

I. Introduction and Background

This stakeholder engagement plan defines the process the IESO will use to obtain stakeholder input on the design of a Day-Ahead Market (DAM) for Ontario. The outcome of this plan will be heavily influenced by day-ahead market requirements and benefits identified by stakeholders, and therefore could fall within a wide range of possible outcomes - from as comprehensive a recommendation as the implementation of a full-featured DAM to as basic a recommendation as to retain or enhance the existing Day-Ahead Commitment Process. The recommendation will also be influenced by an analysis of the current industry environment, and the viability and sustainability of any proposed day-ahead initiatives. The objective of this stakeholder plan is to provide stakeholders with the opportunity to input to the high-level design of an appropriate Day-Ahead Market or other day-ahead mechanisms for Ontario. That input will be provided to the Stakeholder Advisory Committee in the course of seeking their advice, prior to IESO Board decisions on this initiative. Any subsequent implementation phase would follow design approval, and is not the subject of this plan.

Day-Ahead Market for Ontario

The IESO operates a real-time market for energy and operating reserves in which electricity prices are determined every five minutes. With the energy price being calculated so frequently, it can be subject to significant variability as the supply/demand conditions change from interval to interval. This variability makes it difficult for both consumers and producers to factor the price of electricity into their plans. Management of these risks is made all the more complex due to the fact no transparent forecast of real-time price currently exists. All market calculations prior to real time (i.e. pre-dispatch runs) are performed with an hourly granularity and therefore consider imports and exports when calculating price and therefore do not specifically replicate the real-time process. In today's Ontario market, import and export bids and offers cannot be changed in the five-minute timeframe and are therefore ignored in the real-time price calculation – although their scheduled quantities do establish the demand to be met by the market.

Real-time markets are generally expected to be volatile in nature, reflecting the ups and downs of balancing supply and demand within the constraints of the transmission system. Ideally, consumers or producers should only be exposed to the real-time price if, a) events have unfolded in such a way as to cause the real-time market to adjust to their change in output or consumption, or b) they can voluntarily change their production or consumption with very short notice. Most consumers and producers are expected to protect themselves from the volatile prices by a combination of contracting forward, locking in prices in a day-ahead market, or planning their consumption or production for the next day based on day-ahead price signals.

The Day-Ahead Commitment Process (DACP)

In June 2006, the IESO implemented a Day-Ahead Commitment Process (DACP). The DACP was designed to increase the reliability of imports and the availability of generators by offering guarantees for those scheduled a day in advance. While the DACP does provide reliability benefits, it does not serve the purposes of a day-ahead market. The DACP only offers financial guarantees to suppliers with the goal of improving reliability of the real-time market. The DACP has improved the quality of the pre-dispatch results somewhat, however it does not produce a quality day-ahead price signal, and it does not provide any opportunity for consumers to lock into a price for the next day. DACP guarantees are not likely to be as effective at assuring supply in real time as is providing participants with a day-ahead financial position, which a day-ahead market would do. A day-ahead financial position would expose producers to real-time buy-outs for under-delivery or real-time rewards for over-delivery. It would expose consumers to real-time rewards for under-consumption and real-time charges for excess consumption and would encourage real-time performance that is “correct” for the prevailing real-time market conditions. Finally, the lack of transparent day-ahead prices means that the DACP does little to improve the day-ahead signals needed for further demand response development or the operation of embedded, non-dispatchable generation. Several modifications and additions to the DACP can be contemplated to improve both the effectiveness of, and the efficiencies gained from the DACP process, and these will be considered both within the context of a day-ahead market and as possible stand-alone initiatives.

Developing a Day-Ahead Market in Ontario

A DAM would enable participants to lock into a price one day in advance of real-time energy delivery if they so desire. This would provide more certainty to suppliers and consumers, allowing them to react to price by leveraging added flexibility they may have a day in advance that is just not possible to take advantage of in real time. The added certainty and flexibility will improve the overall efficiency of the market and should have a commensurate impact on price; but the benefits go beyond improved efficiency and include improved reliability. A more reliable day-ahead price signal enables consumers to decrease peak consumption by avoiding high-price hours, encourages embedded generation to be available to operate during those same high-priced hours, and enables dispatchable generators to better manage their operations. The analysis of the benefits of day-ahead prices must take into account the current Ontario industry context in which the Global Adjustment significantly insulates consumers from real-time prices.

