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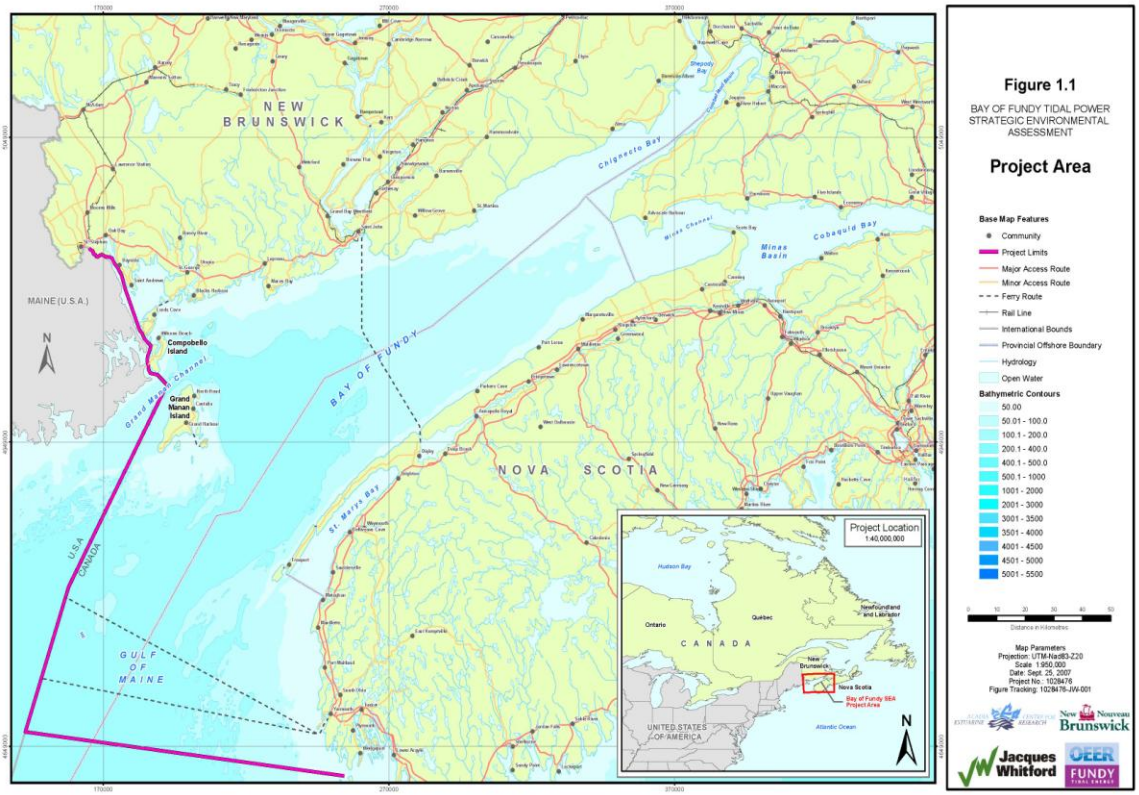
*Abstract*

*The article considers the role of strategic environmental assessments in improving decision making by government decision makers faced with the arrival of a new industry to its jurisdiction. It uses using the arrival of the in stream tidal energy industry in Nova Scotia as a case study. The article first considers the existing federal and provincial regulatory context for decisions about whether, where and under what conditions to approve tidal energy projects in the Bay of Fundy region. It then provides an overview of a strategic environmental assessment carried out on behalf of the province of Nova Scotia in 2007/2008, and assesses the outcomes of the SEA process. The article concludes with a critique of the tidal SEA process and outcomes based on criteria selected from current SEA literature.*

# Introduction

The Bay of Fundy is a large estuary that separates portions of Nova Scotia and New Brunswick on the Atlantic coast of Canada. The Bay is about 300 km long and 100 km wide at its mouth. Due to its shape and location, it experiences extremely high tides, up to 16 meters in the upper Bay. In addition, the Bay of Fundy contains narrow passages which result in ocean currents of up to 6 m/sec during each tidal cycle. These features combine to provide some of the highest potential for tidal energy development anywhere in the world.

1 The author served as co-chair of the SEA process for tidal energy in the Bay of Fundy from April, 2007 to May, 2008.




The potential for tidal power development in the Bay of Fundy region of the Atlantic coast of Canada has been recognized for decades. Not surprisingly, there have been attempts to develop offshore renewable energy in the area before. In the 1980s, barrage based tidal power technology was piloted in Annapolis Royal, Nova Scotia. A combination of technical, economic and environmental concerns identified as a result of this pilot project prevented any large scale development of the resource at that time.[2] In recent years, offshore renewable energy has become of interest again. Much has changed since the last effort in the early 1980s.

There have been considerable changes in the technologies considered since previous efforts in the 1980s. Pilot projects underway around the world are using new, open turbine technology that is expected to significantly reduce cost and environmental impact. This technology operates on principles similar to a wind turbine, except it is anchored or otherwise secured on the seabed in tidal waters. These turbines are able to take advantage of flows of water in both directions, and offer power in predictable intervals during most of the tidal cycle.[3]

The economics of tidal power have also changed as a result of recent increases and fluctuations in energy prices, and the projections for long term energy supply and demand. Energy security is becoming a growing concern around the world. The

2 See, for example, M. Conley, G. Daborn, eds., *Energy Options for Atlantic Canada*, (Halifax, Formac Publishing, 1983)

3 For background information on tidal energy technologies, see Jacques Whitford , *Background Report for the Fundy Tidal Energy SEA*, (January, 2008) at 3.3 - 3.6, available online: <www.bayoffundysea.ca>.

environmental imperative for a switch from traditional non-renewable fossil fuel based sources of energy to renewable, low greenhouse gas emitting energy sources has become a pre-occupation of all levels of government in Canada. Finally, economic diversification has become critical for Maritime communities significantly dependent on the exploitation of dwindling resources and on energy intensive manufacturing.

All this adds up to considerable pressure to utilize all sources of renewable energy that are technically and economically within reach. Tidal energy is no exception. Numerous potential developers of tidal energy have been pushing governments in Canada to clarify the rules under which this industry will operate, and to allow pilots to be put into the water to demonstrate the viability of the new technologies. Some developers are already pursuing commercial scale developments. At the same time, utilities are busy trying to understand how tidal energy will fit into the existing and future energy mix, the capacity of the grid to utilize the power generated, and the role of tidal in meeting increasing demand for greener power. A recent study has estimated the potential in the Bay of Fundy to be in the range of 300 megawatts of power, with the theoretical potential well in excess of 2000 megawatts.[4]

Tidal energy is the latest in a string of significant new industries to arrive in Nova Scotia. Over the past 30 years, Nova Scotia has faced the arrival of the offshore oil industry, the aquaculture industry, the offshore natural gas industry, and the liquefied natural gas industry.[5] In hindsight it is easy to see that all levels of government were ill prepared for the arrival of these industries, but much has been learned in the process about the need for environmental impact assessments, resource management, and integrated planning. Tidal provides an opportunity to put these lessons into practice.

This study will consider the role of strategic environmental assessments (SEA) in improving government decision in the face of new industries, using the arrival of the tidal energy industry in province Nova Scotia as a case study. Nova Scotia is considered a particularly suitable case study due to the considerable provincial jurisdiction over energy issues in Canada, the interest in tidal energy in the Bay of Fundy and a recent strategic environmental assessment on offshore renewable energy carried out in Nova Scotia.

In considering the governance approach in Nova Scotia to this new industry, the paper first considers the existing constitutional and regulatory context facing government decision makers when this new industry first appeared on their radars. The constitutional context is briefly considered in Part 1. As we will see, the jurisdictional context has not

4 EPRI, 2005. Survey and Characterization – Tidal In Stream Energy Conversion Devices. Electric Power Research Institute Inc. report TP-004-NA prepared by Electric Power Research Institute, see online: <www.epri.com>. See also Jacques Whitford Report at 4.3- 4.4 and 4-26.

5 For a detailed discussion of the challenges associated with the arrival of the aquaculture industry in Canada, see D. VanderZwaag, G. Chao, *Aquaculture Law and Policy : Towards Principled Access and Operations* ( London: Routledge, 2006). For a discussion of the challenges of dealing with LNG projects at the project EA level without the benefit of a SEA, M. Doelle, *The Federal Environmental Assessment Process: A Guide and Critique* (Markham, Ont.: LexisNexis Butterworths, 2008) at 161, 170, 174, and 181.

been formally resolved, though there appears to be political acceptance of provincial territorial jurisdiction in the Bay of Fundy.

