Comments of Manitoba Hydro on the

Market Power Framework for the IESO Administered Electricity Market

Dated November 2006, as issued by the Market Surveillance Panel

Manitoba Hydro submits these comments in response *Market Power Framework for the IESO-Administered Market* (the Framework) discussion paper dated November 2006.

Despite claims to the contrary, the Framework is a major new policy direction for the IESO/ MSP. The Framework is a broad expansion of the mandate of the IESO/ MSP to now include the exercise of market power. This expansion is contrary to the MSP statements in 2002 which clearly recognized its mandate was in the investigation of the abuse of market power and not simply the exercise of market power.

Manitoba Hydro also notes that there has been little if any stakeholder support for the Framework. The representatives of load interests have been silent – perhaps an indication that the issues raised in the Framework are not a major concern to these parties. The MSP itself has recently stated "The Market Surveillance Panel (MSP) found no evidence of gaming, abuse of market power or other inappropriate conduct by the market participants or the market and system operator[1]", again begging the question why is the IESO/ MSP is trying to solve a problem that does not exist and that the load has not voiced concerns about. As noted herein, the concepts contained within the Framework will damage the credibility and further undermine the efficiency and effectiveness of the Ontario market. Under the Framework, there will be no long-term investment in Ontario generation without significant support from the OPA.

Manitoba Hydro notes that in the Framework and related presentation, the calculations were presented as being for monitoring purposes only, and not for resettlement purposes at this time. Manitoba Hydro is concerned that the Framework is just the first phase of an eventual resettlement mechanism and hence these comments reflect that concern. Manitoba Hydro also notes that many of the concepts in the Framework have not been tried in other jurisdictions. The IESO /MSP are proposing to go where no other jurisdiction has seen the need to go before.

As the IESO/ MSP indicated in the presentation sessions, the Framework is a work in progress. This is evident upon review of the Framework, as it contains a large number of jurisdictional, legal, economic, technical and even geographic flaws that require extensive revision before the concepts within the Framework can even begin to be seriously considered for inclusion in the Ontario market. Indeed, some of the issues such as jurisdiction and mandate that are raised are so significant; it may not be possible to

[1] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page vii.

proceed with some of the concepts in the Framework in any form. These issues are summarized as follows:

1. Jurisdictional Flaws

a. Ontario's Jurisdiction has Limits

The Framework, as it pertains to imports, implicitly assumes Ontario has complete jurisdiction over the offers of energy from other provinces and even a foreign country. This assumption is incorrect.

Offers by importers to the Ontario market are voluntary, and the IESO/ MSP do recognize this fact. The Ontario market can only benefit from offers from importers, as they provide a potential additional source of supply, and the resulting competition has a downward effect on market clearing prices. Indeed, we understand that on a number of occasions since the Ontario market opened that the voluntary external supply has averted blackouts in Ontario. Thus Ontario has benefited enormously from voluntary imports[2].

Importers have their own cost structure based on their resources located outside of Ontario. Ontario does not have the jurisdiction to set the rate of return on assets located outside of its borders.

Consider natural gas markets. Ontario has the jurisdiction to set distribution rates and manner in which the primary gas costs are passed along to consumers. It does not have the right to set the wellhead price of natural gas in Alberta or the U.S. gulf coast. If Ontario does not like the price of natural gas in the North American market – its alternative is not to buy. It does not take delivery of the gas from Alberta and then decide to "mitigate" the price from Alberta producers after the fact – because it does not have jurisdiction to do so. Electricity is no different. If Ontario decides it has jurisdiction over assets in other provinces / countries, then it must also accept that those provinces/ countries have similar jurisdiction in Ontario – be it in power, natural resources, or any other manufactured goods.

Based on the limits of Ontario's jurisdiction, all tests that apply to importers must be deleted from the Framework.

[2] For discussion, see "Imports and exports are a key component of the Ontario Market", as noted in the December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 26-27.

2. Legal Mandate and Issues

a. MSP Mandate is for Market Abuse

As the MSP itself said in 2002 "The mandate of the MSP is to investigate the *abuse* of market power, not simply the *exercise* of market power. This is an important distinction[3]". Now five years later, it appears the MSP is proposing to ignore this distinction.

The Ontario Energy Board Act, 1998 makes repeated references to abuse of market power. For example, section 87.(2) states

> "The Board shall advise the Minister with respect to any of the following matters if requested by the Minister to do so or if the Board considers it advisable to do so:
> .1 Any abuse or potential abuse of market power in the electricity sector."

