

## 2. Rents and Royalties:

Rental rates should be based on an “Adaptive Approach” (7.3.3.3) and should be suspended until the project is operational; royalties should be based on the “Tiered Royalty” concept (7.3.3.1) which allows for reasonable Return on Investment (ROI). As stated, this recognizes “...that marine renewable projects will have most of their costs front end loaded”.

## 3. Permitting and Approval

Permits and approvals cannot be a condition precedent to the issuance of the lease option or conditional lease (4.0 [2]), rather, “a conditional lease or lease [should] be granted to allow developers to complete studies for project planning and for obtaining permits/ approvals” (10.1.2 .3).

The permitting and development process must recognize that “time is of the essence” (11.1.1.1). Therefore, the approvals process should be streamlined to the extent possible, with a “one window” desk that works with a collaborative model (11.2.2). As well, the fact is that one can anticipate a limited number of applicants such that the process could be managed

effectively through collaboration with Federal authorities. An attempt to “integrate” the various regulatory schemes could degenerate into a drawn out bureaucratic exercise.

4. Extraction Limits and Cumulative Effects:

Care must be taken to understand extraction limits (8.1.1) prior to construction, and the approval process should certify any new project’s cumulative effects (8.1.2.). Any provision in a license to allow for “suspension of energy extraction” (7.3.1) by a plant after construction based on cumulative effects would be a “poison pill” to investment. Rather, the permit and regulatory authority should make the calculation at the time of permit approval and if there were a question, additional projects would not be permitted. Optimum energy extraction levels should be based on the best scientific data available and collaboration between the developers, regulatory authorities and other interested parties.

5. Decommissioning:

An “adaptive and flexible approach to decommissioning, determining on a case by case basis whether structures need to be fully or partially removed and what type of financial security will be most effective for the regulator and developer” (10.3) is the most reasonable approach to the issue.

Comments specific to Discussion Paper:

Section 2. The Opportunity:

- The province should recognize, and take advantage of, the opportunity to be a global leader in tidal range technology, building on its proximity to, and the energy potential of, the uniquely high tidal ranges of the Bay of Fundy.
- The fact that such tides are present in reasonable proximity to some of the largest energy markets in the world is also a unique opportunity.
- Creation of a Marine Renewable Energy Industry will provide jobs and revenue far into the future.
- Improved transmission capability pursuant to the Renewable Electricity Plan, will allow Nova Scotia to play an active role in the Atlantic Energy Gateway.
- Modern hydrodynamic modeling and environmental assessment capabilities will allow good assurances that energy extraction levels and environmental impacts can be accurately analyzed, thus protecting the resource for all users.
- Legislation should create a system of permitting and approval that is not unnecessarily cumbersome such that it does not deter potential technology proponents, yet allows input from all stakeholders.

### Section 3. The Challenges

- The province must recognize the need to encourage the regional, national and international investment required to provide the technical, environmental and financial resources required to support development of the various marine renewable energy technologies.
- The province must ensure that the appropriate regulatory mechanisms are in place to accommodate the development interests and needs of all the various technologies in order to encourage private sector investment and to provide government support.
- The permitting processes currently in place will adequately insure that all users are fairly treated. Streamlining that process with a collaborative approach between Federal and Provincial authorities will give each interest the opportunity to have their input

### Section 4. The Global Experience

- The province should recognize that the “one window” approach to coordinating regulatory approvals would encourage and simplify private sector investment.
- The province must also recognize that demonstration projects must include “desk top” computer modeling approaches as well as physical or pilot scale projects that are only applicable or required for certain technologies
- The province must ensure that economic benefits and social impacts are included as criteria for project approvals.
- The province must strive to recognize that “time is of the essence” for private sector investments without compromising the fundamental values established by the province.
- The province must include the concept, adopted by other jurisdictions, of “investigative permits” or “conditional licenses” in order to provide a mechanism for technical, environmental and financial analysis to be funded by the private sector.
- The province must recognize that development of marine renewable energy technologies is most often an international business and that Nova Scotia legislation and regulations need to be competitive and attractive to investors while respecting the province’s core values.

