

# **Developmental Tidal Feed-in Tariff Program**

Discussion Paper

August 21, 2013

## ***Introduction***

The purpose of this discussion paper is for the Province of Nova Scotia to consult with key stakeholders and potential developers in the marine renewable energy (MRE) field and Nova Scotians in order to obtain their input on the proposed application and approval process for the Developmental Tidal Feed-in Tariff (FIT) Program. Under this Program, applicants will be eligible to receive at least one FIT rate for single base or single moored in-stream tidal energy device projects and another FIT rate for projects consisting of multiple bases or moorings (for further information, see Appendix A: Definitions). This discussion paper provides the policy objectives and direction for tidal energy projects that are eligible for the Developmental Tidal FIT rates and outlines the proposed stages required to receive FIT approval. The comments received may be used in the formation of draft amendments to the *Renewable Electricity Regulations* under the *Electricity Act*. When drafted, the amendments will be released for a period of public comment.

### **Tidal Energy in Nova Scotia**

Thanks to its immense resources in the Bay of Fundy and its coastline, Nova Scotia has a natural advantage in the tidal energy field. Our Bay of Fundy has more than 160 billion tonnes of water flow with each tide, delivering a commercial potential of approximately 2,400 megawatts of power. Nova Scotia's extensive oceans research network and ocean technology supply chain also provide us with a significant advantage in this global industry—an ability to build an industry here at home while developing expertise that can be exported to service the global MRE industry.

Since 2006, considerable attention and resources have been focused on researching and developing in-stream tidal energy in Nova Scotia in order to realize this potential. This includes the establishment of the Fundy Ocean Research Center for Energy (FORCE) and significant funding of research activities through organizations such as the Offshore Energy Research Association of Nova Scotia. In addition, the Government of Canada has contributed significant funding towards development projects in Nova Scotia.

Our *Marine Renewable Energy Strategy* (released 2012) outlines the Province's commitment to the development of the sector in Nova Scotia. In particular, the Strategy outlines the research, development, and regulatory plans designed to achieve Nova Scotia's vision to be a global leader in the development of technology and systems that produce environmentally sustainable, competitively-priced electricity from Nova Scotia's rich ocean resources, specifically within the powerful Bay of Fundy. Overall, the Strategy identifies pathways for Nova Scotia to compete and participate in the global MRE sector with leaders such as the United Kingdom, the United States, and France.

### **What are Feed-in Tariffs?**

Feed-in tariffs (FITs) are designed to encourage the development of renewable energy projects around the world. They do so by offering developers, who are often independent power producers, an established price per kilowatt hour for electricity from qualifying projects. Nova

Scotia has established two Feed-in Tariffs through the *Renewable Electricity Regulations*: the Community Feed-in Tariff Program<sup>1</sup> and the Development Tidal Feed-in Tariff Program.

The Developmental Tidal Feed-in Tariff (FIT) Program is being established to cover a portion of the costs related to device deployment for large-scale pre-commercial in-stream tidal energy projects. Project developers under the Developmental Tidal FIT Program will receive feed-in tariffs for the electricity they produce while testing their devices. The FIT will serve to attract greater industry interest in Nova Scotia, bringing economic benefits to the province. More information on feed-in tariffs can be found in Nova Scotia's *Renewable Electricity Plan* (released 2010).

### **Moving Forward**

Nova Scotia's *Marine Renewable Energy Strategy* made a commitment to establish a legislative framework that will build upon the FIT approval process, which is outlined in this discussion paper. The *Marine Renewable Energy Act* will encompass a broader regulated licensing system that will be necessary when the industry reaches a commercial stage in Nova Scotia. The Province remains committed to implementing a comprehensive legislative framework when the level of activity in the industry warrants such an approach. Any legislation introduced by the Province will build on the approach outlined for development in this paper and will respect the provisions of existing Power Purchase Agreements.

The Department of Energy continues to work closely with Natural Resources Canada and other federal regulators to ensure the Province's legislative approach is well integrated with federal responsibilities. The Province is actively working with the Government of Canada through the Energy and Mines Ministers' Conference to ensure greater coordination among regulatory bodies in the review of major resource projects.

The Developmental Tidal Feed-in Tariff Program will serve to develop and regulate the industry until the industry reaches a commercial stage in Nova Scotia. Further, establishing a feed-in tariff will serve to encourage industrial development in Nova Scotia, offering economic benefits to the province. Overall, the Province's Strategy focuses on a phased and progressive development over the next 5 to 10 years with a goal of producing 300 megawatts (MW) from commercial in-stream tidal energy projects in the longer-term. Such an approach is crucial to ensuring that the future of MRE development in the province is sustainable and in the best interests of Nova Scotians.

### **Timing**

The proposed regulatory steps outlined in this discussion paper will provide existing and potential developers certainty regarding the process to obtain Developmental Tidal FIT

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<sup>1</sup> The Community Feed-in Tariff Program offers community-based entities a competitive rate for the electricity produced from qualifying small-scale renewable energy projects. Small-scale in-stream tidal energy projects owned by eligible entities may receive the COMFIT rate of \$652/megawatt hour. Learn more at [www.nsrenewables.ca/feed-tariffs](http://www.nsrenewables.ca/feed-tariffs).

approval. Further, having a process in place when the FIT rates are established<sup>2</sup> may incent early deployment, a key step in ensuring that Nova Scotia continues to capitalize upon its competitive, early-entry advantage in the global MRE sector.