Similarly, the Electricity Act, 1998, contains an entire section, No. 38, titled "Abuse of Market Power". A search of both Acts for the word "exercise" finds references to the word exercise only in relation to the exercise of powers and duties, and none with regard to the exercise of market power.

It is clear the legislators have given the MSP the mandate related to the abuse or potential abuse of market power, but no mandate in regard to exercise of market power. The MSP clearly recognized this reality in 2002 and must continue to respect its legislated mandate.

b. No Definition of Abuse or Exercise of Market Power

Of significant concern to Manitoba Hydro is the lack of definition in legislation or the Market Rules of the abuse of market power or exercise of market power. Indeed, statements made at the February 15, 2007 Workshop could be interpreted that the IESO and the MSP have taken care as to not define these terms. Such key terms need to be defined.

[3] The Market Surveillance Panel In Ontario's Electricity Market: Monitoring, Investigating and Reporting, dated April 2002, page 11. Available at http://www.oeb.gov.on.ca/documents/msp/market_power_framework/market_power_framework_background2002_20070219.pdf

3. Economic Flaws

a. No Consideration of Fixed Costs

The Framework does not define what it considers to be profit. Manitoba Hydro requested a definition of profit[4], but the IESO/ MSP did not provide written responses to any questions. Based on discussion at the Workshops, Manitoba Hydro believes that profit, in the context of the Framework, is an operating profit, that is the Market Clearing Price minus the greater of the marginal cost or average incremental cost of a generating unit or schedule. By considering only the operating profit, the Framework ignores all fixed costs.

A Market Participant who makes an operating profit with a particular generator in a particular hour could be deemed to have exercised market power in that hour. However, at the end of the year, the sum total of all operating profit for that generator may be insufficient to cover all of its fixed costs. Thus the Market Participant is not marking a net annual profit – but cold be found "guilty" by the IESO/ MSP of exercising market power.

The MSP recognized importance of long term fixed cost recovery to power markets when it stated:

> "If capacity investment decisions are to be market-based as the Panel has always favoured, the HOEP and the price of OR must be such that the revenue earned from the energy, operating reserve and other ancillary service markets covers [fixed] costs, including returns to investors. Yearly revenue that is persistently below levelized cost puts significant financial pressure on existing generation and discourages new investment. A persistent revenue shortfall may indicate that the market is not functioning properly or that other factors outside the market (e.g. government policy changes) are in play. In contrast, yearly revenues persistently above levelized cost should attract new investment and, in turn, put downward pressure on the HOEP[5]."

According to MSP's net revenue analysis, "a combined cycle generator in Ontario would require roughly $100,000 CDN [/ MW of capacity] in order to meet its [fixed] debt and equity requirements[6]". Also according to MSP

[4] See Manitoba Hydro questions of February 1, 2007 at http://www.oeb.gov.on.ca/documents/msp/market_power_framework/market_power_framework_questions_MHEB_20070213.pdf

[5] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 61.

[6] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 63.

analysis, in Ontario "a combined cycle generator would make a contribution of $76,750/MW per year toward its fixed costs[7]". Thus a new combined cycle generator within Ontario indeed has very significant fixed costs which are not being fully recovered, and yet the Framework proposes to potentially find that such a generator not recovering its fixed costs is making too much profit.

In the absence of a capacity market, generators and importers must recover their fixed costs via an operating profit. As the quote above suggests, the Panel favours market based capacity investment decisions. However, the Framework provides significant additional uncertainty regarding fixed cost recovery – at a time when the current level of fixed cost recovery is already inadequate. Thus the Framework will damage the credibility of the Ontario markets, and under the Framework, there will be no long term investment in Ontario generation without significant support from the OPA.

Outside of Ontario, importers have their own fixed costs, be it in generation assets, transmission charges, market charges and risk premiums, which are not considered in the Framework.

b. Materiality Screen Not Indicative of Market Power

The Framework proposes a materiality screen in which the market impact tests will be limited to the delivery hours in which the pre-dispatch price exceeds $50. The Framework observed that "when the pre-dispatch price is below $50 there is generally sufficient excess capacity available to discipline any potential exercise of market power[8]". A fixed dollar quantity is inappropriate because the entire market supply curve moves up and down based on forward coal and natural gas prices, nuclear outages, and general hydro water conditions. Thus the $50 threshold is a very different in an Ontario market with low gas and coal prices, and lots of nuclear and hydro supply, in comparison with a market with high gas and coal prices, nuclear outages and reduced hydro supply.

