



# **Revised AESO Recommendation Paper**

## **Operating Reserves Market Redesign**

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March, 2010

## 1.0 Executive Summary

This AESO Recommendation Paper consists of a revised set of recommendations developed after considering stakeholder feedback to the January 2009 Recommendation Paper. In addition, the AESO undertook a review of the recommendations in light of potential impacts from projects such as wind integration and potential demand response products. The AESO has revised several elements of the proposed design:

- an active hourly product and removal of a selling logic for procuring shaping volume requirements;
- a standby hourly product and removal of a selling logic for procuring residual standby volume requirements;
- a clearing price model for the premium in the standby market;
- an inclusion for Operating Reserve (OR) providers that are less than 5 MW and a future role for aggregators;
- a phased approach to implementation of the redesign;
- a refined trading schedule; and
- an update on the AESO's ability to accommodate third party asset substitution

This paper contemplates Phase I of the redesign initiative which considers incremental changes to the existing design. The AESO will consult with industry in the future on the need for Phase II and consideration for more substantial changes such as a possible alignment of the OR market with the T-2 energy market.

The key goals of the OR redesign are:

- reducing AESO influence in the market
- improving market transparency
- creating better alignment with the energy market
- simplifying the design

In order to accomplish these goals, the AESO recommends concentrating the procurement of OR on a single platform with all procurement taking place at day minus 1 (D – 1). In order to use NGX as the single procurement platform, new NGX products are required, and the market design will be altered to use a transparent clearing price mechanism across all products.

The AESO recommends indexing OR products to pool price whenever possible and continuing to procure OR using on and off peak instruments for all baseload needs. As a replacement to the AESO submitting bids, an OR price cap is necessary and the AESO recommends aligning this with the energy market price cap.

The AESO has revised its recommendation for procuring shaping volumes. Previously the AESO recommended establishing a logic that would discourage sellers from picking one hour over another – sections 3.3.1.1 and 3.3.1.2 of the AESO's Recommendation Paper dated January 2009 detailed this logic. After considering stakeholder comments,

the AESO now recommends the development of an hourly clearing market for volume requirements above the baseload requirements.

The dispatching of OR providers will remain unchanged, while AESO Operating Policies and Procedures (OPPs) will continue to outline the AESO's OR requirements and forecasting methodologies.

In 2009 the AESO 's Regulatory group, as part of the 2010 Tariff Application, consulted with participants on the AESO's tariff, deferral account riders and reconciliation process with an intention to better align OR costs with hourly energy consumption and reduce the deferral account rider amounts. The Tariff has been filed reflects these goals.

Consideration has been given to out of market actions, as they may be necessary after the AESO has exhausted in-market solutions. An equitable process is required for conscripting OR providers during any out of market action. This process will be developed through consultation.

Consistent with paragraph 20(1)(d) of the EU Act, the AESO recommends including rules for OR in the ISO Rules that will establish standards around appropriate and inappropriate behaviour as well as create a mechanism for dealing with inappropriate behaviour. Amendments to the NGX Agreement will be necessary. Consultation on these ISO Rules will begin in the second quarter of 2010.

## **2.0 Introduction and Background**

In October of 2007 the AESO issued a Discussion Paper entitled Operating Reserve Market Improvements. This paper outlined the existing OR market design and listed issues with the existing design that stakeholders had identified. These included the impact of the equilibrium pricing methodology, perverse contract terms, the AESO influence on process, market liquidity on competing platforms, transparency of Over the Counter (OTC) procurement, influence of the Hydro PPA on the market, and the complexity of the market relative to its size.

Subsequently, the AESO consulted with industry with the objective of designing an improved market structure. In July 2008, the AESO issued a Consultation Summary that provided an update on the redesign and solicited written feedback prior to creating a comprehensive market redesign recommendation. Based on the written feedback and consultation, the AESO developed a Recommendation Paper in January 2009. As a result of further stakeholder feedback and consideration of other AESO initiatives currently underway, this revised Recommendation paper has been developed, which outlines the AESO's plan for the OR market redesign.

All relevant documentation from the consultation can be found at the following links: <http://www.aeso.ca/market/14138.html> and <http://www.aeso.ca/market/14648.html>.

### **3.0 Recommendation Framework – Phase I**

The following recommendations are consistent with providing an efficient OR market structure that better facilitates participation in a transparent manner, without undue AESO influence. The recommendations consider stakeholder feedback to date and are consistent with a phased approach to change. Phase I contemplates incremental changes to the existing design while concentrating activity on a single trading platform.