The availability of day-ahead prices can potentially facilitate additional demand response in the near future, given Ontario’s Smart Meter initiative which by 2010 will see all of Ontario’s consumption measured by interval meters. With hourly energy billing made possible by smart meters, and with consumers potentially having hourly prices for the next day from a day-ahead market outcome, consumers could adjust their consumption patterns to reduce energy costs.

Many possible designs exist for a DAM, and many features can be incorporated into a day-ahead market or day-ahead commitment process. In a comprehensive market design, the day-ahead market would produce physical schedules for supply of energy. In some day-ahead market designs, schedules are based on an optimization across the entire day, taking generator start-up costs and any energy limitations into account. Enhancements to the DACP with twenty-four hour optimization would allow the system operator to ensure demand is met in the most efficient manner possible, which can provide both reliability and efficiency gains. Improvements to day-ahead commitment such as those mentioned here will be examined in light of the coming additions to Ontario's generation fleet with several new natural gas-fired generators currently under construction in Ontario.

The day-ahead design that will be recommended to the IESO Board must address these issues and answer several key questions. Some of these questions are outlined in the attached addendum.

II. Stakeholder Engagement Plan Overview

This stakeholder engagement plan addresses only the development of a high-level design of the appropriate day-ahead mechanisms and, upon finalization and approval of a design, stakeholder input would be solicited on a stakeholder engagement plan for the implementation phase.

III. Design Phase: Day-Ahead Market Stakeholder Engagement Plan

Goal

To provide stakeholders with the opportunity to provide advice on the design of enhanced day-ahead processes, with a target date of the Fall of 2007 for a high-level design recommendation to the IESO Board.

Objectives

To provide all stakeholders with the opportunity to review and provide input on the design of enhanced day-ahead processes for the IESO-administered market.

Stakeholder Engagement Approach and Methods

The stakeholder engagement approach for the design phase will involve written submissions by stakeholders, face-to-face dialogue, as well as public postings of information and proposals. The implementation of the stakeholder engagement process will be in accordance with the IESO's approved stakeholder engagement principles.

The stakeholder engagement methods to be employed will be a combination of written surveys, individual meetings with stakeholders, stakeholder sessions, web-based postings providing all stakeholders the opportunity for comment, and discussions with the Stakeholder Advisory Committee.

Development of Stakeholder Needs and Wants

The first step in the stakeholder process will be to determine stakeholder needs and wants from day-

ahead arrangements. All stakeholders will be invited to respond to specific questions from the IESO that have been designed to aid both the stakeholders and the IESO to understand how day-ahead mechanisms would be used in their specific business. One-on-one follow-up meetings with stakeholders who have completed a survey may be held to clarify stakeholder goals and expectations. The feedback will be summarized in a manner that would ensure confidentiality of respondents, and would be published in combination with information gathered from other sources such as consultants and other ISOs.

Stakeholder Sessions

The IESO will organize meetings to present and discuss the IESO’s day-ahead proposal. There will be sector-specific meetings with groups such as consumers, generators, and traders, so that their specific issues can be addressed, as well as open sessions where stakeholders can gain from understanding each others’ diverse perspectives. Materials for all meetings will be publicly posted and available to all stakeholders.

Web-Based Postings

Web-based postings provide all stakeholders with a lower-cost alternative to keep up-to-date with the process and to provide input as desired.

Stakeholder Advisory Committee to the Board and Executive

The Stakeholder Advisory Committee will be asked to review and consider the proposed day-ahead market or process design, providing all stakeholder sectors the opportunity to express their views and positions directly to the IESO Board of Directors in advance of any final approvals.