The recent MSP market monitoring report discusses supply cushion as a measure of supply conditions as follows:

> "The supply cushion is a measure of the unused domestic generation that is available for dispatch in a particular hour. There tends to be upward pressure on the HOEP and a greater potential for price spikes when the supply cushion falls below 10 percent. When the supply cushion falls

[7] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 62.

[8] Market Power Framework for the IESO Administered Electricity Market, dated November 2006, as issued by the Market Surveillance Panel, p. 27.

below 10 percent, this is a warning that demand in Ontario is reaching the steep part of the domestic supply curve. During periods of very high market demand when insufficient domestic generation is available, the supply cushion is negative and the market must rely on imports[9]."

A reduced supply cushion is a direct indicator of the potential for the exercise of market power. Based on MSP analysis, focusing on hours where the supply cushion is less than 10% would be an appropriate materiality screen and Manitoba Hydro would recommend such a screen.

Materiality should also be in regards to the size of the generator relative to the size of the market. A 1 MW generator on the Ontario system is clearly not material. At what size a generator becomes material to the Ontario market is debatable. To start this debate, Manitoba Hydro suggests that the materiality screen be expanded to exempt any suppler whose entire portfolio capacity represents less than 25% of the current supply cushion expressed in MW. With this test, should that immaterial generator attempt to price up, there would be available offers from other capacity equal to three times the capacity owned by that supplier.

c. U.S. Power Markets do not Extend into Canada

Implicit within the Framework, as it relates to imports, is that imports are offered into the Ontario market strictly based on expected prevailing prices in neighboring markets. This assumption may be valid for market to market interfaces such as New York to Ontario. However, the adjacent U.S. markets do not extend into the neighboring provinces of Quebec and Manitoba. Instead, Quebec and Manitoba have open access transmission, and the dispatch of generation within Quebec and Manitoba is by the respective provinces, not the market operator in a foreign country. The extent of the U.S. markets ends at the U.S. border[10].

Assuming the U.S. power markets extend into Canada right up to the Ontario and Manitoba/ Quebec borders is like assuming the province of Quebec and Manitoba do not exist. Alternatively, the assumption could be viewed as the provinces of Quebec and Manitoba are infinite pieces of zero loss zero cost transmission to and from the U.S. markets whose sole purpose is to serve the Ontario market. A third view of this assumption is that Ontario has a free call option on energy from Quebec and Manitoba at U.S. energy market prices. Such assumptions are disrespectful of Quebec and Manitoba sovereignty.

[9] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 16.

[10] Manitoba Hydro has made this point before to the IESO. See point 6 of the November 23, 2005 Comments of Manitoba Hydro Proposed Changes to Constrained off CMSC Payments

The reality of the situation is that power offered into Ontario on the Manitoba and Quebec interface is offered based on a myriad of factors. These factors may include the current accessible U.S. market prices, but may also include future U.S. market prices (future opportunities), current water conditions, transmission availability and costs to Ontario and the U.S. markets, market seam issues, market price volatility, uplift charges in Ontario and other markets and natural gas prices. Few of these factors are within the jurisdiction of Ontario.

There are times when the U.S. import capability of Manitoba, and likely Quebec, is fully utilized by existing customers of the firm transmission service, and there is no surplus capability to service additional needs such as for Ontario. Ontario can not, by virtue of the Framework, effectively demand priority over the transmission service in other provinces. Should Ontario wish long term firm transmission access through Manitoba to U.S. markets, Manitoba Hydro encourages Ontario to submit a request for such service with the transmission provider[11].

The MSP had previously noted the difficulty in the difficulty in attempting to arbitrage price differences between adjacent markets, when it stated "transmission constraints, bid lead times between markets, imperfect information and scheduling/protocol issues (seams issues), among other things, prevent traders from arbitraging away all inter-market price differences[12]".

d. Market Price Impact Test is Not Transparent or Suitable

One of the key tests in the Framework is the Price Impact Test. In this test "we intend to replace the actual offer price with the larger of the reference price and marginal cost of the generating unit involved and then simulate what the HOEP would have been in this situation. A comparison of the actual and simulated HOEP determines the impact that the potential exercise of market power had on the market price[13]".

The first problem with this test is that it is not transparent. The confidential market data and indeed the model for this test are not available to the Market Participant. Thus a Market Participant has no ability to review the evidence by which the IESO/ MSP may claim an exercise of market power.