The key changes relative to the January 2009 Recommendation Paper relate to the procurement and pricing mechanism for shaping volumes (sections 3.2 and 3.3), as well as the timeline and process for the development of ISO Rules for the OR market (section 3.9). Each section from the initial Recommendation Paper has been retained, even where no changes have been made relative to the previous paper.

#### **3.1 Market Framework**

The AESO recommends concentrating the procurement of OR on a single platform (NGX), removing AESO discretion and influence from the process and having procurement take place day ahead of real time dispatch (D-1). OTC transactions will no longer be required.

##### **3.1.1 Create a single trading platform to concentrate liquidity and establish more meaningful OR price indices**

The AESO recommends that there be one procurement platform, NGX. The original OR design facilitated both the OTC and NGX procurement platforms which created issues related to transparency and the price signal. With all volumes transacted at one location, OR indices that are reflective of all physical volumes can be calculated. A single procurement platform avoids an unnecessary bifurcation the market, and NGX is capable of offering the necessary solutions.

##### **3.1.2 Minimize AESO influence - submit bid volume requirements in auction format**

The AESO recommends creating an auction format whereby the AESO posts its un-priced volume requirement and sellers submit their offer volumes and prices. Offers would be prioritized and selected using the methodology described in section 3.3 and prices would be set using the pricing mechanism described in section 3.2. The price for any particular product would be capped by the energy market price cap (currently \$999.99/MWh).

The auction format will be a blind auction where offers from individual OR suppliers will not be visible to the market until after the close of the market.

##### **3.1.3 Minimize AESO influence - D-1 auctions**

The AESO recommends that the auctions only be conducted on a day ahead basis (or the last business day prior to weekends and statutory holidays) versus the multi-day procurement that takes place today. Currently, the AESO exercises discretion in establishing a procurement strategy over the course of days/weeks/months to procure its forecasted volume requirements for any given delivery day, with the objective of managing costs. The AESO and stakeholders recognize this results in unnecessary influence by the AESO on the OR market.

## **3.2 Market Products and Pricing**

To use NGX exclusively as the single procurement platform, new NGX products are required. In order to remove unnecessary AESO influence from the process, the AESO will cease submitting bids and the pricing mechanism for OR products will need to change accordingly. The AESO recommends a clearing price mechanism for OR products and indexing OR products to pool price whenever possible. OR volumes will continue to be purchased primarily using on and off peak instruments. As a replacement to the AESO submitting bids, an OR price cap is necessary and the AESO recommends making this the same as the energy market price cap.

### **3.2.1 Add to the suite of D-1 OR products**

The AESO recommends retaining the existing NGX products and supplementing them with two new products so that all OR volumes can be transacted on NGX. The AESO will use reasonable efforts to exhaust the NGX procurement process for securing forecasted volume requirements. The two new products are:

- Active Hourly OR. Introducing this product will enable the AESO to procure the different hourly requirements in excess of the base load on and off peak requirements on NGX instead of OTC; and
- Standby Hourly OR. Introducing this product will provide a final market means to procure its required OR volumes. The AESO expects that it will be able to procure its standby requirements primarily through the existing baseload product and will rarely have to rely on hourly standby offers.

Stakeholders have commented that to the extent sufficient volumes are available, attempts should be made to contract prior to conscripting OR providers. The AESO is recommending the introduction of hourly standby OR to allow for a 'last chance' in-market solution for these requirements. The AESO will only conscript providers in the event that insufficient volumes are available. Conscripting will not be used as a recourse to alleviate high prices in the market.

### **3.2.2 Continue to use On/Off peak products for baseload needs**

The AESO has consulted on both an hourly OR market and an on/off peak OR market design, and recommends that all products (active, standby, regulating, spinning and supplemental) continue to be defined as on and off peak for baseload volumes. The majority of stakeholders preferred this approach, and it is also consistent with a more incremental approach to change reflected in Phase I.

In the AESO December 2007 Operating Reserve Market Redesign Concepts Paper an hourly T-2 OR market was proposed. This will be considered as part of any Phase II initiative.

### **3.2.3 OR indexed to pool price with a marginal price model**

The AESO recommends that active and standby OR generally be indexed to pool price to reflect the close relationship between OR and the energy market. Further, marginal pricing is proposed to be used for OR products in order to ensure economically efficient results and to align with the marginal pricing philosophy in the energy market.