The purpose of this discussion paper is to have the regulatory amendments clearly laid out prior to the close of the request for proposals for the currently vacant fourth berth at FORCE.<sup>3</sup> Following the setting of the FIT rates (expected fall 2013) and selection of the fourth berth holder, all berth holders at the FORCE site will be invited by the Minister of Energy to apply for the Feed-in Tariff rates. The terms for an approval are outlined in this discussion paper.

Current environmental approval for the FORCE site is five megawatts. In anticipation of the deployment of small arrays in the future, the Province expects that FORCE will seek amendments to its provincial environmental approval.<sup>4</sup> The full capacity of FORCE's submarine cables is approximately 64 megawatts (16 megawatts per cable), and its electrical infrastructure is designed to be upgraded to full commercial capacity as required. Establishing a Developmental Tidal FIT Program now will ensure that the necessary regulatory conditions are established in advance of increased interest and activity at the FORCE site and elsewhere in Nova Scotia. The Minister may issue a FIT approval with the condition that deployment may not occur until technical upgrades are completed and/or environmental approvals are received.

### ***Policy Objectives***

A feed-in tariff for early-stage tidal energy projects is necessary given the emerging nature of the industry—the levelised cost of energy remains high, and as such, requires a higher price for the power it produces. The FIT offers a power producer a guaranteed price from Nova Scotia Power Inc. for the electricity it produces per kilowatt hour incidental to the testing/demonstration of its device(s). The Developmental Tidal Feed-in Tariff Program will serve as an incentive required in the short-term for industrial development in the province.

The ultimate goal of the Developmental Tidal FIT Program is to encourage research and development activity until tidal electricity can be produced at a commercially-competitive price. In the interim, the Province will limit the impact of tidal energy under the Developmental Tidal FIT Program to less than 1% to 2% on electricity rates. It is expected that approximately 15-20 MW of tidal capacity at FORCE could be in place over the next 5-6 years and still be within the

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<sup>2</sup> The Nova Scotia Utility and Review Board is currently in the process of establishing these feed-in tariff rates. Learn more at [www.nsuarb.novascotia.ca](http://www.nsuarb.novascotia.ca) (Matter ID: M05092).

<sup>3</sup> The request for proposals will close thirty days after the Nova Scotia Utility and Review Board establishes the FIT rates applicants will receive incidental to the testing/demonstration of their device(s). Learn more at [www.novascotia.ca/tenders](http://www.novascotia.ca/tenders) (Tender ID: 60144758). More information on FORCE may be found at [www.fundyforce.ca](http://www.fundyforce.ca).

<sup>4</sup> The Government of Canada has published new Environmental Assessment requirements which would ensure an additional federal Environmental Assessment once deployment plans exceed 50 megawatts. Under this regime, FORCE's expansion would, therefore, be subject to a provincial Environmental Assessment (triggered at 2 megawatts). These amendments are not yet finalized.

1-2% limit. However, the exact amount of FIT to be allocated (in megawatts or megawatt hours) cannot be determined until the final rate structure is established by the Utility and Review Board. The final allocation will also depend upon the number of megawatts and what FIT rate(s) are applied for.

The amendments to the *Renewable Electricity Regulations* will be made to reflect the needs of Developmental Tidal Feed-in Tariff Program and to further distinguish this program from the COMFIT Program. The proposed amendments will also ensure that requirements for developmental tidal energy projects are consistent with the Province's *Marine Renewable Energy Strategy*. Alignment with the Strategy will ensure that applications are robust and, therefore, decisions are made based on the best possible information.

The Province's Strategy outlines a series of key objectives:

- **Reducing regulatory complexity:** *Coordination between the appropriate federal and provincial regulatory bodies will promote certainty and predictability of process, making project reviews more efficient.*
- **Data collection and quality research:** *Quality research will help inform proper decision-making, and the Province will ensure that resource and environmental effects data are available to the public.*
- **Health and safety:** *Ensuring that occupational and operational health and safety requirements are in place and complied with will minimize the risks associated with this emerging industry.*
- **Planning, standards, and best practices:** *Standards and best practices will ensure that industry is planned and developed in a responsible and sustainable manner that respects all users of the marine environment.*
- **Environmental protection:** *Addressing environmental concerns will allow industry to develop in a way that allows the marine environment to continue to support the natural, economic, and social needs of Nova Scotians.*
- **Nova Scotia industrial and community opportunities:** *Developing a growing industry will benefit Nova Scotians by increasing local capacity and capabilities while producing clean renewable energy at home.*

### ***Ministerial Authority***

The Minister of Energy has lead responsibility for matters under the *Electricity Act*. She/He exercises this authority in order to ensure the objectives of the Act, and the policies established in relation to it, are achieved. The intent of the Developmental Tidal FIT Program is that the Minister will have similar authority for processing applications, granting approvals, and establishing reporting requirements as she/he currently has for the COMFIT sections of the Regulations.<sup>5</sup>

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<sup>5</sup> Sections in the *Renewable Electricity Regulations* pertaining to the COMFIT Program include: eligibility, application requirements, application review processes, and reporting requirements.

