

The Value of Unused Transmission: Estimating the Opportunity Cost for the Province of Quebec, Canada

Pierre-Olivier Pineau – January 27, 2009

HEC Montréal, Canada

3000, chemin de la Côte-Sainte-Catherine, Montréal (QC) H3T 2A7 CANADA

piere-olivier.pineau@hec.ca

(1) Overview

The balkanized nature of electricity markets across North America creates many investment and consumption distortions. Indeed, low electricity prices in some jurisdictions induce much greater consumption levels than in neighbouring ones, where electricity prices are much higher. This situation, resulting from a regulatory framework where utilities have to sell first in their market at cost of service, has an opportunity cost: unrealized profit in the higher cost jurisdiction. Of course, transmission capacity limits such exports, as not all the electricity could be transmitted and sold in the export market. But although transmission capacity is sometimes tight in North America, it is not always fully utilized. This paper investigates the value of non-utilized transmission capacity from the Canadian province of Quebec to its deregulated neighbours (Ontario, New York, New England and New Brunswick), where electricity is sold at about twice the Quebec price.

(2) Methods

Hourly transmission data from the Open Access Same-Time Information System (OASIS) indicates how much electricity is transmitted through transmission lines from Quebec to its neighbours (HQ TransEnergie, 2009). The hourly electricity price is also known in these markets (e.g. NYISO, 2008). Given the transmission lines' capacity and the market price, it is possible to compute the amount of forgone revenue when market prices are sufficiently high to justify exports. The opportunity cost is the forgone profit, for the utility, of selling at the low regulated Quebec price instead of selling in the neighbouring market. Three years of data are analyzed: 2006, 2007 and 2008.

(3) Results

The estimated opportunity cost of selling to Quebec consumers at a low regulated price, instead of selling in the export market ranges in the billions of dollar. Some seasonal pattern can also be observed.

(4) Conclusions

State and provincial regulation in the electricity sector come at a high price when opportunity costs are considered. This paper details how such cost can be realistically estimated (through the use of OASIS data) and computes the financial value of unused transmission line for three years (2006 to 2008).

References

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