#### **3.2.3.1 Active Baseload On and Off Peak**

For baseload on and off peak active OR requirements, the marginal provider selected in the clearing auction will determine the price for all of the volume traded. Each baseload active provider will be providing MWs in every hour of the contracted period (either on peak or off peak) and all of the contracted active volumes will be dispatched.

#### **3.2.3.2 Active Hourly**

The Active Hourly market will be used to procure volumes that vary from hour to hour, generally consistent with the volumes currently procured OTC. The AESO's revised recommendation for these shaping volume requirements is that an hourly clearing price be established for each hour in which there are volume requirements over and above the baseload volume.

The AESO will submit a volume requirement for each hour that represents its shaping requirement for OR. Participants will be free to participate in individual hours at their discretion, with the requirement that offers will need to comply with relevant minimum volumes. For example, a provider with no volumes in the baseload market would only be able to offer 5 MW volumes or greater in the hourly markets. It is anticipated that a portion of hours will have 0 MW of volume required in the hourly market because the baseload volumes will cover all requirements for those hours.

#### **3.2.3.3 Standby Baseload On and Off Peak**

For standby baseload on and off peak requirements there will be a premium and activation payment, as in today's market. The AESO recommends that the activation price be equal to the corresponding base load active price and that sellers compete to become standby providers by offering a premium. The AESO proposes to establish a merit order for standby providers, with the lowest premium providers at the bottom of the merit order. To the extent the AESO then requires a standby provider to become an

active provider it will dispatch the necessary volume, with the lowest priced premium provider activated first.

The premium price will be set by the last provider required to meet market demand for standby, i.e. the premium price will be set on a clearing price model. All standby providers selected will receive the clearing premium price in order to provide economically efficient market signals, and all providers will receive the same price for activation if activated.

#### **3.2.3.4 Standby Hourly**

Hourly standby requirements will be considered only in the event that insufficient volumes were available in the standby on or off peak market. If this market is necessary, each hour will have a clearing price for the premium portion of the price, and the activation price will be equal to the relevant active baseload on or off peak price. The AESO does not recommend making the standby hourly activation price equal to the corresponding active hourly price. This could create an incentive for providers to hold volumes out of the baseload standby market as active hourly prices are likely to be higher than the active baseload on and off peak prices.

#### **3.2.4 OR market price cap equal to energy market price cap**

The AESO recommends that OR prices should be capped using the energy market price cap. An OR seller will be permitted to offer at a positive index to pool price, but will not be permitted to be paid more than the energy market price cap, which is currently \$999.99/MWh. The AESO also recommends that an OR provider continue to be paid pool price any time they generate MWs while providing regulating reserves or are directed to generate MWs while providing spinning or supplemental reserves.

### **3.3 Procurement Process and Timing**

An efficient and manageable procurement schedule is required that provides sufficient—but not excessive - time for sellers to participate. OR price discovery will take place throughout the procurement process providing necessary pricing information to participants.

#### **3.3.1 A reasonable procurement schedule**

The AESO recommends a daily procurement process that ensures there is sufficient time between the close of each process, so that a seller is able to reconcile transacted volumes and prices with remaining capacity. At the same time, making the process too long will be inefficient. Given the number of openings and closings, the AESO is concerned that changing the schedule on days like Fridays (where more than one day is procured) may create confusion and cause sellers to miss some market closings. Allowance has been made for this in the proposal below.

The AESO recommends the following schedule, allowing 10 minutes between baseload on/off peak markets (consistent with the existing design) and 20 minutes between hourly markets. Given the operating history of the OR market, the AESO rarely expects to have to rely on the Standby Hourly products and therefore believes that the procurement process will end at 10.50am on most days.

- All markets open – AESO posts volume requirements
- 9.00 Close Active Baseload Reg
- 9.10 Close Active Baseload Spin
- 9.20 Close Active Baseload Sup
- 9.40 Close Active Hourly Reg
- 10.00 Close Active Hourly Spin
- 10.20 Close Active Hourly Sup
- 10.30 Close Standby Baseload Reg
- 10.40 Close Standby Baseload Spin
- 10.50 Close Standby Baseload Sup
- 11.10 Close Standby Hourly Reg (if required)
- 11.30 Close Standby Hourly Spin (if required)
- 11.50 Close Standby Hourly Sup (if required)

### **3.3.2 Fix market closes and create price discovery**

The AESO recommends a fixed close because with the iterative OR procurement process, price discovery will take place on a daily and intra day basis. Daily price discovery will take place because the products will trade at D-1 every day. Intra-day price discovery will take place because a minimum of 18 products in 18 markets (and up to 72 products in 72 markets on a Friday) will trade each day, and the participants from one market may participate in the next or following market. Also, pricing from one market (active base load) will be used in a following market (base load standby). Adding random closes to the trading schedule will add unnecessary complexity.

