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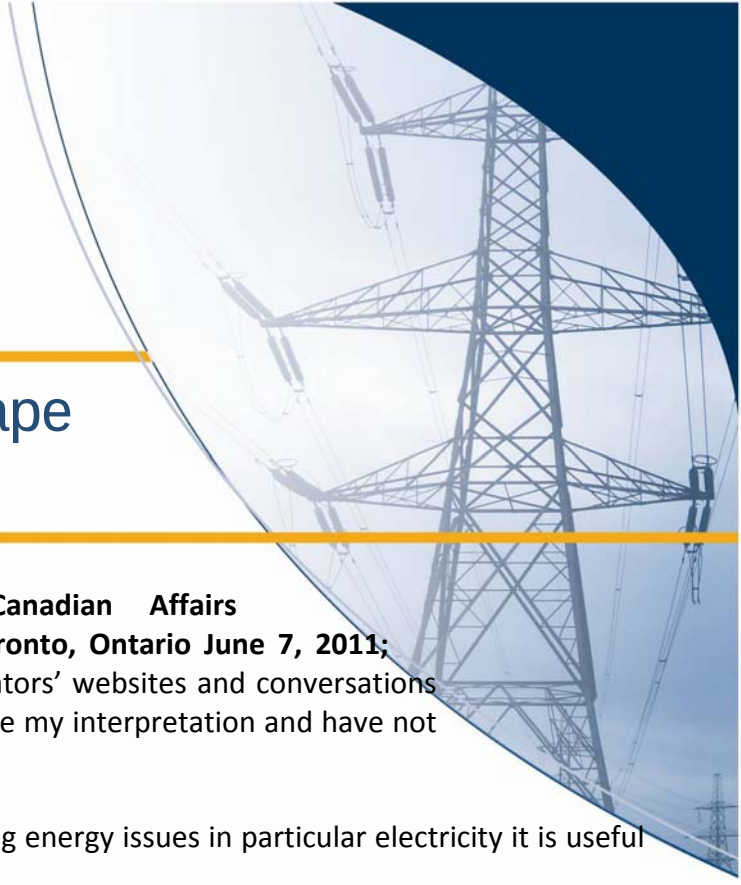

The Canadian Energy Landscape Electricity Planning

Comments delivered by Ric Cameron, NERC Canadian Affairs Representative at the Planning Committee meeting, Toronto, Ontario June 7, 2011; these comments are derived from government and regulators' websites and conversations with officials in the various Canadian jurisdictions. They are my interpretation and have not been vetted with the jurisdictions and agencies discussed.

Constitutional Framework: In Canada, when discussing energy issues in particular electricity it is useful to start with respective authorities.

The Provinces have non-renewable natural resource ownership and development authority; there is specific reference to electricity production and generation in the Canadian Constitution Act ("development, conservation and management of sites and facilities in the province for the generation and production of electrical energy").

This gives the provinces authority to set the regime for electricity in their jurisdiction. There is a mix of retail and wholesale open markets for electricity across the country. Many major utilities remain Crown owned. Some utilities have been unbundled and others remain integrated (or have been re-integrated).

Federal energy authority is primarily over interprovincial and international trade and commerce; however the federal government has authority over all things nuclear through the full cycle from uranium mining through waste management.

Canada's federal energy policy (seldom discussed) as outlined on the NRCan website has three main components; a market orientation; respect for jurisdictional authority and the role of the provinces and; where necessary, targeted intervention in the market process to achieve specific policy objectives through regulation or other means**.** These policy objectives include issues of health and safety (e.g., pipeline regulation) and environmental sustainability.

There is also some shared jurisdiction on environment issues where there is no clear demarcation.

Regulatory Framework: There are 8 provinces which are part of the NERC/regional entity overseen BPS. Seven of these have independent regulators; one has in essence all authorities in its Crown-owned utility. SaskPower has, subject to government policy direction, authority for planning, construction and operations, standards and rate setting and oversight etc.

