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The Regulation of Tidal Energy Development Off Nova Scotia: Navigating Foggy Waters

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INTRODUCTION

The vast potential for tidal power development in the Bay of Fundy region of the Atlantic coast has been recognized for decades. At the same time, finding an effective way to harness this power in a cost effective, sustainable and environmentally responsible manner has been an ongoing challenge. In the 1980s, barrage based tidal power technology was piloted in Annapolis Royal, Nova Scotia. It was found to be unsuitable from both environmental and cost perspectives.[1]

More recently, 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 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. While this technology is still in the early stages of commercialization, there are pilot projects underway around the world. As a result, the question of how to make decisions on whether, where and under what conditions to permit tidal power development in regions such as the Bay of Fundy have arisen again.[2]

The Bay of Fundy finds itself in a region of Canada that has seen the introduction of a number of major new industries over the past few decades. Included in this list are pulp and paper, aquaculture, and, most recently, offshore oil

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[1] See generally Marshall Conley & Graham Daborn, eds., *Energy Options for Atlantic Canada*, (Halifax: Formac, 1983).

[2] This article is based on a report prepared for the Nova Scotia Departments of Energy and Natural Resources. The financial contribution of the province of Nova Scotia is gratefully acknowledged. The views expressed in this article are the authors' alone.

and gas facilities. Decisions on how to regulate these industries were generally reactive and sometimes short-sighted. Since the arrival of these industries, there has been considerable change in the understanding of how governments can make responsible decisions in the best long term interest of their citizens. The pending arrival of tidal power development in Nova Scotia provides an opportunity to implement the lessons learned, to apply appropriate governance models to see through the fog, and to maximize long term benefits to the region.

The following article seeks to make the case for principled governance of resource based industries such as tidal power. The primary aim is to offer an overview of the international, constitutional and legislative context and to briefly illustrate the benefits of a principled, proactive approach. A detailed design of the proposed governance regime, strategic assessment and integrated planning processes are left for follow-up research. The purpose here is to lay the foundation for such further work.

The article therefore considers issues related to the governance of this new development opportunity by first identifying, in Parts One and Two, the international and constitutional context within which any governance regime for the Bay of Fundy would exist. Parts Three and Four then briefly describe key existing legislative and regulatory systems in place in Nova Scotia that would apply to tidal power development projects. Experiences in other jurisdictions are assessed in Part Five, both with respect to tidal power and for other comparable offshore developments, such as wind. Within this overall context, Part 6 of the article then offers some preliminary thoughts on the essential elements of a suitable governance regime.

1. The International Law and Policy Context

While tidal energy is not the subject of any specific international agreement, various international agreements and documents have implications for how tidal power projects should be assessed and decided upon.[3] Treaties of particular importance are the 1982 *Law of the Sea Convention*[4], the 1992 *Convention on Biological Diversity*[5] and the *Kyoto Protocol* on Climate Change.[6] Key global documents include the *Rio*

[3] This article does not address the potential transboundary issues related to tidal developments, such as possible duties to notify, provide information and consult in cases of significant transboundary harm. State and private liability issues are also not covered here. For an overview of transboundary liability issues and uncertainties, see A. E. Boyle, "Globalizing Environmental Liability: The Interplay of National and International Law" (2005) 17 J. Envtl. L. 3. For an overview of procedural obligations set out in the draft articles of the International Law Commission on Prevention of Transboundary Harm from Hazardous Activities, adopted by the Commission in 2001, see Luis Barrionuevo Arevalo, "The Work of the International Law Commission in the Field of International Environmental Law" (2005) 32 B.C. Envt'l Aff. L. Rev. 493 at 505.

[4] December 10, 1982, 21 I.L.M. 1261 (1982) [LOSC].

[5] June 5, 1992, 31 I.L.M. 818 (1992).

[6] March 16, 1998, 37 ILM 22 (1998).

Declaration on Environment and Development[7], *Agenda 21*[8] and the World Summit on Sustainable Development (WSSD) *Plan of Implementation.*[9]

1982 Law of the Sea Convention

The 1982 Law of the Sea Convention (LOSC) has both jurisdictional and environmental implications for tidal energy developments. As for jurisdiction, the Convention explicitly grants coastal States like Canada the right to develop and regulate tidal power within the 200 nautical mile exclusive economic zone (EEZ). Article 56 provides coastal States with sovereign rights in the EEZ "for the purpose of exploring and exploiting, conserving and managing natural resources ... and with regard to other activities for the economic exploitation and exploration of the zone, such as *production of energy from the water, currents and winds...*" (emphasis added).

Where a State's continental shelf extends beyond 200 nautical miles (nm), as is the case with Canada's continental margin off Newfoundland and Labrador, the Law of the Sea Convention also provides jurisdictional rights in relation to energy production. Article 80 grants the coastal State the exclusive right to construct and regulate installations and structures on the continental shelf, including for energy production purposes.

With no international agreement in place to govern future energy projects beyond national jurisdiction[10], all States could claim access to ocean energy on the high seas, with minimal constraints. For example there would be a duty to give due regard for the interests of other States on the exercise of their freedoms such as fishing and navigation.[11]

All States are entitled to lay submarine cables on the bed of the high seas.[12] Every State has an obligation to adopt laws making it a punishable offence for the willful or negligent breaking or injuring of high voltage power cables by ships flying its flag or by a person subject to its jurisdiction.[13]

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[7] June 14, 1992, 31 I.L.M. 874 (1992).

[8] Reprinted in Stanley P. Johnson, *The Earth Summit: The United Nations Conference on Environment and Development (UNCED)* (London: Graham & Trotman/Martinus Nijhoff, 1993) at 423-508.

[9] Online: United Nations Department of Economic and Social Affairs <http://www.un.org/esa/sustdev/documents/WSSO_POI_PD/English/WSSD_PlanImpl.pdf>.

[10] For a suggestion to fill the legal gap through a Protocol on ocean energy, see Martin Tsamenyi & Max Herriman, "Ocean Energy and the Law of the Sea: The Need for a Protocol" (1998) 29 Ocean Devel. & Int'l L. 3.

[11] LOSC, *supra* note 4, Art. 87(1).

[12] LOSC, *ibid.*, Art. 112.

[13] LOSC, *ibid.*, Art. 113.

LOSC also has environmental implications. The Convention bestows a general obligation on States to protect and preserve the marine environment.[14] The Convention also requires States to subject proposed activities under their jurisdiction or control to environmental assessment if the planned activities may cause significant and harmful changes to the marine environment.[15] The threshold of "significant and harmful" is not defined under the Convention and its application to tidal power projects would likely depend on the type of technology and size of operation being proposed.

1992 Convention on Biological Diversity

The Convention on Biological Diversity (CBD), besides having had broad law and policy influences in Canada relevant to tidal power development[16], may be especially important in relation to environmental assessment of tidal projects and strategic environmental assessment of tidal energy programmes or policies. The Convention requires Parties to subject proposed projects likely to have significant adverse effects on biological diversity to environmental impact assessment (EIA) with a view to avoiding or minimizing such effects.[17] The Convention also encourages Parties to consider the biodiversity impacts of proposed programmes and policies through arrangements[18] such as strategic environmental assessment.

Voluntary guidelines on biodiversity-inclusive impact assessment which have been developed[19] should be considered in the tidal energy context. The guidelines on biodiversity-inclusive environmental impact assessment emphasize the need to develop biodiversity criteria for impact evaluation and to have measurable standards or objectives against which the significance of individual impacts can be evaluated.[20] The draft guidance on biodiversity-inclusive strategic environmental assessment highlights the importance of applying strategic environmental assessment, for example to national energy policy, in order to streamline the

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[14] LOSC, *ibid.*, Art. 192.

[15] LOSC, *ibid.*, Art. 206.

[16] For example, the Convention in Art. 8, calling for the establishment of a national system of protected areas (including marine protected areas) and the development of legislation for the protection of threatened species, has influenced Canada's designation of marine protected areas under the *Oceans Act* (*infra* note 50) and Canada's enactment of the *Species at Risk Act* (*infra* note 115) and provincial legislative counterparts.

[17] CBD, Art. 14(1)(a).

[18] CBD, Art. 14(1)(b).

[19] Decision VI/7 of the Conference of the Parties adopted as an Annex, Guidelines for Incorporating Biodiversity-Related Issues into Environmental Impact Assessment Legislation and/or Process and in Strategic Environmental Assessment. The guidelines were further refined in March, 2006 through decision VIII/28, advance version available online: CBD <http://www.biodiv.org/doc/meetings/cop/cop-08/cop-08-decision-advance-en.pdf>.

[20] Decision VIII/28, Annex I at para. 30.

incorporation of environmental concerns into the decision-making process and to make project-level EIA more effective.[21]

Kyoto Protocol

Tidal power development could become an important contributor towards meeting Canada's obligations under the Kyoto Protocol. During the first commitment period 2008-2012, Canada is required to cut greenhouse gas emissions by 6% from 1990 levels. Article 2 of the Protocol specifically urges countries to undertake research on and to promote renewable forms of energy in order to limit or reduce greenhouse gas emissions.

Key Global Documents

Various principles and prescriptions for promoting sustainable development which have emerged through international declarations and action plans[22] should be considered in development of a law and policy framework for tidal energy.

Rio Declaration

Setting out 27 principles in support of sustainable development[23], the Rio Declaration on Environment and Development includes three particularly important for policy formation and decision-making in relation to offshore tidal energy:

- *Public participation (Principle 10).* The Declaration emphasizes three main dimensions where public participation needs to be ensured, namely, public access to environmental information held by public authorities, citizen participation in decision-making processes and effective access to judicial and administrative proceedings.

- *Precautionary approach (Principle 15).* Perhaps the most controversial of all principles[24], the Declaration calls on States to take a precautionary approach where proposed activities threaten

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[21] *Ibid.* Annex II.

[22] On the important role of "soft law" documents and the emergence of legal principles, see Philippe Sands, "International Law in the Field of Sustainable Development: Emerging Legal Principles" in Winfried Lang ed., *Sustainable Development and International Law* (Boston: Graham & Trotman / Martinus Nijhoff, 1995) at 53-66.

[23] For a more detailed discussion of the Rio Declaration's implications for ocean management, see Jon M. Van Dyke, "The Rio Principles and Our Responsibilities of Ocean Stewardship" (1996) 31 Ocean & Coastal Mgmt. 1.

[24] For a review of the interpretative debates, see David VanderZwaag, "The Precautionary Principle in Environmental Law and Policy: Elusive Rhetoric and First Embraces" (1998) 8 J. Envtl. L. & Prac. 355; and David VanderZwaag, "The Precautionary Principle and Marine Environmental Protection: Slippery Shores, Rough Seas, and Rising Normative Tides" (2002) 33 Ocean Devel. & Int' L. 165.

serious or irreversible damage and there is a lack of scientific certainty regarding impacts. A strong version of precaution advocates placing the burden of proof on proponents of development to demonstrate some threshold for approval such as no significant harm.[25]

- *Indigenous people and local community management/development (Principle 22).* The Declaration emphasizes the vital role that indigenous and local communities should play in environmental management and development. The principle includes notions of social equity whereby policy-makers need to consider not only the social and cultural impacts of proposed developments but also how to ensure local participation and benefits.

Agenda 21

Chapter 17 of the oceans and coastal chapter of the global plan of action for achieving sustainable development, while reiterating many of the Rio Declaration principles[26], emphasizes a fundamental principle applicable to future tidal energy development. States are urged to adopt *integrated coastal/ocean management* approaches involving all stakeholders in preparing and implementing land and water use and siting policies.[27] The Chapter highlights the need for offshore developments to be coordinated and legitimated within a framework of integrated coastal/marine management programs and plans.[28]

WSSD Plan of Implementation

The 2002 World Summit on Sustainable Development in Johannesburg was not able to agree on a specific target for shifting energy mixes to renewable energies[29]; however, the Summit's Plan of Implementation urges various energy-related actions relevant to future tidal power development. The Plan advocates the development and utilization of indigenous energy sources and emphasizes the importance of ensuring renewable energy technologies help rural communities meet their daily energy needs.[30] In light of the complex issues surrounding the shift towards renewable sources, such as cross-border trade and interconnection of electricity grids, the Plan

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[25] See Richard G. Hildreth, M. Casey Jarman & Margaret Langlas, "Roles for a Precautionary Approach in Marine Resources Management" (2005) 19 Ocean Yearbook 33.

[26] For example, the principles of precaution, public participation and prior environmental impact assessment are reiterated.

[27] Agenda 21, *supra* note 8 at para. 17.6(a).

[28] Agenda 21, *ibid.* at para. 17.6(b).

[29] The Plan merely sets "the aim of giving a greater share of the energy mix to renewable energies." *Ibid.* at para. 20(c).