Decision Making Steps and Schedule of Activities

Stakeholder Engagement Schedule – Design Phase	
Activity	Target Date
1. Post and communicate draft day-ahead market stakeholder plan.	Completed September 19, 2006
2. Input from Stakeholder Advisory Committee and other stakeholders on stakeholder engagement plan. Comments posted at: http://www.ieso.ca/imoweb/consult/consult_se21.asp	Completed October 2, 2006
3. Post revised stakeholder plan.	Completed January 8, 2007
4. Post and email survey to determine stakeholder needs and wants.	Early January 2007
5. Deadline for survey responses on stakeholder needs and wants.	February 14, 2007

Stakeholder Engagement Schedule – Design Phase	
Activity	Target Date
6. Conduct individual meetings with stakeholders as necessary to clarify survey responses.	January and February, 2007
7. Post summary of survey responses with opportunity for stakeholders to provide additional information.	February 2007
8. IESO staff to incorporate feedback received and develop an initial day-ahead proposal. Additional ad-hoc meetings will be held with stakeholders during this period as appropriate.	March – May 2007
9. Posting of IESO staff's day-ahead proposal.	June 1, 2007
10. Present proposal to Advisory Committee (for information purposes).	June 6, 2007
11. Stakeholder sector sessions and open stakeholder sessions to present and solicit comments on the proposal, as it evolves throughout this period.	June and July, 2007
12. Deadline for written stakeholder feedback on proposal.	July 15, 2007
13. IESO publishes final proposal based on stakeholder feedback, along with rationale.	August 8, 2007
14. Stakeholder Advisory Committee meeting to gather input and advice for the IESO Board of Directors on the final proposal.	August 22, 2007
15. Present final proposal for IESO Board consideration.	Fall, 2007

Process Evaluation

Stakeholders will be provided the opportunity to provide feedback on the effectiveness of the process in achieving the stated objectives.

Participant Funding

Consistent with IESO Board and OEB approvals, funding in the amount of \$50,000 has been earmarked for a participant funding pilot project. IESO management will be proposing to the IESO Board that the pilot be conducted in respect of this stakeholder engagement plan, with the funding being focussed on the Consumer (primarily the smaller industrial, commercial and residential consumers) and Environmental sectors. The guidelines being proposed by management will encourage the effective co-ordination of those interests in providing input on this initiative.

IV. Implementation Phase: Day-Ahead Market Stakeholder Engagement Plan

Scope for implementation phase:

The subsequent implementation phase will address market rule changes, procedure changes, and system requirements and implementation planning.

The details of the implementation stakeholder plan will be developed once the design proposal is known.

Addendum

Questions to be addressed during the Design of a Day-Ahead Market

1. Will Ontario Continue with Unconstrained Pricing or Move to a Pricing Methodology that Better Reflects the Physical Constraints of the Power System?

The question of how real-time prices will be calculated is fundamental to the design of the DAM. Today's unconstrained pricing ignores the impact of transmission physical constraints within Ontario when setting price, whereas constrained pricing takes physical constraints into account when establishing prices. Significant complications arose in the comprehensive DAM design of 2004 by assuming unconstrained prices in both the day-ahead and real-time markets. System constraints anticipated a day in advance can differ from those that actually materialize in real-time, causing potentially significant differences in schedules for participants. To account for this, the previous design included congestion management settlement credits (CMSC) to be rationalized between day-ahead and real-time, leading to a complex settlement process which added significantly to costs, complexities, and would have further reduced the transparency of the market price signals. Based upon our previous DAM design experience and our subsequent experiences with the complexities of coordinating CMSC in the real-time market with the guarantees offered in the DACP, using unconstrained prices in a DAM with day-ahead physical scheduling going forward would present a major challenge. If unconstrained pricing is to continue in the long run in Ontario, then a simpler DAM design must be explored, which will probably represent a lower level of assurances to dispatchable resources than was offered in the previous comprehensive DAM design.

Recently, the IESO started a study to examine the implications of various locational pricing scenarios for Ontario. This activity is being addressed under a separate stakeholder plan, SE-25 - Locational Pricing. The study results will be coordinated with the discussion on the design of the day-ahead market.