## **3.4 Market Participation and Obligations**

The AESO recommends introducing a number of new design elements while removing others. These changes are intended to encourage participation in the OR market while ensuring the AESO procures the necessary OR requirements and is able to utilize other AS that are necessary for the reliable operation of the system.

### **3.4.1 No must offer requirement**

The AESO does not recommend having a must offer requirement for the OR market. The must offer obligations in the energy market create a merit order as a supplier must submit offers for available capability in the energy market. This has two benefits. First, if a supplier is obligated to submit an offer in the energy market, they are more likely to submit an offer in the OR market that indicates an indifference or even perhaps a preference for participating in the OR market. Second, to the extent the AESO has

exhausted all of its contracted providers, an energy market merit order identifies the available capability of generators and the AESO is correspondingly aware of which generators are capable of providing OR.

Further, from a practical perspective OR providers must meet technical standards. Imposing a must offer requirement on all market participants would result in many facility owners having to install incremental infrastructure as the requirements for OR are above and beyond those in the energy market. The AESO believes that a well designed OR market will send the right price signals, which in turn will result in efficient decisions by facility owners between the various markets.

### **3.4.2 Remove virtual units**

The AESO recommends removing the ability for an OR seller to utilize “virtual units” in the NGX D-1 market. Virtual units allow a supplier with multiple facilities to sell OR using virtual units and then later decide to which units sold volumes will be allocated. The need for virtual units is all but removed when all OR volumes clear at D-1 versus over multiple days. The AESO is also seeking to minimize trades in error by removing this function.

### **3.4.3 Standing offers facilitated by blind offers**

The AESO recommends that OR offers are blind until after a market closes. This facilitates participation, as it allows an OR seller to submit standing offers. The AESO considered whether “blind” offers inhibit price discovery, but has concluded that the price discovery will still take place as described in section 3.3.2.

### **3.4.4 5 MW minimum blocks**

The AESO is open to considering assets less than 5 MW providing Supplemental reserves. The AESO is not prepared at this time to consider Spinning and Regulating providers being less than 10 MW and 15 MW, respectively. This is to ensure that sufficient generation capacity is under governor control to arrest frequency during system disturbances.

The AESO has considered assets less than 5 MW providing supplemental reserves and is agreeable to this. Compliance standards state that supplemental reserve providers must deliver at least 100% of the contracted volume within 10 minutes when directed, and maintain at least 95% of this volume for an hour.

The AESO is also examining the possibility of allowing aggregators to sell OR, particularly Supplemental. In this case, the aggregated providers would be subject to the same standards as a single supplier. Through the OR ISO Rules Consultation process the AESO will further explore the details regarding assets less than 5 MW providing Supplemental OR, whether aggregated or as smaller individual assets.

The AESO needs to make Stakeholders aware that by allowing Supplemental providers to be less than 5 MW it does not have the capability to allow (a hypothetical) 200 1 MW providers and will therefore need to monitor the number of providers less than 5 MW. Logistical constraints may require infrastructure developments if and when the number of smaller providers grows sufficiently.

When an OR market closes, if the marginal OR provider has been selected for less than 5 MW, transactions for 3 and 4 MW will be rounded up to 5 MW, while transactions for 1 or 2 MW will be cancelled, with no consequences to the buyer or seller. The cancellation of a 1 or 2 MW transaction will be immediate and automated.

### **3.4.5 No limitations around price/quantity pairs**

The AESO does not recommend limiting the number of price quantity pairs a seller can submit, but requires a minimum 5 MW sale with 1 MW increments. In the energy market there is a maximum of seven price quantity pairs per facility for purposes of managing the real time operational logistics. In the OR market this is less of a consideration as all active OR providers are dispatched and the AESO does not have to decide how much of the contracted active volume needs to be dispatched. Currently there are no limitations in the OR market and this has not caused a problem.