[30] *Ibid.* at para. 20(g).

calls upon Governments to facilitate dialogue forums among national, regional and international producers and consumers of energy.[31]

The WSSD Plan of Implementation, while quite limited in addressing ocean issues[32] and again endorsing the need for integrated management of coastal/ocean areas[33], does establish a further "principled context" for tidal energy development. The Plan urges States to apply the ecosystem approach by 2010.[34] While the ecosystem approach raises many uncertainties[35] and continues to evolve, various directions for ocean governance are emerging.[36] The approach involves among other things:

- Trying to better understand marine ecosystems and their functioning;
- Developing indicators for healthy ecosystems;
- Ensuring project environmental assessments consider potential impacts on marine biodiversity and inter-related ecosystems;
- Encouraging environmentally friendly technologies;
- Establish marine protected areas based upon scientific information;
- Recognizing that human uses must occur within the parameters of ecological limits;
- Adopting in addition to precaution, an adaptive management approach whereby project impacts are clearly monitored and active learning is encouraged.[37]

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[31] *Ibid.* at para. 20(w).

[32] The Plan only includes seven paragraphs (30-36) specific to oceans and coastal areas.

[33] *Supra* note 6 at para. 30(b).

[34] *Ibid.* at para. 30(d).

[35] For example, the relationship of the terms, ecosystem-based management and the ecosystem approach, remains uncertain with the Food and Agriculture Organization preferring the term ecosystem approach for various reasons including consistency of language with the precautionary approach. See S.M. Garcia, A. Zerbi, C. Aliaume, T. Do Chi, and C. Lesserre, *The Ecosystem Approach to Fisheries: Issues, Terminology, Principles, Institutional Foundations, Implementation and Outlook, FAO Fisheries Technical Paper No. 443* (Rome: FAO, 2003) at 6.

[36] Guidance may be found in the *FAO Guidelines on the Ecosystem Approach to Fisheries, FAO Technical Guidelines for Responsible Fisheries No. 4, Suppl. 2* (Rome: FAO 2003), and Decisions V/6 and VII/11 of the Conference of the Parties to the Convention on Biological Diversity which set out 12 guiding principles and rationales for implementing the ecosystem approach. The latter Decision also includes annotations to the 12 principles and implementation guidelines. Online: <http://www.biodiv.org/decisions/default.aspx?m=COP-07&id=7748&lg=0>.

[37] The need for adaptive management is emphasized in Decision VII/11 on the Ecosystem Approach, *ibid.*, Annotation to the rationale for Principle 6 (Ecosystems must be managed within the limits of their functioning) and Implementation guidelines to Principle 8 (Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term).

The Plan of Implementation also acknowledges the importance of ethics for sustainable development.[38] While the text provides no explanation or further guidance, the highlighting of ethics suggests the need to understand and address social justice issues.[39] Ensuring social acceptability and equitable allocation of resource access and benefits should be key objectives beyond traditional fixations on economic efficiency and environmental assessment.[40] Ethics also invites consideration of the appropriate human relationships with nature and the morality of technological choices.[41]

2. Constitutional Issues & Jurisdictional Cooperation

a) Division of Powers

As noted in Part 1, Articles 56 and 80 of the LOSC clearly provide Canada with exclusive jurisdiction over the production of energy from water, winds and currents within its 200 nautical mile EEZ, and beyond its 200 nautical mile limit to the outer limit of Canada's continental shelf.[42] The question of which level of government within Canada, federal or provincial, has jurisdiction in relation to tidal power production from a particular area of water and seabed is one of Canadian constitutional law.

Section 92A(1)(c) of the *Constitution Act, 1867*[43] provides the basis for provincial jurisdiction over the production of tidal power within the province. It provides that:

> 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.

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[38] *Supra* note 8 at para. 6.

[39] For a discussion of the social justice principle and the broad array of international sources, in the fisheries context, see Maarten Bavinck and Ratana Chuenpagdee, "Current Principles" in Jan Kooiman, Maarten Bavinck, Svein Jentoft and Roger Pullin (eds.), *Fish for Life: Interactive Governance for Fisheries* (Amsterdam: Amsterdam University Press, 2004) 250-257.

[40] For a discussion of these ethical considerations in relation to fisheries, see *FAO, Ethical Issues in Fisheries, FAO Ethics Series 4* (Rome: FAO, 2005).

[41] For a discussion of the tensions among ethical viewpoints, see David L. VanderZwaag and Jeffrey A. Hutchings, "Canada's Marine Species at Risk: Science and Law at the Helm, but a Sea of Uncertainties" (2005) 36 Ocean Devel. & Int'l L. 219 at 220.

[42] See discussion, above, at 1, "1982 Law of the Sea Convention."

[43] Formerly cited as *Constitution Act, 1867* (U.K.), 30 & 31 Vict., c. 3, reprinted in R.S.C. 1985, App. II, No. 5.

Under s. 92A each provincial legislature may make laws in relation to the export of electrical energy from the province to another part of Canada.[44] However, such laws cannot authorize or provide for discrimination in price or in supplies exported to other parts of Canada[45], and where such a law conflicts with a law of Parliament, the law of Parliament prevails to the extent of the conflict.[46] Each province may also make laws in relation to the raising of money by taxation and other modes from electrical generation sites and facilities in the province.[47]

The power allocated to the provinces by s. 92A, like all other provincial heads of power, is limited to the territory of a province. The limitation is made explicit through the use of the words "[i]n each province" at the beginning of s. 92A(1). The same words are used in the preamble to s. 92 of the *Constitution Act* which begins with the words: "In each Province, the Legislature may exclusively make Laws in relation to Matters coming within the Classes of Subject next hereinafter enumerated". These words make it clear that the foundation of provincial legislative jurisdiction under the constitution generally, and under 92A specifically, is territorial in nature.

Therefore, the determination of which waters fall within a province is critical to the issue of whether a province has jurisdiction over them for the purpose of production of tidal power. It is clear that the territory of a province includes all those areas which it brought into Confederation. With respect to New Brunswick and Nova Scotia, in particular, s. 7 of the constitution provides that "The Provinces of Nova Scotia and New Brunswick shall have the same limits as at the passing of this Act".[48] The difficulty is to determine which lands, including marine areas, a province brought into Confederation. Canada has claimed that the Bay of Fundy and the Gulf of St. Lawrence are internal historic waters of Canada.[49] However, the territorial status of these waters as between the federal government and the provinces has never been definitively determined.

The basis for a claim by New Brunswick and Nova Scotia that the waters and seabed of the Bay of Fundy belong to them will be discussed in some detail later. Whether the provinces of Nova Scotia and New Brunswick could claim that the waters of the Bay of Fundy fall within their provincial territories may depend on whether they can establish that they had an historic claim to these waters prior to Confederation so that the waters can be said to have formed part of the colonial territories before 1867. It is useful to note that the provisions of the federal *Oceans*

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[44] *Ibid.*, section 92A (2).

[45] *Ibid.*

[46] *Ibid.*, section 92A (3).

[47] *Ibid.*, section 92A (4).

[48] *Constitution Act, 1867, supra* note 43.

[49] See Canada, Department of External Affairs, Bureau of Legal Affairs, "Letter dated 17 December 1973" reprinted in (1974) 12 Can. Y.B. Int'l Law 219 and L.L. Herman, "Proof of offshore territorial claims in Canada (1982) 7 Dal L. J. 7.

Act[50] do not help to clarify the situation. Section 8(1) vests in the federal Crown title to the seabed and subsoil of the territorial sea and internal waters but only in areas outside of any province. It does not define which marine areas are within the provinces and which are not. If it had attempted to do so, its provisions might have been challenged by one or more of the provinces in any event.

In the absence of any precise definition in the constitution of the marine areas falling under the jurisdiction of the various provinces, at least two provinces have resorted to litigation as a means of resolving their constitutional jurisdictional disputes with the federal government. The decisions in these cases provide a useful starting point as to the principles and rules of law applicable to the determination of whether a specific marine area falls within the territory of a province. In the *B.C. Offshore Minerals Reference*[51] and in the subsequent *Georgia Strait Reference*[52], the Supreme Court of Canada adopted the position that the extent of provincial territory prior to Confederation, including marine areas and submerged lands, was to be determined in accordance with the general position in British law at the time of Confederation as to the territorial extent of the realm. In determining the position in British law at the time of Confederation the Court followed the finding in the British case of *R. v. Keyn*[53] that the realm, including any colony, ended at the low water mark, in the absence of a legislative enactment to the contrary, and subject to certain exceptions.

In the *B.C. Offshore Minerals Reference* the Supreme Court of Canada was asked five questions. The first three related to lands under the territorial sea seaward from the ordinary low water mark on the coast, outside of harbours, bays, estuaries and other similar inland waters. The Court was asked whether these lands were the property of Canada or British Columbia, and whether Canada or British Columbia had legislative jurisdiction over the lands. The last two questions related to the mineral and other natural resources of the seabed beyond the territorial sea, i.e., the resources of the continental shelf. The Court held that as between Canada and British Colombia, Canada had exclusive jurisdiction over the mineral resources of both the territorial sea and the continental shelf beyond. Although the law as reflected in *R. v. Keyn*, which the Court followed, recognised that the realm could be extended to include the territorial sea, such an extension required a positive exercise of jurisdiction by legislation. In the case of British Colombia there had been no legislative extension of the limits of the province at the time of its entry into Confederation and, therefore, the provincial boundary ended at the low water mark of the Pacific Ocean. It followed that the province could not have jurisdiction over the territorial sea or continental shelf. The case left unresolved the question of

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[50] S.C. 1996, c. 31.

[51] *Reference Re: Ownership of Off Shore Mineral Rights (British Columbia)*, [1967] S.C.R. 792 [*B.C. Offshore Minerals Reference*].

[52] *Reference re: Ownership of the bed of the Strait of Georgia and related areas*, [1984] 1 S.C.R. 388 [*Georgia Strait Reference*].

[53] (1876), 2 Ex. D. 63, adopted in the *Georgia Strait Reference*, *ibid.* at 400.

jurisdiction over internal (inland) waters adjacent to British Colombia because these had been excluded from the Court's consideration by the questions put to it.

Of significance to Nova Scotia and to any claim Nova Scotia and New Brunswick may have to jurisdiction over the Bay of Fundy was the Court's consideration in the *B.C. Offshore Minerals Reference* of the case of *R. v. Burt*.[54] In the *Burt* case the Appellate Division of the Supreme Court of New Brunswick had held that the seizure of a ship carrying a cargo of liquor approximately one and three quarters miles from the shore off Chance Harbour in the County of Saint John had occurred within the province of New Brunswick. The Court's decision was based on the fact that:

> By the Royal Instructions issued to Governor Carleton upon the separation of what is now the Province of New Brunswick from the Province of Nova Scotia, the southern boundary of the new Province was defined as "a line in the centre of the Bay of Fundy from the River Saint Croix aforesaid to the mouth of the Musquat (Missiquash) River" clearly indicating the claim of Great Britain at the time to the whole of the Bay of Fundy as a portion of her territory.[55]

In the *B.C. Offshore Minerals Reference*, the Supreme Court of Canada distinguished *Burt* on the basis that the place of seizure was within the Province of New Brunswick.[56] Implicit in the Supreme Court's consideration of the *Burt* case is the recognition that there may be bodies of water within the boundaries of provinces by express provision, as indeed was recognized explicitly in *Keyn*, and which would not be part of the territory as waters *inter fauces terrae*. Of course, the *B.C. Offshore Minerals Reference* was an advisory opinion only and is not technically binding, and Nova Scotia, like the other Atlantic provinces, has always maintained that due to its unique colonial history its territory does include various marine areas beyond the low water mark and not limited to waters *inter fauces terrae*. One author comments that "[o]wing to the different and sometimes unique historical development of the Canadian provinces from their colonial days, it is doubtful if this matter (ownership and jurisdiction over offshore resources) will be finally determined until each province has had its day in court."[57]

The *Georgia Strait Reference* is an example of a successful extended claim by a province to marine areas based on proof of an overt act of Britain prior to the entry of the former colony into Confederation. In the *Georgia Strait Reference* the province of British Colombia claimed that the seabed of the internal waters of the

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[54] (1933), 5 M.P.R. 112 (N.B.S.C. App. Div.).

[55] *Ibid.* at 117.

[56] *Supra* note 51 at 809.

[57] John Ballem, "Oil and Gas and the Canadian Constitution on Land and Under the Sea", in Law Society of Upper Canada, *The Constitution and the Future of Canada* (Toronto: R. de Boo, 1978) at 270.