There is a complex system of federal and provincial regulatory processes that will apply to tidal energy projects; however, there is no regulatory process in place specifically designed for tidal energy. The federal and provincial regulatory context is considered in Parts 2 and 3 respectively. It is this regulatory framework that government decision makers had to work with when they were first approached to approve tidal pilot projects around 2005.

Provincial officials quickly concluded that the existing decision making framework was inadequate, and decided to initiate a SEA to guide future decision making on whether, where, and under what conditions tidal energy development should be approved. The tidal SEA was carried out without any legal foundation, and with limited federal engagement. It is the role of this SEA in improving decision making for new industries in Nova Scotia that is the focus of the second part of this article.

# 1. The Constitutional Context

The roles of the provincial and federal levels of government in Canada with respect to tidal energy projects will very much depend on whether the projects are located within the territory of a province or outside. Unfortunately, while international maritime boundaries are relatively well established as a result of the broad acceptance and adoption of the 1982 Law of the Sea Convention,[6] some provincial maritime boundaries within Canada are still unresolved. In the case of Nova Scotia, a strong legal claim can be made that a portion of the Bay of Fundy is part of the territory of Nova Scotia, but the issue has not been formally settled either through negotiations or litigation.[7]

Even if tidal development takes place entirely within the territory of the province of Nova Scotia, both the provincial and federal level of government would have jurisdiction to deal with certain aspects of tidal energy projects. Provincial laws would apply to the production of electricity, and to certain aspect of its export.

Section 92A (1)(c) of the *Constitution Act, 1982*[8] provides the basis for provincial jurisdiction over the production of tidal power within the province. It provides that:

6 1982 Law of the Sea Convention, December 10, 1982, 21 I.L.M. 1261 (1982).

7 For Supreme Court of Canada cases that have considered how to determine the territorial offshore boundaries of Canadian provinces, see *Reference re Offshore Mineral Rights of British Colombia* [1967] S.C.R. 792 ( *B.C. Offshore Minerals Reference), Reference Re Bed of the Strait of Georgia and related Areas ( Georgia Strait Reference)*, [1984] 1 S.C. R. 388, and *Hibernia Reference* [1984] 1 S.C.R. 86 . See also G.V.LaForest, "Canadian Inland Waters of the Atlantic Provinces and the Bay of Fundy Incident" [1963] 1 Canadian Yearbook of International Law 149, and Edward C. Foley, "Nova Scotia's Case For Coastal and Offshore Resources", (1982) 13 *Ottawa Law Review* 281-308.

*8 Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c.11. See also s. 92A(2), (3), and (4).

> 92A (1) In each province, the legislature may exclusively make laws in relation to…
> (c) development, conservation and management of sites and facilities in the province for the generation and production of electrical energy.

The province also has jurisdiction over local works and undertakings under s. 92(10), property and civil rights under s. 92(13) and other matters of a local and private nature under s. 92(16). Relevant areas of federal jurisdiction would include navigation and shipping under s. 91(10), marine pollution[9] and inland and sea coast fisheries under s. 91(12).[10]

As a result, permits to develop tidal energy within the territory of the province of Nova Scotia will require both provincial and federal permits. The existing regulatory framework as it applies to tidal energy is therefore explored in the following sections.[11]

# 2. The Federal Regulatory Framework[12]

Regardless of any claims to provincial territorial jurisdiction in areas with high potential for tidal development, it is clear that the federal government does have jurisdiction over aspects of tidal power development. Federal jurisdiction over navigation, fisheries, and inter-provincial undertakings are obvious examples. As a result, a number of federal actors will likely be involved in Fundy tidal power development decision making, most notably the Canadian Environmental Assessment Agency, the National Energy Board, the Department of Fisheries and Oceans, Environment Canada, Transport Canada and Natural Resources Canada. The following is a brief overview of federal regulatory regimes that are likely to be relevant.

### The *Fisheries Act* [*FA*][13]

Certain provisions of the Fisheries Act, administered by the Department of Fisheries, will be triggered in case of impact on fish or fish habitat, and in case of water pollution resulting from the construction, operation and decommissioning of tidal projects. Section 32 of the *FA* applies in case of direct harm to fish, such as fish kill from the turning of the turbines. In such a case, an authorization under s.32 will be required. The project may also trigger s.35(1) which prohibits carrying on "any work or undertaking that results in the harmful alteration, disruption or destruction (HADD) of fish habitat". Such HADD is

9 *R.* v. *Crown Zellerbach Ltd.*, [1988] S.C.J. No. 23, [1988] 1 S.C.R. 401.

10 For a more detailed discussion of jurisdictional considerations for tidal energy development in the Bay of Fundy, see M. Doelle et al, "The Regulation Of Tidal Energy Development Off Nova Scotia: Navigating Foggy Waters" (2006) 55 UNB Law Journal 27, at 34

11 The developer will have to be given some form of property right to develop tidal in a given area to the exclusion of others and to install its equipment. For a discussion of this issue, see M. Doelle et al, *ibid* at 42.

12 This section is an updated version of the author's contribution to a regulatory summary in M. Doelle et al, *ibid.* at 49

13 Fisheries Act, R.S.C. 1985, c. F-14,

permissible if authorization is obtained (s.35(2)). Section 35 is a trigger for an environmental assessment under the Canadian Environmental Assessment Act (CEAA) (discussed below). Section 36(3) may also be relevant if in the construction, operation or decommissioning of the project a deleterious substance is deposited in water frequented by fish. Finally, s.37 allows the Minister to require the submission of certain information in case of an alteration, disruption or destruction of fish habitat or if there is deposition of a deleterious substance in water frequented by fish.

## The *Canadian Environmental Assessment Act* [CEAA][14]

CEAA, administered by the Canadian Environmental Assessment Agency, will likely apply to a tidal energy project in the Bay of Fundy. The Act, according to section 5, generally applies to projects that involve federal proponents, federal funding, federal land, or certain federal regulatory decisions. Regulatory decisions that trigger an assessment under the Act are listed in the Law List regulations.[15]

The application of the Act is limited to projects. Projects are defined in section 2 of the Act to include undertakings in relation to a physical work. Any tidal development that includes the construction, operation and potential decommissioning of a physical work would be considered a project as defined. Not all proposed projects require an assessment under the Act. There are a number of specific exemptions for emergencies and national security that are not likely to apply to tidal energy projects.

The other key requirement is a federal decision maker who is required to exercise a power, duty or function listed in section 5 with respect to the project. If a federal authority became the proponent of a tidal energy project, s. 5(1)(a) would trigger an EA under the Act. Federal funding would trigger an EA under s. 5(1)(b). If a federal authority sells, leases or otherwise disposes of federal lands or an interest in federal lands for the purposes of carrying out the tidal project (this may include the granting of rights to develop tidal power in areas within federal territorial jurisdiction), s.5(1)(c) will trigger an EA.

Tidal developments, even without federal proponents, federal funding or the use of federal land, would likely require one or more regulatory approvals listed on the Law List. Regulatory requirements for tidal development that are included on the Law List and that would therefore trigger a federal EA include s. 35 of the Fisheries Act and s. 5 of the Navigable Waters Protection Act.[16]

There are three main process options under CEAA. They range from a screening level of assessment, to a comprehensive study and a panel review. Legal requirements for

14 Canadian Environmental Assessment Act, S.C. 1992, c. 37 [CEAA]

15 See Law List Regulations (SOR/94-636)

16 Law List Regulations (SOR/94-636), Schedule 1, item 6(e) and 11(a). Both the Fisheries Act and the Navigable Waters Protection Act are discussed below

screenings are limited, making screenings the most flexible approach. Comprehensive studies involve more substantive requirements, mandatory public engagement and some oversight of the process by the Minister of the Environment. Panel reviews are independent and involve mandatory public hearings.

There are opportunities for joint environmental assessment processes involving the federal and provincial governments. CEAA provides for joint panel reviews with other jurisdictions as well as substitution in case of other federal processes suitable to carry out the purposes of CEAA. In case of screenings and comprehensive studies, coordination is generally less formal.

### The *Species At Risk Act* [SARA][17]

SARA, under the shared responsibility of Environment Canada and the Department of Fisheries and Oceans, applies to all federal land as defined in the Act, including the territorial sea and internal waters of Canada.[18] SARA is designed primarily to protect listed species at risk on federal lands. It does so through some general prohibitions against activities harmful to species listed under section 15 as extinct, extirpated, endangered, threatened or of special concern. The listing process and the general prohibitions associated with it work in combination with a permitting process that can override the general prohibition for certain activities.

Depending on jurisdictional issues and the project's technology and implementation, s.32(1), s.33 and s.58 all potentially apply. Section 32 generally prohibits harming or killing of listed species. Section 33 deals with harm to the residence of listed species, and section 58 seeks to protect critical habitat. SARA essentially requires consideration of any potential impact of a project on listed species, their residences and habitats, and requires designing projects to avoid any negative impacts.

