Submission to the Law Amendments Committee:
Bill 87
An Act Respecting Electricity

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1 Introduction

My name is Larry Hughes and I am a Professor in the Department of Electrical and Computer Engineering in the Faculty of Engineering at Dalhousie University in Halifax, Nova Scotia. I have an earned PhD in Computing Science from the Computing Laboratory at the University of Newcastle upon Tyne in England. At present, I am a Visiting Fellow at the Science and Technology Policy Research Unit (SPRU) at the University of Sussex in Brighton, England.

I have spent the past 20 years researching and writing about Canada's energy situation, with an emphasis on Nova Scotia's transportation and electricity sectors. I have written a number of reports and papers on Nova Scotia's Energy Strategy, copies of which can be found on my environmental research website (www.dal.ca/~lhughes2/environment).

I am making this submission to the Committee in order to contribute to the discussion on Bill 87 (or the Electricity Act, hereinafter referred to as the Act) and to offer suggestions on how it could be improved.

2 Background

The Act is part of the Nova Scotia government's Energy Strategy. The Energy Strategy document, *Seizing the Opportunity*, released in December 2001, included a number of policy objectives regarding electricity and the restructuring

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of the electricity market. Central to the government's electricity policy was the creation of the Electricity Marketplace Governance Committee (or EMGC). The EMGC's Final Report reflected much of what had been discussed in *Seizing the Opportunity*, which is perhaps one reason why the Minister of Energy accepted its recommendations without question after its release in October 2004.

3 Examination of the Act

The Act is brief, consisting of six sections. Most sections introduce topics and then refer them to regulations.

3.1 Section 2

An electricity market can be discussed in terms of generation, transmission and distribution, and customers. The Act defines only customers (specifically "*wholesale customers*") although most of the listed wholesale customers are the provincial municipal utilities. For clarity, the Act should make reference to the generation (or supply) of electricity. Since the EMGC recommends that transmission remain under the control of NSPI (for example, see EMGC Recommendation 15 and subsection 3(2) of the Act), transmission can be omitted.

According to EMGC Recommendation 1, the market will include "*competitive suppliers*":

> *The EMGC recommends that Nova Scotia's initial market opening, to encourage electricity competition, be restricted to wholesale customers, who will then be eligible to purchase electricity from any competitive supplier; and that sellers of electricity from cogeneration, or from renewable resources located in Nova Scotia, be able to sell directly to consumers under certain conditions.*

Although in Recommendation 5, the envisaged electricity market consists of "*sellers*":

> *The EMGC recommends that eligible sellers in the Nova Scotia competitive electricity supply market include generators, cogenerators, importers, and agents, brokers, traders, marketers and aggregators.*

The Act should include a definition of "*seller*" or "*competitive supplier*" (or both, as the EMGC defined both), setting out the role and responsibilities of each.

3.2 Section 3

Subsection 3(1) of the Act outlines how the existing electricity market is to be liberalized by allowing any of the six municipal utilities the freedom to purchase electricity from any "*competitive supplier*":

> *Effective on the date prescribed in the regulations and, for greater certainty, notwithstanding Section 303 of the Municipal Government Act, wholesale customers may purchase electricity from any competitive supplier.*

The Act should be clarified by either defining "*competitive supplier*" or replacing "*competitive supplier*" with "*seller*". It should be noted that NSPI is also a "*competitive supplier*".

Subsection 3(3) describes the creation of an Open Access Transmission Tariff (in order to meet FERC[2] 888 requirements):

> *The tariff referred to in subsection (2) must ensure open and non-discriminatory access to wholesale customers.*

The "*open and non-discriminatory access*" described in this subsection is intended for those entities that require access to the transmission grid for the transmission of electricity. In the EMGC Final Report, there were a number of different explanations of who (or what) was to have "*open and non-discriminatory access*"; for example:

- *A major issue in the restructuring of the Nova Scotia electricity market, therefore, is whether the changes made in Nova Scotia will give producers and consumers in this province the right to non-discriminatory transmission access in New Brunswick and beyond.* (page 18)
- *As a first step, the Energy Strategy indicated that competitive suppliers would gain access to the wholesale market and both cogenerators and independent generators would be allowed non-discriminatory access to the transmission system in order to supply eligible customers and export markets.* (page 21)

[2] The U.S. Federal Energy Regulatory Commission (FERC).