Similar to the COMFIT Program, the Minister of Energy will have the authority to approve or reject a FIT application that satisfies the requirements of the *Electricity Act* and the Regulations under subsection 28(1) of the *Renewable Electricity Regulations*. Under subsection 28(4) of the Regulations, the Minister also has the authority to attach terms and conditions to an applicant's FIT approval. These conditions could include a requirement to deliver a project in accordance with a timeframe set out by the Minister. Failure to comply with such conditions may result in a FIT approval being withdrawn. The Minister cannot specify conditions that are incompatible with her/his responsibilities under the *Electricity Act*.

### ***Detailed Discussion of Proposed Amendments***

The following sections outline the application and reporting requirements of Developmental Tidal Feed-in Tariff Program applicants as well as how the Department of Energy will receive, process, and review applications, which have been designed to achieve our policy objectives described above. This section of this discussion paper is the basis for the proposed amendments to the *Renewable Electricity Regulations*, which are highlighted in boxes below.

### **Setting the Feed-in Tariff Rates**

The issue of rate setting is now before the Nova Scotia Utility and Review Board (UARB). The Province supports a FIT regime that recognizes the cost variance between single device and multiple device projects, and as such, the Province supports a rate-making structure that recognizes this variance. Accordingly, the Province has granted the UARB the authority under current regulation to establish at least one tariff rate for single device projects and another for multiple device projects. The UARB has the authority to determine if multiple tariff rates are necessary. You may learn more about the rates at [www.nsuarb.novascotia.ca](http://www.nsuarb.novascotia.ca) (Matter ID: M05092).

The FIT model currently under review by the UARB calls for declining block rates, in which a lower rate is paid when higher quantities of electricity are produced. This supports the Province's view that while it is necessary to pay more for electricity at the initial deployment phase, it will also be necessary for rates to decrease as the number and size of projects deployed increase. Further, as projects are built, efficiencies will be gained and lessons learned, bringing the required cost of energy down and closer towards commercially-competitive rates. The FIT model under review by the UARB proposes two 'paths:' Testing and Developmental, which are detailed below:

### **Testing Projects**

Testing Feed-in Tariffs will be designated for projects that seek to test a single device for an initial short-term deployment and to later move to the deployment of multiple devices (see Appendix A for more definitions). After an initial 3 year test period of a single device, developers with a Testing FIT approval will be able to deploy multiple devices for a 15 period at a lesser FIT rate. The exact rate(s) these projects receive will depend on the amount of megawatt hours

produced per year by the project with the first megawatt (or equivalent megawatt hours) receiving a higher FIT rate.

The approval of single device projects will be limited to projects at government pre-approved demonstration facilities such as the FORCE site in the Minas Passage of the Bay of Fundy.

Future calls for applications for this FIT rate may be conducted on an open call-for-applications process. All submitted applications in a given call for applications will be evaluated on a competitive basis.

### **Developmental Projects**

Developmental Feed-in Tariffs will be designated for developers interested in deploying a project consisting of multiple device. ‘Multiple devices’ are considered as a developmental tidal project consisting of more than a single base or mooring (see Appendix A for more definitions).

There is no geographic restriction on this FIT path—developers at the FORCE site or any other site designated by the Minister will be eligible to receive a FIT rate under this path for a period of 15 years. The exact rate these projects will receive will depend on the amount of megawatt hours produced per year by the project.

### **Calls for Applications**

The Province will invite all berth holders at the FORCE site to submit to the Minister an updated project plan in order to receive either the Testing or Developmental FIT, of which one megawatt of FIT approval will be guaranteed. If a berth holder is interested in deploying a project in excess of one megawatt or a multiple device project (in either the Testing or Developmental path), it must submit a more detailed application that includes the contents listed in the Application section below; however, FORCE berth holders (including the to-be-selected berth holder of Berth D) may be exempt from certain sections of the application as much of the work has been completed by FORCE to-date. Berth holders will have 30 days after the UARB establishes the FIT rates to submit their updated project plans.

The RFP for Berth D at FORCE will close 30 days after the UARB establishes the FIT rates. If the successful applicant for the FORCE Berth D includes an application for capacity in excess of one megawatt or for multiple devices, it will be required to submit a detailed application similar to the current berth holders.

As such, the newest berth holder’s FIT application will be evaluated at the same time as the Department considers updated project plans and applications from current berth holders at FORCE. The Minister will evaluate all applications submitted, including the updated project plans by FORCE berth holders, on a competitive basis. Applications will be evaluated in accordance to their robustness and their ability to meet the requirements of the application (see below). The Minister will allocate the FIT rates accordingly. As such, the call for FIT applications will not occur until after the Feed-in Tariff rates are set by the UARB and the fourth developer at the FORCE site is selected by the Province.

Following the award of FITs at FORCE, the Minister may issue a call for further FIT applications. The calls will depend upon industry interest and opportunity. The Minister may set limits on a call for applications, which could include a stipulation that only areas that have undergone a Strategic Environmental Assessment may be considered in a call. Other stipulations could include capacity limits, other geographical limitations, community support, or other factors in her/his discretion.

As outlined in the Province's Marine Renewable Energy Strategy, over the course of the FIT Program, the total impact on rates will be limited to less than 2%.

The Minister will allocate FIT approvals by output (in megawatt hours).