Depending on the circumstances, proponents may be able to enter into an agreement or obtain a permit pursuant to s.73 with respect to activities otherwise prohibited. Section 73 gives the Minister limited discretion to allow activities otherwise prohibited due to their risk to listed species. Species listed under SARA that potentially could be affected include the Grey Whale, Blue Whale (Atlantic Population), North Atlantic Right Whale, Atlantic Walrus, Leatherback Seaturtle, Piping Plover (melodus), Atlantic Salmon, Peregrine Falcon (anatum subspecies), Northern Wolffish (Anarhichas denticulatus) and Spotted Wolffish (Anarhichas minor).[19]

Specifically, section 32(1) will apply if the construction or operation results in the death, harm, harassment, capture or taking of an individual of a species that is listed as an extirpated species, an endangered species or a threatened species. Section 33 will come into play if the project damages or destroys the residence of one or more individuals of a

17 Species At Risk Act, S.C. 2002, c.29 [SARA]

18 See SARA, s. 2(1), definition of "federal land".

19 See online: <http://www.sararegistry.gc.ca>

wildlife species that is listed as an endangered species or a threatened species. Section 58 will apply in cases where critical habitat has been identified in a recovery strategy of a listed species. It provides for the protection of critical habitat through a general prohibition in combination with more specific provisions depending on whether the listed species is found in a national park, federal land or provincial or private land.

It should be noted that because SARA is relatively new legislation, the critical habitat and residences of all the marine species that could be affected by a Fundy tidal energy project have not yet been identified and recovery plans do not yet exist. This means that as such a project proceeds, attention will have to be paid to the ongoing development of recovery plans and the identification of residences and critical habitat.

### The *Navigable Waters Protection Act* [*NWPA*][20]

The NWPA, currently administered by Transport Canada, will apply because the Bay of Fundy is a navigable water and pursuant to s.5 a permit is required for a work that is built or placed in, on, over, under, through or across any navigable water. Theoretically, if the project was not considered to "interfere substantially with navigations", it could meet the terms of an exception to the approval requirement under s.5(2). It should be noted that Ministerial approval under s.5(1)(a) of the NWPA is a CEAA Law List trigger (see discussion above).[21]

### The *National Energy Board Act* [*NEBA*][22]

The National Energy Board (NEB) is generally responsible for energy projects of an interprovincial or international nature. Specific to tidal power projects in the Bay of Fundy, if a project crosses provincial boundaries, extends beyond the territory of a province, or includes an interprovincial (s.58.4) or international (s58.1) power line, a certificate (s.58.16) or permit (s.58.11) must be obtained from the National Energy Board pursuant to Part III.1 of the NEBA.[23] It is unlikely that the NEBA will apply to the construction and operation of most tidal energy project projects. If infrastructure improvements are needed to export some of all of the electricity generated from the tides of the Bay of Fundy to New England, a certificate of public convenience and necessity would be required. These permits and certificates may be subject to "terms and conditions respecting the matters prescribed by the regulations as the Board considers necessary or desirable in the public interest" (s.58.35). In the issuance of permits the board may consider "the impact of the construction or operation on the environment" as well as "the effect of the power line on provinces other than those through which the line is to pass" (s.58.14).

20 Navigable Waters Protection Act R.S.C. 1985, c. N-22 [NWPA]

21 Law List Regulations (SOR/94-636), Schedule 1, item 11(a)

22 National Energy Board Act. R.S.C, c. N-6 [NEBA]

23 The SCC considered the limits of federal jurisdiction in *Westcoast Energy v. Canada (National Energy Board),* [1998] S.C.J. No. 27, [1998] 1 S.C.R. 322.

Complexities regarding overlapping authority or interests between provincial powers and the NEB have, in some cases, been dealt with through Memoranda of Understanding (MOUs). For example, provincial energy bodies in both Alberta and BC have an MOU with the NEB.[24] Similarly, the NEB, the Canada-Newfoundland Offshore Petroleum Board (C-NLOPB) and the Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB), together with executives from the Newfoundland, Labrador and Nova Scotia Departments of Energy and Natural Resources Canada (NRCan), have formed the Oil and Gas Administrators Advisory Council (OGAAC)[25] to efficiently deal with issues in their sector. A cooperative approach in the tidal energy sector can help address some of the complexities in identifying the respective roles of federal and provincial energy agencies and departments, but there are limits to the ability of the two levels of government and their agencies to avoid dealing with jurisdictional issues through cooperation.[26]

# 3. The Provincial Regulatory Framework[27]

As discussed, provincial jurisdiction over the Bay of Fundy remains unresolved. It is not surprising therefore, that there are only limited signs that the province has applied its regulatory regime below the low water mark in marine waters around Nova Scotia. The Nova Scotia *Environment Act*, for example, has until recently not been applied to activities in the Bay of Fundy. There is some indication that this is changing. Tidal energy developments, for example, have been added as undertakings requiring approval under the provincial environmental assessment process.[28]

Other provincial laws may apply but no formal steps have been taken to date to clarify their role. Some of the key provincial regulatory provisions that may have relevance for tidal power are briefly summarized below, all with the understanding that their actual application depends on the constitutional issues briefly raised above (i.e. is the area within or outside the province) and decisions at the provincial level to extend their application to marine waters below the low water mark.

### The *Nova Scotia Environment Act* [NSEA][29]

Part IV of the NSEA requires an environmental assessment for certain tidal energy projects. Tidal energy projects over 2 MW are listed as Class I undertakings in Schedule

24 The NEB - BC MOU is available online:
<http://www.ogc.gov.bc.ca/documents/newsreleases/OGC%20and%20NEB%20MOU.pdf>. The Alberta MOU is available online:
<http://www.neb.gc.ca/clf-nsi/rpblctn/ctsndrgltn/mmrndmndrstndng/lbrtnrgtltbrd200601-eng.pdf>.

25 See Canada Oil and Gas Operations Act, R.S.C. 1985, c. O-7, s. 5.4

26 See M. Doelle et al, above n 10 at 42

27 This section is an updated version of the author's contribution to M. Doelle et al, *ibid* at 45

28 Environmental Assessment Regulations, O.I.C. 95-220 (March 21, 1995), N.S. Reg. 26/95, as amended up to O.I.C. 2008-414 (August 6, 2008), N.S. Reg. 348/2008, Schedule A, Section D(2)(a).

29 Nova Scotia Environment Act, S.N.S. 1994-95, c. 5 [NSEA]

A of the regulations. There are also general categories under energy in the list of Class II undertakings that may apply to tidal power projects.

Class I and II undertakings have to be registered with the Minister in accordance with the Environmental Assessment Regulations. No work can be commenced on a project that falls within Class I or II until the Minister has granted an approval following the conclusion of the EA process (s.32(1)). Section 47 of the NSEA would also likely come into play if the undertaking is also subject to the environmental assessment or other review requirements of a municipality or the Federal Government (as discussed above, a likely scenario for this project). Section 47 allows the Minister to enter into an agreement with the other government to carry out a joint assessment.

Part V and VI of the NSEA dealing with approvals and releases will also be applicable. Part V requires an approval for any activity so designated by regulations. It establishes the process for granting approvals, imposing terms and conditions and for changes to approvals. Part VI prohibits activities that may cause an adverse effect unless authorized by an approval under Part V. These provisions combine to require approvals of listed activities and other activities that may have adverse environmental effects. Most importantly an approval can be used effectively to ensure implementation of any conditions and mitigation measures identified during the EA of a particular project. While tidal power projects may not meet the description of activities currently listed under Part 9 of Division V of the activities designation regulations for approval, the Minister would have the discretion under Division VI of the regulations to add tidal power projects to the list.

### The *Fisheries and Coastal Resources Act* [*FCRA*][30]

This Act, which inter alia deals with the approval of aquaculture operations, provides a rare example of the application of provincial laws to marine waters below the low water mark. Depending on the precise location of the tidal resource to be developed, there may be geographic and ensuing conflicts involving existing property interests. At present, licenses or leases to carry on aquaculture are issued by the Minister pursuant to the FCRA (Part V). Under s.52(1)(a) a lease "shall be granted for a specific geographic area…". The initial term of the lease is ten years "with a right of renewal by the licensee, at the Minister's option, for further terms of five years each" [s.52(2)(a)]. By s.51(3) or s.52(2)(g) the lease can be terminated for various unmet conditions.