- *Most important is the need for open and non-discriminatory access to the transmission system for all potential buyers and sellers.* (page 27)
- *The EMGC recommends that any transmission tariff developed or use in Nova Scotia ensure open and non-discriminatory transmission access for all market participants.* (Recommendation 16)

The FERC 888 ruling, the original driving force behind the opening up of the U.S. electricity market to competition, was aimed at vertically integrated utilities, requiring them to open their transmission services to other utilities and independent power producers. The ruling has since evolved to include any supplier of electricity. This being the case, subsection 3(3) of the Act should be broader than simply "*wholesale customers*" – at a minimum it should be "*sellers*" (or "*competitive suppliers*").

3.3 Section 4

Subsection 4(1) states that:

> *… a person who sells or supplies electricity to a customer shall comply with the renewable energy standards set out in the regulations.*

While subsection 4(2) states:

> *Renewable energy standards referred to in subsection (1) must require that a minimum amount of electricity is produced from renewable sources.*

Both of these subsections refer to "*renewable energy standards*", a concept which has never been used in any previous Energy Strategy document (notably *Seizing the Opportunity*, the Energy Strategy Progress Reports, and the EMGC Final Report). Each of these documents refers to "*renewable portfolio standards*" or RPS. In fact, when introducing Bill 87, the Minister used the term "*renewable portfolio standard*" on two occasions (pages 4513 and 4514 of Hansard); the Minister made no reference to "*renewable energy standard*".

The term "*renewable portfolio standard*" is well known in the electricity industry[3]. Unless the provincial government or the Department of Energy can show that

[3] A renewable portfolio standard (RPS) is a legislative mechanism requiring an entity (typically a utility) to meet a certain percentage of its generation from renewable sources by a given date.

"*renewable energy standard*" is more than a synonym for "*renewable portfolio standard*", the Act should be rewritten to use the term "*renewable portfolio standard*".

3.4 Section 5

Subsection 5(1)(a) states that the Governor in Council may make regulations:

> *respecting renewable energy standards, their administration and enforcement*

Other than subsections 4(1) and 4(2), this is the only reference to renewables in the entire Act. Given the number of EMGC Recommendations referring to renewables and NSPI's recent solicitation for renewables, the Act should have contained more than this passing reference to renewables.

The Minister's unequivocal acceptance of the EMGC Final Report is particularly worrying, as illustrated by the EMGC's recommendations for a provincial renewable portfolio standard, which is discussed in the following sections.

3.4.1 The starting date

The starting date of the RPS is 2006 (Recommendation 40):

> *The EMGC recommends that the province of Nova Scotia adopt a mandatory RPS to take effect in 2006.*

The 2006 starting date means a delay of three years (from the release of the EMGC report in 2003) before the RPS comes into force. There is no good reason for the delay, other than the fact that *Seizing the Opportunity* stated in 2001:

> *… a short-term, voluntary, renewable energy target for new IPPs totalling 2.5% of NSPI's generation capacity, or approximately 50 MW. The government and NSPI will monitor the voluntary process for three years and then establish a longer-term renewable energy portfolio standard (RPS) target.*

RPS programmes can be instituted for any number of reasons, including the development of renewable energy industries, improving air quality, and reducing greenhouse gas emissions. The most effective RPS programmes are those that set specific targets and penalize entities for failing to meet the targets. There are numerous examples of RPS, notably in the United States.

3.4.2 The RPS target

The EMGC's RPS target is five percent (Recommendation 43):

> *The EMGC recommends that the province of Nova Scotia require each LSE*[4] *to obtain RPS tags*[5] *certifying that the fraction of its electric energy from renewable sources by 2010 is equal to the actual base of renewable electric energy at 2001 plus 5.0%.*

This is somewhat misleading, as the five percent includes any renewable energy that NSPI contracts for or constructs before the RPS start date. According to the EMGC, NSPI will have about 1.2 percent of the five percent by 2006: 1.2MW (two wind turbines owned by NSPI) and 30MW (the Pubnico Point windfarm). This leaves about 3.8 percent to be obtained by 2010 (or about 0.75 percent per year between 2006 and 2010).