[11] For more info on Manitoba Hydro's open access transmission tariffs, see http://www.hydro.mb.ca/your_business/open_access_tariffs.shtml

[12] December 13, 2006 MSP Report titled "Monitoring Report on the IESO-Administered Electricity Markets", page 32.

[13] Market Power Framework for the IESO Administered Electricity Market, dated November 2006, as issued by the Market Surveillance Panel, p. 32-33.

The MSP discussed the use of its two types of models to build understanding of the structure, dynamics and behavior of a competitive Ontario electricity market in April 2002. At that time, the MSP stated "These models are designed to help the Panel understand *why* the market is performing the way it is, not to try and 'second-guess' the marketplace. They are intended as tools that will illustrate how the market *does* perform, not how it *should* perform[14]."

Thus the MSP is now proposing to use the market price impact test to determine how Market Participants should be performing- a purpose for which the MSP has already stated the models were not intended to do.

e. Use of After the Fact Data is Inappropriate

The various tests within the Framework rely heavily on the use of after the fact pricing data. That is, they use the actual Market Clearing Prices, which were not known when a supplier offers power into the market. For example, an energy limited hydro generator within Ontario will try to optimize its offers to maximize its generation, within its hydraulic constraints, based on expected prices for the upcoming period. To the extent that the actual market clearing prices (as well as inflows, plant / transmission availability and capability) differ from those expected, it will show up as a reduced Water Allocation Efficiency Ratio (WAER) as defined in the Framework.

Such a reduced WAER is not indicative any nefarious behavior on behalf of the hydro generator within Ontario, but simply illustrative of the difficulty and risks in trying to achieve the optimum operating plan.

A fair test for exercise of market power should only rely on data available to the supplier when they make their marketing and operating decisions.

4. Technical Flaws

a. Dangers of Ratio Comparison

Many of the calculations within the Framework, such as the WAER (Water Allocation Efficiency Ratio), the IOR (Import Offer Ratio) and ROI (Reference Offer Index), compare actual performance using ratios calculated using after the fact market clearing prices with historical ratios. There are three problems with this method.

First, as noted in 3 e), a fair test for exercise of market power should only rely on data available to the supplier when they make their marketing and operating decisions, and not use after the fact data.

[14] The Market Surveillance Panel In Ontario's Electricity Market: Monitoring, Investigating and Reporting, dated April 2002, page 10.

Second, this type of comparison assumes a stable underlying relationship and that past performance will be indicative of future results. Such assumptions must be proven to be statistically valid; otherwise there will be excessive false positives. As we will see, the WAER and IOR/ ROI are in and of themselves volatile and hence not suitable.

Third – there is the well know problem of the perils of data aggregation. Simply put, there may be a cause and effect relationship between certain pieces of data, but when the data is aggregated together, that relationship becomes meaningless. In power markets – this mean that all hours are not created equal. Ratios or relationships based on stable, low cost, low volatility off peak hours should not be applied to the highly volatile peak hours.

b. Water Allocation Efficiency Ratio is Not Stable

The identification of the Water Allocation Efficiency Ratio (WAER) is an interesting concept. Upon closer examination, however, it can be seen that it is not a stable ratio. The WAER is strongly affected by two key drivers – the current water conditions for the hydro plant, and the volatility of current market prices. Manitoba Hydro requested a sample of WAER for a real hydro plant and the IESO provided data for an sample facility for a ten month period[15].

Upon observation of this sample WAER data, several things become immediately obvious about this unknown plant[16]. First – this unknown hydro plant was clearly at spill during the spring freshet – from early April to near the end of May. During a spill – it is very easy to achieve a perfect or near prefect WAER of 100%, as the plant is at constant maximum generation during every price period. Any hydro plant is likely to achieve a near 100% WAER during spill conditions.

Immediately preceding the spill period, from January to the end of March, is the late winter period. This time is marked by stable inflows due to ice cover, and relatively stable market prices. Hence the WAER is moderately high – in the range of 85% to 95%.

Immediately after the spill period, the volatile summer market begins in June, just as the hydro conditions recede. The WAER drops to its lowest level and is at its most volatile level. The overall range of the WAER is much wider –

[15] See Slide 60 of February 15, 2007 presentation titled Market Power Framework for the IESO Administered Markets.

[16] See Slide 16 of Manitoba Hydro's Questions on Ontario's Proposed Framework for Identification of Market Power, dated February 23, 2007, available at http://www.oeb.gov.on.ca/documents/msp/market_power_framework/market_power_framework_MHEB_questions_20070226.pdf

between 50 to 95% and frequent changes on the order of 20-30% are apparent over a few day period. In short – the WAER is very volatile as a result of price volatility.