There is at least a theoretical potential for conflicting uses involving aquaculture and tidal projects. Relevant to this are s.52(3) and s.44(3) which both acknowledge the aquaculture lease-holder's exclusive right to the water column and sub-aquatic land described in the license. There does not appear to be a provision considering a circumstance arising during a license term where a grantee would be asked to change the location of the operation. There are provisions allowing the Minister to impose certain conditions and restrictions on a lease (s.56) and for the Minister to terminate a lease in the event of a

30 Fisheries and Coastal Resources Act. S.N.S. 1996, c. 25 [FCRA]

breach of terms or conditions of the lease (s.52 & s.58) and for the Minister to decide between two competing aquaculture lease applications, but there is no explicit discussion of Ministerial discretion to move an aquaculture lease in the event of competing interests between aquaculture and other marine interests.

Obviously, more specific data are required in terms of development-friendly tidal power areas and existing aquaculture leases, but this potential conflict may not materialize if tidal energy is developed in areas with high current velocities that are unsuitable for aquaculture projects. Similar potential conflicting uses will have to be explored for other existing and potential uses of the Bay of Fundy, such as fishing, tourism, recreation, biodiversity, and potential for other resource extraction activities.

### The *Endangered Species Act* [*ESA*][31]

The key obligations under the ESA apply only to listed endangered or threatened species. The Act essentially prohibits interference with such species unless specifically authorized in the ESA or through a permit or approval. Sections 13 and 14 of the Act include the key provisions on prohibitions and permits with respect to listed species.

Listed species that may be affected by the use of coastal lands for a tidal power project include the Piping Plover (Charadrius melodius) and two species of flora indigenous to Southwestern Nova Scotia bogs and wetlands, the thread-leaved Sundew, Eastern Mountain Avens. Consistent with the application of the Act to the low water mark, marine species such as leatherback turtles, right whales and other endangered species found in the Bay of Fundy are not listed.[32]

Other provincial statutes may also apply depending on where related infrastructure, such as transmission lines or service infrastructure, makes landfall. They include the *Provincial Parks Act*, the *Beaches Act*, and the *Wilderness Areas Protection Act*.[33]

### The *Energy Resources Conservation Act* [*ERCA*][34]

The purposes of this Act suggest that it may be able to play a role in the strategic development of Nova Scotia's tidal power resources. The Act aims to regulate and ensure efficient practices in the exploration for and development, production, transmission and transportation of energy resources (s.3(b)); provide for the economic, orderly and efficient development in the public interest of energy resources (s.3(d)); appraise the reserves and production capacities of energy resources (s.3(e)); and appraise the need for

31 Endangered Species Act. S.N.S. 1998, c. 11 [ESA]

32 For the most up-to-date list of wildlife species protected under the ESA in Nova Scotia as established by the Species at Risk Working Group (pursuant to s.9), see online: <http://www.gov.ns.ca/natr/wildlife/endngrd/specieslist.htm>

33 Provincial Parks Act. R.S.N.S. 1989, c. 367. the Beaches Act. R.S.N.S. 1989, c. 32. and the Wilderness Areas Protection Act. S.N.S. 1998, c. 27

34 Energy Resources Conservation Act. R.S. N.S. 1989, c. 147, s. 1; S.N.S. 2000, c. 12, S.N.S. 2001, c. 15 [ERCA]

energy resources and appraise markets outside the Province for the Province's energy resources (s.3(f)).

It is important to note that Section 3 does claim jurisdiction beyond the low water mark. It states that, "This Act applies to all Nova Scotia lands, which means the land mass of Nova Scotia including Sable Island, and includes the seabed and subsoil off the shore of the land mass of Nova Scotia, the seabed and subsoil of the continental shelf and slope and the seabed and subsoil seaward from the continental shelf and slope to the limit of exploitability". The ERCA authorizes the creation of regulations pertaining to development of energy resources in Nova Scotia, which could include tidal energy. To date this legislative authority has primarily been employed to create regulations for the offshore and onshore oil and gas sector.

### The *Electricity Act [EA]*[35]

The Electricity Act has changed the landscape of Nova Scotia's electricity sector. First, it authorizes regulations regarding "renewable energy standards" in the form of a Renewable Portfolio Standard (RPS) system. This system mandates electricity providers to supply a certain proportion of electricity generated from renewable energy sources. It includes a target of 5% by 2010 and 10% by 2013.[36] Second, the Act mandates Nova Scotia Power Inc. (NSPI) to develop an Open Access Transmission Tariff. This will open the Nova Scotia electricity market to more inter-provincial and international import and export, while also allowing "any competitive supplier" to supply electricity to NSPI or one of the six Municipal electricity suppliers. This means that a tidal project whether privately or publicly owned and operated will be able to sell electricity generated to NSPI or to any of the municipal suppliers, all of whom would be mandated to comply with the RPS.

### The *Public Utilities Act* [*Utilities Act*][37]

The Utilities Act primarily deals with the procedural activities of the Utility and Review Board (UARB) and its regulatory powers over NSPI. This act may be implicated in a number of ways depending on the specifics of the construction process, as well as the parties involved. Currently, the power of the UARB does not appear to extend to the market for tidal power produced by private producers independent of NSPI. In the context of the UARB rate hearings in 2004, the Board found that the *Utilities Act* did not authorize the Board to consider the appropriateness of rates offered by NSPI to

35 Electricity Act, S.N.S. 2004, c. 25 [EA]

36 Renewable Energy Standard Regulations, O.I.C. 2007-42 (January 22, 2007, effective February 1, 2007), N.S. Reg. 35/2007, as amended by O.I.C. 2007-569 (October 30, 2007), N.S. Reg. 416/2007

37 Public Utilities Act. R.S N.S. 1989, c. 380, [Utilities Act]

independent energy producers.[38] For tidal power in Nova Scotia, this would suggest that the market, not the government, currently controls the price to be paid to producers (at least for provincial markets). Given that NSPI is still essentially a vertically integrated monopoly, it controls the price, subject only to UARB oversight as to whether NSPI has paid more than necessary for its power. Increasing the percentage of renewable energy required under the existing RPS might be a way to influence the price NSPI would be willing to pay for tidal power. If the RPS is sufficiently high that NSPI cannot meet it using wind alone, it would be required to purchase tidal even if the price was higher than wind. Other factors, such as the predictability of tidal would likely also influence NSPI's choice. An alternative would be to determine a fixed or minimum price for each form of renewable energy. This is generally referred to as the feed-in tariff approach. It would in effect allow the province to set the price to be paid by NSPI for tidal power produced.[39]

### The *Environmental Goals and Sustainable Prosperity Act* [EGSPA][40]

The EGSPA sets the overall goal of fully integrating environmental sustainability and economic prosperity. In the process, the province seeks to become an international leader in environmental sustainability while achieving economic prosperity above the Canadian average by the year 2020. The Act sets more specific targets that are relevant to the development of tidal energy, including goals with respect to greenhouse gas emissions and the use of renewable energy for the generation of electricity. The overall goals and specific targets may not directly translate into decisions on whether, where, when and under what conditions to encourage or permit tidal power development, but they are likely to provide important context for future decisions on this new industry.

This part of the article has reviewed the existing regulatory context which faced federal and provincial decision makers when tidal development proposals first came to their attention. A few regulatory updates since implemented, some to begin to prepare for the arrival of this new industry, others for other reasons, have also been included in this analysis. In the next section, we consider the most significant departure at the provincial level from past approaches, the initiation of a SEA to consider whether, where and under what conditions offshore renewable energy development should be encouraged and approved in the Bay of Fundy. The review of the SEA process will take place in three stages. In Part 4, key literature on SEA is briefly highlighted, followed by an overview of the Bay of Fundy SEA process. This is followed in Part 5 with an overview of the outcomes of the SEA process. Finally, Part 6 provides a preliminary evaluation of the Bay of Fundy SEA in light of key conclusions from the literature on what constitutes an effective SEA process.