The AESO recommends that a seller's first offer block must be at least 5 MW. Requirements for Supplemental providers smaller than 5 MW will be developed separately.

### **3.4.6 Allow for flexible and inflexible offers in most cases**

The AESO recommends that during the procurement process, baseload OR offers be allowed to make a distinction as to whether they are flexible or inflexible. This means that if the marginal OR offer is only partially required, and the seller has designated it as inflexible, the offer will be skipped. The AESO expects that this design feature will facilitate participation in the OR market as a number of sellers have expressed that the reason they do not offer particular units is because of the possibility they will be only partially filled.

Once the procurement process is concluded and volumes are contracted, the flexible and inflexible designations will not be considered for purposes of dispatching. For active OR providers all volumes will be dispatched and it is therefore not applicable. For standby OR providers, because a provider will be paid the premium, they will be expected to comply with dispatches that could be for less than the contracted amount.

### **3.4.7 Inter-ties participation unaffected**

It is not anticipated that the recommended OR market design concept will change the way inter-ties can participate in the market.

### **3.4.8 Dealing with conflicting ancillary service obligations**

The AESO contracts with generators for transmission must run (TMR) service. Under these contracts, the TMR provider is not prohibited from selling OR. A TMR contract enables the AESO to dispatch a generator for TMR under agreed terms and conditions should the need arise. If a contracted TMR provider sells OR and then subsequently receives a TMR dispatch, the TMR dispatch will take precedence. The OR provider will be permitted to substitute the OR obligations outside of T-2, but to the extent it is unable to find an alternative facility to provide the service, the OR provider will be in non-compliance and faces compliance charges/penalties for non-delivery of OR. If the OR provider is unable to provide the service the AESO will dispatch a standby provider.

The AESO does not propose prohibiting a contracted TMR provider from selling OR, as the unit may only be relied on for TMR for a few hours per year. It is appropriate to leave the decision on OR participation with TMR providers and make the risks (and rewards) of doing so transparent.

Occasionally, the AESO conscripts TMR. In this circumstance, which is unforeseeable, if the TMR provider happens to have sold OR and is non-compliant, the AESO recommends that there be no OR compliance charges/penalties. The TMR provider was not contracted to provide TMR and had not made a prior commitment to the AESO.

The AESO also has AS contracts with load customers for under frequency load shedding service (LSS). Under these contracts, the customer is prohibited from selling OR. OR and LSS both serve as a mechanism to arrest system frequency decay and the AESO would be double counting available MWs if it permitted the customer to sell both services. Since an LSS provider is always “dispatched” and can be shed in less than one second, it is not possible to manage participation in both markets. Therefore, the supplier should not have the ability to contract for another service (OR) with the same MWs for a service that could be required for the same system event.

If and when new AS products are introduced, a determination will be made as part of the product design whether participation in one product precludes a seller from another market.

### **3.5 Dispatching and Technical Items**

The dispatching of OR providers will remain unchanged, while AESO Operating Policies and Procedures (OPPs) will continue to outline the AESO’s OR requirements and forecasting methodologies.

#### **3.5.1 All active OR providers dispatched. Standby providers dispatched as needed**

All contracted active OR providers will be dispatched as they are today. Standby providers will be dispatched on an as needed basis, which could be due to forecasting

error, a contracted active provider failing to supply or the AESO failing to procure sufficient active volumes due to a lack of offers.

A merit order will be created for standby providers, with the lowest priced premium providers at the bottom of the merit order. If a standby provider is then dispatched and complies with the dispatch, they will receive the activation price and the clearing premium price.

### **3.5.2 Technical Standards process unchanged**

AESO OPPs will continue to outline OR requirements and methodologies for establishing forecasts.

The AESO is reviewing its OR forecasting process and will provide transparency around how the OR standby volumes are determined. Standby OR volumes reduce the AESO's reliance on out of market actions. The AESO has relied on out of market actions for OR approximately once every three or four years.

### **3.5.3 Testing**

The AESO recommends consulting with market participants to update obligations that currently reside in the OTC Agreement regarding testing of OR facilities. The AESO also recommends including these obligations in ISO Rules. The existing language in the OTC Agreement only contemplates testing of non-PPA facilities and the AESO paying direct incremental costs associated with such testing.

## **3.6 Multiple Buyers**

The AESO commits to undertake two initiatives in an attempt to better facilitate an OR design with multiple buyers and sellers and a more liquid financial market. These two initiatives are outlined below.

