

Canadian Exports Surge

ENERGY FLOWS SHAPED BY PRICE

BY KATE ROWLAND



CANADIAN POWER EXPORTS TO THE United States reached more than 50 terawatt-hours last year, up more than 70 percent from 2003. Canadian power imports from the United States fell to under 20 terawatt-hours last year, a decline of about 16 percent from 2006.

For more than a century, the United States and Canada have engaged in a cross-border trade of electricity. What began with one transmission line built at Niagara Falls in 1901 has blossomed over the ensuing years, and especially in the past five decades, into a brisk trade in both directions, to the extent that existing international and interprovincial transmission lines permit it.

Canadian exports to the United States were boosted by a number of events. The first was in 1959 when the Canadian government enacted a national energy policy that encouraged the development of power resources, more interconnection of provincial transmission systems, and the export of surplus electricity to the United States. By 1987, escalating electricity costs in the United States pushed imports of Canadian electricity to a new peak of 45 terawatt-hours, worth approximately \$1.17 billion to the Canadian economy. By the early 1990s, surplus generating capacity in Manitoba, Ontario and Quebec carried Canada's electricity exports even higher.

According to statistics produced annually by the National Energy Board, an independent federal agency whose job it is to regulate international and interprovincial aspects of the oil, gas and electric utility industries, Canadian electricity exports to the United States have fluctuated from 43.06 terawatt-hours in 1997 to a peak

of 50.12 terawatt-hours in 2007, but dipped as low as 29.34 terawatt-hours in 2003. In the meantime, U.S. exports to Canada in 1997 equalled 7.47 terawatt-hours, rising as high as 23.58 terawatt-hours in 2003. Last year's 19.56 terawatt-hours imported by Canada was a significant drop from its 2006 U.S. imports of 23.40 terawatt-hours.

"Canada's electricity exports in 2006 and 2007 were both higher than the average of 36.50 terawatt-hours over the past five years," says Stephane Thivierge, market analyst, electricity, for Canada's National Energy Board, based in Calgary. However, he says, "Overall, it's really too soon to say a reduction in domestic demand is going to lead to an increase in exports."

Natural gas, too, has seen a steady cross-border trade in recent years, supported by a number of international pipeline interconnections.

The largest electricity and natural gas supplier to the United States, Canada exported 3.6 trillion cubic feet of natural gas to the United States in 2006, or 86 percent of total U.S. natural gas imports that year. By the end of 2007, Canadian natural gas exports accounted for 51 percent of total annual production.

While the National Energy Board isn't prone to crystal ball gazing, last year it published a report titled "Canada's Energy Future," detailing potential scenarios for the future of Canadian electricity imports and exports through the year 2030.

According to the report, "The mix of electric power generation will see significant changes as the use of wind power, nuclear power and clean coal technologies are all expected to grow." Additionally, large hydro developments in Newfoundland and Labrador, Quebec, Manitoba and British Columbia may be built between now and 2030, "requiring substantial and unprecedented additions to transmission systems."

That being said, these are merely statistical scenarios. The "report is not a definitive prediction of the future. For now, there is not enough statistical evidence to declare a definite trend. All we can look at so far are very recent data," Thivierge says.

For one thing, the issue of transmission constraints continues to strangle the cross-border trade market for the foreseeable future. Even in 2003, the National Energy Board was already observing the difficulty. As noted in its 2003 energy market assessment: "In some cases, market integration is constrained by existing transfer limits on transmission systems and/or transmission congestion, and not all provinces have direct access to the export market."

"Nothing has changed in 30 years. Until the day that someone says 'We can build transmission at an affordable price,' then export potential is just that – it's

just potential," says David Austin, a British Columbia-based lawyer and energy sector analyst. "Proximity to the market is key, as well as transmission space. If you can't deliver to the market because of space constrictions, then there is no market."

Thivierge argues that long-needed additions to the transmission grid are coming. "Achieving transmission is a constant work in progress," he says. "There are trends that are getting under way. Each province is investing, or plans to invest, in future transmission needs." In addition to creating energy reliability and economic opportunities in neighboring provinces, transmission expansion creates economic opportunities in neighboring states, something that is not being overlooked in transmission planning

For example, one of the main goals of Quebec's energy strategy, passed in 2006, is to open up new economic opportunities for the province, the world's fourth-largest producer of hydroelectricity. "According to the Energy Information Administration, the northeastern United States will require 12,400 megawatts of additional capacity by 2025," notes the Quebec document, and the province is going after as large a share of that export potential as it can manage to build in that time, increasing both its hydroelectric and its wind-driven

electricity surpluses aggressively in the interim.