2. Should the DAM Include Physical Schedules?

It is possible to create a purely financial DAM that does not produce physical schedules and unit commitment. In such a DAM design, it would be up to the resource owners to anticipate real-time conditions such as transmission availability and demand forecasts, and decide how those conditions would likely affect their real-time dispatch for their particular portfolio of resources. Armed with that information, they would then need to decide how best to participate in the financial DAM. They would then develop their real-time offers to result in real-time dispatch that factors in their DAM positions. With suppliers carrying this level of risk between day-ahead expectations and actual operation, such a model would likely result in lower participation, as suppliers would be unlikely to offer their entire capability into the day-ahead market.

A pure financial DAM alone is likely to be thinly traded, which might prove to be of relatively low value for either increasing efficiency or reliability. The pure financial market would likely bring only limited reliability benefits leaving the IESO with the same reliability concerns that existed prior to the development of the DACP. In such a scenario, there would likely be a continued need for some version of the existing DACP.

If physical schedules are to be incorporated into the design, then a 24-hour optimization algorithm similar to that used in neighbouring day-ahead markets may prove to be beneficial. While the day-ahead commitment process (DACP) provides some of the reliability improvements of a DAM, it does not use 24-hour optimization. Twenty-four hour optimization permits generators to provide more detailed offers, including start-up costs, minimum generation levels and minimum run-times. The IESO would then combine this extra information with the knowledge of the load forecast for the next day, and with participant information about the energy available from energy-limited resources to best ensure reliability and to also create the most efficient coordination of resources across the entire day. This would provide generators with greater certainty about their operation, including start-up and shut-down times, and a high likelihood of when the energy-limited generators would be operated. Both the reliability and the efficiency benefits of 24-hour optimization will be addressed.

3. How is the Consumer Represented in the DAM?

The majority of Ontario's electricity consumers are served by the retail sector. Of that, much of this retail load is covered under the regulated price plan and don't need to manage real-time price volatility through a DAM. Even of the 50,000+ retail consumers paying real-time energy prices, few are likely to participate in a DAM as they are generally unable to dedicate day-to-day attention to electricity purchasing. Entities are needed to purchase on behalf of these consumers in the day-ahead.

There are options for ensuring sufficient buyers. The option that is most commonly used in other jurisdictions is to create load serving entities, (LSEs) to represent retail consumers. LSEs typically act on behalf of customers in a dual role; that of managing forward price risks, and if necessary, that of contracting for sufficient supply going forward to ensure adequate future supply. LSEs in other jurisdictions have strong incentives to participate in the day-ahead market, thereby increasing the liquidity in that market.

The DAM design does not specifically hinge on how, or if LSE responsibilities are carried out, although the effectiveness of any design may. A DAM that has low participation relative to the total demand for electricity in the province will be less effective at emulating the physical operation, leading to operational drivers that will be weaker and less certain. Further, if only a small proportion of the consumers have interest in forward commitments, including DAM positions, then Ontario will continue to be reliant on the real-time price. If LSEs are slow to materialize, then until they do materialize, it is possible that an entity such as the IESO could be called upon to forecast and nominate default load into the day-ahead market. However, it must be remembered that whomever forecasts demand and/or purchases day-ahead would be taking a financial position relative to real-time. With this position there

is associated risk. Any design that included a central role for representing consumers in the market would have to deal with the financial gains or losses associated with this risk.

4. How Should the Day-Ahead Price and the Real-Time Price Relate to Each Other?

Day-ahead markets in the electricity industry classically perform a similar function to that of bilateral agreements, in that at their conclusion, they represent both buyers and sellers holding a financial position relative to the actual real-time market prices. This day-ahead/real-time linkage has commonly been referred to as a “two settlement system”. The first settlement is based on the day-ahead prices and volumes, and the second settlement is to adjust for differences in real-time.

