Development of a National East-West Power Grid Plan

2007

The massive blackouts in central Canada and the northeastern United States in 2003 underscore the risks associated with Canada's dependence on the U.S. electricity system and the vulnerability of our country's supply to power failures south of the border. It is also one reminder of the need to upgrade Canada's own electricity infrastructure.

Power supply adequacy and reliability are increasingly important in Canada, with growing electricity demand, increasing prices of fossil fuel, and aging power system infrastructure.

Canada has a strong stock of energy resources, including sources of clean power in various forms. Most of the more easily accessible oil, natural gas and hydro resources have been developed, meaning that much of the country's future energy potential is located in less accessible areas, such as the north and offshore. Optimizing the development of these to ensure a diverse supply mix should be a priority in Canada's energy plans.

In order to do this, Canada must take action to enhance its energy-related infrastructure. The Government of Canada is in a position to take steps to facilitate the creation and interconnection of critical electricity infrastructure, while producing a made-in-Canada response to greenhouse gases (GHG) emissions that assists in building a greener economy and maintains competitive electricity prices for average Canadians.

The Demand for Clean, Reliable Energy

The availability of reliable, clean, predictably priced electricity is rising in prominence as a veritable cornerstone for a stable economy and a key factor in the competitiveness of many industries in Canada.

The Government of Canada has indicated its commitment to the development and implementation of a made-in-Canada plan for reducing GHG and air pollutants that will focus on achieving sustained reductions in emissions in Canada while ensuring a strong economy.

In addition to lowering GHG and air emissions and enhancing the national economic landscape, cleaner energy, such as hydro, can reduce dependency on fossil fuel based generation, resulting in Canadians experiencing fewer increases in electricity prices as a direct impact of fuel supply shortages. The impact of gas prices on the cost of electricity was clearly demonstrated by hurricane Katrina in 2005, which contributed to an average market price in Ontario in September 2005 of $99.70/MWh (Source: IESO market price summary), a significant increase from Ontario's average price in 2004 of $52.2, an increase that was directly felt by homeowners in that province.

Canada has the resources and potential to become a clean energy superpower. In order for that to be realized, action is required to facilitate transmission from areas of supply to areas of need.

The Need for Interprovincial Cooperation in Providing Generation and Transmission Infrastructure

Provinces such as Manitoba, Quebec and Newfoundland and Labrador have significant hydroelectric resources that could be developed if appropriate infrastructure were in place. Right now, a substantial amount of Canada's power potential is stranded because there is no transmission grid to tap that power and ship it to market.

In terms of hydroelectric power, approximately 95% of the installed hydro capacity in Canada is situated in five provinces spanning the country from east to west: Newfoundland and Labrador, Quebec, Ontario, Manitoba and British Columbia. Combined, these provinces produce an estimated 97% of the hydroelectricity generated in Canada. Not surprisingly, some of these are

the provinces that participate in the greatest amount of interprovincial and/or international electricity trade. Historically, north-south trade with the US has dominated, particularly for Quebec, British Columbia and Manitoba which export and import in order to optimize production to meet domestic demand and maximize profits from external sales through use of valuable reservoirs and transmission infrastructure.

On the other hand, Canada has yet to fully realize the national benefits of interprovincial electricity trade because electricity transmission systems have been developed on a provincial basis, with the primary focus on meeting individual provincial needs, and not broader regional and national interests; and also because of regulatory barriers that limit electricity from flowing freely across provincial borders.

However, there is growing will to expand power networks across provincial jurisdictions. The Province of Ontario has been consulting with other provinces about reinforcing and expanding interconnections, and have taken action on that front. In November of 2006, the governments of Ontario and Quebec announced the signing of an agreement on a new transmission interconnect that will provide the potential to move 1,250 MW of additional power between the two provinces by 2010, helping meet power needs in Ontario, with access to clean energy, while reducing its reliance on importing electricity from the U.S. In March of 2007, it was announced that Ontario would use part of its $586 million share of the $1.5. billion Canada ecoTrust fund to start work on an east-west electrical transmission interconnect with Manitoba, which will allow for the flow of new, clean hydroelectric power to the Ontario market, while assisting in the Ontario government's efforts to phase-out coal-fired generating stations thereby reducing carbon dioxide emissions.