3.4.3 The lack of enforcement

There are no penalties for non-compliance. That is, if NSPI fails to meet the 0.75 percent target in a given year (or the overall 5 percent target for that matter), they are not penalized. The EMGC Final Report *suggests* that "*the determination of the amount of penalties for non-conformity to be established by a subsequent process*" (page 64); however, this is *not* part of a recommendation.

What the EMGC does recommend is that NSPI make annual progress reports (Recommendation 44):

> *The EMGC recommends that, to encourage the development of a stable renewable energy sector, and meet the environmental goals established by the RPS, that NSPI be required to annually report to the UARB as to its progress toward meeting its goals and that the UARB have the authority to issue directions to NSPI to ensure that these goals are met.*

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[4] An LSE or Load Serving Entity is anything that supplies electricity to a customer. In Nova Scotia, the best known LSE is NSPI.

[5] Electricity from certified, low-impact renewable generators produces both electricity and a 'tag'. The tag can be sold or traded with other utilities; for example, to help offset a utility's greenhouse gas emissions. The EMGC included no less than eight recommendations describing RPS-tags.

3.4.4 Lack of accountability

As mentioned in Recommendation 43 (above), by 2010 NSPI will be expected to show that they have met their final RPS target by producing tags equivalent to five percent of their 2001 generation. In most jurisdictions, an LSE (such as NSPI) must demonstrate that they have accumulated the tags over a one-year period (typically a fiscal year); at the end of the year, they must start accumulating tags for the following year. The lifetime of a Nova Scotia RPS-tag is described in Recommendation 45:

> *The EMGC recommends that "RPS tags", obtained from certified Nova Scotia renewable generators, carry an expiry date set 18 months from the month of generation, by which time they will have been used by an LSE to meet the RPS requirement, or they will have lapsed.*

The EMGC recommends that the RPS-tags have an 18-month lifetime. The rationale for this period is unclear. Furthermore, it adds to the difficulty of monitoring the RPS, since tags are normally for a year, so deciding whether a tag is 17, 18, or 19 months old becomes problematic.

4 Why the rush?

During second reading debate on Bill 87, the Minister of Energy stated:

> *… It also allows government, with the intention to bring forward a full Act in the Spring session of the House, to be able to take and have lessons learned and look at how we may be able to improve upon that as we implement the other 85 recommendations to come forward the present Electricity Act.*

According to the Minister, the version of the Electricity Act now being introduced appears to be implementing only four of the EMGC's 89 recommendations meaning that the bulk of the Electricity Act (i.e., the EMGC's remaining 85 recommendations) will be introduced in six months time. This raises the question: Why not wait to bring forward an act that would encompass all of the EMGC's recommendations?

The reason can be attributed to a ruling of the New Brunswick Board of Commissioners of Public Utilities, which has given NSPI until January 2005 to

adopt standards of conduct compatible with FERC Orders 888[6] and 889[7]. Failure to meet this deadline will mean that NSPI will no longer be able to sell electricity to New Brunswick or the New England states. In order for NSPI to do this, changes are required to legislation in Nova Scotia; hence the proposed Electricity Act.

Subsections 3(1) through 3(4) of the Act will ensure that NSPI becomes FERC 888 and 889 compliant:

- Subsection 3(1) states that "*wholesale customers may purchase electricity from any competitive supplier*".
- Subsection 3(2) requires NSPI to "*develop and file… an approved open access transmission tariff*".
- Subsection 3(3) calls for the tariff to "*ensure open and non-discriminatory access*".
- Subsection 3(4) requires NSPI to "*develop and maintain a system to facilitate the import and export of electricity from the Province*".

