

Update for Technical Support Group: Energy Forward Market (EFM) Design October 28, 2008



The purpose of this document is to provide the Technical Support Group (TSG) for EFM design with:

- a response on the action item from the September 30th, 2008 TSG meeting, and
- a discussion of next steps, including an outline of the options being considered.

An update for the Stakeholder Advisory Committee has been posted with materials for the SAC meeting on October 30th, 2008. It can be found at the following link:

http://www.ieso.ca/imoweb/pubs/consult/sac/sac-20081030-Item1_SAC_Note-EFM.pdf

We are preparing an update for the IESO Board meeting on November 13th. The Board update will not involve a recommendation. We will continue our discussions with TSG members and within the IESO to reach conclusions that will be presented to the SAC and the IESO Board at a later date.

The options described in this document have been discussed with TSG members. We would appreciate any further feedback you may have regarding our next steps and the EFM options.

September 30th TSG Meeting - Open Action Item

Action Item 1:

IESO Finance to further review prudential difference for financial versus physical forward contracts. They will also assess any information from 2004 DAM review.

IESO Response

a. Financial versus Physical Forward Contracts

Transactions in an IESO Energy Forward Market (EFM) would have a forward contract price which settles against the real-time price. Those market participants who utilize these forward contracts as a risk management tool for their real-time purchases or sales could infer that the quantity transacted is related to their physical activities. However, there is no mistaking that their forward purchase or sale is a completely financial contract.

The question of whether or not a contract is 'physical' or 'financial' identifies the manner in which the EFM is settled and invoiced. Physical day-ahead transaction quantities would be netted against the real-time quantities, so that the day-ahead quantity would be invoiced at the EFM price and the difference between day-ahead and real-time quantities would be invoiced at HOEP.

Financial day-ahead transaction quantities would not be netted against real-time quantities. Instead, the market participant would be invoiced for their full real-time quantity at HOEP. This would be followed

by a credit or debit for the difference between the EFM price and HOEP (on the day-ahead transaction quantity only).

Therefore, for either physical or financial settlement, the invoiced dollar amount is the same, so the prudential posting requirements will be the same for that market participant whether the EFM settlement is 'physical' or 'financial'.

b. 2004 DAM Review

The 2004 DAM review did not distinguish between prudential requirements for day-ahead physical transactions versus day-ahead financial transactions, as outlined above. Rather, the proposed framework distinguished between prudential requirements for physical market participants, active in both day-ahead and real-time markets, versus virtual market participants, active in only the day-ahead market. A physical transaction was defined as the day-ahead purchase or sale of electricity coupled with consumption / delivery in the real-time market. A virtual transaction was defined as a day-ahead purchase or sale with no intent of consumption / delivery in the real-time market. It would be necessary for participants to designate a transaction as either physical or virtual upon submission in the day-ahead market.

Prudential support was to be separately calculated and posted for physical and virtual transactions. As well, any default levies were to be kept separate (although virtual defaults were to only be levied up to a certain threshold amongst virtual participants, and any remainder would be applied to physical participants). A market participant that maintained a net creditor position in the physical markets was envisioned to be allowed to use that net credit as prudential (if necessary) for any virtual transactions.

Next Steps

The IESO update to the Board of Directors will include an outline of existing opportunities in the marketplace for forward financial commitments, and EFM options that could be implemented.

Stakeholders have told us that the current marketplace does not offer market participants adequate opportunities for forward financial commitments. In the absence of a full day-ahead market, an EFM could offer these opportunities. Benefits of forward financial commitments are related to demand response, decision-making and risk mitigation. These benefits have not been quantified to date.

Due to current poor liquidity on NGX for Ontario electricity products, it is unlikely that NGX will expand their product offerings to include hourly EFM products (unless they work with the IESO to develop an EFM, as described later). As a result, the status quo will not provide opportunities for financial commitments and associated benefits for some time to come.

However, in order to make a fully informed decision about proceeding with any EFM option, it is necessary to:

- Consider the status quo as one of our options; and
- Determine if, relative to the status quo, the costs of implementing a given EFM are higher or lower than the benefits that can be achieved.

1. Status Quo

NGX offers flat (24/7), peak and off-peak forward contracts for each day of current month and near month. They also offer the same products with a one-month term for near month until March 2013. The liquidity for transacting these products has, to date, been low. Aside from NGX, brokers match buyers and sellers, or buyers/sellers arrange their own bilateral transactions directly. Prudentials are managed by NGX, the broker, or between the parties.

The IESO may (or may not) receive transaction quantity and location data from market participants who transact with each other according to the Chapter 8 Physical Bilateral market rules. The IESO does not receive any price data. In this case, the IESO will net the quantity transacted between participants against their real-time quantities, and invoice the net quantity at HOEP. This netting may lower IESO prudential posting requirements for those participants with a credit rating of BBB- or higher. If the IESO does not receive physical bilateral transaction data, then prudential posting for real-time quantities is unchanged.

