

Appendix

Wind Analysis Studies presently underway at CEA member companies

Newfoundland & Labrador Hydro (NLH)

In December 2000, NLH issued a request for proposals directed at assessing the potential and feasibility of wind generation for the main Island grid. The feasibility study portion of the analysis was completed in late 2002 and included a mapping of wind development potential for the Island with consideration for: wind speed; ice regime, land use; and grid proximity. A decision on a proposed 25 MW demonstration project is pending.

During 2003, agreement was reached with a developer proposing a 390 kW (6x65 kW) wind development connected to one of the Island's isolated diesel systems at Ramea on the southwest coast. This project is intended to demonstrate the feasibility of a medium level wind penetration project into an isolated diesel system and is expected to come into service during 2004.

Nova Scotia Power (NSP)

NS Power is engaged in a Wind Testing Program consisting of 6 met towers in various places throughout the province. Moreover, the company has recently signed a Power Purchase Agreement for the supply of 100 gwh/year with a wind IPP and has undertaken project development with a local First Nations community.

Hydro-Québec (HQ)

In response to a call for tenders, in October, 2004, Hydro-Québec Distribution selected six bids from Cartier Wind Energy Inc. and two bids from Northland Power Inc./Northland Power Income Fund for a total of 990 MW.

The average cost of the eight accepted bids is 6.5 ¢/kWh. In total, the winning bidders guarantee an annual energy volume of 3.2 TWh, which corresponds to a capacity factor of 36.6%. The 990 MW from the accepted bids will therefore generate 1 TWh more than anticipated.

HQ TransÉnergie (the transmission division of HQ) expects integration and connection costs of \$430 million, which works out to 1.3 ¢/kWh. The cost of balancing the wind power feed-in is about 0.9 ¢/kWh.

Ontario Power Generation (OPG)

OPG participated in the Wind Power Task Force report (released 2002) that addressed the potential contribution of Wind Generation in Ontario: [The Wind Power Task Force Report](#) (see section 2.2).

In Summer 2003, OPG participated in a study into wind's ability to meet peak load in Ontario to demonstrate that wind could supply significant load during summer peak conditions. Currently, OPG is conducting forecasting work on how peaks line up with wind production.

Manitoba Hydro (MH)

Manitoba Hydro's Energy Innovations Department is presently conducting an integration study evaluating the cost and impact of wind power development. Also, the company is conducting an "avian study of potential locations" as part of its environmental assessment of wind development. Additionally, transmission and distribution arms of MH are carrying out site-specific interconnection and system impacts studies.

Manitoba Hydro is negotiating a power purchase agreement with a private developer for the output of a 99 MW wind farm, to be in service in 2005 and has established a target of 250MW of wind generation by 2009, subject to its economic viability.

SaskPower

SaskPower issued an RFP in October, 2004 to assess the impact of additional wind generation on the SaskPower system. The utility also announced its decision to construct a 150 MW wind farm in south eastern Saskatchewan in 2005 with an in-service date of early 2006.

Alberta Provincial Study

CEA members supported a study carried out by the Alberta Electric System Operator (AESO). The study was carried out by ABB in Fall 2003 with the objective of developing an increased understanding of the impacts that potential wind generation development may have in the province. The report can be accessed in three components:

[Wind Power Study - Operations Impact](#) [Posted: 5/18/2004]

[Wind Power Study - Planning and Interconnection Criteria](#) [Posted: 5/18/2004]

[Wind Power Study - Voltage Regulation](#) [Posted: 5/18/2004]

Specific areas that were reviewed:

- (1) Requirements for voltage regulation,
- (2) Requirements for wind facility inter-connection standards,
- (3) Requirements for wind power facility modeling,
- (4) Requirements for wind generation forecasting,
- (5) Impacts on operating reserve requirements, and
- (6) Impact on stability of wind farms during system fault conditions.