The National Energy Board (NEB) has also recognized the conditions are ripening for investment in an east-west grid on a national scale. In its June 2005 Outlook for Electricity Markets, the NEB noted:

> *"Under normal operating conditions, transmission interconnections between regions provide opportunities to engage in trade and contribute to reliability of the interconnected systems. For geographic and economic reasons, the strongest ties have been north-south between the provinces and adjacent American states. These have enabled the exporting provinces to earn revenue during periods of surplus supply and have enabled power purchases during off-peak times, or when required, to supplement domestic generation. The Board's analysis suggests that the benefits of north-south trade are expected to continue. While there are important interprovincial power transfers in some regions, the historical tendency for provinces to supply their own markets has limited the extent of interprovincial transfers. The concept of expanded east-west interconnections, or an 'East-West Grid' in Canada, was raised a number of times in the past, but typically was not considered economically attractive. Recent regional developments, such as the Clean Energy Transfer Initiative (CETI), between Manitoba and Ontario, and other potential interprovincial projects, suggest that specific opportunities may now exist."*

Clearly, it is to the benefit of all of Canada to put in place modern power-related infrastructure as valuable assets in the country's energy future. Better integration among all provinces and territories of power projects within a national electricity network would result in synergies and advantages – technical, economic, and environmental. Moreover, enhanced interprovincial trade in electricity within Canada is in the nation's interest as it will allow for:

- increased access to large- and small- scale renewable electricity sources across the country, reducing emissions and reliance on fuel generation;
- diversification of supply, by generation type and by geographic site;
- reduced capacity requirements resulting from increased regional coordination; planning;
- increased security and reliability

Conclusion

The ongoing discussions between provinces are generating momentum toward the creation of a national east-west power grid.

Facilitating the development of an east-west grid would:

- unlock new clean and renewable power sources, and maximize the reach of Canada's energy supply by linking areas in demand with sources of surplus power across the country, including those in more remote, northern locations;
- increase reliability and security of power supply;
- enhance the country's electricity infrastructure and generate significant capital investment;
- foster exchanges of energy and enhance overall security of supply for future generations of Canadians;
- facilitate interprovincial trade and transmission of power.

The construction of a nationally integrated power grid, as part of the vision of Canada as an energy leader, would also contribute to nation-building.

Currently, access to electricity markets is a key barrier to developing clean, renewable resources in Canada. This country has more barriers to energy trade than does the United States. While some physical interconnections do exist, an open, transparent, effective interprovincial electricity market and policy has not yet emerged in Canada.

The development of robust interprovincial trade should be addressed nationally to meet energy supply needs in all of Canada, and allow the country to maintain its competitive advantage in North America and the world. The absence of an effective national regulatory market in Canada encourages a situation whereby its most environmentally-friendly, stable-cost electricity will continue to seek the path of least resistance – into a receptive U.S. market.

It is worth noting that Canada's interest in facilitating more east-west transmission would not be pursued with the aim of supplanting power transfer arrangements with the United States. Simply, expanding interprovincial connectivity is in the national interest in that it would contribute toward optimizing Canada's own energy resource potential and enhancing diversity and security of supply. Furthermore, development of transmission infrastructure and capability within Canada would improve the prospects of cross-border electricity trade with the U.S. as more generation and transmission capacity is created.

Recommendations

That the federal government:

1. Develop a clear, forward-looking national policy on Canada's energy infrastructure needs in as timely a manner as possible;
2. Work with the provinces, territories, private enterprise and First Nations to begin investing in the construction of a national east-west power grid where it is economically justified.
3. Work with the provinces, territories, private enterprise and First Nations to put in place the necessary regulatory and funding frameworks to facilitate the creation of an east-west grid.
4. Remove barriers to and actively encourage and facilitate inter-provincial/territorial trade and transmission of power.