### **3.6.1 Facilitate Self Supply by financial arrangements**

In 2009 the AESO 's Regulatory group, as part of the 2010 Tariff Application, consulted with participants on the AESO's tariff, deferral account riders and reconciliation process with an intention to better align OR costs with hourly energy consumption and reduce the deferral account rider amounts. The AESO filed its Tariff in March, and it includes proposed changes to accomplish these goals.

### **3.6.2 AESO facilitate third party asset substitution**

Third party asset substitution would improve the OR market design by potentially creating multiple buyers. If party A successfully contracts to sell product A on a day ahead basis via NGX and before T-2, then decides that it would like to attempt to buy

out of the entire position or for a portion of the hours with another party, this would be a favorable design consideration. Also, during the interval between D-1 and T-2, a supplier could encounter a force majeure or forced outage, and while there would be no obligation for a seller to find an alternative provider, if the option was available suppliers could utilize this feature to avoid a force majeure or forced outage. In this circumstance, the AESO would rely on standby providers less frequently.

Once an OR market is closed the procured volumes and corresponding providers are uploaded from NGX to AESO systems. NGX and AESO systems remain in communication until about 4 pm each day and are not designed to remain in communication all the time. Asset substitution would therefore have to take place using AESO infrastructure.

The AESO has examined the feasibility of third party asset substitution and currently there are issues concerning confidentiality of sellers information associated with the business solution the AESO is potentially able to implement in the near term. If the AESO enables its systems to allow third party asset substitution, any operating reserve provider can view all other providers OR commitments.

The AESO is committed to finding a practical solution for third party asset substitution and will continue to pursue this issue.

### **3.7 Out of Market Actions**

The AESO's recommended OR market design is expected to operate in a manner that is fair, efficient and openly competitive (FEOC). However, consideration has been given to out of market actions, as they may be necessary after the AESO has exhausted in-market solutions. An equitable process is required for using generators during any out of market action.

#### **3.7.1 Exhaust market solutions prior to conscription OR providers**

To the extent the market does not function properly, consideration must be given to out of market actions required to ensure reliability. The AESO and stakeholders recommend that in-market solutions should be solicited prior to relying on out of market solutions. The AESO proposes to exhaust all of the contracted active and standby providers prior to conscription and is further recommending the introduction of the hourly standby product. The AESO expects conscription to be a rare event, as the OR market is expected to function as needed.

The AESO supports many industry comments on conscription – the rules should be examined if conscription is being used, the AESO should not be managing price by refusing to pay (subject to market price caps) and if conscription is used the MSA should be notified. The AESO recommends further developing these points in the upcoming ISO Rules consultation process.

### **3.7.2 Process required for conscripting OR providers**

The AESO has relied on out of market actions for OR approximately once every three or four years. On the rare occasion after the competitive process has been exhausted and insufficient volumes have been procured or due to contingencies, conscription can take place. In these circumstances, the AESO recommends establishing a list (alphabetical or random) of capable OR facilities and in the unlikely event the AESO conscripts OR volume it simply starts at the top of the list. Each time a facility is conscripted it would go to the bottom of the list.

Should a generator be conscripted to provide OR, Article 11.3 of the Terms and Conditions of the AESO tariff outlines compensation. The AESO recommends further developing these points in the upcoming ISO Rules consultation process.

### **3.7.3 Consult on market suspension process and rule**

Under Rule 6.9 of the ISO Rules, consideration is given to suspending the energy market under extraordinary circumstances. The AESO is currently consulting on this Rule, and the consultation process includes the necessary rules and conditions for the suspension of the OR market.

## **3.8 Compliance and Market Integrity**

The AESO recommends making the following changes to better facilitate a FEOC OR market: remove any perverse incentives; establish a compliance mechanism that is appropriate for the OR market while similar in structure to the energy market; and improve overall transparency of the OR market.

### **3.8.1 Remove perverse incentives, provide clarity around acceptable/unacceptable behavior and potential consequences**

Stakeholders have mentioned that the existing terms and conditions around compliance can be improved. Currently, the liquidated damages a supplier must pay the AESO for failure to supply OR can incent perverse behavior or price arbitrage, and are insufficient to discourage inappropriate behavior. Simply increasing these liquidated damages changes a supplier's threshold around entering into a price arbitrage opportunity. This is unsatisfactory. There is also a lack of clarity around what is permissible versus non-permissible behavior. The AESO recommends alignment with the energy market in the establishment of acceptable versus unacceptable practices and mechanisms for discouraging and dealing with inappropriate actions.