Becoming FERC compliant was actually a trivial matter for NSPI; the most difficult part, opening the transmission grid to competition, was achieved through the EMGC's market model, defined in Recommendation 4:

> *The EMGC recommends that eligible Nova Scotia buyers should arrange for competitive supply through bilateral contracts with eligible sellers.*

The "*Nova Scotia buyers*" are the "*wholesale customers*" (all the municipal utilities, excluding NSPI) defined in Section 2 of the Act. The "*wholesale customers*" make up about 1.6 percent of NSPI's total generation.

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[6] FERC 888, the first of two major rulings regarding electricity, requires utilities to open their transmission systems to other utilities (the Open Access Transmission Tariff or OATT). To be FERC compliant, all electricity generators using the OATT in the United States must offer competing companies access to their transmission system (reserving capacity on the transmission system is done through an Open Access Same-Time Information System or OASIS).

[7] In order to ensure that a utility charges the same transmission tariff to itself and other utilities, FERC 889 stipulates "Standards of Conduct" that effectively splits every utility into two parts: generation and transmission-distribution. Canadian utilities that sell electricity to the United States (this includes NB Power), are required to be "FERC compliant" (i.e., have adopted FERC 888 and 889).

By opening up its transmission grid, NSPI is now guaranteed to have unfettered access to both New Brunswick and New England. This is especially beneficial to NSPI, since the electricity demand in the Maritime provinces is greatest in the winter and lowest in the summer, whereas in the New England states, electricity demand is lowest in winter and highest in the summer.

5 Summary

The proposed Electricity Act is a product of the Energy Strategy; as such it reflects the politics, beliefs, and hopes of the late 1990s, when it was assumed that natural gas would be available to almost anyone in Nova Scotia who wanted it. We now know that this is not and will not be the case.

Similarly, with electricity, the Energy Strategy "talked the talk", describing the benefits of renewable energy, called for a provincial RPS, while NSPI promised a 50MW wind farm. The EMGC, following the government's guidelines, produced a document that met the government's expectations.

The world has moved on since the publication of *Seizing the Opportunity* in 2001: energy prices are rising, Nova Scotia's offshore is not meeting expectations, and the Kyoto protocol, for all its faults, is about to come into force. The Energy Strategy, originally described by Sir Graham Day in *Seizing the Opportunity* as a "living document", must now evolve to reflect these changes:

- The EMGC's recommendations for renewable energy will have little impact on provincial greenhouse gas emissions or the development of a provincial renewable energy sector. The glaring weakness of the EMGC's recommendations (and hence the Act) have been highlighted in NSPI's recent solicitation for renewable electricity from independent power producers (IPPs); the solicitation will do little to help in the development of renewable energy from IPPs.

  The Act should include a renewable portfolio standard requiring NSPI to add an additional 10 percent renewables to its energy mix by 2012[8]. The RPS

[8] The justification for a 10 percent RPS target is explained in *Review of EMGC's Recommendations for a Renewable Portfolio Standard for Nova Scotia*, by L. Hughes, K. Bohan, K. Jafapur, H. Mullally, and J. Singh, J, June 2003. www.dal.ca/~lhughes2/environment/rps.pdf

should include penalties if the targets are not met. The RPS should start 1 January 2005.

- The need for energy efficiency in low-grade heat applications (i.e., space heating and the production of hot water) and in the use of electricity are well known. Technologies exist to address these and other issues relating to energy efficiency. The EMGC devoted less than two pages of its Final Report and only two recommendations to energy efficiency (neither of which will do anything to help encourage energy efficiency in the province).

  The Act should require NSPI to use its energy as efficiently as technically possible. This includes the use of combined cycle gas turbines and the application of district heating in locations where thermal power stations are close to populated areas.

  The Act should require NSPI to develop and then institute demand side management (DSM) programmes to help their customers reduce their dependence on electricity. The need for a provincial DSM programme is even more pressing given NSPI's proposed rate increases.

In short, the Act meets Nova Scotia Power's need to achieve FERC compatibility by 1 January 2005; however, it does little to address the issues facing all Nova Scotians, notably rising energy costs and climate change. This Act must be changed to reflect more than the requirements of Nova Scotia Power.

If any members of the Committee would like to discuss these matters further, I can be reached by:

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