#### Proposed Amendments

##### Definitions

- Amendments may be made to define 'single device' and 'multiple devices' in the Regulations

##### Accepting an Application

- The Minister will have the authority to accept applications that have been submitted in response to either an invitation to apply or in response to a public call for applications (by the Minister)

##### Calling for Applications

- The Minister may issue a call for applications, with limits/stipulations, at a time of her/his discretion

## Eligibility

In accordance with the *Renewable Electricity Regulations*,<sup>6</sup> in-stream tidal energy projects eligible for the Developmental Tidal Feed-in Tariff Program must:

- Be located in the Province of Nova Scotia;
- Interconnect with the provincial electrical grid through the transmission system; and
- Consist of 1 or more tidal energy generation devices with each device having a capacity of more than 0.5 megawatts (MW).

In order to receive a FIT rate through a Power Purchase Agreement (PPA) with Nova Scotia Power Inc. (NSPI), project developers must first receive Developmental Tidal Feed-in Tariff approval from the Nova Scotia Minister of Energy. Learn more about the PPA process below.

Unlike the COMFIT Program, there are no limits on ownership for the Developmental Tidal Feed-in Tariff Program except for those outlined in subsection 4A(8) of the *Electricity Act*. The proposed amendments to the Regulations will broaden the ownership requirements beyond

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<sup>6</sup> See definition of 'developmental tidal array' in section 3(1) of the *Renewable Electricity Regulations* (also, Appendix A).



those set out in 4A(8) of the *Electricity Act* to include those classes of entities interested in tidal energy to-date.

Amendments will be made to the Regulations to restrict eligible areas for tidal development to those that have had an SEA conducted for MRE. To-date, the Bay of Fundy has undergone an SEA and another is currently underway in the Cape Breton Coastal Region (inclusive of the Bras d'Or Lakes).<sup>7</sup> Based on the results of an SEA, the Minister may designate specific locations within the SEA study area for tidal energy development. Future SEAs will be conducted in accordance with the direction from the Minister.

#### Proposed Amendment

##### Eligibility Open to Entities

- Amendments will ensure that the Developmental Tidal Feed-in Tariff Program is open to interested parties

##### Eligibility Limited to Areas with a Strategic Environmental Assessment

- Applications will only be accepted in areas in which an SEA has been conducted

## The Application

This section is intended to outline the information to be provided in a Developmental Tidal FIT application. The Department may issue further guidance to aid applicants in a format similar to that provided in the COMFIT Guide.<sup>8</sup> In addition to the application contents listed below, the Minister has the authority to require additional information or documentation that will assist in the review of an applicant's FIT application. The Minister may also issue directions, guidance, or orders to clarify the requirements of an applicant.

Applicants wishing to receive Developmental Tidal FIT approval will be required to submit the following information to the Minister of Energy. As berth holders at FORCE have already complied with some of these measures, the Minister may waive the requirements outlined below where many requirements have already been fulfilled prior to the date of the amendments to the Regulations (see Calls for Applications above for further information). At the time of application a developer must indicate which FIT 'path' (Testing or Developmental) it will be applying for.<sup>9</sup>

#### Proposed Amendment

##### Authority to Waive Applicant Requirements

- The Amendments may include a clause to exempt berth holders at the FORCE site from submitting certain elements of the Developmental Tidal FIT application where many of the requirements have already been fulfilled

<sup>7</sup> Learn more about Strategic Environmental Assessments from the Offshore Energy Research Association of Nova Scotia at [www.oera.ca](http://www.oera.ca).

<sup>8</sup> View the COMFIT Guide at [www.nsrenewables.ca/sites/default/files/comfit\\_guide\\_-\\_august\\_2011\\_-\\_final-1\\_1.pdf](http://www.nsrenewables.ca/sites/default/files/comfit_guide_-_august_2011_-_final-1_1.pdf).

<sup>9</sup> The FIT rates will be designed to have the same net present value for both FIT paths.

### **1. Contact Information**

As outlined in the Regulations, all applicants must designate a representative to be the Department of Energy's point of contact with the entity. This will include the name, title, address, email, telephone and fax number of the designated representative. All applications must be completed and signed by a designated representative of the entity applying for FIT approval.

### **2. Proposed Project Plan**

Applicants will be required to submit a proposed long-term project plan that identifies the community in which the project will be located and key project milestones (including a deployment schedule) and demonstrates its ability to meet them, and contingency plans. The project plan will outline the applicant's technical expertise and experience. The project plan will also provide information on potential partners and/or subcontractors as well as a plan for conducting investigative work and to obtain all necessary permits and approvals.

Proposed Amendment

Proposed Project Plan

- The Amendments will require applicants to submit a project plan outlining key milestones, contingency plans, previous applicable experience, and other information deemed necessary by the Minister

### **3. Municipal Requirements**

The Regulations require applicants to demonstrate their knowledge of the municipal by-laws that apply to the project and a commitment to comply with them.

### **4. Business Plan**

Applicants will be required to submit a business plan that includes detailed financial analysis for the project at the applicable FIT rate. This will include the projects costs of the project as well as details on project funding (anticipated and received) and a predicted cash flow detail for the project's lifecycle.

Proposed Amendment

Business Plan

- The Amendments may supplement the business plan requirements for the COMFIT Program that are currently outlined in the *Renewable Electricity Regulations*

### **5. Description of Technology**

Amendments will require applicants to provide a full description of the proposed technology to be deployed, including evidence of ownership of or license to use the technology(ies) to be deployed. Developers will also be able to apply for the demonstration of devices of different designs; however, it must complete a technology description for each device design. Also, an approved FIT project must receive approval from the Minister prior to changing its proposed device(s) design.