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Three provinces have ISOs that have a role in systems operations and planning. They also usually provide technical support to their government and regulator, which tend not to be deep in technical resources and expertise. Utilities also may provide technical advice.
The federal regulator National Energy Board (NEB) issues permits for International Power Lines (IPLs that usually encompass from the last transformer to the border) as well as permits to export electricity. It is now moving to make reliability standards mandatory on IPLs. The NEB requires the applicant for an IPL to provide information on the impacts of the operation of the proposed power line on the power systems in other provinces, i.e., other than those provinces through which the line passes.

As part of its regulatory mandate, the National Energy Board monitors the Canadian supply and demand scenarios for all energy commodities including oil, natural gas, natural gas liquids and electricity. Energy Market Assessments address specific issues related to Canadian energy markets, such as the deliverability of natural gas, the outlook on oil sands production, and emerging technologies for power production. The National Energy Board publication, Canada's Energy Future, issued in 2007 serves as a comprehensive energy supply and demand outlook for 2005 to 2030 using a reference case and several scenarios. The Board presents energy outlooks on demand, supply, and industry trends seasonally to inform Canadians on the factors and trends impacting the summer and winter energy markets – but with a price focus unlike the NERC summer and winter adequacy assessments.
A review of its website shows that the NEB has done no electricity focused studies since one on coal-fired generation in July 2008. The last full electricity market assessment on the website was done in 2005.

But these very helpful studies and assessments are not "planning documents".

Planning framework: So, as far as electricity planning goes, there is no overarching national planning framework. However, there are a number of activities that go on at the national level.

The Council of Energy Ministers (CEM) composed of the federal and provincial and territorial energy ministers meets annually. It looks at high level issues - last year the smart grid was on its agenda and NERC CEO Gerry Cauley made a presentation on reliability issues to ministers. The CEM does not get to planning level, although it sometimes commissions studies, for example on the east-west transmission, and undertakes discussion of such topics. An FPT working group also looks at electric reliability issues on an ongoing basis, and meets with FERC and other US and Mexican authorities. This is an offshoot of the Canadian group that worked with US counterparts on the principles for an international ERO that underpins the NERC model following the 2003 northeast blackout.

The federal government also co-ordinates Canadian participation in the clean energy dialogue with US - two specific electricity forums have been held, one on workforce challenges and the other on smart grid issues.

A number of activities also take place at the regional level. Things like the Atlantic energy gateway discussions (intended to encourage the development of additional clean and renewable energy supplies in Atlantic Canada while actively promoting Atlantic Canadian renewable energy to new markets) and

Manitoba/Ontario possible generation and transmission projects. But these would not be called planning activities.

The Canadian Electricity Association has perhaps the broadest Canadian perspective on electricity matters. It does very useful reports. "Building Tomorrow's Electricity System – Electricity Fundamentals for Decision Makers (2009)" was an excellent report intended primarily for policy makers – but also not a planning document.

So, to a great extent it is up to the provinces – most planning goes on at the provincial level and involves a number of players. The government generally sets it off with policy and/or legislative directions. This has been a particularly active area in recent years and includes things like Ontario's Green Energy Act with its push to implement smart grid and renewable incentives, Nova Scotia's mandating the proportion of generation required to be from renewables at different future dates and BC legislating the requirement for electricity self-sufficiency in the province by 2016 (amongst other things). Utilities or other players tend to do the detailed technical planning. And in most jurisdictions regulators have a role in project approvals including final siting and rates determinations that govern actual systems construction. They usually also review long-term capital plans from utilities.

There are a number of models:

For example, in Ontario, where we are meeting on the fringes of its capital. If you look on the website of the Ontario Power Authority, it shows the following responsibilities for electricity in the province.