### Section 5. Framework for Development

- The province should ensure that development processes and approvals are founded on an approach that accommodates the transfer of technical and environmental knowledge and experience gained throughout the world.
- The province must recognize that the “conditional permit” approach is an essential component in obtaining research and development financing.
- The province must recognize the need to provide, in the R & D Phase, a facility for other technologies not requiring in situ device testing and development. This “facility” would

cooperatively support “desktop” R & D for technologies not suited to, or requiring, in water testing and demonstration.

## Section 6. Getting Involved

- The province, with its understanding of current protocols, can, and must, play a valuable role in facilitating discussions between private sector participants and First Nations individuals and groups. This will ensure that all requirements of First Nations consultation and engagement are respected.
- The province should insist that full and early stage community and First Nations consultation and engagement are a requirement for converting a conditional permit to a firm project license to construct and operate.
- The granting of conditional site development permits early in the process will provide technology developers the security to adopt the most transparent consultation and engagement processes without compromising proprietary information. A conditional site permit will also allow technology developers to identify the most appropriate communities and groups to include in the consultation process

## Section 7. Planning Issues

- The province should look for opportunities to share site use within communities, for example a tidal basin could also be utilized for aquaculture, recreation and/or tourism development.
- The province could adopt a “best use” approach in resolving disputes between multiple technologies or users. Site mitigation costs, if required or appropriate, would need to be considered as a cost element in the financial analysis of a particular development.

## Section 8. Economic Opportunities

- The early engagement process will encourage exploration of ways to optimize and balance the benefits of the economic opportunities presented for private parties and stakeholders, as well as government.
- The province should consider Certainty, Simplicity and Opportunity as some of the hallmarks of marine renewable energy legislation and regulation in order to encourage private investment in this sector of the province’s economy.
- The province should consider early stage incentives to encourage what will certainly be considered as high-risk research and development investments, as it has already done on a selective basis with TISEC.
- The province clearly recognizes the critical nature of transmission access and capacity, along with the requirement of a power purchase agreement (PPA), in the funding of technology development projects. Some part of this process should have the province

taking a lead role in facilitating this access and the negotiation of PPA's with their provincial utility.

#### Section 9. Environmental Issues

- The province should use a collaborative approach, including government, technology developers and other interested parties, when establishing resource extraction limitations and determining cumulative effects, utilizing the best scientific data available.
- Existing environmental regulations, including Environmental Assessment up to Full Panel Reviews, will insure that a projects are developed in an environmentally sensitive way.

#### Section 10. Occupational Health and Safety

- Current regulatory apparatus can be streamlined and adapted to the marine renewable industry but appear to be effective for this purpose.

#### Section 11. Rights Allocation

- Proponents should be able to submit Expressions of Interest (EOI) for sites, as they will be aware of the characteristics that best fit the requirements of their technology.
- The province is strongly encouraged to include the concept of conditional leases / licenses in its Rights Allocation process, the two-step process that is currently in use in other jurisdictions. The conditional leases would preserve exclusive use rights provided milestones are met.
- The province should ensure that proponents of development projects have the technology and capability required to advance their projects in a timely manner, and to require developers to demonstrate progress within an agreed to schedule of milestones as a condition precedent for retaining development rights.

#### Section 12. Regulatory Issues

- The province should proceed, to the greatest extent possible, in the direction of coordinating existing provincial and federal legislation and regulations, that is, one of collaboration as opposed to the more time consuming integration approach. This recognizes that successful development of marine renewable energy technologies is a capital intensive undertaking, which will likely limit the number of serious proponents. This should make it more manageable for the province to work with technology developers in an effective manner under existing, but separate, regulatory frameworks.
- The provinces could then play an important role in working with developers to establish a clear and stable roadmap for regulatory approvals.

- The province should ensure that proposed legislation and regulations reflect, to the greatest degree possible, the provincial jurisdictional issues of the “enclosed” Bay of Fundy separately from the provincial, national and international jurisdictions of the open ocean waters.
- The province must work toward legislation and regulations that protect the public interest while at the same time fostering and facilitating responsible development of Nova Scotia’s unique marine resources in a timely manner and with a workable environment for the national and international investment community.

### Section 13. Going Forward

- The Province is urged to be diligent in the development of this legislation, in as much as investors that are available today may find nearer-term investments in which to commit their time, effort, and money. “Time is of the Essence.”

Respectfully Submitted,  
Tidal Electric Canada LLC  
By:

Rodman K. Forter, President

John B. Wheatley, Director, Business Development