Strait of Georgia, the Strait of Juan de Fuca, Johnstone Strait and Queen Charlotte Strait had been part of the former colonial territory and was therefore part of the territory that it brought into Confederation. The majority of the Supreme Court of Canada stated that:

> In order to succeed ... British Colombia must demonstrate that prior to Confederation either the lands and waters in question were "within the realm" as that term is used in *R. v. Keyn* or else that by some overt act Britain incorporated them into the territory of the Colony of British Colombia.[58]

British Colombia was successful in identifying an overt act of Britain incorporating the Straits into colonial territory, with the result that they were found to form part of the territory of the province. The overt act was the Act of Union of the Colony of Vancouver Island with the Colony of British Colombia, which by statute defined the boundary of the Province as being "to the West by the Pacific Ocean".[59]

As noted earlier, apart from proof of an overt act of Britain extending the territory of the former colony beyond the low water mark, another exception recognised by British law at the time of Confederation and accepted by the Court in the *Georgia Strait Reference* were "waters *inter fauces terrae* (within the jaws of the land), which the common law considered to be ... within the realm of England."[60] Waters within the jaws of the land include bays, estuaries, and some straits. However, the term is imprecise and its application to the waters and submerged lands of any marine area requires specific examination of its geography and legal history in order to determine whether it was part of the former colonial territory before Confederation. As a result, the exact limits of the territory of provinces such as Nova Scotia and the status of many coastal areas are uncertain and may require litigation to determine as noted above.

Some scholars have suggested that the Atlantic Provinces and Quebec could claim an historic three mile territorial sea from before Confederation in 1867 (in the case of the three Maritime Provinces and Quebec) and, in the case of Newfoundland, from before the inclusion of Newfoundland in 1949.[61] Ballem notes that "[u]nlike British Colombia, each of the Maritime Provinces can cite pre-Confederation statutes whereby jurisdiction over the territorial sea was exercised."[62] Another scholar has suggested that Nova Scotia may have a unique claim to areas seaward of the low water mark, including areas of the continental shelf, based on the terms of the

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[58] *Supra* note 52 at 400.

[59] 1866, 29 & 30 Vict., c. 67, s. 7 (Imp.)

[60] *Supra* note 52 at 397.

[61] See generally Kenneth Beauchamp, "Jurisdictional Problems in Canada's Offshore" (1973) Alta L. Rev. 11 at 431.

[62] *Supra* note 57 at 268.

Alexander Grant which established the territorial limits of the former colony.[63] However, cases concerning the offshore jurisdiction of Newfoundland, decided subsequent to the publication of several of these articles, underline the continuing uncertainty of the situation.

The *Newfoundland Continental Shelf Reference*[64] was a reference by the province of Newfoundland to the Newfoundland Court of Appeal concerning jurisdiction over the resources of the continental shelf adjacent to the coast of Newfoundland. The Court of Appeal held that the territorial sea, which was three nautical miles at the time, formed part of the former colonial territory of Newfoundland prior to Confederation and therefore remained part of the province. In an Appeal to the Supreme Court of Canada, commonly referred to as the *Hibernia Reference*[65], the Supreme Court decided that the federal government had jurisdiction over the mineral resources of the continental shelf. The Court found that the continental shelf could not have formed part of the territory of the colony of Newfoundland prior to Confederation because international law at the time had not recognised any rights of coastal states to the shelf.

The legal concept of the continental shelf had not gained wide acceptance in international law until some time after Newfoundland's entry into Confederation in 1949. The issue of the territorial sea was not dealt with and nothing said by the Court, or implied by its reasoning, was inconsistent with the ruling by the Newfoundland Court of Appeal that the territorial sea, to the extent of three nautical miles, formed part of the territory of Newfoundland. One would therefore have assumed that the ruling of the Newfoundland Court of Appeal concerning the jurisdiction of Newfoundland over the three mile territorial sea remained in place. Yet in a subsequent Newfoundland Court of Appeal decision that Court reversed itself on this point, finding that the Supreme Court of Canada in the *Hibernia Reference* had assumed that the territory of the province ended at the low water mark.[66]

Despite the uncertainty inherent in the situation and the doubt cast by the decisions in the *Hibernia Reference* and the *Ace-Atlantic Container Express Case* on some of the confident assertions of scholars as to the sound bases for assertions by the Atlantic Provinces and Quebec over the territorial sea or the continental shelf, these cases would not seem to be directly applicable to the Bay of Fundy. Moreover,

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[63] Edward C. Foley, "Nova Scotia's Case For Coastal and Offshore Resources" (1982) 13 Ottawa L. Rev. 281. At note 17 of the article the author admits that "[i]f it could be demonstrated that the broad grants of offshore jurisdiction granted by the British were not valid in international law, Nova Scotia's claims would fail."

[64] *Re Mineral and Other Natural Resources of the Continental Shelf off Newfoundland* (1983), 145 D.L.R. (3rd) 9 (Nfld. C.A.) [*Newfoundland Continental Shelf Reference*].

[65] *Reference re: Seabed and subsoil of the continental shelf offshore Newfoundland*, [1984] 1 S.C.R. 86 [*Hibernia Reference*].

[66] *Ace-Atlantic Container Express Inc. v. The Queen* (1992), 92 D.L.R. (4th) 581 at 601 (Nfld. C.A.) [*Atlantic Container Express Case*].

it does appear that Nova Scotia and New Brunswick have a strong historical and legal claim to the Bay of Fundy as part of their territories based on the application of the law as reflected in the *Keyn* case and adopted and applied in the *B.C. Offshore Minerals Reference* and the *Georgia Strait Reference.*

The evidence required to establish ownership of marine areas is historical, consisting of documents such as early statutes, maps, colonial office documents, treaties, and colonial charters. As mentioned previously Canada has articulated clearly a claim to the Bay of Fundy as part of the inland waters of Canada[67]. This claim has not been challenged in recent times. The basis for this claim has been explored in detail in an article by G.V. La Forest.[68] La Forest notes that "[f]rom the beginning, Great Britain took the position, both in its international and municipal dealings, that the bays in the Atlantic region were integral parts of the territory of the colonies; there are numerous examples of colonial exercise of jurisdiction over these bays".[69] La Forest goes on to discuss the evidence. Amongst the evidence he cites are[70]

- treaties dating as far back as 1686;
- pre-confederation legislation of the British Parliament;
- hovering acts passed by New Brunswick, Nova Scotia and P.E.I. prior to Confederation;
- the terms of the grant from King James to Sir William Alexander establishing the colony of Nova Scotia, which originally included the territory that is now New Brunswick, and which included within the grant the waters of the Bay of Fundy;
- Governors Commissions from 1763, 1765 and 1773 including the whole of the Bay of Fundy within the boundaries of Nova Scotia;
- the Commission of New Brunswick's first Governor in 1786 describing the boundary between New Brunswick and Nova Scotia as a line in the centre of the Bay of Fundy; and
- the Royal Commission to Lord Elgin of September 1, 1846.

He also notes that New Brunswick and Nova Scotia brought these same boundaries into Confederation and that there are a number of post-Confederation statutes of New Brunswick and Nova Scotia which seem to treat the Bay as territorial.[71] He points out as well that when Russian fishing boats began fishing in the Bay of Fundy in 1962 outside the three mile territorial sea and the federal government failed to take action to exclude them, Premier Robichaud made it very

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[67] *Supra* note 49.

[68] Gerald V. La Forest, "Canadian Inland Waters of the Atlantic Provinces and the Bay of Fundy Incident" (1963) 1 Can. Y.B. Int'l Law 149.

[69] *Ibid.* at 150.

[70] *Ibid.* at 150-56.

[71] *Ibid.* at 156.

clear to the federal government that the Bay of Fundy was an integral part of the provinces of New Brunswick and Nova Scotia.[72] The federal government subsequently made the U.S.S.R. aware of Canada's claim that the waters of the Bay of Fundy were part of Canada's national waters and the U.S.S.R. agreed to respect this position.[73] There appears to have been no rejection at the time by the federal government of Premier Robichaud's assertion that the Bay of Fundy was part of the territory of New Brunswick and Nova Scotia. However, this point should be checked further.

The evidence discussed by La Forest suggests a persuasive case not only for the Bay of Fundy being an historic bay which is part of the inland waters of Canada, but also for the Bay having formed part of the colonial territories of New Brunswick and Nova Scotia prior to Confederation, as a consequence of multiple overt acts of Britain, and, as a result, having been part of the territory that these two provinces brought into Confederation. Consequently, these provinces would have jurisdiction under s. 92A of the constitution over tidal power production in the Bay of Fundy.

It would obviously be helpful to know whether the federal government has ever denied that the Bay of Fundy forms part of the territories of New Brunswick and Nova Scotia. If not, their claims may simply be accepted by the federal government. If the federal government is not prepared simply to accept their position, then litigation might be necessary. On the other hand, potential litigation between Nova Scotia and the federal government concerning jurisdiction over the mineral resources of the continental shelf adjacent to Nova Scotia was avoided in the 1980s as a result of the conclusion of the Canada-Nova Scotia Offshore Accord[74] and, despite the holding of the Supreme Court of Canada in the *Hibernia Reference*, a similar accord was reached between the federal government and the province of Newfoundland.[75] These agreements are an example of cooperative federalism giving management of the oil and gas resources of the continental shelf of Canada off the coasts of Nova Scotia and Newfoundland to joint federal-provincial management boards and sharing revenue with the provinces concerned. The management arrangements established under these agreements and the legislative frameworks are discussed later in this article. Given the uncertainty of the territorial extent of the province of Nova Scotia, this cooperative model may be one to consider in relation to tidal power developments off the shores of Nova Scotia.

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[72] *Ibid.* at 149

[73] *Ibid.* at 150.

[74] Signed on August 26, 1986. See *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*, S.C. 1988, c. 28.

[75] Signed on February 11, 1985. See *Canada-Newfoundland Atlantic Accord Implementation Act*, S.C. 1987, c. 3.

b) Private Property and Public Rights[76]

Development of a tidal power project will require that an operator be given some security of tenure over a particular area of submerged lands, whether as freehold or, as is more likely, under some form of lease. Furthermore, it is possible that there will be existing common law rights over the area which must be addressed.[77] The examination in this section is limited to tidal waters, which it is assumed will include waters that fall both inside and outside the province, but extending no farther than internal waters and the territorial sea of Canada.[78]

The fundamental characteristics of the property regime in tidal waters may be summarized as follow. First, it is clear that the Crown (either federal or provincial, depending on the territorial status of the area) holds *proprietary* rights in any ungranted submerged lands. Such areas may be validly leased or otherwise assigned to private interests by the appropriate Crown.[79]

Second, the Crown rights, and therefore any private rights granted by the Crown, are subject to the overriding *public* rights of navigation and fishing in tidal waters, as enshrined in the *Magna Charta* and long-recognized in Canadian law.[80] The resulting situation is one in which there is a bifurcation of *proprietary* and *use* rights (navigation and fishing) over the same area.

The third critical point is that the public rights of fishing and navigation can be regulated, even to the point of removal, so as to protect the interests of a private grant. Such regulation, however, requires the authority of explicit *legislative* action, and may not be carried out by the Crown acting in its prerogative.[81] Additionally,

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[76] Portions of the following discussion summarize a longer review of the private property issues; in the context of aquaculture, see Phillip Saunders and Richard Finn, "Property Rights in Canadian Aquaculture: A Principled Approach" in David VanderZwaag and Gloria Chao, eds., *Aquaculture Law and Policy: Towards Principled Access and Operations,* (London: Routledge Press [forthcoming in 2006]). See also the discussion of private rights in P. Saunders, "Marine Property Rights and the Development of Jurisdictional Regimes: Private Rights, Communal Tenure and State Control" in Daniel Vickers, ed., *Marine Resources and Human Societies in the North Atlantic Since 1500* (St. John's: ISER, 1997).

[77] This issue is not addressed further here, but should be kept in mind. Existing freehold or leasehold rights within the province may need to be privately purchased or expropriated in order to make possible an incursion on some lands.

[78] As is addressed above, any areas of marine space which were within a province at Confederation came into the union as part of that province, and remain so.

[79] C. D. Hunt, "The Public Trust Doctrine in Canada" in John Swaigen, ed., *Environmental Rights in Canada* (Toronto: Butterworths, 1981) at 153.

[80] See generally the following statement by Viscount Haldane, L.C., in *A.G. British Columbia v. A.G. Canada (Re. B.C. Fisheries)* (1913), 15 D.L.R. 308 (P.C.) at 317:

> Since the decision of the House of Lords in *Malcomson v. O'Dea*, 10 H.L.C. 493, it has been unquestioned law that since *Magna Charta* no new exclusive fishery could be created by Royal grant in tidal waters, and that no public right of fishing in such waters, then existing, can be taken away without competent legislation.