Proposed Amendment

Description of Technology

- A description of the proposed technology to be used, including its history of deployments elsewhere and the applicant's plans for further replacing technology with later models/improved versions, and/or future expansion will be required as part of the Developmental Tidal Feed-in Tariff application

### **6. Decommissioning and Environmental Restoration Plan**

Applicants will be required to provide a valid plan for decommissioning the project, including associated costs, length of time for decommissioning and restoration, and how it will restore the local environment at the end of the project's lifecycle. For more information on the end of a project's initial lifecycle, please see 'Decommissioning a Project' below.

Proposed Amendment

Decommissioning and Environmental Restoration

- Information filed with the Ministers of Natural Resources and Environment regarding the proposed decommissioning and environmental restoration plan for the project must be submitted to the Minister of Energy through the Tidal FIT application
- Applicants to the Tidal FIT Program will be required to submit a decommissioning and environmental restoration plan as part of the Tidal FIT application

### **7. Strategy Advancement Plan**

For those applicants submitting a FIT application consisting of multiple devices (an array), they will be required to submit a plan demonstrating how the project will advance the objectives outlined in Province's *Marine Renewable Energy Strategy* (see above). Specifically, the Plan will outline how the project is aligned with the Province's tidal energy objectives and how Nova Scotians will benefit throughout the project's lifecycle.

Proposed Amendment

Strategy Advancement Plan

- Applicants to the Tidal FIT Program will be required to file a Strategy Advancement Plan to demonstrate how their project will meet and advance the objectives of the Province's *Marine Renewable Energy Strategy*

### **8. Stakeholder & Public Engagement**

An applicant will be expected to engage the public and key stakeholders affected by the proposed project, including potentially affected groups such as fishers. The application should provide a summary of the interactions to-date (if applicable). In addition, the applicant must provide an outline of further engagement plans.

Proposed Amendment

Stakeholder & Public Engagement Plan

- Applicants will be required to submit a stakeholder & public engagement plan as part of a Tidal FIT application

### **9. Mi'kmaq Consultation & Engagement**

Prior to submitting an application, an applicant is expected to have contacted the Department of Energy to discuss engagement and consultation with the Mi'kmaq community regarding the proposed project. Consultation is the responsibility of the Crown (federal and provincial); the applicant is expected to engage the Mi'kmaq community, and will be provided with advice and guidance by the Department of Energy. Early engagement with the Mi'kmaq will provide an opportunity to build a relationship and identify areas of concern before final decisions about project development are made.

### **10. Environmental Requirements**

An applicant must provide documentation demonstrating its knowledge and understanding of the type and scope of environmental approvals required for the project as well as documentation demonstrating how environmental impacts will be mitigated. This may include undergoing a provincial and/or federal Environmental Assessment. Applicants will be required to include an understanding of the research and monitoring data collected at the proposed project site to-date as well as outline further plans for environmental monitoring. In addition, an applicant will be required to share environmental monitoring and resource data with the Province, which will be made publicly available. There may be conditions regarding environmental monitoring associated with the land agreements with the Province (see below) such as participating in an environmental monitoring programme.

### **11. Land Requirements**

An application must include information on the site of the proposed project. Applications for projects not located at pre-approved demonstration facilities such as FORCE must provide evidence of discussions regarding a Crown Land Lease with the Department of Natural Resources, demonstrating the applicant's knowledge of the land ownership and access issues for the proposed project site, including interconnection to the provincial electrical grid.

If applicable, the applicant will also be required to provide information on the proposed site's characteristics, including any available environmental monitoring data. Applicants may also require access to the site such as an easement, which will require additional permits/approvals.

### **12. Technical Requirements**

An applicant that has approval to develop its project at a pre-approved demonstration facility, including FORCE, will be required to provide information on the technical aspects of its project such as electrical connection and subsea cabling. All other applicants must provide evidence of conversations with Nova Scotia Power Inc. regarding the technology requirements for the project including the availability of capacity on the transmission grid for the project and

interconnection issues. This section will also demonstrate an understanding of the detailed technical studies required for the project, including the costs of the studies.

### **13. Risk Management Strategy**

Amendments to the Regulations may require all applicants provide information on any insurance it has or plans to receive for the project, including bond documentation. In addition, all applicants must identify the project and financial risks as well as the risks to stakeholders and/or third parties, and provide robust risk management and mitigation strategies for the lifecycle of the project, including OH&S concerns.

#### Proposed Amendments

##### Risk Management Strategy

- Applications requirements will include the submission of a risk management strategy as part of the Developmental Tidal FIT application

##### Best Practices

- An applicant to the Developmental Tidal FIT Program will be required to submit documentation indicating its familiarity with industry best practices and standards, and must also indicate that it plans to abide by them

##### Health & Safety

- Amendments to the Regulations will require applicants to provide information and plans regarding how they will consider occupational and operational health and safety

### **Processing & Approving an Application**

As highlighted above, all applicants to the Developmental Tidal Feed-in Tariff Program must comply with the requirements outlined in the draft 'Regulatory Flow Chart for Marine Renewable Energy Projects' (see Appendix B), which is also open to public comment. This will include undergoing Mi'kmaq, stakeholder, and public consultation at the appropriate times as well as meeting with Nova Scotia's Federal/Provincial One Window Committee on Tidal Energy, which will be facilitated by the Nova Scotia Department of Energy.