The AESO recognizes that while the existing liquidated damages potentially create perverse incentives, if the consequences are excessively severe it will be detrimental to the market.

The AESO's recommendation on how these terms and conditions (or rules) should be developed and where they should reside is found in section 3.9.

### **3.8.2 Continue to use force majeure definition in NGX Agreement**

There are differences in the current force majeure definitions in the OTC and NGX Agreements. The AESO is not aware of any issues that this has created, or a circumstance where the treatment of a service provider would have been different had the "other" definition been used. The OTC definition provides special consideration for units subject to a PPA. This was to encourage and better facilitate participation in the OR market at a time when the PPAs had very little operating history. The NGX definition of force majeure treats all units on an equal basis and the AESO recommends applying the NGX definition to all trades. This is appropriate given the operating history. There is no evidence this will be an issue.

### **3.8.3 Improve transparency of OR providers**

The AESO recommends that it make available to all market participants real time information showing which facilities are providing OR products (product and volume). The AESO envisions that reporting on such would be similar to the Current Supply Demand ("CSD") report that is available on the AESO website ([http://ets.aeso.ca/ets\\_web/ip/Market/Reports/CSDReportServlet](http://ets.aeso.ca/ets_web/ip/Market/Reports/CSDReportServlet)). The AESO recommends that a similar OR screen be developed that would have all the same "units" that appear on the CSD report with columns for active and standby regulating, spinning and supplemental. This would provide greater transparency to the OR market. Confidentiality provisions in the NGX Agreement may require amendments prior to the information being posted on the AESO website.

This recommendation is consistent with:

- the action taken by the Department of Energy with the FEOC Regulation which increases transparency of the energy and OR market; and
- the real time visibility of energy market participation.

## **3.9 OR Market in ISO Rules and Contractual Items**

The AESO would like to take the opportunity during the OR market redesign to complete the ISO rule language. Many of the OR related market structure rules are missing as the original market was designed on a third party platform by the then Transmission Administrator. This omission creates a barrier to entry to new participants as the market structure is not openly communicated. The AESO proposes to address these omissions and provide greater rule clarity through the Transition of Authoritative Documents (TOAD) process and its application to the new OR rule structure.

The high level rule changes that are contemplated include:

- Current ISO rules include framework, offers, terms for energy market but not OR market.
  - Rules to provide market structure overview for all markets
- Current ISO rules include only real time protocols for dispatch of OR
  - Rules rewrite to include overview of products, bid volume process, offer process, pricing, settlement, and creation of a merit order
- Current ISO rules outline records and compliance for energy market only
  - Rules rewrite to clarify OR products and delivery
- Current ISO rules do not include procedure and technical requirements
  - Reconcile elements that are authoritative documents (ADs) with elements that are information documents (IDs)

The AESO is interested in feedback on this project and will work with industry through both the OR redesign and the TOAD project to ensure that the resultant rule language and contract terms are clear.

### **3.9.1 Amendments to the NGX and Over the Counter (OTC) Agreement**

The NGX and OTC Agreement will need to be amended to reflect changes that come about by way of this consultation process. The AESO recommends that the NGX and OTC Agreement include the necessary terms and conditions around items such as the procurement process and settlement.

### **3.9.2 OTC Agreement**

To the extent the OR market does not function due to events such as system failures, the AESO recommends using the OTC Agreement to procure volumes outside NGX. However, the AESO does not recommend using the OTC Agreement as an alternative when the OR market and NGX are operating as anticipated but insufficient volumes are available. In this event, the AESO will rely on conscription.

## **4.0 Policy Coherence**

The AESO has consulted and continues to engage stakeholders in a consultation process around OR Market Redesign, and recommends a redesigned OR market that is consistent with the Department of Energy Market Policy Framework (Policy) and recommendation from June 2005.

The Policy identified a number of issues inherent in the current OR market and identified some design options. These included:

1. the impact of the Hydro PPA and Notional Reserve Quantities Agreement between the Balancing Pool and TransAlta Utilities;

2. complexity of the current structure relative to the size of the market and transparency issues that may create forecast errors and allocation inefficiencies between products and markets;
3. the single buyer design; and
4. examination of opportunities for self procurement.