[81] *Ibid.*

proprietary rights over exclusive fisheries may be recognized, but only in the case of pre-*Magna Charta* grants (not an issue in Canada), or in the case of new grants made under an explicit *legislative* authority.[82]

What are the implications of this legal structure for the granting of private rights over marine areas for the purposes of a tidal power project? The first, and most obvious, is that the grant of leasehold or other rights can only be made by the appropriate Crown. That is, the provincial and federal Crowns are separate and distinct, and which Crown holds the proprietary rights over an area, and therefore has the capacity to grant it, is determined by the constitutional status of the waters. If it is assumed that some of the relevant target areas are within the province and some outside (and thus federal), it may be necessary for both Crowns to have the capacity to act in this regard.

The second requirement for unimpeded operation of a project is the ability of the federal and/or provincial governments to act so as to remove or appropriately limit the public rights of navigation and fishing in the area of a project, in order to avoid private actions against the operators for creation of a public nuisance.[83] For navigation the situation is straightforward. The constitutional authority over navigation rests with the federal Parliament, and the *Navigable Waters Protection Act*[84] provides the authority to issue permits for the development of a facility which obstructs navigation, whether inside or outside the province.

With respect to the public right of fishing, however, the situation is less clear. The power to permit an interference with the public right of fishing in tidal waters rests with the federal Parliament, whether inside or outside of a province, by virtue of the federal power over fishing.[85] It is conceivable, however, that the

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[82] See, generally the following description of the law in *Belyea v. City of St. John* (1920), 51 D.L.R. 495 (N.B.S.C. App. Div.) at 497:

> The settled law of the realm appears to be that...[w]ithin the territorial waters, subject to the ebb and flow of the tides, the public, being subjects of the realm, are entitled to fish, except where the Crown, or some subject of the Crown has gained a propriety exclusive of the public right, or Parliament has restricted the common law rights of the public....

[83] Public nuisance is the appropriate claim where such public rights are violated; if pre-existing private grants are affected, the action would be in trespass. For a comparison of the interaction of these two actions in one case, see *Esson v. Wood* (1884), 9 S.C.R. 239. A wharf built over privately held submerged lands in Halifax harbour was demolished by the defendant, who asserted that the wharf, albeit on the land held by its owner, obstructed the defendant's ability to navigate to his own wharf. The claim of trespass against the defendant was denied, in that the act of destruction was regarded as the abatement of a public nuisance.

[84] R.S.C. 1985, c. N-22.

[85] See *Re B.C. Fisheries*, *supra* note 80 at 317-18. In this case it was found that the Provincial legislature did not have the power to make grants of exclusive fisheries in tidal waters within the Province, as the public right of fishing in tidal waters was not a matter of proprietary rights:

> Neither in 1867, nor at the date when British Columbia became a member of the Federation, was fishing in tidal waters a matter of property. It was open equally to all the public, and, therefore, when, by s. 91, sea coast and inland fisheries were

Fisheries Act, despite its broad discretionary powers, might not provide the *explicit* legislative authorization necessary for the Crown to act so as to remove the public right of fishing in this manner, even though it clearly provides for permitting of the physical works and consequent alteration of fish habitat.[86] For the purposes of this brief examination, however, it is assumed that if the *Fisheries Act* does not provide sufficient legislative authorization at present, it could be easily amended to do so.

The regulatory power over the public rights of navigation and fishing, therefore, is fully within federal authority, whether inside or outside of the province. With respect to the first requirement stated above, the power to grant the private rights will either be federal or provincial, depending on the status of the affected waters. As a result, the combination of required legislative powers can be summarized as follows:

- Within provincial waters, the province has the power to grant private rights, including leasehold rights, over the submerged areas of land. Outside the province, this power is purely federal.
- Within the province, any provincial grant is still subject to federal *regulatory* control, whether by a permit to alter or damage fish habitat, or a permit to construct works in navigable waters. Outside the province, this regulatory power continues, of course.
- Whether inside or outside the province, private claims for the obstruction of the public rights of fishing and navigation can only be prevented by federal action, supported by explicit *legislative* authority to abridge or remove those rights.

The implications of this situation for the development of a legislative approach to the property rights required for tidal power seem clear. If one integrated approach is desirable, it should apply to both federal and provincial waters. This can only be accomplished by the enactment of mirror legislation at both levels. If it is left to the province alone, no grants of proprietary rights could be made over federal waters outside the province. On the other hand, the federal government, despite its extensive regulatory powers, has no authority to grant proprietary rights over such areas within the province.[87] Action is potentially required by both, assuming that a project involves the use of any provincial waters.

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placed under the exclusive legislative authority of the Dominion Parliament, there was in the case of fishing in tidal waters nothing left in the domain of the provincial legislature. The right being a public one, all that could be done was to regulate its exercise, and the exclusive power of regulation was placed in the Dominion Parliament.

[86] *Fisheries Act*, R.S.C. 1985, c. F-14, s. 35.

[87] It has long been accepted that the Federal power to regulate cannot be used so as to usurp the Provincial proprietary jurisdiction, so as to "to deprive the Crown in right of the Province or private persons of proprietary rights where they possess them." *Attorney-General for Canada v. Attorney-General for Quebec (Re Quebec Fisheries)* (1920), 56 D.L.R. 358 at 370.

It might be argued that the problem could be addressed by delegation of powers to the provincial government, an approach which is familiar in Canadian law. The problem, however, is that only administrative, and not legislative authority can be delegated.[88] The granting of rights outside the province, and in particular the interference with the public right of fishing, could *only* be accomplished by federal legislative action, and could not otherwise be delegated to the province as an administrative matter. It is possible that the delegation powers in s. 9 of the *Oceans Act* could be used to authorize the application of the relevant provincial laws outside the territorial bounds of the province,[89] but this could have the disadvantage of operating under a section which offers no specific guidance, and which does not *explicitly* deal with the restriction of the public right of fishing, a non-delegable, legislative power.

In sum, the most practical approach to the private rights issue in the development of tidal power is for both levels of government to enact similar legislation addressing both the grant or rights to operators and the corollary limitation of public rights. Depending on the interests of the two levels of government, this scheme could involve delegation of the administrative operation of the scheme to either the federal or provincial government by legislative action.

3. The Provincial Regulatory Framework

Any consideration of governance options for tidal power will have to take into account the existing regulatory framework. Some (or all) of the complex framework already in place could apply to tidal projects. A detailed assessment of this framework is beyond the scope of this article, but a brief overview of key provincial regulatory requirements is provided as background.

Not surprisingly, given the jurisdictional issues discussed in Part Two, there is little indication of the current regulatory regime having been applied to marine waters off Nova Scotia. Nevertheless, due to the strong claim for provincial

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[88] See generally *A.G. Nova Scotia v. A.G. Canada*, [1951] S.C.R. 3. Any delegation of legislative power by way of an agreement would essentially be an attempt to amend the constitutional structure without following the proper procedure for amendment.

[89] Section 9 of the *Oceans Act* provides as follows:

> 9. (1) Subject to this section and to any other Act of Parliament, the laws of a province apply in any area of the sea
>
> > (a) that forms part of the internal waters of Canada or the territorial sea of Canada;
> >
> > (b) that is not within any province; and
> >
> > (c) that is prescribed by the regulations.
> >
> > ...
>
> (3) For the purposes of this section, the laws of a province shall be applied as if the area of the sea in which those laws apply under this section were within the territory of that province.

jurisdiction over areas such as the Bay of Fundy, and the range of potential onshore implications of tidal projects, any future governance regime must consider current provincial legislation and regulations. To that end, some of the key provincial regulatory provisions with relevance for tidal power are briefly summarized below. Their application, however, depends on how the jurisdictional issues are eventually resolved.

Nova Scotia Environment Act [NSEA][90]

As a starting point, the environmental assessment (EA) process under Part IV of the *NSEA* could apply to tidal energy projects in the Bay of Fundy pursuant to s. 31, as such projects generally fall within the definition of "undertaking" according to s. 3(az) of the Act. At present, tidal projects are not listed as Class I or II undertakings in Schedule A of the regulations, suggesting regulatory amendments may be needed to bring tidal projects under the provincial EA process.[91] This would not be unusual, as undertakings dealing with electricity generation from wind energy were added in 2003 in response to Nova Scotia's emerging wind power sector.

Section 33 requires undertakings to be registered with the Minister in accordance with the Environmental Assessment Regulations. Once Part IV applies, the project cannot proceed until approval is granted by the Minister.[92] Section 47 of the *NSEA* would allow for joint assessments if the undertaking is also subject to the environmental assessment or other review requirements of a municipality or the Federal Government (as discussed below, a likely scenario for this project). If such is the case, the Minister can enter into an agreement with the other party to carry out a joint assessment.[93] According to federal and provincial officials, a memorandum of understanding between the Canadian Environmental Assessment Agency and the Nova Scotia Department of the Environment and Labour is under development.

Further provisions of the *NSEA*, Parts V and VI, deal with approvals and releases from various "activities" in the province. These mechanisms, used effectively, can ensure the implementation of conditions and mitigation measures identified during the environmental assessment of a particular project. While tidal power projects does not meet the description of "activities" currently listed under Part 9 of Division V of the regulations, the Minister would have the discretion under Division VI to add tidal power projects to the list.[94] Alternatively, the regulations could be amended to include tidal power projects.

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[90] S.N.S. 1994-95, c. 1 [*NSEA*].

[91] N.S. Reg 26/95 as am. by N.S. Reg 44/2003, Schedule "A" – Class I and Class II Undertakings. There are some items on the list that arguably are sufficiently broad to include tidal power projects.

[92] *Supra* note 90, s. 32(1).

[93] *Supra* note 90, s. 47(1).

[94] N.S. Reg. 47/95 as am. by N.S. Reg. 128/2005, s. 29(1). Note that freshwater aquaculture cages are designated under s. 5(1)(k).

Fisheries and Coastal Resources Act [FCRA][95]

Depending on the precise location of the tidal resource to be developed, there is potential for conflict with existing property interests. One such potential conflict is with aquaculture facilities. At present, leases for aquaculture operations are issued by the Minister pursuant to the *FCRA*.[96] Under s. 52(1)(a) "A lease shall be granted for a specific geographic area...". The initial term of the lease is for ten years "with a right of renewal by the licensee, at the Minister's option, for further terms of five years each".[97] Under s. 51(3) or s. 52(2)(g) the lease can be terminated in case of violation of any of its conditions.

There is clearly some potential for conflict between aquaculture and tidal interests. Sections 52(3) and 44(3) both acknowledge the aquaculture leaseholder's exclusive right to the water column and sub-aquatic land described in the lease. There is no provision to require a grantee to change the location of an approved aquaculture operation. There are provisions allowing the Minister to impose certain conditions and restrictions on a lease,[98] to terminate a lease in the event of a breach of terms or conditions of the lease,[99] and to decide between two competing aquaculture lease applications. There is, however, no explicit Ministerial discretion to move an aquaculture lease in the event of competing interests between aquaculture and other marine interests.

Obviously, more specific data is required to determine actual potential for conflict between feasible tidal power areas and existing aquaculture leases. Conflict may not materialize if tidal energy is developed only in high current areas that are unsuitable for aquaculture projects. A careful exploration for conflict should be undertaken for other existing and potential uses of the Bay of Fundy, such as fishing, tourisms, recreation, biodiversity, and potential for other resource extraction.

Endangered Species Act [ESA][100]

The key obligations under the *ESA* apply only to "listed" endangered or threatened species. Interference with a listed species is prohibited unless specifically authorized, permitted, or approved in the *ESA*. Sections 13 and 14 of the Act include the key provisions on prohibitions and permits with respect to listed species.

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[95] S.N.S. 1996, c. 25 [*FCRA*].

[96] *Ibid.* at Part V.

[97] *Ibid.* at s. 52(2)(a).

[98] *Ibid.* at s. 56.

[99] *Ibid.* at ss. 52, 58.

[100] S.N.S. 1998, c. 11 [*ESA*]. Other provincial statutes may also be relevant depending on where tidal power related infrastructure, such as transmission lines or service infrastructure, makes landfall. They include the *Provincial Parks Act*, R.S. 1998, c. 367, the *Beaches Act*, R.S. 1998, c. 32. and the *Wilderness Areas Protection Act*, R.S. 1998, c. 27.

Listed species that could be affected by tidal power development include the piping plover (*Charadrius melodius*), the thread-leaved sundew, and the eastern mountain avens (two species of flora indigenous to Southwestern Nova Scotia bogs and wetlands). The application of the Act to date ends at the low water mark, as leatherback turtles, right whales and other endangered species found in the Bay of Fundy are not listed provincially.[101]

Energy Resources Conservation Act [ERCA][102]

The purposes of this Act suggest that it could play a role in the strategic development of Nova Scotia's tidal power. The Act aims to regulate and ensure efficient practices in the exploration for and development, production, transmission and transportation of energy resources[103]. It provides for the economic, orderly and efficient development of energy resources in the public interest[104]; and the appraisal of reserves, production capacity of energy resources[105]; the need for energy resources and of markets outside the Province.[106]

It is interesting to note that Section 4 claims jurisdiction beyond the low water mark. It states that, "[t]his 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". Substantively, if it is applied to tidal power, the *ERCA* authorizes the creation of regulations pertaining to development of energy resources in Nova Scotia. To date this legislative authority has been employed primarily to regulate the offshore and onshore oil and gas sector.