In order to compare EFM options to the status quo, we will assume that IESO physical market participants are not currently active in the forward markets, as this is generally the case.

2. Exchange EFM

An external exchange such as NGX could post new products allowing bid/offer price settlement hourly. (NGX has noted that liquidity would be poor with hourly products initially, and that they may prefer to continue use of peak and off-peak products until participation improves, which may not meet our needs.) These products could be traded on a continuous basis prior to real-time by any party registered to trade on NGX. The settlement price is the price the buyer bids and the seller offers.

Price and quantity for cleared day-ahead transactions of market participants would be transferred by NGX to the IESO for netting against their real-time quantities, and to determine prudential posting requirements. The IESO would invoice only for price and quantity differences between real-time and day-ahead. However, NGX would invoice for all cleared day-ahead quantities at the settlement price.

Participation in both the day-ahead exchange market and the real-time market would result in higher overall prudential posting requirements for market participants compared to their current posting with the IESO for real-time quantities. These additional prudential requirements may present a large obstacle, thereby negatively impacting liquidity.

- **Load:** NGX would require a significant posting for the day-ahead transaction, and the IESO would still require some posting amount for real-time, even if a load purchased matching day-ahead and real-time quantities. (The IESO would still need to maintain a minimum amount of real-time quantity prudential since we cannot immediately shut off physical delivery of power should the participant default.) The IESO would net real-time and day-ahead quantities and reduce prudential requirements to the extent that the load buys their real-time quantity in the day-ahead on an ongoing basis.
- **Generation:** Generators may be required to post with the exchange. We have confirmed that the IESO is not able to share or combine prudential postings with an external party, so NGX is not able to draw upon any real-time amounts owed by IESO market participants to generators. Generators may also need to post with the IESO if they sell more MWs day-ahead than they generate in real-time, and need to purchase real-time MWs for balancing purposes.

System/tool costs are assumed to be insignificant since the exchange system is already built, however there would be costs to build a system interface with IESO systems, update IESO prudential tools and to revise market rules associated with all systems/tools. There would be transaction fees paid to the exchange.

The complexity of using an exchange could negatively impact participation by physical market participants because they will need to utilize different platforms for real-time and day-ahead transactions. It may be an advantage to the exchange and to the Ontario market to have a forward market which is officially associated with the IESO, if this association helps to establish the market and increases liquidity more rapidly. However, any increase in liquidity also results in increased transaction fee revenue for the exchange.

An external EFM may result in higher participation of virtuals that are active on the exchange. This virtual participation could positively impact liquidity. Virtuals may realize economies of scale and ease of use through the exchange. They may already have prudential posting in place with the exchange.

3. IESO EFM hourly auction system or bid/offer system

The IESO could implement systems for the use of market participants only. These systems would allow market participants to bid to buy or offer to sell in advance of real-time.

Auction: Participants would be required to input their price/quantity pairs prior to a deadline, at which time the auction would close. A market clearing price would be established for each hour and applied to all transactions cleared in that hour. System capital costs would not be significant since the IESO auction system and its interface with settlements and market rules are complete. However, there would be costs for updating prudential tools and associated market rules.

Bid/Offer: Participants would place bids/offers, or match the bids/offers of other participants, on a continuous basis prior to real-time like an exchange system. The settlement price would be unique for each cleared transaction and would not be a market clearing price. System capital costs would involve buying or building a new tool, building an interface with settlements, updating prudential tools and writing associated market rules.

Participation in both the day-ahead IESO EFM and the real-time market would result in essentially the same overall prudential posting requirements for market participants compared to their current posting with the IESO for real-time quantities. The IESO would calculate a combined real-time and day-ahead prudential requirement for all market participants. Removing the obstacle of higher prudentials may result in improved participation by load and generation, and this would impact liquidity positively.

- Load: Prudentials for combined day-ahead and real-time transactions would be similar to real-time only prudentials to the extent that the load buys their real-time quantity in the day-ahead on an ongoing basis.
- Generation: Generators would be able to take advantage of credit amounts owing to them by other market participants in order to reduce any posting requirements should they become net buyers.

There will be less complexity for physical market participants because they will be able to transact real-time and day-ahead in one location. It may be an advantage to the Ontario market to have a forward market which is officially associated with the IESO, if this association helps to establish the market and increases liquidity more rapidly. There will be no additional cost associated with increased liquidity.

Virtual participants would be allowed to transact in an IESO EFM subject to becoming a registered market participant and posting prudentials, which may or may not affect their interest in participating.

It should be noted that the “for-profit” exchange has a prudential policy which ensures virtually no risk to the exchange. In contrast, the IESO policy targets to have an adequate amount of prudential posted without increasing unwarranted risk to the market or place excessive constraints on the market participant’s capital.

Note that there remains uncertainty with respect the efficiency of an auction system or a bid/offer system (either IESO administered or exchange operated). This is under review and will be considered along with other costs and benefits of the various options.