This linkage to real time creates the financial drivers for participants’ real-time actions. The strength of the drivers is directly related to how closely the real-time conditions align with those expected in the day-ahead timeframe. When real-time conditions and day-ahead perspectives align, then the prices should be similar and the implications of changes in performance relative to day-ahead positions would be small. However, when the differences are large, then the prices can be substantially different, thereby providing strong drivers for participants to conform with their day-ahead commitments, and even to take additional actions that will allow them to take advantage of the real-time opportunities.

In this classical “two settlement system”, strong linkages between day-ahead pricing and real-time pricing emerge, even if there are systemic differences between how the two prices are calculated. This price convergence is often accomplished as a result of arbitrage of day-ahead to real-time energy price differences. The entities carrying out this role in the market are commonly referred to as virtual participants.

In Ontario’s electricity market, like those of the other Northeast American markets, we currently have a systemic difference between the processes for calculating real-time prices and those used to calculate pre-dispatch prices. The difference results from the way import and export transactions are treated in the two calculations. The real-time price is calculated every five minutes and uses only the offer/bid prices of suppliers/consumers that can change output/consumption in that timeframe. However, imports and exports are arranged prior to the hour of operation, and are arranged for a static quantity throughout the hour. In a five-minute timeframe, import and export bids and offers cannot be changed and are therefore ignored in the real-time price calculation – although their scheduled quantities establish the demand to be met by the market. In contrast to the real-time market, the DAM is expected to use an hourly resolution for establishing day-ahead prices, in which all hourly offers/bids would be considered in establishing the day-ahead hourly clearing prices. This systemic difference must be recognized and addressed in the day-ahead market design. It can be accepted as part of the design, relying on virtual participants to drive the convergence between the two markets, or it can be explicitly addressed through day-ahead or real-time price calculations. The issue of the role of intertie transactions in establishing the real-time prices is currently being discussed by the IESO and stakeholders. For more information, see Stakeholder Engagement Plan SE-18. This issue could significantly increase the scope of the DAM design, with corresponding impacts on timeline and costs.

Background on the Previous Day-Ahead Market Activities

During 2003 and 2004, the IESO conducted an extensive consultation program with stakeholders to guide the development of a recommended approach to a day-ahead market. A day-ahead market working group was established and numerous stakeholder meetings and web-based initiatives ensued.

A number of alternative designs were studied and the group proceeded with a design that attempted to address all of the objectives initially developed with the DAM working group. The comprehensive DAM was designed to address a wide range of stakeholder needs and wants through a single integrated solution, which had a high degree of complexity. With the introduction of Bill 100 in 2004, market participants and other stakeholders began to question whether it was the right time to proceed with the recommended DAM design. In December 2004, after review and discussion, the IMO Board directed the IESO to consider other potentially viable alternatives and identify the costs and benefits associated with each identified alternative. The background on the comprehensive DAM can be found at:

http://www.ieso.ca/imoweb/consult/mep_dam.asp

In Spring 2005, the IESO began stakeholder consultation on day-ahead needs and priorities to develop alternative solutions and recommendations. In August, the IESO proposed three possible alternative models for a DAM. Any work on these very preliminary alternatives ceased shortly thereafter, as the operational events of the summer of 2005 underscored the immediate challenges in providing a reliable supply of electricity. The background on day-ahead needs and priorities can be found at: http://www.ieso.ca/imoweb/consult/consult_dam.asp. The tight demand/supply conditions during 2005 resulted in 12 days of public appeals, three separate occasions when the IESO implemented five percent voltage reductions, and numerous other occasions where emergency control actions were taken to preserve the reliability of the power system. Analysis of the events clearly identified import failures as a significant contributor to the problems, and cited the lack of day-ahead transaction scheduling as a major shortcoming. Given the significant impact of the summer events, the IESO moved forward with a stakeholder engagement plan to design a day-ahead commitment process (DACP). The plan was to identify, design, and implement measures to enhance the reliability of the power system in advance of the summer of 2006. The background on the day-ahead commitment process design can be found at: http://www.ieso.ca/imoweb/consult/consult_isr.asp. The DACP was implemented under a separate stakeholder initiative that can be found at: http://www.ieso.ca/imoweb/consult/consult_se16.asp. The DACP started operation, on schedule, prior to the summer, 2006.