Electricity Act[107]

This Act is not yet proclaimed in force; however, draft regulations have been developed. The Electricity Act will change the landscape of Nova Scotia's electricity sector. First, it authorizes the creation of regulations regarding "renewable energy standards" which is expected to be a Renewable Portfolio Standard (RPS) system mandating a certain proportion of electricity supplied must

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[101] Land-based species are referenced here as they are potentially affected by the landfall and onshore components of tidal power projects, such as the transmission line. For the most up-to-date listing information under the ESA in Nova Scotia as established by the Species at Risk Working Group (pursuant to s. 9), visit: http://www.gov.ns.ca/natr/ wildlife/endngrd/specieslist.htm.

[102] R.S.N.S. 1998 c. 147, s. 1; S.N.S. 2000, c. 12.

[103] *Ibid.* at s. 3(b).

[104] *Ibid.* at s. 3(d).

[105] *Ibid.* at s. 3(e).

[106] *Ibid.* at s. 3(f).

[107] Bill 87, *An Act Respecting Electricity*, 1st Sess., 59th Gen. Assembly, Nova Scotia, 2004 (assented to 18 October 2004), S.N.S. 2004 c. 25 (not yet in force).

be from renewable energy. There is some indication that the RPS may be approximately 10% by 2010. Second, the Act mandates Nova Scotia Power Incorporated (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. For a tidal project, this means it can be privately or publicly owned and privately or publicly operated. Moreover, the electricity generated could be sold to NSPI or any of the municipal suppliers, all of whom would be mandated to comply with the RPS.

Public Utilities Act [Utilities Act][108]

This act deals primarily with the procedures of the Utility and Review Board (UARB) and its regulatory powers over NSPI. The *Utilities Act* may apply in a number of ways depending on the specifics of the construction process, and 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 2004 UARB rate hearings, the Board found that, pursuant to the *Utilities Act* it is not authorized to consider the appropriateness of rates offered by NSPI to independent energy producers.[109] This would suggest that NSPI, and not the government, controls the price to be paid to private producers (at least within the province). Reflecting tidal potential in the RPS by increasing the target to a level attainable only with tidal power might be an indirect way to influence the price NSPI would be willing to pay for tidal power. An alternative would be a feed-in tariff approach, which would in effect allow the province to set the price to be paid by NSPI for tidal power produced.

4. The Federal Regulatory Framework

Regardless of the jurisdictional issues related to the territory of the province discussed above, 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 any Fundy tidal power development, most notably the Canadian Environmental Assessment Agency, the National Energy Board, the Department of Fisheries and Oceans, Transport Canada and Natural Resources Canada. The following is a brief overview of federal regulatory regimes that are likely to be relevant.

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[108] R.S.N.S. 1998, c. 380 [*Utilities Act*].

[109] 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* (17 December 2004) 2004 NSUARB 118, online: <http://www.canlii.org/ns/cas/nsuarb/2004/2004nsuarb118.html>.

Fisheries Act [*FA*][110]

The *Fisheries Act* will be triggered by impact on fish or fish habitat, such as water pollution resulting from the lifecycle of tidal projects. Direct harm, such as fish kill from the turning of the turbines requires authorization under Section 32. The project may also bring into play 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 permissible if authorization is obtained (s. 35(2)). It should be noted that s. 35 is a trigger under the *Canadian Environmental Assessment Act* (*CEAA*).[111] Section 36(3) will also apply if the construction, operation or decommissioning of the project involves the deposit of a deleterious substance into waters frequented by fish. Finally, s. 37 allows the Minister to require the submission of certain information to be provided in case of an alteration, disruption or destruction of fish habitat or a deposition of a deleterious substance.

Canadian Environmental Assessment Act [*CEAA*][112]

Tidal energy projects in the Bay of Fundy meet the definition of "project" under the *CEAA* and would likely involve one or more decisions under s. 5. For example, if the federal authority grants a permit or license pursuant to a federal statute[113] then an environmental assessment (EA) will be triggered pursuant to s. 5(1)(d). 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,[114] s. 5(1)(c) will similarly trigger an EA. Section 5(1)(b) triggers an EA if there is federal funding involved in the project and s. 5(1)(a) acts as a trigger if the federal authority is the proponent of the project. As discussed above, there are opportunities for joint environmental assessment processes involving the federal and provincial governments.

Species at Risk Act [*SARA*][115]

SARA sets out various prohibitions in order to protect listed endangered and threatened species, and the prohibitions could catch future tidal power projects depending on the technology, location and scale of impact. Section 32(1) prohibits persons from killing, harming, harassing, capturing or taking an individual of a wildlife species listed as endangered or threatened, while section 33 prohibits persons from damaging or destroying the residence of one or more individuals of

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[110] R.S.C. 1985, c. F-14 [*FA*].

[111] S.C. 1992, c. 37 [*CEAA*].

[112] *Ibid.*

[113] This trigger is linked to the law list regulations under *CEAA*, which list federal decision making triggers for a federal environmental assessment under *CEAA*. Most likely so-called regulatory triggers for tidal power would be the *FA*, *NWPA*, and *SARA*. See *CEAA Law List Regulations* S.O.R./94-636.

[114] This may include the granting of rights to develop tidal power in areas within federal territorial jurisdiction.

[115] S.C. 2002, c. 29 [*SARA*].

such listed species. Section 58(1) prohibits the destruction of critical habitat of any listed endangered or threatened species.

However, various ways are provided under SARA for activities to be exempted from the prohibitions. The exceptions include where a person engaging in an activity affecting a listed wildlife species obtains an incidental harm permit pursuant to s. 73 and where a person is engaging in activities permitted by a recovery strategy or action plan (s. 83(4)).

Various marine-related species listed in Schedule 1 of SARA have potential to be affected by tidal power projects. Endangered species include the blue whale (Atlantic population), the North Atlantic right whale, the leatherback sea turtle, and Atlantic salmon (Inner Bay of Fundy populations). Threatened fish species include northern wolffish and spotted wolffish.

SARA also imposes special environmental assessment requirements that might apply to tidal power projects. Pursuant to s. 79 of SARA, a person proposing a project subject to federal environmental assessment review must identify the adverse effect of the project on listed wildlife species. If the project is carried out, the person must ensure that measures are taken to avoid or lessen adverse effects and to monitor them.

Navigable Waters Protection Act [*NWPA*][116]

The *NWPA* will apply because the Bay of Fundy is a navigable water. Pursuant to s. 5, a permit is required for a work built or placed in, on, over, under, through or across navigable water. However, if the project is not considered to "interfere substantially with navigations", it may be an exception to the approval requirement under s. 5(2). It should be noted that Ministerial approval under s. 5(1)(a) is a *CEAA* trigger.

National Energy Board Act [*NEBA*][117]

The National Energy Board (NEB) is generally responsible for energy projects of an interprovincial or international nature. Tidal power projects in the Bay of Fundy, if they cross a provincial boundary, extend beyond the territory of a province, or include an interprovincial[118] or international[119] power line, a certificate[120] or permit[121] must be obtained from the National Energy Board pursuant to Part III.1 of the *NEBA*.

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[116] R.S.C. 1985, c. N-22 [*NWPA*].

[117] R.S.C. 1985, c. N-7 [*NEBA*].

[118] *Ibid.* s. 58.4 as am. by S.C. 1990, c. 7, s. 23.

[119] *Ibid.* s. 58.1 as am. by S.C. 1990, c. 7, s. 23.

[120] *Ibid.* s. 58.16 as am. by S.C. 1990, c. 7, s. 23.

[121] *Ibid.* s. 58.11 as am. by S.C. 1990, c. 7, s. 23.

If electricity generated from the tides of the Bay of Fundy is to be exported to New England, a certificate of public convenience will 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".[122] 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".[123]

Complexities regarding overlapping authority or interests between provincial powers and the NEB have, in some cases, been dealt with through Memoranda of Understanding. For example, provincial energy bodies in both Alberta and British Columbia have entered into agreements with the NEB. Likewise, the NEB, the Offshore Petroleum Boards for Newfoundland, Labrador and Nova Scotia (C-NLOPB, C-NSOPB), together with executives from the Newfoundland, Labrador and Nova Scotia Departments of Energy and Natural Resources Canada, have formed the Oil and Gas Administrators Advisory Council (OGAAC) to efficiently deal with issues in their sector.

Oceans Act [OA][124]

The federal *Oceans Act*, an effort to ensure a more integrated and coordinated approach to ocean governance, came into force in January, 1997. An oceans strategy has been prepared to provide a policy framework for the implementation of the Act. This was followed up with Canada's Oceans Action Plan in 2005. The *Oceans Act* is potentially relevant for tidal development projects in a number of ways.

The Act formally establishes various maritime zones in accordance with the Law of the Sea Convention. Limits for internal waters, the territorial sea, the contiguous zone, the exclusive economic zone, and the continental shelf are all determined under the *Oceans Act*. The Act is an important implementation tool for international obligations referred to in Part 1, and it is relevant to jurisdictional issues discussed in Part 2.

The Act provides for the establishment of marine protected areas under the leadership of the Minister Fisheries and Oceans. It is anticipated that this will take place in coordination with Environment Canada and Parks Canada who have responsibility for Marine Wildlife Areas and National Marine Conservation Areas respectively. To date, five marine protected areas have been designated under the Act, but none so far in coastal waters close to Nova Scotia that are likely to be of interest for tidal development.

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[122] *Ibid.* s. 58.35 as am. by S.C. 1990, c. 7, s. 23.

[123] *Ibid.* s. 58.14 as am. by S.C. 1990, c. 7, s. 23.

[124] S.C. 1996, c. 31. For more information on the *Oceans Act*, integrated planning initiatives, and marine protected areas, see online: Canadian Department of Fisheries and Oceans <http://www.dfo-mpo.gc.ca/>.

In addition, the *Oceans Act* has been the vehicle for regional integrated planning processes. Five large ocean management areas have been identified for integrated management initiatives. One of these, the Eastern Scotian Shelf Integrated Management (ESSIM) initiative covers the eastern coastal shelf, an area with some tidal power potential. There are also smaller scale management initiatives under way in designated coastal management areas. To date, no large or coastal management area has been formally designated within the Bay of Fundy.

5. Other Jurisdictional Experiences

Pointing to "model legislation" from other jurisdictions on how to encourage and control future tidal power developments is not possible in light of the fledgling nature of the tidal power industry[125] and the traditional focus of almost all countries towards regulating offshore mineral developments rather than offshore energy potentials. For example, many commentators have lamented over the United States' lack of comprehensive legislation and programs for addressing offshore renewable energy, especially wind farms.[126]

However, a number of national and regional approaches to offshore renewable energy stand out. The European Union (EU), Northwest Europe and the United Kingdom (UK) have shown leadership in supporting offshore renewable energy developments and working through the complex array of related law and policy issues. The United States, while lacking a comprehensive and integrated approach to offshore renewables, provides a useful example of the key regulatory challenges that must be faced and the important role supportive federal legislation may play.

United Kingdom

Of all foreign jurisdictions the UK may be the most relevant to the burgeoning tidal power sector in Nova Scotia. The UK, similar to Nova Scotia, employs a quota-based mechanism in their renewable energy regime.[127] As well, the UK is rich in "offshore" energy resources, such as tidal energy.[128] Finally, for obvious historical

[125] For a global synopsis of the emerging tidal power sector and a review of technologies, see Godfrey Boyle ed., *Renewable Energy: A Power for a Sustainable Future*, 2d ed. (New York: Oxford University Press, 2004) 230-241. See also Roger H. Charlier, "A Sleeper Awakes: Tidal Current Power" (2003) 7 Renewable and Sustainable Energy Reviews 515.

[126] See generally John A Duff, "Offshore Management Considerations: Law and Policy Questions Related to Fish, Oil, and Wind" (2004) 31 B.C. Envtl. Aff. L. Rev. 385 and Carolyn S. Kaplan, "Congress, the Courts, and the Army Corps: Siting the First Offshore Wind Farm in the United States" (2004) 31 B.C. Envtl. Aff. L. Rev. 177.

[127] The UK target is for 10% of electricity generation to come from renewable energy by 2010 and 20% by 2020. See United Kingdom, Department of Trade and Industry (DTI), *Our Energy Future – Creating a Low Carbon Economy*, (Norwich, UK: TSO, 2003) at 59. See also K. N. Scott, "Tilting at Offshore Windmills: Regulating Wind Farm Development Within the Renewable Energy Zone" (2005) 18 J. Envtl. L. 89.