Therefore, a 90 day WAER is not meaningful indicator as the data has been aggregated too much. To be meaningful, the WAER would need to be calculated over a much shorter period – say a week or even less, and compared only with a WAER from the same plant, with similar water flow conditions and similar market conditions.

c. Reference Offer Index is not Stable

The Reference Offer Index (ROI) for imports is also an unstable indicator. Like the WAER, the ROI also volatile, but its volatility is based both the magnitude and volatility of in pricing in Ontario, adjacent markets and other factors discussed above in 3c).

The ROI can vary significantly on a monthly basis, and is a lagging indicator of regional supply. Is in not appropriate to aggregate the ROI across all hours because it assumes all hours have equal risks and costs. Quite simply an importer directly from an adjacent market has less risk during the more stable off peak period. Therefore one would expect an off peak ROI to be lower. In volatile on-peak period during high demand seasons, risks are much greater, and the ROI is likely to increase. The approach of using 50 MW lamination of import offer has not been justified – the drivers of the ROI are price and price volatility – not quantity.

In the case of the Manitoba – Ontario interface, the ROI is also influenced by current water conditions in Manitoba and North-Western Ontario. Strong water conditions tend to cause hydro operators to drop their offer price to move the generation to market. As water conditions in a region with a strong hydro influence change, so does the ROI[17].

In order to be consistent with the Import Conduct Test, the Market Price Impact Test should use the Reference Offer Price = (ROI+2 SD)* IBA. However, given the flaws in the indicator, as well as the lack of jurisdiction, all portions of the Framework as they pertain to Imports must be abandoned.

d. ROI Concept Hurts Ontario Consumers

As explained in the Manitoba Hydro's Questions on Ontario's Proposed Framework for Identification of Market Power, dated February 23, 2007, there

[17] See slide 13 of Manitoba Hydro's Questions on Ontario's Proposed Framework for Identification of Market Power, dated February 23, 2007.

is a significant flaw in the ROI concept that could actually hurt the Ontario consumer.

The assumption behind the ROI concept is that an importer offers into the Ontario market each hour on the basis of other market prices, even if they are a predominately hydro generator (like Manitoba and Quebec) – whose supply offers tend to be based on the long term value of water in storage. As explained in the Manitoba Hydro questions[18], during the lowest priced hours, hydro based importer to Ontario will fail the Import Conduct Test as its offers are based on the Value of Water in Storage, and not adjacent market prices (the IBA).

If the energy limited systems in Quebec and Manitoba actually "complied" with the Import Conduct Test, it could result in:

- More off peak imports to Ontario
- Less on peak imports to Ontario, as the limited energy was supplied in the less valuable off peak rather than on peak periods
- Loss of value of the flexibility of adjacent hydro systems to Ontario
- Overall increase in prices in Ontario

Presumably, such an impact was not intended and is a further reason that all portions of the Framework as they pertain to Imports must be abandoned.

5. Geographic Flaws

a. Scope of IBA

Manitoba Hydro is not aware of anywhere the term Importers Best Alternative (IBA) is defined in the Market Rules. Based on statements made by the Workshops, staff believes that the IBA, in relation to an importer to Ontario at the Manitoba – Ontario interface, is the highest of the current market prices in the MISO, New England, New York, and PJM markets. That is not the case.

Manitoba is not directly interconnected to New England, New York or PJM, and these markets are not in any way an alternative market for Manitoba Hydro or any other entity transacting at the Manitoba – Ontario interface. Manitoba Hydro finds such assumptions deep within the IESO's market monitoring assumptions disconcerting – and it only raises questions as to what other inaccurate assumptions have been made. It begs for much more transparency in the calculations.

[18] See Slides 2-12 of Manitoba Hydro's Questions on Ontario's Proposed Framework for Identification of Market Power, dated February 23, 2007, available at http://www.oeb.gov.on.ca/documents/msp/market_power_framework/market_power_framework_MHEB_questions_20070226.pdf

6. Conclusions

In summary, Manitoba Hydro recommends major revisions to the Framework to i) recognize the limits of Ontario's jurisdiction, ii) recognize fixed costs and the need for fixed cost recovery, and iii) correct for various technical and economic flaws in the document.

Manitoba Hydro respectfully submits these comments for the consideration of the Market Surveillance Panel.

March 30, 2007