Upon receipt of an application, the Department of Energy will evaluate all submitted applications on a competitive basis. As mentioned above, applications will be evaluated based on the robustness of an application and based on the contents of the FIT application and/or updated project plan (the latter applicable only to FORCE berth holders). Those applications that 'pass' this eligibility review process will then be subjected to a 30-day public comment period. The public review period will provide basic information on the proposed project, including location, size, technology, etc. After the 30-day public comment period, the application will be forwarded to the Federal/Provincial One Window Committee on Tidal Energy for its review. There are several provincial and federal departments that are a part of Nova Scotia's Federal/Provincial

One Window Committee on Tidal Energy, coordinated by the Department of Energy. Membership includes:<sup>10</sup>

<b>Provincial</b>	<b>Federal</b>
Aboriginal Affairs	Atlantic Canada Opportunities Agency
Energy	Canadian Environmental Assessment Agency
Environment	Environment
Fisheries and Aquaculture	Fisheries and Oceans
Labour and Advanced Education	Natural Resources
Natural Resources	Transport

A meeting with this Committee will allow the applicant to present its proposed project and to receive information from members of the Committee regarding the permits/approvals the project will be required to receive in order to proceed towards development. The Committee will also evaluate the public comments received, which may influence its decision with respect to the proposed project.

Upon advice from the Committee and input from the Mi'kmaq and public comment period, the Minister of Energy may issue a FIT approval and may also include general and specific conditions the applicant is expected to meet through the lifecycle of the project and to report to the Minister on a predetermined basis (see below). The Minister will issue a Feed-in Tariff approval to a developer under the provisions set out by the UARB and under the regulations. This is to ensure applicants diligently pursue the development of their projects and do not 'block' available capacity from other potential projects.

With a FIT approval, the applicant will be able to secure project financing and sign a Power Purchase Agreement with Nova Scotia Power (see below).

<p>Proposed Amendments</p> <p>One Window Committee Review</p> <ul style="list-style-type: none"> <li>▪ The proposed amendment is to include representatives of federal and provincial Departments and Agencies who agree to participate in a process in this coordinating mechanism by way of a memorandum of understanding or other form of commitment</li> <li>▪ The Committee will be tasked with coordinating concurrent reviews for permits and approvals among regulators who have agreed to coordinate such reviews</li> </ul> <p>Approval Process</p> <ul style="list-style-type: none"> <li>▪ The Minister may establish a timeframe, as a conditional of approval, for an applicant to demonstrate that it has received the necessary permits/approvals for its project</li> </ul>
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<sup>10</sup> As the industry develops, the Committee's membership will be reviewed to assess whether additional regulatory authorities should be included.

## Signing a Power Purchase Agreement

When an applicant receives its FIT approval, it enters into a Power Purchase Agreement (PPA) with Nova Scotia Power in order to receive its designated FIT rate.<sup>11</sup> By regulation, Nova Scotia Power is only obligated to accept the electricity approved under the FIT. Electricity generated from a device in excess of the pre-approved FIT capacity will be discussed in the creation of the PPA through the Utility and Review Board process.

The applicant will not, however, be able to produce electricity and provide it to the provincial grid until the Minister issues a confirmation of compliance letter to Nova Scotia Power. The Minister will only issue this letter when the applicant can demonstrate that it has received all necessary permits/approvals for its project.

If an applicant is not in compliance with the terms of its FIT approval or of another permit/approval, the Minister reserves the right to revoke the FIT approval, which will affect the implementation of the PPA.

The Department of Energy is currently developing the PPA for the Developmental Tidal Feed-in Tariff Program. It plans to submit the draft PPA to the Utility and Review Board shortly after the Feed-in Tariff rates have been established.

### Proposed Amendments

#### Requirement to Remain in Compliance

- Amendments will be made to require applicants that have received Developmental Tidal FIT approval to comply with the terms and conditions of all applicable federal and provincial permits or approvals, which will allow the Minister of Energy to revoke a Developmental Tidal FIT approval
- Applicants receiving Developmental Tidal FIT approval must continue to be in compliance with conditions of approval as outlined by the Minister of Energy

## Reporting & Compliance

Similar to the COMFIT Program, a developer receiving Developmental Tidal Feed-in Tariff approval will be required to submit certain information to the Department of Energy at intervals determined by the Minister. The Province requires that developers report on project activities, at minimum, on an annual basis or as requested by the Province. This report should identify significant project milestones as laid out in the submitted project plan during the project's lifecycle. In addition, the *Renewable Electricity Regulations*, sections 38 to 42, outline the general reporting requirements of Independent Power Producers, including FIT recipients. This will include reports demonstrating compliance with conditions outlined in the FIT approval.

Amendments to the Regulations will provide authority for the Minister to require filing of copies of reports made to other regulatory authorities that demonstrate their compliance with their

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<sup>11</sup> The length of the PPA will be determined as part of the current UARB hearing process.

conditions of approval.<sup>12</sup> In addition, the amendments will require all Developmental Tidal FIT recipients will be required to:

- Submit data collected for the purpose of monitoring and measuring the environmental effects of their device(s) in a form and format as already provided to regulatory authorities, and consent to the public release or release to scientific researchers (under license) of such information<sup>13</sup> by the Minister of Energy in a form and format to be agreed to by another regulatory authority; and
- Submit data collected for the purpose of establishing compliance with technical standards certification on a confidential basis, with explicit recognition that such information is commercially sensitive for the purposes of the *Freedom of Information and protection of Privacy Act*.