Manitoba, another province with large hydroelectric surpluses, is also looking to its export future. On average, Manitoba Hydro's export sales already account for approximately 40 percent of its annual electricity revenues. In April, the provincial utility announced it had signed a term sheet with Wisconsin Public Service to provide the U.S. utility with 500 megawatts of hydro power over 15 years starting in 2018, a deal worth more than \$2 billion in Canadian currency, currently worth approximately \$1.95 billion. This new deal follows the renewal by the two companies in 2007 of an existing agreement for 100 megawatts. The long-term sale to WPS will require the construction of a Manitoba Hydro transmission line with a targeted in-service date of 2017.

Building the transmission grid capable of dealing with increasing interprovincial and cross-border demands, Thivierge says, "is a work in progress, and maybe a little bit of acceleration."

But price will always be key to cross-border electricity marketability. "In terms of electricity exports, it always comes down to a question of price," says Austin. "It almost inevitably comes down to price, including the losses when electricity is transmitted a long distance."

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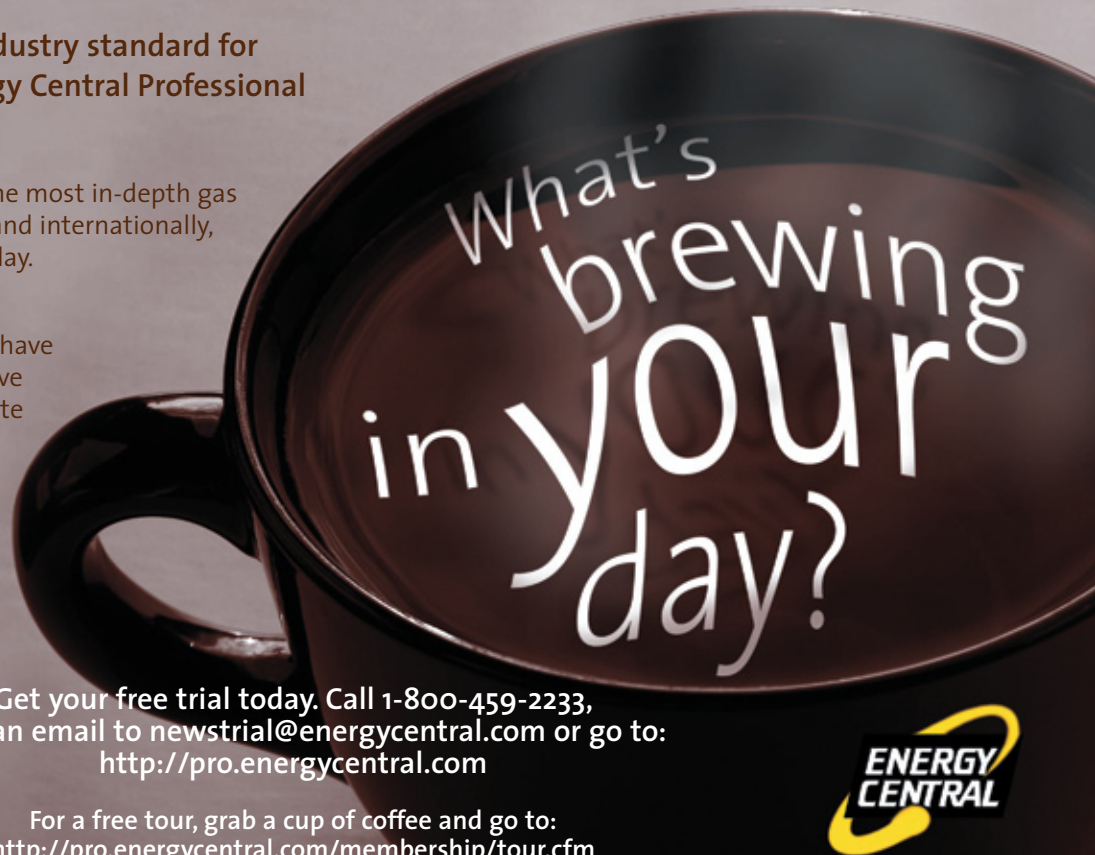
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