38 Rather it is solely concerned with charges to be paid by customers. See Nova Scotia Utility and Review Board, In the Matter of The Public Utilities Act –and- In the Matter of Nova Scotia Power Incorporated and complaints from seven individuals concerning the rates and conditions set out by NSPI in its solicitation for renewable energy under 2 MW (2004). See online: <http://www.canlii.org/ns/cas/nsuarb/2004/2004nsuarb118.html>

39 See J. Lipp, "Lessons for effective renewable electricity policy from Denmark, Germany and the United Kingdom" (2007), 35 Energy Policy, 5481–5495

40 Environmental Goals and Sustainable Prosperity Act. S.N.S. 2007, c. 7 [EGSPA]

# 4. The SEA process

Strategic environmental assessments in Canada are not new. Federally, there has been a Cabinet Directive in place on SEAs for well over a decade,[41] and under the EARP Guidelines Order,[42] there was provision for non-project EA. Some provinces, including Nova Scotia, also allow for environmental assessments of policies, plans and programs. In short, SEA is not without precedent in Canada. At the same time, it is still very difficult to grasp the concept of SEA, as it means different things to different people and is practiced very differently across jurisdictions. Some definitions, such as the one in the Cabinet Directive, see it primarily in the context of major Cabinet decisions. Others view SEA as an overriding concept that covers all environmental assessments that go beyond individual projects.[43]

**SEA Literature**

Dalal-Clayton and Sadler consider a number of definitions of SEA in their 2005 book on international experience with strategic environmental assessments.[44] The authors note that early definitions were closely linked to project assessments, essentially broadening the scope of project assessments to include policies, plans and programs. The focus of these early processes was on initiatives that were already proposed. According to the authors, more recent definitions take a broader perspective. First, the trend is toward the inclusion of environmental, economic and social considerations. Increasingly, SEA is seen as a tool for the development of policies, plans and programs. For purposes of the discussion here, the concept of SEA incorporates at least the following:

- An environmental assessment that goes beyond a single project to consider an industry sector, a region, or a particular policy, plan or program.
- A SEA can be *reactive* in response to the proposal of a particular project, e.g. the first proposal to introduce a new technology or a new industry, such as a

41 Privy Council Office and the Canadian Environmental Assessment Agency, *The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals* (Ottawa: Minister of Public Works and Government Services Canada, 1990); Privy Council Office and the Canadian Environmental Assessment Agency, *The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals* (Ottawa: Minister of Public Works and Government Services Canada, 1999); and Privy Council Office and the Canadian Environmental Assessment Agency, *The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals* (Ottawa: Minister of Public Works and Government Services Canada, 2004).

42 Environmental Assessment and Review Process Guidelines Order, S.O.R./ 84-467, June 22, 1984.

For a more detailed description of the EARP process, see R. Northey, *The 1995 Annotated Canadian Environmental Assessment Act* (Toronto: Carswell, 1994) at 21.

43 For an assessment of the federal cabinet directive on SEA, see Hazel, S. & H. Benevides. "Federal Strategic Environmental Assessment: Toward a Legal Framework" (1997) 7 J. Envtl. L. & Prac. 349. See also F. B. Nobel, "Strategic Environmental Assessment" in K. S. Hanna, ed. *Environmental Impact Assessment: Practice and Participation* (Oxford: Oxford University Press, 2005) 93.

44 Dalal-Clayton, B. & B. Sadler, *Strategic Environmental Assessment* (London: Earthscan, 2005).

LNG facility or in-stream tidal energy technology. In such a case the assessment will need to extend beyond the individual project to look at the whole technology or industry sector or region.

- A SEA can be *reactive* in response to a proposed policy, plan or program initiated for economic reasons, such as the Free Trade Area of the Americas (FTAA) initiative.
- A SEA can be *proactive* in response to an identified sustainable development or environmental challenge, such as a SEA leading to the development of an energy policy that encompasses a range of environmental, social and economic concerns related to climate change, air pollution and energy security.
- A SEA can be *proactive* in response to a policy gap or an outdated policy identified in the context of a project EA.

It is clear from this list that SEA can be used in a variety of contexts, with different needs and outcomes. Nevertheless, there appears to be general agreement on the basic steps and principles that should guide SEA processes. The steps proposed are certainly similar to project EAs. The basic principles proposed, that SEA processes should be integrated, sustainability led, focused, accountable, participative, and iterative, are also familiar from project EAs.[45] Dalal-Clayton and Sadler propose a number of more specific principles for effective SEAs.[46] The authors conclude that SEA should be focused on basic objectives and how to achieve them, that SEA should identify desired future outcomes and consider fully alternative ways of achieving these outcomes, that SEA should be objectives led, that SEA should be proactive, that it should be integrated, that its focus should be broad, and that it should be tiered.[47] These are all principles familiar from literature on project EA.[48]

There is now growing experience with SEA around the world.[49] Dalal-Clayton and Sadler provide a detailed review of SEA experience in developed nations, international institutions, economies in transition, and developing nations. SEA practice is starting to expand dramatically within the European Union as a result of its 2001 directive on SEA.[50] Although some EU member States had experience with SEA prior to the implementation of the directive in 2004, it was limited. In the United States, experience with SEA goes back to the early days of NEPA. While the experience with SEA goes

45 See M. Doelle, above n 5 at 29

46 Dalal-Clayton, B. & B. Sadler, above n 44 Box 2.4 at 15

47 See F. B. Nobel, "Strategic Environmental Assessment" in K. S. Hanna, ed. *Environmental Impact Assessment: Practice and Participation* (Oxford: Oxford University Press, 2005) 93

48 M. Doelle, *The Federal Environmental Assessment Process: A Guide and Critique* (Markham, Ont.: LexisNexis Butterworths, 2008) at 29

49 For a discussion of international instruments on SEA, see M. Doelle, above n 5 at 41

50 EC, Council Directive 01/42 of June 27, 2001, on the assessment of the effects of certain plans and programs on the environment [2001] O.J.L. 197/30. See also Dalal-Clayton above n 46 at 36

back 35 years, its use has been limited in the United States. Other developed nations, including Australia, New Zealand, and Japan, have also experimented with SEA.[51]

International development institutions, such as the World Bank, regional development banks, the United Nations Development Programme (UNDP), as well as international development institutions of several developed nations, have either started to implement SEA processes or carried out some SEAs on an ad hoc basis. SEA experience in economies in transition and developing nations is growing rapidly. Many economies in transitions began to implement SEAs in the 1990s, and several developing nations are now experimenting with SEA.[52]

A recent report commissioned by the Canadian Environmental Assessment Agency, identified the following elements of an effective SEA process :

1. The SEA should be applied early and proactively;
2. It should integrate the biophysical (or "environmental"), social and economic aspects, and be integrated within larger planning and decision-making processes;
3. The SEA should take into account its place within the other "tiers" or levels of assessment – for example, a policy, plan or programme (PPP) decision will influence a project decision. Assessments of lower tier initiatives (plans or programmes) or project assessments may also influence improvements in a policy or other higher tier. Improved assessments at all levels, as well as the practical benefit that the overall assessment process is "streamlined", are the benefits of tiering;
4. The process must be guided by regulatory, policy and/or other form of guidance. "Guidance" suggests the need for a standard of assessment that must be met, as well as the need for consistency and the opportunity for improvement through ongoing strengthening and clarification of the guidance;
5. The process must be flexible and adaptable;
6. The process must be transparent and include opportunities for public involvement throughout;
7. The most effective incentives or sources of motivation must be in place in order to ensure the process is adhered to. One of the lessons from 30 years of project EA is that it is possible to mandate government decision makers to follow an EA process, but it is difficult to force an unmotivated unwilling decision maker to implement the process so as to maximize its influence on future decisions and to actually make better decisions based on the results of the process. This means that in the design of SEA, careful thought will have to be given to the motivation for decision makers to use the results of the SEA to make better decision;
8. The assessment must be followed up in terms of actual performance, as well as actual effects, compared with predictions, and in terms of improving future PPPs as well as improving the assessment process itself; and

51 Dalal-Clayton at 54, 88, and 109

52 Dalal-Clayton, at 128, 180, 237.

9. The political will necessary for putting in place and implementing an assessment regime must exist. Much of the momentum for implementing and effective SEA process will only be realized when decision-makers are shown the benefits of putting the above factors in place. Key decision-makers should be participants in the design, establishment and implementation of the regime. By participating in the process, decision makers are more likely to see the benefits of following the recommendations, to understand the subtleties of the conclusions reached, and appreciate the risk of deviating from the results in terms of community and stakeholder support for future government decisions.[53]

**The Tidal SEA Process**

The Tidal SEA process was initiated as a result of a request by the Nova Scotia Department of Energy to the Ocean Energy and Environment Research Association (OEER). OEER is a not-for-profit corporation established in 2006 with funding from the province of Nova Scotia. The members of the association are Acadia University, St. Francis Xavier University, and the NS Department of Energy. OEER is a collaboration between the provincial government and academic institutions in Nova Scotia interested in research on the environmental implications of ocean energy development around Nova Scotia. The Association funds research in two broad areas, one dealing with the environmental impacts of offshore oil and gas exploration, the other dealing with offshore renewable energy, particularly tidal energy.[54] OEER was formally asked to carry out the SEA in April, 2007. The letter of agreement states as follows:

> *The objective of the SEA is to assess social, economic and environmental effects and factors associated with potential development of renewable energy resources in the Bay of Fundy with an emphasis on in-stream tidal. The SEA will inform decisions on whether, when, and under what conditions to allow pilot and commercial projects into the water in the Bay of Fundy and under what conditions renewable energy developments are in the public interest over the long term.*[55]

The Minister asked OEER to complete its work on the SEA within 12 months, and with a $250,000 budget. OEER then contacted the province of New Brunswick, who has claims similar to Nova Scotia over portions of the Bay of Fundy not claimed by Nova Scotia. New Brunswick decided to carry out its own SEA process, but agreed to contribute funding for the background research, so that this work could include all of the Bay of Fundy and provide the scientific foundation for both SEA processes. The Nova Scotia SEA process was placed in the hands of a subcommittee of OEER made up of 15

53 Dennis Kirchoff et al, "Law And Policy Options For Strategic Environmental Assessment In Canada", (January 2009) (report submitted to Canadian Environmental Assessment Agency) on file with author, forthcoming, online: < www.ceaa.gc.ca>.