As outlined in the Regulations, if at any time in a project's lifecycle, the Minister or another appropriate regulatory authority determines that an applicant is no longer in compliance with the conditions of its project approval, the entity is required to rectify the area of non-compliance. If the concern is not addressed, the Minister of Energy (Nova Scotia) will have the authority to revoke the FIT approval. In the case of non-compliance, an entity may be required to decommission its device(s) and ensure the natural environment is effectively restored.

Proposed Amendment  
Reporting Requirements

- Amendments will be made to the Regulations requiring Developmental Tidal FIT recipients to submit specific information relating to environmental monitoring results to the Minister of Energy, who will have the authority to license or release this information to specific designated parties

## Decommissioning a Project

A significant concern for other marine users is what happens when an in-stream tidal energy project reaches the end of its useful life or is converted or adapted to another use. It is expected that federal and provincial regulators will require commitments around such decommissioning. Through the amendments to the Regulations, the Province will require the development of plans and commitments for decommissioning in advance of deployment. There may be additional requirements through a Crown Land Lease with the Province, or associated Sublease Agreement.

Prior to the expiry of the PPA or another permit/approval such as a Crown Land Lease, the proponent is expected to contact the Minister of Energy in order to discuss next steps and to

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<sup>12</sup> The exact format of filing has not been determined at this date; however, the Minister has the authority to determine what format information is submitted (this could include electronic filing).

<sup>13</sup> Providing information that is deemed to be in the public interest is a critical foundation for building public confidence and trust in this emerging industry. The Province will require that, as a condition of FIT approval, a summary of environmental monitoring results from in-stream tidal projects are made public and that access to raw data is possible if required.



obtain necessary permits/approvals for the next stage in the project's lifecycle within the one year prior to the expiry of the PPA. This is reflected in the 'Regulatory Flow Chart for Marine Renewable Energy Projects' (see Appendix B).

## Feedback Opportunities

The Department of Energy is currently seeking public comment regarding the contents of this discussion paper. All comments must be received before September 18, 2013. Comments can be sent electronically to [tidalFIT@gov.ns.ca](mailto:tidalFIT@gov.ns.ca) or in writing to:

Developmental Tidal Feed-in Tariff Amendments  
Regulatory and Strategic Policy  
Nova Scotia Department of Energy  
5151 George Street, Suite 400  
P.O. Box 2664  
Halifax, NS B3J 3P7

Please note that there will be no response to individual comments, but all information will be compiled and reviewed to inform the draft version of the amendments to the *Renewable Electricity Regulations*, which will undergo a period of public comment when drafted.

If you wish to submit confidential information as part of your comments, or other information that would normally be protected under the provisions of the *Freedom of Information and Protection of Privacy Act*, separate this information and clearly mark it as such. Even if information is marked as confidential, the *Freedom of Information and Protection of Privacy Act* may require us to release the information to an applicant under the Act.

To learn more about marine renewable energy in Nova Scotia, visit [www.novascotia.ca/energy](http://www.novascotia.ca/energy). You may also follow us on Twitter at [www.twitter.com/NS\\_MRE](http://www.twitter.com/NS_MRE).

## Appendix A: Definitions of Key Terms

‘Commercial’ means the stage at which in-stream tidal energy can be produced at a price that is cost-competitive with other renewable energy generation systems, and, therefore, does not require a Feed-in Tariff to recover its costs.

‘Developmental’ means the stage prior to the commercial stage where the costs of development, deployment, and maintenance remain high and are not competitive with other renewable energy generation systems, therefore requiring a higher price for the power it produces.

‘Developmental tidal array’ means a generation facility that consists of one or more tidal generation devices with a capacity of greater than 500 kilowatts each and that is capable of being interconnected with the electrical grid through a transmission system as defined in section 3(1) of the *Renewable Electricity Regulations* and the *Electricity Act*.

‘In-stream tidal energy’ means any device that harnesses the power of the tidal current to generate electricity in contrast to tidal barrages that require head ponds or dams, in-stream tidal energy projects are placed within the tidal current.

‘Independent Power Producer’ or ‘IPP’ means a renewable low-impact electricity generator as defined in subsections 3(1) and 3(2) in the *Renewable Electricity Regulations*.

‘Levelised Cost of Energy’ (LCOE) is calculated by accounting for all of a system’s expected lifetime costs (including construction, financing, fuel, maintenance, taxes, insurance and incentives), and dividing them by the system’s lifetime expected power output (in kilowatt hours). All cost and benefit estimates are adjusted for inflation and discounted to account for the time-value of money.

‘Marine renewable energy’ means electricity results from the conversion of kinetic energy of ocean resources, including waves, in-stream tidal currents, and offshore wind into mechanical energy.

‘Multiple devices’ means a developmental tidal project consisting of more than a single base or a single moored installation.

‘Single device’ means a developmental tidal project consisting of a single base or mooring with a nameplate capacity of greater than 500 kilowatts.