- **Regulation:** The Ministry of Energy has over-all responsibility for setting policy direction and for regulating the energy market. The Ontario Energy Board (OEB) is responsible for regulating the electricity and natural gas sectors
- **Operation:** The OPA is responsible for ensuring a reliable and sustainable supply of electricity for Ontario planning the power system for the long term and ensuring the development of needed generation resources. The Independent Electricity System Operator (IESO) manages the day-to-day reliability of operations and does shorter term studies
- **Generation, transmission and distribution:** Ontario Power Generation (OPG) and private companies produce electricity using a variety of fuel sources. Transmitters, particularly Hydro One, move power across long distances to where it is needed and more than 80 distributors (including Hydro One) delivery electricity to homes and businesses
- **Retailers:** There are a number of retailers who delivery electricity to consumers, including First Nations and Metis communities.

This is one of the most complex architectures in the country, no other jurisdiction has an equivalent to the OPA, though as noted there are other ISOs.

Quebec still operates on perhaps the most traditional model: for example the government decides to expand hydro generation in the north, Hydro-Quebec does the technical and engineering work and project

planning and the Regie de l'energie du Quebec reviews the long-term capital plan and issues permits for construction. In terms of longer term planning, every three years Hydro Quebec Distribution files a supply plan covering the next 10 years with a forecast of customer needs, planned efficiency measures and other means to secure supply for Quebec. This is submitted to the Regie for approval and subject to annual update (the last 10-year plan was submitted in November 2010 for 2011-2020). Quebec also works with NPCC and neighboring provinces on regional issues and planning.

Some other jurisdictions have made changes in how planning is done over recent years. By way of a couple of examples;

British Columbia's 2008 energy legislation contains energy objectives for BC that include electricity self-sufficiency for the province by 2016, the requirement for long term plans by utilities, inducements to increased use of DSM (for example BC Hydro is required to meet at least 50% of anticipated increased demand through DSM), limits on carbon emissions from generation sources and requirements for proportions of generation to be from renewable and clean energy sources There was also a requirement for the British Columbia Utilities Commission (BCUC) to conduct an inquiry to make determinations with respect to British Columbia's infrastructure and capacity needs for electricity transmission for the next 20 years, or other period specified by the Minister (the Terms of Reference for the Inquiry were released by the Minister on December 8, 2008; it provided for the review to cover a 30 year period; a consultation draft of the Inquiry report was to be made public by June 30, 2010).

In 2010 new energy legislation re-integrated BC Hydro (components were separated in 2003). It also changed the powers of the BC Utilities Commission, removing its responsibility for conducting the long term (30 year) assessment of transmission and generation needs and giving BC Hydro the task of submitting to the government for approval an Integrated Resource Plan covering the province's electricity needs over the next 20 years. This is to be submitted within 18 months of the legislation coming into effect – December 2012 is target date. Once a plan is approved the BCUC will be required to consider and be guided by it in taking future decisions.

BC Hydro describes it on its website as a 20-year Base Resource Plan that sets out a mix of demand-reduction, generation and transmission options that are able to fulfil the forecasted demand.
It will include contingency Resource Plans that address the uncertainties inherent in long-term planning such as higher than expected demand. Contingency resource plans will put forth a range of alternative resource options that would be relied upon if conditions change significantly. There will also be a 30-year transmission plan as part of the integrated resource plan.

The 2010 legislation exempts a number of "strategic projects and programs" from separate approval by the BCUC as well as removing its jurisdiction over projects specifically for the export market. This was described as "modernizing" the BCUC.

In Alberta the AESO is also responsible for long-term planning (it is required to maintain transmission system outlook documents with 20 and 10 year horizons). In June 2009 the AESO published its Long term

Transmission Plan (408 pages) which also deals with critical transmission infrastructure as well as issues of reliability, standards and its ongoing work to establish a compliance monitoring program. In 2009 new energy legislation gave the government the authority to declare certain transmission infrastructure projects to be deemed "critical" and eliminate the “needs” hearing with the AUC. It has identified some infrastructure as critical. This is part of a concerted push by Alberta to improve its transmission and enhance interties and includes elements of regulatory streamlining.

These are, just by way of example, a very active policy and regulatory agenda for electricity in Canada.