54 For general information on OEER and its mandate with respect to tidal energy research, see online: <www.offshoreenergyresearch.ca>.

55 See Fundy Tidal Energy Strategic Environmental Assessment Final Report, OEER Association (April, 2008) at 3, available online: <www.bayoffundysea.ca>.

individuals representing the governments of Nova Scotia, New Brunswick and Canada, fishing and environmental interests, academics with backgrounds ranging from engineering and biology to law, and a retired civil servant.[56]

The SEA process designed by OEER consisted of the following key components:

- An interactive website to provide information and seek input throughout the SEA process (www.bayoffundysea.ca).
- A newsletter published regularly throughout the SEA process and posted on the SEA website.
- Informal meetings with stakeholders on request.
- Regular meetings of the OEER subcommittee to guide the process.
- A consultant, Lesley Griffiths, hired to serve as the "process-lead" for the SEA process, including chairing public meetings, and writing the final report under the direction of the OEER subcommittee.
- Six community forums held in August, 2007 in affected communities in Nova Scotia.
- Two rounds of participant support funding for community based research and to provide opportunities for community groups to meet and discuss their perspectives about the potential arrival of this new industry in the Bay of Fundy.
- A background report prepared by the environmental consulting firm on the current state of knowledge of the various proposed technologies, the receiving environment, the potential interactions between the technologies and the receiving environment, and the potential socio-economic impacts of renewable energy development in the Bay of Fundy.
- A round table of about 25 interested stakeholders that met with members of the OEER subcommittee approximately one a month between October, 2007 and April 2008.[57]

Early efforts to engage Nova Scotians were designed primarily to identify key issues to be addressed through the SEA process. The OEER subcommittee decided that the scope of the SEA would be limited geographically to the Bay of Fundy and substantively to ocean renewable energy. The process remained open throughout to any issue relevant to informing decisions about whether, where and under what conditions offshore renewable energy should be permitted or encouraged in the Bay of Fundy. The main purpose of the various efforts early in the process to engage affected communities and key stakeholders was to identify what issues the SEA should focus on, while leaving it open to participants throughout the process to raise new issues and to bring up new concerns.

The main vehicles for identifying issues of concern were some informal meetings with key stakeholders and the six community forums held in August, 2007. The forums in particular provided important guidance to the OEER subcommittee and the process lead on the values, concerns and priorities of affected communities, and potentially affected

56 See SEA Report, at 5.

57 SEA Report, at 5

industry sectors such as fisheries and tourism. To this end, participants in the forums were asked two questions:

- What information is needed before decisions can be made about whether, where and under what conditions tidal energy should be permitted or encouraged in the Bay of Fundy?
- What information are you aware of that may be relevant to this process?

In parallel with the forums, OEER hired Jacques Whitford, an environmental consulting firm, to prepare a background report on the technologies, the receiving environment, and their potential interaction. Gathering the state of knowledge on the state of offshore renewable energy technologies was a key component of this backgrounder. It also served as a baseline study on the Bay of Fundy region. The study sought to clarify the state of knowledge as well as provide an objective assessment of information and knowledge gaps. The backgrounder did not serve as an environmental impact statement, nor was it a draft SEA report.

The backgrounder was intended to serve as a starting point for the SEA process. As such, it sought to identify the state of knowledge and to encourage participants to consider the implication of the state of knowledge for the SEA process. Inevitably, in case of an evolving technology proposed in a relatively undeveloped area, information on the technologies, the receiving environment and their interaction will be limited. A critical component of the backgrounder was therefore the objective assessment of information gaps to serve as a basis for discussing what decisions could be made with existing information and what decisions had to be delayed until certain information gaps had been filled. Unfortunately, the backgrounder was delivered late. Due to the tight timeline for the overall SEA process, it was introduced part way through rather than at the beginning of the SEA consultation process.[58]

Given the short time frame and the limited resources available to carry out the SEA, there clearly was no real opportunity to fill the information gaps identified. Some effort was, nevertheless, made to encourage community groups to supplement the information provided through the backgrounder. Limited participant funding was made available to a total of seven aboriginal, community, environmental and fisheries groups.[59] Funding enabled community meetings and some community based research on issues of importance to participating organizations. Topics covered included native fisheries in the Bay of Fundy, how to enable community benefits from tidal energy development, integrated resource management in the Bay of Fundy, research on submerged ice, and the gathering of local and traditional knowledge relevant to the SEA.[60]

58 Jacques Whitford Background Report for the Fundy Tidal Energy SEA, (January, 2008) available online: <www.bayoffundysea.ca>.

59 See online: <www.bayoffundy.ca>.

60 For information on the funding program and the results of funded initiatives, see online: <www.bayoffundysea.ca>.

The Round Table commenced its work after the conclusion of the community forums. Interests represented on the Round Table include municipalities, fisheries, aquaculture, community development, environmental organizations, tourism, marine transportation, the local power utility and tidal developers. It met a total of seven times between October 2007 and April, 2008. The Round Table first considered how decisions on tidal and other offshore renewable energy in the Bay of Fundy should be made. Members eventually settled on a set of sustainability principles adapted from principles proposed by Robert Gibson.[61] It then reviewed the background report prepared by Jacques Whitford, and discussed a range of specific issues of particular concern to members of the Round Table.[62]

Given the time available, and diversity of interest and perspectives, a surprising level of consensus was reached. At the same time, it must be recognized that the limited time and resources, as well as the size of the round table, made a deeper level of agreement on the substance impossible. As a result, many of the SEA recommendations are general in nature. They will require ongoing engagement of stakeholders to become meaningful and clear, and to ensure that some of the unresolved issues underlying these general recommendations are not forgotten as time passes.

Following the conclusion of the Round Table process, the OEER subcommittee under the guidance of the process lead, Lesley Griffiths, prepared the SEA report. The report was submitted to the provincial government on May 1, 2008. A final round of hearings in May of 2008 sought further feedback on this report. OEER submitted a community comment report that summarized the final feedback received by way of follow-up to the SEA report. In July, 2008, the Province released its response to the SEA report.[63]

Perhaps the greatest challenge to the SEA was that half way through the process, the province of Nova Scotia invited proposals to construct and operate a research facility to test in-stream tidal turbines in the Bay of Fundy. Around the same time, it invited developers of in-stream technology to apply to test their technologies in this research facility and to indicate desired location, water depth and current speed. It announced the successful bidder for the construction and operation of the research facility before the SEA was concluded. It also announced three developers who would be permitted to test their turbines in the research facility.[64]

While the province made it clear that the results of this process were subject to the SEA, many participants in the SEA process were understandably skeptical that the SEA process would have an impact on whether, where and under what conditions the research facility would be permitted to proceed. A secondary concern with this parallel process was that it

61 See R. B. Gibson et al, *Sustainability Assessment: Criteria and Processes* (London: Earthscan, 2005) at 217 - 236

62 For information on the round table, see online: <www.bayoffundysea.ca>.

63 Bay of Fundy Tidal Energy: A Response to the Strategic Environmental Assessment, NS Department of Energy (July, 2008) available online: <www.bayoffundysea.ca>.

64 For information about the three pilot projects selected as a result of this process, see online: <http://www.gov.ns.ca/energy/renewables/public-education/tidal.asp>.

resulted in developers being less engaged in the SEA process than they otherwise might have been.