[128] See United Kingdom, Department of Trade and Industry (DTI), *Future Offshore: A Strategic Framework for the Offshore Wind Industry* (Norwich, UK: DTI, 2002).

events there exists a close connection in legal tradition between the UK and Canada. As such, the UK's approach to their "marine energy" sector is discussed in some detail below.

The energy sector is shaped by the 2004 *Energy Act.*[129] Key aspects of the Act relevant to marine renewable energy include provisions regarding licensing and consents,[130] navigation and aviation,[131] decommissioning offshore projects,[132] "safety zones" around renewable energy installations,[133] civil and criminal law applicable to renewable energy installations,[134] and authority to declare "Renewable Energy Zones" (REZ) outside the territorial sea.[135] The Act also mandates the Secretary of the State to publish an annual report regarding activities involving "wave and tidal" energy.[136] Under this sophisticated legislation, the UK marine renewable energy policies have been evolving and moving forward quickly.

Building on their success in offshore wind[137] marine energy development in the UK is proceeding in two phases: demonstration and commercial generation.[138] The "demonstration phase" (also described as "pre-commercial") proceeds by licensing small-scale projects. This is intended to be "an information gathering phase for all parties to acquire knowledge and to allow effective management of a future commercial round".[139] To this end, in November 2005, the Department of Trade and Investment (DTI) released "Planning and Consents for Marine Renewables: Guidance on Consenting Arrangements in England and Wales for a Pre-Commercial Demonstration Phase for Wave and Tidal Stream Energy Devices (Marine Renewables)" and intends to hold a call for bids for funding in 2006. Principal direction in the demonstration phase flows from a document issued by DTI

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[129] *Energy Act 2004* (U.K.), 2003, c.20.

[130] *Ibid.* ss. 89-94.

[131] *Ibid.* ss. 99-101.

[132] *Ibid.* at c. 3.

[133] *Ibid.* ss. 95-97.

[134] *Ibid.* s. 85 & s. 87.

[135] *Ibid.* s. 84.

[136] *Ibid.* s. 81. This provision actually refers back to and amends a provision in the *Sustainable Energy Act 2003* (U.K.), c. 30. That Act primarily deals with matters of industry report and residential energy efficiency.

[137] For a detailed account of the UK offshore wind sector, see Scott, *supra* note 127.

[138] It should be noted that these phases have been preceded by six years of work by DTI's Technology Programme that supported the development and testing of prototype devices in offshore locations.

[139] UK, Department of Trade and Industry (DTI), *Planning and Consents for Marine Renewables: Guidance on Consenting Arrangements in England and Wales for a Pre-Commercial Demonstration Phase for Wave and Tidal Stream Energy Devices (Marine Renewables)*, (U.K.: DTI, November 2005) at 3.3.

in May 2005, *Wave and Tidal Stream Demonstration Scheme* in the form of "principles of the scheme"[140] and "aims & objectives".[141]

The second phase (commercial generation) commences "when the industry reaches a point where commercially viable products are available".[142] Presumably, the details will be rolled out as the demonstration phase unfolds. An environmental impact assessment (EIA) is required for the demonstration phase projects, but a strategic environmental assessment (SEA) is not. Performing an SEA *will* be a pre-condition for the start of any commercial phase project.

Underpinning this two-phase process are various consenting requirements which were concisely summarized in a recent guidance document issued by DTI:

> Before a developer can deploy marine energy devices in the sea it must get the agreement of the Crown Estate to a site license or lease and obtain the relevant development consents/licenses. The principle consents/licenses are consent from the DTI under the *Electricity Act 1989* if the generating station has a capacity above 1MW and in all cases a license under the *Food and Environmental Protection Act 1985* and the *Coastal Protection Act 1949* from the Department for the Environment, Farming and Rural Affairs (DEFRA) (where an Electricity Act consent is required, no separate CPA consent for the generating station is necessary.) Consent under the *Town and Country Planning Act 1990* either from DTI (via "deemed planning permission" under the *Electricity Act 1989*) or the relevant local authority will also be required for the associated onshore works. Separate approvals as regards the laying of electricity export cables may be required from Port Authorities and the Environment Agency.[143]

As is clear from this description, the regulatory framework is somewhat scrambled, involving several government entities. The Crown Estate, DEFRA, and DTI (the latter being the primary regulator of the renewable energy sector specifically), each have their own authority. It is not surprising that industry has called for a more streamlined and comprehensive process.[144]

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[140] UK, Department of Trade and Industry (DTI), *Wave and Tidal Stream Energy Demonstration Scheme* (U.K.: DTI, May 2005) at 2-3.

[141] *Ibid.* at 3.

[142] *Supra* note 139 at 3.5.

[143] *Ibid.* at 4.

[144] UK, Department of Trade and Industry (DTI), *Planning and Consents for Marine Renewables: Feedback and Consents for Marine Renewables* (U.K.: DTI, June 2005). See also The British Wind Energy Association "The Marine Bill: A Perspective from the Offshore Renewables Industry" (September 2005), online: British Wind Energy Association <http://www.bwea.com/pdf/BWEAMarineBillPosition_051005.pdf>.

In response, government agencies have been consulting stakeholders.[145] The Department for the Environment, Farming and Rural Affairs (DEFRA) is now in the process of drafting the "Marine Bill" to improve the framework for managing and protecting UK marine resources, with a stated objective to "provide the framework that will allow the different uses of the sea to coexist and develop harmoniously".[146] DEFRA also points out that "the Marine Bill will have sustainable development at its core"[147] and this will influence the four parts of the Bill: marine spatial planning, marine consents, marine species and habitat protection (with an additional possible topic regarding a possible marine management organization). DEFRA is currently hosting stakeholder consultation events, the results of which will be incorporated into a draft Marine Bill scheduled to be published later in 2006. Together, the Marine Bill and the *Energy Act* will provide the legal backdrop for the UK offshore renewable energy sector to proliferate.

In light of the similarities with Nova Scotia, observations of UK initiatives provide valuable reference points. Schemes such as the two-phased approach, the special marine energy policy group, and governmental cooperation should be monitored as they provide valuable models. Likewise, the use of spatial planning and strategic environmental assessment to address competing uses and social, economic and environmental issues will provide valuable lessons as they unfold in the future. In this early period of marine renewable energy development, the UK is leading the world in marine energy governance and will continue to provide helpful lessons to jurisdictions in their infancy, such as Nova Scotia.

Northwest Europe

Jurisdictions in Northwestern Europe have been among the leaders in the development and proliferation of renewable energy, with Denmark and Germany leading the way. Of particular relevance to tidal power development, due to common industry characteristics and challenges, is activity in the offshore wind sector.[148] Offshore wind has been regarded as "one of the most important

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See also World Wildlife Fund, "Marine Renewable Energy for the UK: Policy Position Paper" (January 2005), online: WWF <http://www.wwf.org.uk/filelibrary/pdf/marine_renewable_energy.pdf>.

[145] DTI and DEFRA founded a central vehicle for this on-the-ground consultation and policy consideration that is the Ocean Renewable Energy Environmental Forum (OREEF), whose purpose is "to enable government, industry and NGOs to discuss environmental issues relevant to the UK's offshore renewable energy thereby informing policy-making and contributing to sustainable development – in particular the development of offshore renewable energy in an environmentally responsible manner". See UK, Department of Trade and Industry (DTI), *Offshore Renewable Energy Environmental Forum – Terms of Reference* (U.K.: DTI, June 2005), online: DTI <http://www.dti.gov.uk/renewables/policy_pdfs/oreeftermsofreference.pdf>.

[146] UK, Department for the Environment, Farming and Rural Affairs (DEFRA), The Marine Bill Newsletter (U.K.: DEFRA, November 2005), online: DEFRA <http://www.defra.gov.uk/environment/water/marine/uk/policy/marine-bill/pdf/mld-news051111.pdf>.

[147] *Ibid.*

[148] Characteristics of offshore wind power that present challenges, as discussed in at a recent offshore wind seminar by policy-makers from various EU countries, include: technological performance,

technologies in the switch from fossil and nuclear fuels to clean, renewable energy sources".[149] Two thirds of Europe's offshore wind energy potential lies in the North Sea.[150] Denmark, not unsurprisingly, is a leader in this area of renewable energy development and initiatives in the UK, Belgium, Ireland, Germany, Sweden and the Netherlands following suit.[151] These jurisdictions have been working together and exchanging information through the "Concerted Action Offshore Wind Energy Deployment" (COD).[152] This group was tasked with collecting information and analyzing findings from studies in different Member States in an effort to build a body of experience-based knowledge regarding offshore wind energy.

The findings of the COD were released in 2005 and may be of value to Nova Scotia in managing its emerging tidal power sector. On legal and administrative issues, the COD points out that there are no "best practices" and that "procedures are largely at their formative stages, with long-term outcomes yet to be seen".[153] The report however, goes on to find that early on "there was a perception that harmonized procedures might be desirable, but it has become clear that the benefits or otherwise of harmonization are outweighed by an imperative to have useable, streamlined and transparent consent procedures".[154]

In terms of consent regimes for offshore wind, the COD identified two basic mechanisms: a tender process which determines developers early in the process, and a "first come first served" method which effectively allows more developers to advance further into the process before selection occurs. The COD found development occurs regardless of which consent scheme is employed and that it is too early to conclude if one regime performs better than another. The report does note however, that each system has different implications depending on context.[155]

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environmental impacts, competition for space with other marine interests, compatibility with grid infrastructure, secure integration with energy systems and competitiveness in liberalized electricity markets. Likewise, such challenges are directly relevant to tidal power.

[149] Donna Mattfield & Rob Skyes, "Offshore Wind: Implementing a New Powerhouse for Europe", (2005) Greenpeace International at 2, online: European Wind Energy Association <http://www.greenpeace.org/raw/content/international/press/reports/offshore-wind-implementing-a.pdf>.

[150] Netherlands, Ministry of Economic Affairs, *Development of Offshore Wind Energy in Europe* (Background document for offshore wind energy in Europe policy workshop, September 2004) at 7.

[151] As of 2004 there were 15 offshore wind projects in Northwestern Europe, many of them large-scale, commercial operations. For full overview of the region's offshore wind sector, see International Energy Agency, Renewable Energy Unit, *Offshore Wind Experiences* by Till Stenzel & Rick Sellers (International Energy Agency, 2005), online: International Energy Agency <http://www.iea.org/dbtw-wpd/Textbase/papers/2005/offshore.pdf> [IEA]. See also *supra* note 149.

[152] *Concerted Action for Offshore Wind Energy Deployment, Principal Findings 2003-2005* (SenterNovem, 2005) (with support of the European Commission Directorate General for Energy GGXVII).

[153] *Ibid.* at 15.

[154] *Ibid.* at 14.

[155] Contextual factors such as maritime heritage, regulatory practices, market structure, available resource, local geography and others all influence the effects of each consenting system.

For example, granting exclusive rights at an early point reduces investment risk at the development stage (therefore making it easier to gain financing and investment support). The report also notes that in a first come first served regime if there is "an attractive market, authorities can be overwhelmed by applications". Clearly there is no obvious best practice model in terms of offshore wind consenting regimes, but the body of experiences to learn from is growing and should be monitored for findings that are applicable to tidal power development.

Another useful outcome of the COD is the recommendation regarding pre-selection of suitable areas. Given the various competing interests in the Bay of Fundy, this is directly relevant to tidal power development in Nova Scotia. The report recommends "a Strategic Environmental Assessment in order to identify and assess (cumulative) environmental conflicts and their solutions, and to give better insight in the topics that need detailed consideration in project related Environmental Impact Assessments".[156]

These conclusions and others are consistent with a recent study undertaken by the International Energy Agency[157] whose findings regarding "legal and administrative" issues are of particularly relevance[158]:

- Early future-proofing of policies is worthwhile – potential legal challenges introduce additional risk for the industry;
- SEA is a helpful tool for consenting authorities. Specifically, it allows early warning on potential impacts and seems to reduce individual project consent timescales;
- Pre-definition of development areas can be beneficial *but should be issued prior to creating an expectation amongst the private sector* (emphasis added);
- Clear, rationalized legislative procedures are desirable.

The study also highlights that "strong political support which feeds through a shared agenda across government departments is instrumental in successful policy implementation".[159]

Finally, the offshore wind sector was the subject of a meeting between EU policy-makers at the "Copenhagen Policy Seminar on Offshore Wind Power", held in October 2005. The following list highlights relevant conclusions from the European Policy Seminar on Offshore Wind Power Deployment[160]:

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[156] *Supra* note 152 at 20.

[157] *IEA*, *supra* note 151.

[158] *Ibid.* at 42.

[159] *Ibid.* at 41.