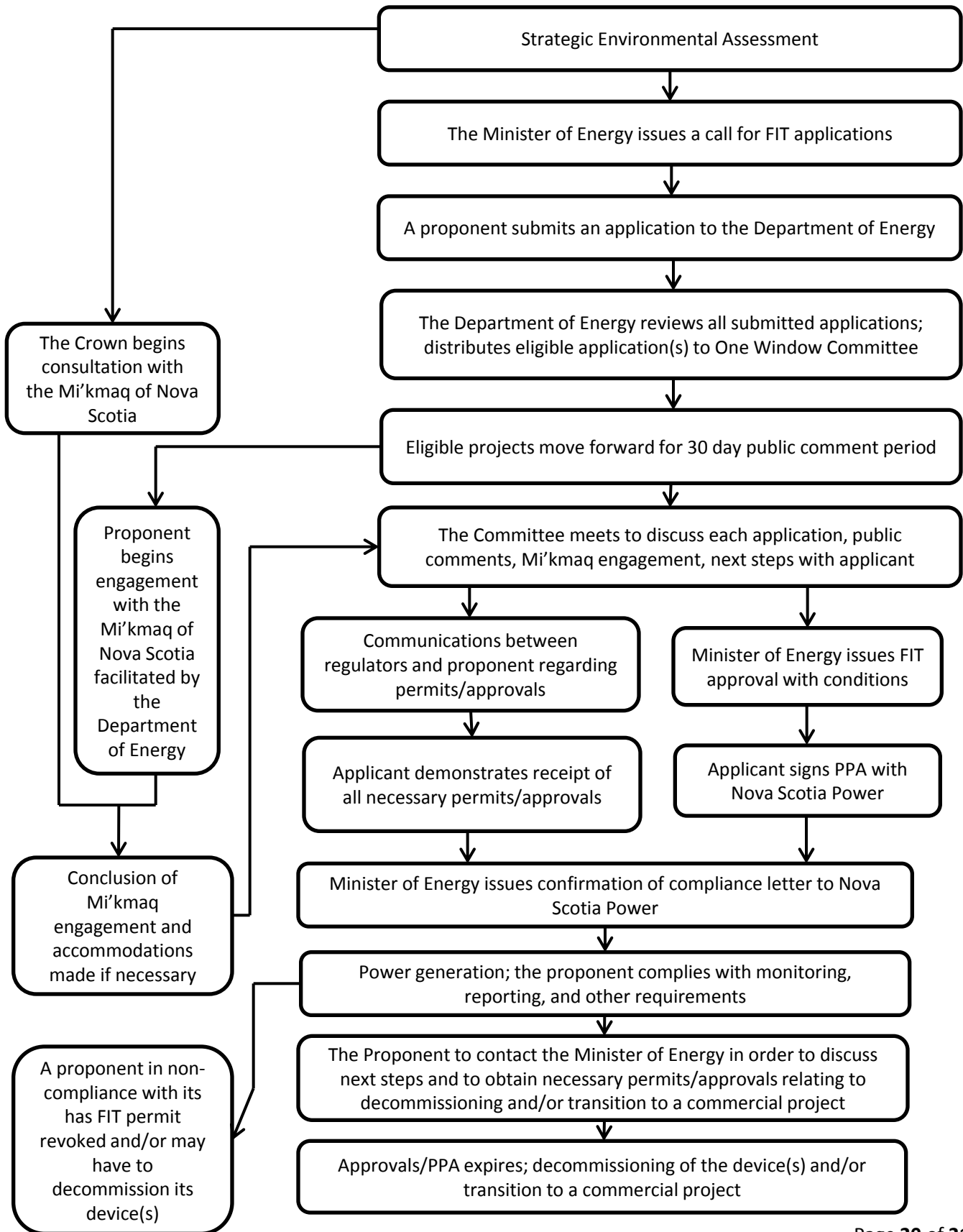
‘Small-scale in-stream tidal’ means a tidal generation facility with a capacity of 0.5 megawatts or less that is capable of being interconnected with the electrical grid through a distribution system

as defined in section 3(1) of the *Renewable Electricity Regulations* and the *Electricity Act* and is eligible for the Community Feed-in Tariff (COMFIT) Program.

'Tidal In-Stream Energy Conversion' (TISEC) see *in-stream tidal energy*.

'Turbine' means a rotating blade or appliance designed to capture the kinetic energy of ocean resources. A single device can consist of one or more turbines.

# Appendix C: Regulatory Flow Chart for Marine Renewable Energy Projects (draft)



## Appendix C: Resources

Fournier, Dr. Robert O. (July 2011) *Marine Renewable Energy Legislation: A Consultative Process*. Available: [www.novascotia.ca/energy/resources/spps/public-consultation/marine-renewable-energy/Fournier-Report-English.pdf/](http://www.novascotia.ca/energy/resources/spps/public-consultation/marine-renewable-energy/Fournier-Report-English.pdf/)

Nova Scotia Department of Energy. (2010) *Marine Renewable Energy Legislation for Nova Scotia*. Available: [www.novascotia.ca/energy/resources/spps/public-consultation/NS-MRE.pdf](http://www.novascotia.ca/energy/resources/spps/public-consultation/NS-MRE.pdf)

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Nova Scotia Department of Energy. (May 2012) *Marine Renewable Energy Strategy*. Available: [www.novascotia.ca/energy/renewables/marine-renewable-energy/](http://www.novascotia.ca/energy/renewables/marine-renewable-energy/)

Nova Scotia Government. (2004) *Electricity Act*. Available: [www.nslegislature.ca/legc/statutes/elctrcty.htm/](http://www.nslegislature.ca/legc/statutes/elctrcty.htm/)

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