# 5. SEA Outcomes

The SEA report included 29 recommendations to the province of Nova Scotia. The recommendations were supported by all members of the OEER subcommittee and were generally supported by the round table. Time and resource constraints prevented formal endorsement by the round table of the specific language of some of the recommendations. The intent of recommendations was, however, supported by all members of the round table. The following summarizes some of the key recommendations included in the report and offers some indication of the government response:

- The report recommends that the province adopt and apply 10 sustainability principles as a framework for decision making on renewable energy development in the Bay of Fundy. Specifically, the SEA recommends that the resource remain under government ownership and management, that the resource be developed in a way that ensures net reductions in greenhouse gas emissions, that federal and provincial governments should cooperate in the management of the resource, that decisions about commercial development should only be made incrementally and after technologies are proven to be environmentally sound, that effects on other users of the Bay of Fundy that can't be mitigated must be fairly compensated, that net socio and economic benefits over the long terms should be ensured and maximized, that community development should be a priority, that decisions should be made in the context of an integrated management approach and that decisions should be made in a transparent manner.
    - The government response seeks to demonstrate how some of the principles have been acted on, but falls short of endorsing the 10 principles as a basis for decision making[65]
- The report recommends that pilot in stream tidal projects be permitted to proceed carefully and incrementally.
    - The government response accepts this recommendation.
- The report seeks assurances for ongoing consultations and participation in decision making, and for the development of a community participation and benefits strategy.
    - The government response accepts these recommendations to a limited extent, but does not provide any detail on how ongoing consultations will be carried out or that it intends to build upon the mechanisms developed through the SEA. The absence of any specific measures on socio-economic impacts generally and on maximizing community benefits specifically is concerning, given that this was clearly identified as a significant information and knowledge gap in the SEA.

65 Government Response, note 63, at 18

- The report recommends that the province develop legislation and amend existing legislation. The SEA proposes that the legislation should encourage the development of marine renewable energy resources in a safe and environmentally sound manner. It should require interested parties to obtain licenses for the rights to develop. Such licenses should be conditional on undertaking activity that will promote timely development. The legislation should provide for immediate disclosure of all environmental information and, after appropriate confidentiality periods, disclosure of technical information related to the resource. The legislation should provide for the Province to receive revenues from the licensing and/or development of the resource and provide opportunities for affected communities to benefit from the development. Finally, the SEA proposes that the legislation provide incentives for the net reductions of greenhouse gases in the Province.

    - The government response accepts the recommendation for provincial legislation is accepted in principle, but with few specifics in terms of content or timing. The government response does outline the following possible elements of provincial tidal energy legislation:
        - Crown title in the resource in its natural state
        - Licensing requirement for exploration
        - Subject to regulatory compliance and plan approvals, the right of an explorer to move to commercial production
        - Royalties and/or benefits representing the economic value of the resource in its natural state
        - Operational oversight to ensure compliance with laws, permits, and obligations.[66]
- The report recommends that a research agenda be developed to fill knowledge gaps.
    - The government response identifies some specific initiatives that it plans to undertake to fill these gaps.
- The report recommends that efforts be made to maximize local benefits from any development of renewable energy in the Bay of Fundy.
    - There is some reference to specific benefits in the government response, but no clear proposal.
- The report recommends that the province place a high priority on conservation, efficiency and carbon credit trading.
    - The province points to its pending energy strategy and climate change action plan, but without any specific commitment to these priorities.[67]
- Capacity of the power grid in Nova Scotia to accept power from tidal power projects is identified as an important issue in need of further study.

66 Government Response, note 63, at 16

67 The energy strategy and the climate change action plan were released on January, 9th, 2009. The province announced the creation of an independent agency to oversee an ambitious demand side management program to encourage conservation of electricity in the province. There is little in either plan on carbon credit trading. For more information, see online: <http://www.gov.ns.ca/nse/climate.change>.

    - There is no formal acceptance of the recommendation. The response from the province instead explains what has been done to address this issue. Clearly, there is a difference of opinion on whether grid capacity will be an issue.
- The potential for impacts on other users is identified as an issue. The report recommends an integrated approach to resource management in the Bay of Fundy.
    - The provincial response makes a general commitment however, as with some other responses, the government focuses on what it has done rather than on what it will do.[68]

In sum, the provincial response is generally positive, but it is not always clear whether the government fully supports the specific recommendations. The lack of clarity in the response is surprising given the direct involvement of officials from the Departments of Energy and Environment in the design and implementation of the process as well as the development of the 29 recommendations. In some cases the response rephrases the recommendations without a clear indication of whether the government agrees or disagrees, or as to the nature of any disagreement. This may in part be a reflection of the *ad-hoc* nature of the process. It may be a reflection of the limited time and resources devoted to the exercise, or it may indicate that key decision makers were not sufficiently involved in the process to fully buy into the process and the results. In addition to responding to the recommendations, the government highlighted the following measures:

- The government committed to providing funding and finding other ways of encouraging the research needed to fill the information gaps identified through the SEA process.
- The province has decided to proceed with a demonstration facility for in stream tidal and with a demonstration program for other forms of renewable energy
- The government has committed to remove devices in case of adverse environmental effects
- The government has confirmed the need to ensure compensation agreements are developed with other users of the Bay of Fundy
- The government confirmed its desire to encourage collaboration with all affected jurisdictions and stakeholders. [69]

It is too early to predict the long term impact of the SEA on tidal energy governance. One of the most promising signs was how constructively major stakeholders engaged in the SEA process. Early and ongoing engagement likely played an important role in this. Opportunities for mutual learning were evident even during the short duration of the process. For example, developers provided valuable insight into conditions for development for a variety of technologies. Members of the fishing industry provided valuable insight into local conditions, particularly some of the high current velocity passages. Other users were able to identify concerns over potential use conflicts. Exchanges on these issues at the round table allowed everyone to develop a better

68 Government Response, note 63, at 36

69 Government Response, note 63, at 5

understanding of the range of potentially suitable sites. The long term benefit of the SEA process may very well depend on whether the province is able to ensure continued engagement. If the engagement continues, it is likely that a cooperative approach to resource management and integrated planning in the Bay of Fundy will be possible. In the absence of empirical evidence as to the contribution of the SEA process to decision making on tidal energy, an evaluation against criteria from SEA literature will have to suffice for now.

# 6. Evaluation of the SEA process

This section briefly evaluates the SEA process against criteria identified from the literature. The nine criteria applied are selected from the results of an international literature review on SEA appended to a September, 2008 options paper prepared for the Canadian Environmental Assessment Agency. [70] The criteria of effective SEA have been stated in many different ways by academics and practitioners.[71] They do cover the range of issues identified in the literature, and are therefore used as a basis for the assessment of the NS Tidal Energy SEA.

1. The SEA should be applied early and proactively;

The tidal SEA process was applied both early and proactively. In contrast with a tidal SEA process carried out in Scotland,[72] the NS process was applied prior to the pilot phase, before any tidal energy projects were approved in the Bay of Fundy. This was critical to the credibility of the process in communities around the Bay of Fundy. It also proved to be one of the greatest challenges, given that the province initiated a parallel process for the selection and approval of pilot projects half way through the SEA.

2. It should integrate the biophysical (or "environmental"), social and economic aspects, and be integrated within larger planning and decision-making processes;

The SEA process did cover biophysical as well as social and economic aspects of the issue. However, the background study focused on the technologies and their interaction with the biophysical environment. The information available on the social and economic aspects of tidal energy development was limited. As a result, social and economic issues were raised, but few concrete recommendations were possible on how to address social concerns and how to maximize economic opportunities.

70 Dennis Kirchoff et al, "Law And Policy Options For Strategic Environmental Assessment In Canada", (January 2009) (report submitted to Canadian Environmental Assessment Agency) on file with author, forthcoming online: < www.ceaa.gc.ca>.

71 For a summary of some of these perspectives, see M. Doelle, above n 5 at 29, 192.

72 For more information on the SEA carried out in Scotland, see online: <http://www.scotland.gov.uk/Topics/Business-Industry/Energy/19185/Resources/WaveTidalSEA>.

The SEA process was an ad hoc process. It was therefore not formally integrated with planning and other decision making processes. The extent to which the SEA process will be integrated with existing EA and regulatory decision making processes remains to be seen. Larger planning processes are lacking in this region, and it is too early to tell whether the SEA process will motivate the initiation of coastal management or other integrated planning processes in the Bay of Fundy Region.

3. The SEA should take into account its place within the other "tiers" or levels of assessment;

The tidal SEA process did take account of existing decision making processes, such as the EA process and various regulatory processes. The results of the SEA process should improve EA and regulatory process for pilot and commercial scale projects. The SEA process clearly sought to inform the future EA processes at the project level. It should make project EAs more efficient and allow key stakeholders to focus more quickly on key unresolved issues and information gaps. The constructive relationship among key stakeholders, if fostered on an ongoing basis, also bodes well for improved efficiency and effectiveness at the project EA level.

4. The process must be guided by regulatory, policy and/or other forms of guidance;

The process was an ad hoc process, and as such not sanctioned under either the federal or provincial EA legislation. There were opportunities to sanction the process within the EA process under the Nova Scotia Environment Act. The opportunity was not pursued, mainly because the initiative for the SEA came from the Department of Energy, whereas the EA process is under the control of the Department of the Environment.