The Policy went on to make the following recommendation regarding the OR market:

Based on mixed stakeholder comments and in keeping with the approach taken with respect to the energy market (i.e. incremental refinements to current market design), the Department recommends taking a similar approach to changes in the operating reserve market design. While the Department supports in principle the concept of a design with multiple buyers and sellers, by allowing the self-procurement of operating reserve by loads, the Department recommends that the ISO continue to work with stakeholders to determine the desirability of this option.

The AESO's OR redesign recommendations are consistent with the policy, with a FEOC market and are in the public interest as they:

- simplify the OR market;
- remove unnecessary AESO discretion and influence from the process;
- establish more meaningful OR price indices;
- focus on incremental changes to the existing design;
- are consistent with principles adopted in the energy market;
- provide greater transparency of the OR procurement process and providers;
- propose the AESO use reasonable efforts to facilitate a secondary OR market creating multiple buyers and sellers;
- identify AESO consultation processes (tariff design and the deferral account process) that could better facilitate financial OR transactions creating multiple buyers and sellers.

## **5.0 Consultation and Implementation Process**

The AESO invites comments on the recommendations in this paper, particularly with respect to those elements of the proposed design that have been altered relative to the January 2009 Recommendation Paper.

Following the comment period, the AESO plans to initiate changes to the OR market design in a phased manner. It is expected this will facilitate a smoother transition to the revised market design.

Initially, the AESO plans to alter its current OR procurement practices, as outlined in the next section. In addition, the consultation process will be started for the development of ISO Rules for the OR market. The design changes outlined in section 3 of this paper

will be implemented in a phased approach as well, with the high level changes expected to occur in the following order:

- Alter the price mechanism in the Active market and move to a blind auction design
- Alter the price mechanisms in the Standby market
- Develop hourly markets for shaped volume requirements
- Drop the OTC market

Other changes outlined in the paper such as allowing smaller assets in Supplemental, eliminating virtual units and developing third party asset substitution will be integrated into the timeline as possible and appropriate. The workplan will be developed in concert with stakeholders in order to ensure a smooth transition to the final market design.

### **5.1 Changes to Current Practices**

The first step in the OR Redesign is to move all procurement to D-1 within the current market design. The AESO has been migrating volumes to the D-1 period, and does not anticipate issues with moving all volumes to this market. In addition, the AESO will begin improving the transparency of the OTC market by providing pricing information after the close of the OTC market.

These two changes are expected to take place in Q2. Feedback on these changes is encouraged, and after processing this feedback the AESO will notify the market of the timing and scope of any resulting changes prior to implementation. Again, these changes will occur within the current market design and do not require infrastructure development nor contractual changes.

### **5.2 OR Rules Consultation**

The AESO will initiate the consultation process for ISO OR rules in Q2.

### **5.3 NGX Changes**

The AESO recommends developing a workplan to implement the revised market design in concert with stakeholders and NGX. The workplan is expected to include a phased approach to the redesign as noted above, as well as administrative improvements to NGX to facilitate efficient participation and minimize the potential for trading errors.

The AESO encourages market participants approach the AESO and NGX with suggestions during the development process. The AESO will encourage NGX to consult with participants on recommended changes.

The timeline for NGX changes will be developed concurrently with the ISO rules consultation in order to ensure an efficient and coordinated process.

## **6.0 Post Implementation Process**

Following the implementation process outlined above which includes filing final OR Market Rules with the AUC for confirmation and making the necessary changes to NGX systems, the AESO proposes to take the following steps post implementation of the redesigned OR market (Phase I).

### **6.1 Post implementation review**

The AESO will conduct a review of Phase I changes to the OR market with categories for consideration to include: the market framework; market products and pricing; procurement process; dispatching of OR; any out of market actions; effectiveness of compliance and increased transparency; level of participation; amount of liquidity and market prices. This review will take place within 1 year of the final and complete redesign being in place.

### **6.2 Phase II**

In the AESO's November 2007 Concept Paper, a T-2 hourly OR market is considered as a longer term Phase II solution to the existing design. A T-2 hourly OR market would provide greater opportunity for convergence between the energy and OR market.

Considerations regarding the potential scope, timing and need for consultation to take place around the Phase II review include: post implementation review of Phase I changes, progress made on the challenges associated with the integration of intermittent generation, introduction of frequency response reserves (FRR), and ongoing comments/feedback received from industry on the inclusion of self supply, the OR market design as a whole and its components.