[160] Danish Energy Authority, "Copenhagen Strategy on Offshore Wind Power Deployment (Report from the European Policy Seminar on Offshore Wind Power, October 2005), online: European Wind Energy Association <http://www.ewea.org/index.php?id=203>. This seminar followed up on the "Egmond Policy

- Demonstration programs/phases have been successful in moving the industry forward;
- Regional and global collaboration and sharing of information regarding regulatory frameworks, consent regimes and other procedures should be pursued and such work presents "enormous potential and benefits";
- Establishment of a cross-border offshore grid should be considered;[161]
- Long term grid planning is essential to the integration of large scale offshore wind energy;
- Leveling the playing field is important for large scale integration of wind power in the liberalized electricity market (including priority access to the grid for electricity generated from renewable energy sources);
- There is a need for further development of appropriate environmental assessment methodologies;
- Marine spatial planning instruments should be established and implemented to arrive at optimal site selection;
- There needs to be consistency in all guidance documents;
- Jurisdictions should perform a Strategic Environmental Assessment (SEA) to identify and assess (cumulative) environmental conflicts and their solutions, and to give better insight into the topics that need detailed consideration in project-related Environmental Impact Assessments (EIAs).

Obviously there are some fundamental differences between tidal power and offshore wind and likewise there are profound differences between Nova Scotia and Northwest Europe so these recommendations and observations must be observed through a critical lens. Having said this, it is clear that many of these lessons and conclusions offer valuable information directly relevant to the development of tidal power in this region.

European Union

Contemporary activity in the European Union's renewable energy sector flows from a European Commission Directive. The "promotion of electricity produced from

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Declaration" that came out of a workshop with representatives from authorities of EU Member States and essential stakeholders in September 2004. See Concerted Action for Offshore Wind Energy Deployment, "Egmond Policy Declaration", (Declaration from the EU Policy Workshop: Development of Offshore Wind Energy, September 2004), online: European Wind Energy Association <http://www.ewea.org/index.php?id=203>.

[161] This may be of particular relevance to a future Atlantic Canada/New England offshore renewable energy regime.

renewable energy sources in the internal electricity market" directive[162] set in motion work toward the European Union's goal of providing 21% of electricity from renewable energy sources by 2010. There has been a flurry of activity throughout the EU renewable energy sector in recent years, with individual states free to choose their own renewable energy market mechanism, legislative framework and administrative regime.[163] In December 2005, the Commission of European Communities released a report documenting experience gained with the application and coexistence of different (market) mechanisms used in Member states.[164] Several findings of the Commission are particularly relevant to Nova Scotia's budding renewable energy sector generally and tidal power development specifically.

Regarding "administrative barriers", the commission, following public consultations, identified three main limitations[165]:

- Large number of authorities involved and a lack of coordination between them;
- Long lead times needed to obtain necessary permits;
- Renewable Energy projects were insufficiently taken into account in spatial planning.

Responding in a general way to these problems in light of the diversity of authorization procedures among Member States, the Commission made the following recommendations:

- Create "one-stop authorization agencies" to process authorization applications and provide assistance to applicants;
- Issue clear guidelines for authorization procedures with clear attribution of responsibilities;
- Establish pre-planning mechanisms in which regions and municipalities are required to assign locations for different renewable energies;
- Disseminate guidance on the relationship with existing environmental legislation.

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[162] EC, Council Directive 2001/77/EC of 27 October 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market, [2001] 283 O.J. L. 33.

[163] For a comprehensive and thorough review of policy instruments employed in the RE sector, see Janet Sawin & Christopher Flavin, "National Policy Instruments: Policy Lessons for the Advancement & Diffusion of Renewable Energy Technologies Around the World" (Thematic Background Paper for the International Conference for Renewable Energies, Bonn, Germany, 2004), online: Bonn 2004 <http://www.renewables2004.de/doc/DocCenter/TBP03-policies.pdf>.

[164] EC, Commission, *Communication from the Commission: The Support of Electricity from Renewable Energy Sources*, COM(2005) 627.

[165] *Ibid.* at 12-13

These recommendations are echoed by experiences of individual states around the EU and reflect emerging consensus on some of the region's emerging better practices.

The Commission Report went on to present general conclusions that are based on the theme of "cooperation" and "optimization".[166] While these conclusions are not directly transferable to the circumstance in Nova Scotia, they comprise a comprehensive summary of European lessons from the renewable energy sector that are relevant here:

- Increase legislative stability and reliability to reduce investment risk;
- Reduce administrative barriers;
- Address grid issues and the transparency;
- Encourage technology diversity through support instruments that cover different renewable energy technologies;
- Use the possibilities of tax exemptions and reductions;
- Ensure compatibility with the larger market;
- Encourage employment and local and regional benefits through renewable energy policies that relate to employment and social issues, as well as rural development;
- Coordinate actions on energy efficiency, demand management and renewable energy.

These findings from the European Union's recent period of intense development in renewable energy are valuable reference points for the development of Nova Scotia's tidal energy resources, particularly in terms of regulatory and market structure.

United States

The United States, facing a proliferation of offshore renewable energy project proposals primarily for wind farms, stands out as an example of the large governance gap in almost all countries to comprehensively and equitably regulate offshore renewable resources. The proposal to develop a wind farm in Nantucket Sound off the coast of Cape Cod, Massachusetts has caused tremendous conflicts and has starkly unveiled numerous limitations in the existing legal regime.[167] Those limitations include: the lack of a coordinated planning process; lack of authority to grant leases and exclusive use and occupancy rights for offshore areas; and inability

[166] *Ibid.* at 16-17.

[167] See e.g., Guy R. Martin and Odin A. Smith, "The World's Largest Wind Energy Facility in Nantucket Sound? Deficiencies in the Current Regulatory Process for Offshore Wind Development" (2004) 31 B.C. Envtl. Aff. L. Rev. 285.

to assess resource rent for the space occupied or a fee or royalties for energy generated.[168]

The US Commission on Ocean Policy, reporting in 2004 on how to reform US ocean law and policy,[169] made a number of recommendations for better managing offshore renewable energy and the recommendations have potential relevance to regulating tidal power development in Atlantic Canada. The Commission urged enactment of federal legislation that would: streamline the process for leasing and permitting renewable energy facilities in U.S. waters; ensure the public receives a fair economic return for use of the resource; and put in place an open and transparent allocation process fully considering state, local and public concerns.[170]

The *Ocean Thermal Energy Conversion Act [OTECA]*[171], passed by the United States Congress in 1980 to govern facilities that would convert thermal gradients in the ocean into electricity,[172] demonstrates some of the key points that might be addressed in federal legislation in Canada. The Act establishes a licensing regime under the authority of the Administrator of the National Oceanographic and Atmospheric Administration (NOAA). The licensing regime covers such issues as license conditions, license transfer, license eligibility and license term and renewal.[173] The Act grants authority for the issuance of regulations further spelling out licensing requirements and relating to site evaluation and preconstruction testing activities.[174] The Act provides various protections for submarine electric transmission cables and equipment including prohibiting the willful or negligent breaking or injuring of offshore cables or equipment; and requiring licensees to indemnify vessel owners which have had to sacrifice an anchor or fishing gear to avoid injuring submarine equipment.[175] The Act tasks the Administrator with initiating an environmental assessment program having various purposes including a determination of whether an upper limit should be placed on the number or total capacity of licensed facilities either overall or within specific geographic areas.[176] The Act also allows the establishment of safety zones around ocean thermal conversion facilities for purposes of navigational safety and authorizes the passing of regulations relating to navigational safety, for example required markings and

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[168] U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century, Final Report* (Washington, D.C., 2004) at 366.

[169] *Ibid.*

[170] *Ibid.* at 368.

[171] 42 U.S.C. § 9101 *et seq.*

[172] For an overview of the legislation and the Law of the Sea context at the time of adoption, see Ved P. Nanda, "The Legal Framework for the Development of Ocean Thermal Energy Conversion (OTEC)" (1981–82) 19 San Diego L. Rev. 395.

[173] 42 U.S.C. § 9111.

[174] *Ibid.* § 9112.

[175] *Ibid.* § 9113.

[176] *Ibid.* § 9117.

signals.[177] The Act also grants persons adversely affected by a licensing decision to seek judicial review.[178]

A low-level of practical implementation under *OTECA* has occurred. Following NOAA's initial environmental studies and establishment of a licensing program, NOAA reports that it has not received any license applications for ocean thermal energy conversion facilities.[179]

The United States also shows how ocean energy sources may be legislatively encouraged. The *Energy Policy Act of 2005*[180] extends the granting of renewable production incentive payments to energy produced from ocean sources including tidal, wave, current and thermal.[181] The Act requires the Secretary of Energy to undertake assessments of renewable energy resources (including ocean tidal, wave, current and thermal) and to publish yearly reports with information useful for developing renewable energy resources such as identification of barriers to transmission for remote sources to current and emerging markets and suggestions on ways to enhance grid access.[182] The Act also calls for the National Academy of Sciences to undertake a study of the potential for developing wind, solar, and ocean energy resources (including tidal, wave, and thermal energy) on Federal lands and the outer Continental Shelf and to recommend statutory and regulatory mechanisms for developing those resources.[183]

6. Governance Options for Tidal Power

This part of the article considers possible governance options in light of the previously discussed international context, the constitutional issues, and the existing regulatory systems at the federal and provincial levels as they would apply to tidal power development. In offering these suggestions, we have taken account of experiences in other jurisdictions with tidal and other comparable offshore developments, such as wind. Suggestions for a path forward are offered in two sections. The first considers what might be done at the provincial level, within the existing regulatory framework and beyond. The second considers how the province might move forward on federal-provincial relations, particularly with respect to the constitutional issues raised in Part Two above.

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[177] *Ibid.* § 9118.

[178] *Ibid.* § 9125.

[179] See NOAA Coastal Services Center, Ocean Planning Information System, Legislative Summaries, online: <http://www.csc.noaa.gov/opis/html/summary/otec.htm>.

[180] *Energy Policy Act of 2005*, Pub. L. No. 109-58.

[181] *Ibid.* § 202.

[182] *Ibid.* § 201.

[183] *Ibid.* § 1833.

a) Building on the existing provincial regulatory framework

Under the existing provincial regime, assuming Nova Scotia legislation is applied to tidal projects in the Bay of Fundy, one would expect the *NSEA* to play the central role with respect to tidal energy development projects. The *Public Utilities Act* and the new *Electricity Act* would likely play similar roles for electricity distribution issues. Nevertheless, it is difficult to see how existing legislation would adequately deal with the challenges and opportunities of tidal power. In this section, we build upon the provincial regulatory overview in Part Three and highlight the limitations of the current regulatory system to deal with tidal power in a manner consistent with long term objectives such as sustainability, prosperity, environmental protection, energy security and rural development. Supplementing the existing regime, this section then offers some thoughts on how to develop a strong governance regime at the provincial level.

On the production side, the environmental assessment process under the *NSEA* would likely play a key role in engaging the public. It is currently the main mechanism for ensuring issues such as competing uses, environmental impacts, and how Nova Scotia will benefit from tidal energy development are addressed. More difficult to address under the current environmental assessment process in Nova Scotia will be general policy issues such as how tidal energy fits within the overall renewable energy policy framework and the role of tidal power in meeting overall development objectives. Effective integrated planning in light of future development will be difficult, if not impossible, to achieve within the current EA process. Issues of access to the resource, access to markets, and how tidal fits with broader development objectives for the province are also outside the scope of environmental assessments as currently carried under the *NSEA*.

It is important to note that to date, environmental assessment in Nova Scotia has been almost entirely project-based, and has not often been used to engage interested parties in more open discussions on issues such as fitting a new opportunity into existing uses, or to ensure opportunities are pursued to maximizes the long-term benefits to the province as a whole. Two ways to address this problem would be to extend current environmental assessment process to encourage for such a broader discussion, or to create a separate process focused on these issues. In our view, a separate *ad hoc* process is likely to have more credibility.

A public and open strategic environmental assessment may be a suitable process to address some of these issues, as would be a fully integrated planning process. The difficult question will be whether the SEA process is limited to a consideration of the broad policy context or whether it will include an integrated planning process for the Bay of Fundy. Regardless of the choice of process, both the broad policy consideration and integrated planning are essential prerequisites for an effective governance approach for tidal power in the Bay of Fundy. It will be furthermore important to separate the consideration of these broader issues from any particular project, and without having the discussion dominated or overshadowed by particular proponents pushing for specific projects. Attention to these issues up front

will result in better policy, and pave the way for a much more efficient regulatory process at the project level.