5. The process must be flexible and adaptable;

The process was flexible and adaptable within certain parameters. The flexibility of the process was limited mainly by funding and time. Both limited the ability to engage members of the public, limited efforts to achieve consensus on more controversial issues, and limited the ability of the SEA process to come to concrete conclusions on how to best maximize social and economic opportunities.

6. The process must be transparent and include opportunities for public involvement throughout;

The process was generally transparent. All relevant documents were publically available. All key documents were made available for public comment. The OEER subcommittee included not only members of key current users of the Bay of Fundy, but also members of local environmental organizations. All major interests were represented on the round table. Through this process, all stakeholders had multiple opportunities to follow the process and provide input.

There were two rounds of public forums in key communities around the Bay of Fundy and in Halifax, the capital of Nova Scotia. There was limited funding to allow interested groups to meet and consider their position with respect to this new industry. There were opportunities throughout to provide input into the process through the website. No issues were ever formally excluded from the process. In addition, members of the public had opportunities to feed into the process through representatives on the round table.

Limitations of the process from a public engagement perspective include the special limitation to the communities around the Bay of Fundy and Halifax. With more time and resources, the process would have benefitted from broader engagement. First Nations participation was also limited, mainly due to confusion of the impact this process would have on the Crown's duty to consult and accommodate and more established engagement processes.[73] These limitations can be overcome as the SEA process becomes an established part of the overall governance approach.

7. The most effective incentives or sources of motivation must be in place in order to ensure the process is adhered to;

It remains to be seen whether the results of the process will be followed. The limited funding and short time frame provided somewhat limited opportunities to build the profile of the SEA process and its outcomes. It is not clear whether there has been sufficient investment into the process and the results by stakeholders and government decision makers to ensure its implementation. The *ad-hoc* nature of the process also poses some risk that the results may be ignored.

8. The assessment must be followed up in terms of actual performance, as well as actual effects, compared with predictions, and in terms of improving future policies, plans and programs as well as improving the assessment process itself;

It remains to be seen to what extent this will happen.

9. The political will necessary for putting in place and implementing an assessment regime must exist. Much of the momentum for achieving it will be achieved when decision-makers are shown the benefits of putting the above factors in place. Decision-makers must therefore be participants in the design, establishment and implementation of the regime.

73 The problem that arose with respect to aboriginal engagement results from a set of Supreme Court of Canada cases, which explored the scope of the crown's duty to consult with aboriginal communities. In one of the cases, *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, [2004] S.C.J. No. 69, [2004] 3 S.C.R. 550 (SCC), the court concluded that affected aboriginal communities' involvement in the environmental assessment process was sufficient to meet the crown's duty to consult. This decision has made aboriginal engagement in environmental assessment processes more difficult. For a good overview of the duty to consult issue, see R. F. Devlin, R. Murphy, "Contextualizing the Duty to Consult: Clarification or Transformation?" (2003) 14 N.J.C.L. 167.

It remains to be seen whether the political will is in place to ensure the SEA process actually guides future decisions about tidal energy in the Bay of Fundy. As discussed above, key in this regard will be whether future government decision makers were adequately engaged in the process to appreciate the substance and overall value of the recommendations. Once all participants develop a level of comfort with the process and the quality of the substantive outcomes, it will likely be easier to develop more specific rules on how the results of an SEA process should guide lower tier decision making processes, such as project EAs and regulatory approvals.

# 7. Conclusion

This study raises two important issues about the SEA process:

1. How to design and implement an effective SEA process to improve decision making, particularly with respect to the arrival of new industries (ie process options, inter-jurisdictional challenges, scope, public engagement, decision making)
2. How to position the SEA process within overall government decision making (ie how does it fit with higher tier planning and management, how will it feed into lower tier decision making, such as project EAs and regulatory approvals)

With respect to the first issue, it is too early for any final judgments about the effectiveness of the SEA process or its role in ensuring an effective governance approach to tidal energy in the Bay of Fundy, as most of the recommendations have yet to be implemented. It therefore remains to be seen to what extent the SEA will achieve its objective of ensuring decisions about this new industry are made in the long term best interest of the province of Nova Scotia.

Nevertheless, it is reasonable to conclude that the SEA process in Nova Scotia was a significant step forward in developing governance responses to new industries. It is encouraging that the province of Nova Scotia took a much more proactive approach to tidal energy than it did in response to the arrival to other industries in the past, such as aquaculture and offshore oil and gas. Based on this experience, a more formal SEA process could be developed to further improve decision making processes for the future.

The tidal SEA process was limited by its ad hoc nature, making its relationship to lower tier decision making on in stream tidal more difficult to define. This limitation is best addressed by providing a clear legislative foundation for SEA. Such legislation would presumably establish rules on when an SEA is to be carried out, and on the process to be followed. Most importantly for purposes of the issue raised here, it could define how, when and for how long the results of an SEA will have to be considered in future government decision making related to the subject matter of the SEA.

The tidal SEA process was also limited in terms of the time and resources available. Knowledge gaps were identified but generally not filled. A number of issues, such as which approach to tidal energy is most likely to maximize long term benefits to Nova Scotia (particularly rural development benefits) were identified but not resolved.

For these reasons alone, the implementation stage will be critical.[74] It has to address knowledge gaps and continue the dialogue on values and priorities and how best to pursue them. For example, should the focus be on making the Bay of Fundy a testing, research and manufacturing site for tidal technology or on producing energy? Proper implementation will ensure that the constructive relationship developed among key stakeholders continues. This will require the same level of transparency and engagement on an ongoing basis, especially given the incremental nature of this industry. While the round table may be a bit too large to be effective, a smaller version of the round table would be an obvious mechanism for ongoing consultation, in combination with broader consultation at critical stages of development.

As decisions are made about pilot projects, as experience is gained about the technical, social, economic and environmental feasibility of tidal energy, it will be critical that communities continue to feel as informed and as involved in decisions about whether, where and under what conditions tidal energy projects ought to be permitted in the Bay of Fundy. The pilots will play an important role in the decision making process for this new industry. It will be critical that the pilots are utilized to fill in some of the information gaps, particularly gaps in the understanding of the interaction between the various technologies and the receiving environment and cumulative effects.

The experience with the tidal SEA in Nova Scotia points to a number of possible improvements for SEA process design. The process would benefit from clear provisions on how the results of the SEA will feed into lower and higher tier decision making processes, and the time frame during which the SEA can provide a sound basis for project based decisions. The process also needs to include a firm commitment by government decision makers to respond to the recommendations of the SEA. In recognition of the reality that not all questions can be answered at the SEA level of assessment, government responses in the future will have to be more clear on whether and how knowledge gaps are to be filled and how outstanding questions will be answered.

Continuity in terms of transparency of decision making and public engagement is also critical. It is clear that the tidal SEA in Nova Scotia has developed a new level of trust and expectation in terms of transparency and public engagement in decision making. The constructive relationships developed will be at risk if the expectations are not realized as the sustainability principles developed and other recommendations are applied to individual tidal projects.

74 A key issue is how the results of this SEA process will feed into EA at the project level. Unfortunately, the SEA report is relatively silent on this point.

The role of government decision makers in the SEA process must be carefully considered. It needs to be designed to ensure independence and credibility of the process on the one hand, and active engagement of key decision makers on the other hand. As with project EAs, early triggering will be key. An effective way of addressing most of these issues might be to provide a legislative foundation for SEA at the provincial and federal levels. Initially, the legislation will have to retain considerable flexibility to be able to adjust to experience and unforeseen circumstances.

Any effort to formalize SEA in Nova Scotia will have to address the jurisdictional challenge of how a provincially led SEA can and should feed into federal decision making, both in terms of higher and lower tier decisions. This will be relevant both in terms of possible future regional and integrated planning and management in the Bay of Fundy region, and in terms of future decisions on tidal energy projects in the context of their potential impacts on fisheries, navigation, and other areas of federal jurisdiction.

The absence of integrated management and planning is another challenge that will require further thought. It may be reasonable for purposes of deciding on whether to move ahead with pilot projects to assume the status quo of resource use and management will and should continue. It is more difficult to see how decisions about commercial scale developments can be made in the absence of integrated planning, even with an incremental approach.

This may point to a more general limitation of SEAs, meaning that in the end, decisions about the role of this new industry, and how to maximize long term sustainable benefits to Nova Scotians and Canadians cannot be made until an integrated management plan is in place for the Bay of Fundy. This would suggest that the main role of an SEA is to update integrated management plans, not to eliminate the need for integrated planning and management.