As indicated, under the current provincial regime, the approvals process under the *NSEA* would likely be a key regulatory tool. This process could be used to implement project specific conditions arising out of the EA process; however, it would not be suitable for establishing clear rules on access to the resource. Less than clear, as well, is how the approvals process would deal with use conflicts that arise during the construction and operation stages. In addition, opportunities for public engagement have traditionally been limited. This would be problematic unless there is an appropriate level of engagement at a broader policy and integrated planning stages. Furthermore, the current regime would involve a very inefficient application of a wide range of existing legislative and regulatory provisions, many of which were highlighted in Part Three above. In short, the current regulatory approach if applied to this industry would be neither efficient for proponents nor effective at protecting the public interest.[184]

In light of these limitations of the existing provincial regulatory system, we offer the following thoughts on options for a provincially based governance approach to tidal power:

i. Developing a Broad Policy Context

It will be critical to develop an effective up front process to reflect on existing policies, with respect to other current and possible future uses of the Bay of Fundy. A comprehensive policy framework for future decisions at the project level will also be key to an effective governance framework for tidal power. This process should engage the public and all users of the Bay of Fundy in the identification of objectives and priorities.

After the objectives and priorities are identified Nova Scotia will be in a position to develop a regulatory response and maximize opportunities to reach these objectives collectively. In the end, the critical question is how and when decisions are made about whether and under what conditions tidal power development in the Bay of Fundy is in the best long term interest of Nova Scotia. If properly designed, a strategic environmental assessment (SEA) process can serve this function very well. It will be important to find a way to ensure the broad policy context is reviewed and updated to adjust to changing circumstances.

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[184] On the power distribution side, the main issue is likely to be the level of provincial control over the market for tidal electricity. The nature and extent of control will determine how much of the resource will feed into the provincial power grid or otherwise be utilized within the province. Access to export markets will also have to be considered. Related issues include what happens to GHG emission reduction credits, particularly in case of exports, and how to ensure that the rate offered by distributors and uses will be enough to encourage development. As indicated in Part Three, the main mechanism for this currently appears to be the RPS proposed under the *Electricity Act*. It is difficult to see how this tool alone will ensure a local market for tidal until tidal becomes competitive with other renewable sources of electricity, even if the RPS is set at a target that could only be met through the development of tidal power.

ii. Integrated Planning for the Bay of Fundy

Integrated planning for the Bay of Fundy would ordinarily follow the broad policy development, but could potentially be carried out within the same process. Public engagement and public participation in the integrated planning process will be equally important. It will enhance the quality of the outcome as well as smoothing the path to project approvals down the road. Public engagement in decisions about location, benefits, technology, allocation of the resource, environmental acceptability, and any trade-offs among competing uses are particularly important. To this end, it will be important to remain open to allowing the process to develop a consensus on these issues. The process needs to be, and be seen as, a collaborative decision making process, not a process to justify and validate decisions already made.[185]

iii. Making "Production Project" Decisions

The context for appropriate project decisions is necessarily dependent on the outcome on the broader policy process. In that broader process, priorities need to be identified, which can then feed into appropriate project decisions on where and under what conditions to permit tidal development.

It will be important to consider the full range of tools available, including approval processes, standards, project based environmental assessment processes, and the use of economic instruments to encourage developments consistent with stated objectives. Zoning may be a way to apply different regulatory tools to achieve different objectives, and to communicate the underlying priorities in different parts of the Bay.

With respect to zoning, we offer some preliminary thoughts on how the range of options available under an ocean zoning approach to the Bay of Fundy.[186] The basic premise is that different rules would apply to different parts of the Bay. Potential issues to be addressed through zoning include:

- Allocating to local small-scale projects versus open access
- Designating some areas that will require project-level EA to address potential conflict with biodiversity, existing uses, or other priority uses and designate others as "green light" areas for tidal power development because there are no conflicts, and no

[185] For a discussion of similar issues in the context of aquaculture and offshore wind energy in the North Sea, see B. H. Buck, *et al.*, "Extensive Open Ocean Aquaculture Development within Wind Farms in Germany: The Prospect of Offshore Co-management and Legal Constraints" (2004) 47 Ocean & Coastal Management 95.

[186] For a more detailed discussion of ocean zoning and its potential in the Atlantic Region, see P. Doherty, "Ocean Zoning: Can it Work in the Northwest Atlantic?" (Ecology Action Centre, February 2005) Marine Issues Committee Special Publication Number 14

environmental concerns that have not been addressed through conditions for approval at the regulatory stage

- Assuming royalties are used as a tool to generate benefits for Nova Scotians, different royalty regimes could be considered depending on the extent of the resource[187], access to markets, or desirability of the area for development. For example, areas might be very suitable for development because there are no use conflicts, and no environmental impacts, but the area is less than ideal in terms of the power generated per turbine. This might justify a more favourable financial arrangement than for an area that has higher potential for power production per turbine, but is not as desirable. Similar considerations would apply to power rates, assuming the province decides to directly control power rates for producers.[188]

iv. Addressing Power Distribution and Market Issues

The key question here is how power from tidal energy will be treated within the Nova Scotia electricity system. For example, how does tidal power fit with the current renewable portfolio standard proposed (RPS) under the *Electricity Act*? Should the RPS be revised to encourage NSPI to buy tidal power and integrate it into the mix? An alternative or possible supplement to the RPS would be to offer a price guarantee for tidal power to ensure its viability and to encourage its use within the province.

Further analysis will have to be carried out to consider the implications of these choices. The choice of tools will depend on the outcome of the broader policy discussion, especially with respect to the overall priorities for Nova Scotia in encouraging the development of tidal power. Energy security as a priority, for example, may lead to different solutions than a priority on royalties. A priority on air pollution may lead to different choices than a focus on greenhouse gas emissions. The implications of tidal power for the fuel mix and for the power grid in Nova Scotia and to other markets will have to be considered. Opportunities for federal support through various climate change initiatives, such as under the Climate Change Fund, the Partners Fund, or the Technology Fund may also affect the choices made.[189]

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[187] Considering how much power can be generated from renewable energy.

[188] Germany is the most successful jurisdiction at promoting renewable energy in areas of varying desirability through its feed-in tariffs. See *Act on Granting Priority To Renewable Energy Sources (Renewable Energy Sources Act)*, v. 1.10.2004 (BGBl. I no.40).

[189] One example of the connection between the various issues raised is that of rural development. If rural development were identified as a priority, what would be its impact on the integrated planning process? Some areas close to the shore or close to rural communities might be reserved for community based development. It would influence how competing use issues are resolved in the integrated planning process. On the market and distribution side, a priority on rural development could result in a feed-in tariff for small scale tidal to provide easy access and a guaranteed market for small scale producers at rates that ensure the commercial viability of such local production projects. Different rules for resource access and power distribution may apply to larger scale producers in pursuit of different objectives identified through the SEA or integrated planning process. For a discussion of these issues in the context of wind

b) Addressing Provincial-Federal Relations

As discussed in Part Two, Nova Scotia may face two major constraints in exercising resource and regulatory jurisdiction over offshore tidal power projects beyond the obvious potential for federal legislation, such as the *Fisheries Act* and the *Canadian Environmental Assessment Act*, to impact proposed developments. First, the uncertainty surrounding what marine areas are considered "within the Province" and which areas fall within the federal property. Second, the judicially-imposed constraint that the public right to fish is a common law right that can only be abridged pursuant to federal legislative authority.

The following discussion sets out some options for addressing these two constraints.

i. Addressing Provincial Offshore Jurisdiction

Nova Scotia has three main options for addressing the uncertainty regarding offshore jurisdiction: unilaterally determining marine waters within the Province, negotiating a settlement of provincial offshore jurisdiction, or negotiating cooperative arrangements leaving offshore jurisdiction unsettled.

Unilaterally determining marine waters within the Province

Nova Scotia could, without federal involvement, determine its offshore limits and proceed to recover resource rents and to exercise regulatory control over tidal power property within the claimed provincial marine waters. It would then be up to the federal government to contest any claims that are felt to be outside the two foundations for provincial jurisdiction (waters considered part of the Province at the time of Confederation, whether because they were *inter facuces terrae* or for other reasons). As discussed in Part Two, Nova Scotia appears to have strong historical grounds for claiming property rights in the Bay of Fundy.

Negotiating a settlement of provincial offshore jurisdiction

Nova Scotia could enter into negotiations with the federal Government to delineate provincial and federal waters. A key policy question that should be considered is whether the Province should negotiate individually or in collaboration with other provinces, seeking a clear extension of provincial offshore jurisdiction, for example, over the historical three mile territorial sea or the present 12 nautical mile territorial sea.

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power, see Paul Gipe, "Powering Ontario Communities: Proposed Policy for Projects up to 10 MW", (Ontario Sustainable Energy Association, May 2005)

Leaving offshore jurisdiction unsettled but negotiating cooperative arrangements

As has occurred for developing offshore oil and gas resources and aquaculture, Nova Scotia and the federal Government could leave aside offshore "ownership" questions in favour of cooperative arrangements. At least three possible cooperative arrangements stand out.

1) *Memorandum of Understanding (MOU).* As has occurred for aquaculture, Nova Scotia could enter into a MOU with the federal Government with the MOU recognizing provincial leasing and licensing jurisdiction over ocean energy sources, delineating federal-provincial roles and perhaps establishing cooperative institutional mechanisms such as an offshore renewable energy committee. Such an arrangement might be linked to a broader framework agreement for federal-provincial cooperation in oceans management. The federal Government has already concluded a framework agreement with British Columbia for implementing Canada's Oceans Strategy and the federal Government has expressed its interest in concluding similar broad agreements with other coastal provinces.[190]

2) *Joint Development and Management Board.* Nova Scotia, drawing on the offshore oil and gas arrangement, could choose to negotiate a joint management board arrangement for renewable ocean energy sources, including tidal power. Among the issues to be resolved would be resource rent amounts and possible sharing, application of federal and provincial laws and determination whether specific regulatory authority should be granted to the joint board. Mirror federal-provincial legislation giving force to the joint board approach might be followed as has occurred in the oil and gas context.[191]

3) *Recognition of Provincial Jurisdiction under the* Oceans Act. Nova Scotia could also approach to federal Government to discuss application of provincial laws to offshore ocean energy through the vehicle of the *Oceans Act*.[192] The Act allows the federal Government to prescribe by regulations the application of provincial laws to parts of the offshore. The Act allows specific regulations to be issued governing the terms and conditions, if any, governing provincial impositions of taxes or royalties or relating to mineral or other non-living resources.[193]

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[190] See Fisheries and Oceans Canada, "Canada and British Columbic Join Forces to Implement Canada's Oceans Strategy", News Release NR-PR-04-043e (September 18, 2004).

[191] For an overview of the legislative and regulatory complexities, see Van Penick, "Legal Framework in the Canadian Offshore" (2001) 24 Dal. L. J. 1, and Keith R. Evans, "Canadian East Coast Offshore Oil and Gas Industry: Sustainable Development through Cooperative Federalism" (2003) 26 Dal. L. J. 149.

[192] *Oceans Act*, *supra* note 124, ss. 9 and 21.

[193] *Ibid.* s. 26(1)(d).

ii. Addressing the Need for Federal Legislation in Light of the Public Right to Fish

As discussed in Part Two of this article, case law has set strict limits on provincial and federal authority to interfere with the public right to fish. To ensure that fishers "displaced" by future tidal power developments do not successfully challenge the lack of a federal legislative foundation for limiting the public right to fish, the Province might encourage the federal Government to enact legislation for granting authorization to renewable ocean energy developments.

While such legislation might involve amendment of the existing *Fisheries Act* or *Oceans Act*, Nova Scotia might advocate the passage of more comprehensive federal legislation to support ocean energy development. Some of the parameters for federal legislation might be drawn form the US federal experience where the United States Government has put in place a licensing scheme for at least ocean thermal energy and has also attempted to promote offshore energy developments through various means including incentives.

If there are political sensitivities to advocating expansion of federal legislation over the offshore, Nova Scotia might still proceed with leasing and licensing tidal power developments. Fishers may not choose to contest the leasing/licensing decisions and it might also be argued at least in some cases, that actionable interferences with the public right to fish are not occurring.

Conclusion

Tidal power provides a tremendous opportunity in the Maritime Provinces that is not limited to the development of a new, renewable source of energy. Tidal power could be the development opportunity that helps this region navigate through the fog and develop processes for principled governance that can be a model for other types of development and other jurisdictions. It is an opportunity to put principles into practice, to implement sustainable development, public participation, strategic environmental assessments, and integrated planning. With careful planning, jurisdictional cooperation, and some patience, the benefits of such an approach over more reactive approaches that have been taken in the past can clearly be demonstrated. Assuming jurisdictional issues can be overcome, and a cooperative approach to tidal power development is possible, there is a real opportunity to showcase principled governance on tidal power development and to demonstrate its tremendous potential. To do so will require three key elements, a broad policy context, an integrated planning process, and a fair and efficient regulatory process that effectively implements the results of the first two steps. The obvious question raised here is how these processes should be designed and implemented. These are issues left for another day.